SOCIO-EMOTIONAL SKILLS IN RELATION TO AGGRESSIVE AND PROSOCIAL BEHAVIORS: FROM EARLY CHILDHOOD TO ADOLESCENCE

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Editorial: Socio-emotional skills in relation to aggressive and prosocial behaviors: From early childhood to adolescence

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Editorial on the Research Topic
Socio-emotional skills in relation to aggressive and prosocial behaviors: From early childhood to adolescence

Two theoretical assumptions motivate the choice of the present Research Topic focused on the role of "socio-emotional" skills in the development of interpersonal relationships from preschool to adolescence:

1. The assumption that the emotional dimension plays a key role in the psychological development of a person;
2. The importance of peers' interactions in the structuring/expression of socio-cognitive and self-regulatory skills, essentials for the individual and collective wellbeing.

In the following, we reflect on possible explanations of the mentioned assumptions.

1. In the field of developmental psychology, the attention on socio-emotional skills has been addressed relatively late compared to other psychological abilities, such as, specifically, cognitive abilities. In fact, the development of intelligence has traditionally been considered more qualifying and distinctive for the human experience.
   Moreover, psychological science focused on the study of general competencies, like cognitive and linguistic skills, that are considered fundamental for the development of more specific competencies (see Whorf, 1956).
   Since the 1970s, the emotional skills are considered a remarkable trigger for psychological processes. Empirical evidence supports the assumption that

emotional development can constitute a potential risk factor and/or a protective factor for adaptive behavior, and individual and social wellbeing. The acknowledgment of the importance and the specificity of the emotional skills has contributed to redefining the relationship between emotion and intelligence, through the new theoretical constructs of emotional intelligence (Salovey and Mayer, 1990; Goleman, 1995) and cognitive empathy (Hogan, 1969; Saarni, 1999). The new integrated approach, which highlights both the complexity and the peculiarities of a person, has brought theoretical and practical implications for: the prevention of psychological/behavioral disorders and for clinical interventions especially in the early stages of psychological development when personality is still under construction.

2. Emotional skills, such as the ability to understand and express emotions and affections, are intrinsically and inextricably associated with experiences in the family, especially with the maternal figure. The studies regarding the interactions among peers had initially focused on the aggressive behavior related to this kind of relationship. Nowadays, empirical evidence points out the relevant role of peers' interactions in the development of emotions' understanding and expression, the self-regulatory capacity, and the ability to recognize own and others' needs (Dunn, 1988). The comparison with peers supports the perspective-taking ability, the self-agency, and self-identity processes, and can lead both into an aggressive-competitive direction and into the form of altruism and prosocial behavior. Recently, studies about bullying have acquired great prominence in the field of developmental psychology and have contributed to the identification of specific roles in group interactions, such as aggressive-hostile and altruistic-prosocial roles. These interpersonal behaviors are interrelated with both socio-contextual and psycho-individual factors, in particular with the perspective-taking ability and affective empathy.

The present special issue provides an overview of the most recent research on the socio-emotional skills for social adaptation and psycho-social wellbeing during childhood and adolescence; considering that these skills are crucial for the development of a sense of identity and for achieving adequate personal and social adjustments.

This special issue presents 13 studies covering a wide range of ages, from preschool ($N = 5$ studies), primary school ($N = 1$), to adolescence ($N = 4$) and late adolescence ($N = 2$); 1 study analyses the entire age span from preschool (5 years) to the late adolescence (17 years).

Eleven papers present original empirical research and two contributions are systematic reviews.

In their study with Italian adolescents, Giancola et al. investigate the mediating effect of trait emotional intelligence (TEI) on the association between the dark triad (Machiavellianism, psychopathy, and narcissism) and prosocial sustainability, declined in terms of altruism and equity. Main findings suggest that TEI might reduce the malevolent effects of the dark triad on altruism and equitable behavior in late adolescence.

Salerni and Caprin present research that enrolled 160 Italian pre-schoolers and their teachers. The study investigates whether the early day-care experience can influence the prosocial behaviors that children exhibit during free-play social interactions with peers; and the associations between the enactment of prosocial behaviors and social-emotional and behavioral competence. The findings are interesting in light of the possible associations between socialization outside of the family context, prosocial behavior, and children's socio-emotional skills. Di Norcia et al. examine the representations on friendship among Italian children aged 6–11 years by depicting themselves with a close friend in two relational situations: wellbeing and distress. Some indices of children's drawings were predictive of their tendency to enact physical and verbal aggression: for instance, the capacity to relate with one's own friend even in difficult times predicts lesser aggression with peers.

Farina and Belacchi explore the longitudinal effects of interpersonal variables (social status indices) and personal variables (empathy and understanding of emotions) on role-taking in bullying episodes (hostile, prosocial, victim, and outsider roles) in the transition between kindergarten and primary school. The study highlights the existence of independent effects of two social status indices on the participant role-taking in bullying episodes.

An intervention study aimed to promote perspective-taking ability in Italian children who are victims of psychological maltreatment, is presented in Cigala and Mori's paper. The study contributes to the limited and controversial research on this topic. The perspective-taking represents a significant protective factor that improves the social adaptation of preschool children who are victims of psychological abuse.

Grazzani et al. investigate the role of socio-emotional skills and resilience in explaining mental health in 778 Italian adolescents, during the COVID-19 pandemic. The paper fits in the field of studies which contribute to explore the consequences of the pandemic and point out that resilience may be an important protective factor against the incidence of internalized disorders in the face of adversity.

Simon and Nader-Grosbois in their explorative study, carried out in Belgium, examine parents' representations of their preschool child's empathy, personality, and social (mal)adjustment. Main findings reveal no significant differences between mothers' and fathers' representations of their child, but significant gender differences emerge, with girls being more skilled in affective empathy and boys in cognitive empathy. In general, empathy emerges to be positively related to social adjustment.

Shin examines the additive and interactive effects of 677 early adolescents' social achievement goals and perceived relational support from teachers and peers on their social behavior, in South Korea. Findings indicate that individual differences in psychological processes of social goals and perceived relatedness matter for youth's social adjustment. The findings also emphasize the need to consider adolescents' social goals in conjunction with their perceptions of the relational features of their interpersonal environments.

Fernández-Martín et al. contribute with their work to synthesize research on the efficacy and effectiveness of socio-emotional skills programs in Ibero-American contexts in early childhood. The systematic review of 22 empirical studies shows that the social and emotional learning (SEL) variables with the highest incidence and significant results are: self-awareness; social awareness; self-control; relationship skills; decision-making; school climate; wellbeing; and academic achievement. The study also identifies some factors that can ensure the success of future SEL programs.

Bølstad et al. present a pilot study on the first experimentation in the Scandinavian population of an emotion-focused intervention "Tuning in to Kids (TIK)" addressed to parents. Their findings suggest an effect on the improvement in parents' emotion coaching and their appraisal of child externalizing problems, while children's self-regulation showed mainly normative developmental improvements.

Wang et al. investigate the relationship between emotional intelligence and prosocial behavior among Chinese adolescents, examining the mediating effect of social support and the moderating effect of self-esteem in this relationship. They found a positive association between emotional intelligence and prosocial behavior; furthermore, the more social support college students receive, the more they tend to engage in prosocial behavior, especially in students with high self-esteem.

Deng et al. conducted a meta-analysis on the association between empathy and defending behavior in adolescent bullying. Main results highlight a significant correlation between the two variables, whose strength was moderated by the kind of empathy (affective empathy has a stronger association than cognitive) and by the evaluator of defending behavior (stronger association when defending was self-evaluated).

Xiong et al. explore the association between the sense of deprivation and prosocial tendencies in a large sample of 1,630 Chinese children who migrate from rural to urban areas and may experience social exclusion, prejudice, and discrimination. The study offers evidence that can be relevant for parents, educators, and other members of the society who are concerned about migrant children's psychosocial adaptation.

In conclusion, this Research Topic is intended to provide a broad and articulated overview of current research on the role of emotional-social skills in altruistic and/or hostile behaviors among peers. We realize that there is a heterogeneity of both the age groups considered (from preschool to adolescence) and the aspects investigated (emotional intelligence, empathy, adjustment, resilience, parent educational training, social status, perceived social support and group identity, social and emotional learning, early socialization experience). Therefore, we would like to encourage researchers to carry out systematic and specific reviews on studies over the various aspects investigated in this Research Topic.

Author contributions

All authors equally contributed to the conception and the writing of this editorial. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Relative Deprivation and Prosocial Tendencies in Chinese Migrant Children: Testing an Integrated Model of Perceived Social Support and Group Identity

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As a particularly vulnerable group, children from rural areas in China whose families migrate to urban areas often encounter social exclusion, prejudice, and discrimination as they adjust to city life. Hence, migrant children may experience a sense of relative deprivation when they feel they are treated unjustly when compared to their urban counterparts. Although previous research has demonstrated that relative deprivation is a risk factor for prosocial tendencies, this association has not yet been examined in the population of migrant children in China. Further, few studies have revealed the mediating and moderating mechanisms between relative deprivation and prosocial tendencies. Therefore, this study constructed an integrated model examining the possible mediating role of perceived social support and moderating role of in-group identity on the association between relative deprivation and prosocial tendencies. A large sample of 1,630 Chinese rural-to-urban migrant children (845 girls; M_{age} = 12.30, SD = 1.74) completed a battery of self-report questionnaires regarding relative deprivation, prosocial tendencies, perceived social support, in-group identity, and demographic variables. The results indicated that relative deprivation was negatively correlated with migrant children's prosocial tendencies and this connection was partially mediated by perceived social support. Moderated mediation analysis further indicated that in-group identity moderated the effect of perceived social support on prosocial tendencies, with a high level of in-group identity strengthening the positive association between perceived social support and prosocial tendencies. Parents, educators, and other members of society concerned about migrant children's psychosocial adaptation should provide adequate social support resources and help them foster positive in-group identity to migrant populations to mitigate the adverse effects of relative deprivation and promote their prosocial tendencies.

Keywords: relative deprivation, prosocial tendencies, perceived social support, in-group identity, migrant children

INTRODUCTION

With the accelerated development of the urbanization process in China, rural-to-urban migration has gradually become one of the most salient contextual factors shaping Chinese family life in the twenty-first century (Wang and Mesman, 2015). Based on a recent report, 35.8 million rural-to-urban migrant children currently live in metropolitan cities in China (National Health Planning Commission, 2017). Research shows that the preservation of the current *hukou* (required governmental registration of all individuals and families living in a particular area in China) system might extend unfair treatment to rural-to-urban migrants and be little the migrants as a disadvantaged social group (Kuang and Liu, 2012). Therefore, it is easy to induce subjective relative deprivation in migrant children's minds due to the loss of benefits that they think they deserve. Furthermore, considerable evidence has indicated that perceived status-based discrimination can increase emotional-behavioral problems in migrant children (Lan et al., 2020).

Rural-to-urban migrants usually work on so-called "3D jobs" (dangerous, dirty, and demeaning; Kuang and Liu, 2012). Due to this, they often face substantial economic pressures (Hernandez et al., 2007). According to the family stress model, low economic resources pose a risk for problems in child development through processes of maladaptive childrearing by stressed parents who lack the resources to provide warm and supportive care (Conger and Donnellan, 2007). Therefore, the perceived social support of migrant children is generally lower than that of urban children. Moreover, permanent urban residents have little desire for contact with the migrants unless it is essential (Lu, 2006). Social distance between the two groups has thus gradually increased (Kuang and Liu, 2012).

Additionally, it is known that relative deprivation often leads to anger, frustration, and low commitment to social norms (Crosby, 1976; Bernburg et al., 2009; Smith et al., 2012). Thus, the probability of these children engaging in prosocial behaviors/tendencies—such as donating, volunteering, and helping others—is limited. Empirical evidence demonstrates that perceived social support is not only an important psychological resource for individuals to cope with stress but also has great significance for understanding and predicting individual psychosocial adjustment (Brissette et al., 2002; Ye, 2005). Previous research has also indicated that group identity plays a moderating role in the relationship between intrinsic and extrinsic motivation and people's compliance with societal norms (Barreto and Ellemers, 2000). Considering the critical role of prosocial development in traditional Chinese culture, it is potentially meaningful to regard prosocial tendencies as the study outcome in the present research (Lan and Wang, 2020). In summary, the aim of the present study is to construct an integrated model, namely a moderated mediation model, to assess the possible mediating role of perceived social support and moderating role of in-group identity between relative deprivation and prosocial tendencies in Chinese migrant children. The strengths of this study lie in focusing on a vulnerable under-researched population, namely, rural-to-urban migrant children in China. The model tested may also be of some value: though the relationships between the variables of the study have been previously investigated, this study proposes an integrated model that combines them.

THEORY AND HYPOTHESES

Relative Deprivation and Prosocial Tendencies

Relative deprivation refers to a kind of subjective cognition and affective experience in which individuals or groups perceive that they are in a disadvantaged position in horizontal or vertical comparisons with reference individuals or groups, coupled with the emergence of negative emotions such as anger and resentment (Crosby, 1976; Smith et al., 2012; Xiong and Ye, 2016). According to the equity theory (Adams, 1963), whether people are satisfied with their own rewards depends not on the absolute values of their actual rewards, but on the relative values of social comparison with others or historical comparison with themselves. Individuals may believe that they have been treated unfairly, and such a sense of unfairness is closely and negatively associated with prosocial tendencies.

Prosocial tendency is typically defined as voluntary behavior/tendency intended to benefit others (Eisenberg, 2006). Empirical research shows that children's prosocial tendency is an important factor that promotes their social development and personality formation (Miller et al., 1996). Further, prosocial tendency is conducive to a positive interaction between migrant and urban children to better integrate migrant children into the city (Kuang and Tan, 2019). However, numerous studies have shown that the levels of prosocial tendencies of migrant children are significantly lower than those of urban children (Li and Liu, 2013; Kuang and Tan, 2019). Therefore, the cultivation of migrant children's prosocial tendencies is an issue that both the state and individuals should pay attention to.

A previous study has shown that infants' expectations of fair distribution may be significantly related to prosocial behavior/tendency such as empathy, helping others, and sharing based on their sensitivity to others' internal states (Sommerville et al., 2013). Therefore, individuals with a sense of relative deprivation may perceive that they have been deprived of their rights by others, which may induce a sense of unfairness, which, in turn, may inhibit their prosocial tendencies and lead them to regard themselves as victims of unfair treatment (Runciman, 1967; Crosby, 1976; Smith et al., 2012). As a result, these people may not help others because they think of themselves as the ones needing help. Numerous studies have also suggested that individual-based relative deprivation decreases prosocial behavior/tendency (Xiong, 2015; Zhang et al., 2016). Therefore, the first hypothesis of this study is that higher levels of relative deprivation are associated with lower prosocial tendencies among migrant children (H1).

Perceived Social Support as a Mediator

Perceived social support, which refers to the expectation and evaluation of social support and the belief of possible social support, is an important concept in the study of the

structural components of social support (Barrera, 1986; Dunkel-Schetter, 1990). Previous research has shown that psychological maladjustment in children from divorced families is one of the factors most commonly associated with the lack of social support, especially perceived social support (Wang and Yu, 2005). Similarly, as children migrate from rural areas to urban regions, there is also a process of psychological adjustment that may be influenced by social support (Guo et al., 2005; Xiong and Ye, 2011). The core of relative deprivation is the process of social comparison (Appelgryn and Bornman, 1996; Stiles et al., 2000; Zhang et al., 2011), in which the relatively vulnerable individuals may have a perception of relative deprivation when comparing themselves to advantaged others; this perception tends to produce negative emotions such as anger, dissatisfaction, and hatred, which, in turn, may weaken their perception of support from family, friends, and society (Smith and Pettigrew, 2014). Empirical evidence also shows that higher levels of social support are associated with lower levels of relative deprivation, indicating that social support is an essential protective factor for alleviating the adverse impact of relative deprivation on individual development (Zhang and Tao, 2013; Han et al., 2017; Zhang and Liu, 2019).

When people have close and stable social relations, they are more likely to feel cared for by others and have a higher sense of security, which, in turn, makes them more generous and helpful (Twenge et al., 2007). Research on the relationship between social support and prosocial tendencies also demonstrates that individuals with higher levels of social support may exhibit more prosocial tendencies (Gest et al., 2001; Calvete et al., 2010). According to the social support differentiation model (Barrera, 1988; Smith et al., 2012), some stress events, especially traumatic or humiliating events, tend to lead to a decrease in perceived social support, which may then lead to a decrease in individual adjustment levels. Therefore, relative deprivation, a typical stress event, may reduce an individual's prosocial tendencies by reducing their level of perceived social support. Moreover, according to the social support resource theory, as an external protective resource, social support can provide an individual with continuous mental energy that can maintain their physical and mental health and ultimately affect their behavioral responses (Hobfoll et al., 1990). Additionally, empirical studies have confirmed that perceived social support partially mediates the positive association between relative deprivation and psychosocial adjustment (Li et al., 2020; Xiong et al., 2020). Therefore, considering that relative deprivation is negatively correlated with perceived social support, which is positively correlated with prosocial tendencies, we speculated that perceived social support might mediate the relationship between relative deprivation and prosocial tendencies in migrant children (H2).

Group Identity as a Moderator

Group identity, which originates from social identity theory, refers to the psychological connections between individuals and groups based on the meaning of group membership; that is, the degree to which group membership is integrated into individual self-concept (Tropp and Wright, 2001). In contemporary Chinese society, children of internal migrants are less likely to be enrolled in public schools compared to their local urban peers, and even less likely than children who still live in their place of origin (Chen and Feng, 2019). Many migrant children are thus denied entry into urban public schools and are forced to enroll in so-called "migrant children schools," which are usually small, lack qualified teachers, and do not have standard teaching materials and sanitation services (Wu et al., 2011). Due to this, the companions of migrant children at school are generally other migrant children with whom they gradually form a group. Moreover, previous studies have shown that migrant youth are exposed to negative stereotypes, social isolation, and integration difficulties, which leads to dissatisfaction of their needs for a sense of belonging (Lan and Moscardino, 2021). Therefore, the in-group identification of migrant children plays a very important role in meeting their belongingness needs.

When people belong to a particular group with which they identify, they are more likely to trust their in-group members; this group identity can promote increased interpersonal trust (Huang and Sun, 2013; Xin et al., 2013). Existing research has found that people who trust others are more likely to engage in altruistic behavior than those who do not trust others (Christian Cadenhead and Richman, 1996). Moreover, considerable evidence also indicates that group identity within the community exerts a positive effect on the willingness to help within-group members (Dovidio et al., 1997; Halloran and Chambers, 2011). According to the social identity theory (Tajfel and Turner, 1986), in a disadvantaged position and/or situation, members of vulnerable groups tend to maintain their positive self-images and psychosocial adaptations by enhancing in-group identification. Hence, when in-group identity is prominent, individuals are more likely to have higher prosocial tendencies toward their in-group members (Hackel et al., 2017).

To some extent, group identity is the basis of social support; under the influence of group identity, individuals tend to provide more support for their in-group members and attribute received help to the social support provided by other in-group members (Haslam et al., 2012). Therefore, the level of in-group identity has an important impact on individuals' social support. Previous research shows that ethnic identity may improve individual prosocial tendencies by promoting cultural values (such as familism and family respect; Knight et al., 2016). Moreover, empirical evidence indicates that the stronger the in-group identity, the weaker the negative impact of relative deprivation on mental health (Schmitt and Maes, 2002). Given that prosocial tendencies and mental health are correlated and mutually predictable in many ways (Nantel-Vivier et al., 2014; Son and Padilla-Walker, 2020; Miles et al., 2021), the present study hypothesizes that in-group identity plays a moderating role between perceived social support and migrant children's prosocial tendencies (H3).

The Current Study

Considering the universality of migrant children's relative deprivation and its adverse impacts on individuals' behaviors, it is imperative to examine the mechanisms underlying the link between relative deprivation and prosocial tendencies. To

our knowledge, most previous studies have focused on the impact of relative deprivation on undesirable or destructive psychological and behavioral outcomes such as depression, anxiety, aggression, and suicidal ideation (Abrams and Grant, 2012; Smith et al., 2012; Zhang and Tao, 2013), and less on the impact of relative deprivation on positive psychosocial outcomes, such as prosocial tendencies (Turley, 2002; Zoogah, 2010). Given that perceived social support plays a bridging role in the relationship between relative deprivation and depression (Li et al., 2020; Xiong et al., 2020), we examined the mediating effect of perceived social support on the association between relative deprivation and prosocial tendencies. Moreover, previous research has found that in-group identity plays a moderating role in the relationship between intrinsic and extrinsic motivation and people's compliance with norms (Barreto and Ellemers, 2000). Thus, we tested in-group identity as a possible moderator in the relationship between relative deprivation and prosocial tendencies to reveal when the direct and indirect associations between relative deprivation and prosocial tendencies are stronger or weaker. In summary, the current study required the construction of a moderated mediation model (see **Figure 1**) to test three hypotheses: (H1) relative deprivation is negatively related to migrant children's prosocial tendencies; (H2) perceived social support mediates the relationship between relative deprivation and prosocial tendencies; and (H3) in-group identity moderates the mediating effect of perceived social support in the relationship between relative deprivation and prosocial tendencies. Specifically, in-group identity moderates the second stage of the mediation process (i.e., the link between perceived social support and prosocial tendencies).

MATERIALS AND METHODS

Participants and Procedures

In the present study, Chinese rural-to-urban migrant children were sampled from three coastal cities in southeast China: Fuzhou, Xiamen, and Quanzhou. From each city, we adopted the convenience sampling method to select target schools, namely, one primary school and one junior high school. In the target schools, we used a cluster random sampling method to choose 4th−6th graders from primary school and 7th−9th graders from junior high school. The eligibility criteria for migrant children included the following: (1) there must be no *hukou* in the urban city, and (2) the children must be living with parents who had migrated to the city for employment, more than 6 months ago (Chen et al., 2014). Questionnaire surveys in a paper-and-pencil format were conducted in different classrooms during a class of 30 min. In each classroom, two trained psychology graduate students administered the surveys, answered questions, and monitored the participants' progress. A total of 2,200 questionnaires for migrant children were distributed and 1,993 were returned, with a recovery rate of 90.6%. After verification, 363 invalid responses were eliminated, and 1,630 valid answers were obtained, with an effectivity rate of 81.8%. Among the final sample, 845 were girls (51.8%) and 785 were boys (48.2%); 994 (61.0%) were from primary schools and 636 (39.0%) from junior high schools. The mean age of the participants was 12.30 years ($SD = 1.74$), and the range was 10–15 years. There were 246 (15.1%), 899 (55.1%), and 485 (29.8%) participants, whose length of residence in the city was <3 years, between 3 and 8 years, and over 8 years, respectively. In terms of the educational background of migrant children's parents, 357 (21.9%) reported that their fathers had primary school education or below, 758 (46.5%) reported junior high school education, 383(23.5%) reported senior high school education, and 132 (8.1%) reported college education or above. In addition, 574 (35.2%) of their mothers had primary school education or below, 673 (41.3%) had junior high school education, 275 (16.9%) had senior high school education, and 108 (6.6%) had college education or above. Regarding the family economic statuses, 284 (17.4%) of the participants had an average monthly household income <2,000 yuan, 731 (44.9%) between 2,000 and 5,000 yuan, and 615 (37.7%) had more than 5,000 yuan.

This study was approved by the Ethics Committee for Psychological Research at the corresponding author's institution. All participants, as well as their parents and teachers, provided informed consent before the survey. Participants were asked to complete all of the items regarding relative deprivation, prosocial tendencies, perceived social support, and in-group identity and were informed that their participation would be voluntary, and responses would remain confidential.

Measures

Demographic Form

Participants completed a brief demographic form that included background information on their age, gender, education level, length of residence in the city, parental education, and monthly household income.

Relative Deprivation

The Relative Deprivation Scale for Migrant Children (Ye and Xiong, 2017) was used to measure migrant children's sense of relative deprivation. This scale consists of 20 items (e.g., "*How do you think of your family economic status when compared with your urban counterparts*?" and "*How satisfied are you with this situation*?"), measuring five aspects of migrant children's current situation (i.e., family economic status, housing conditions, residential stability, development of personal strengths, and parental involvement in education). The 7-point Likert scale items of the cognitive dimension range from 1 (*very good*) to 7 (*very bad*), and the items of the emotional dimension range from 1 (*very satisfied*) to 7 (*extremely unsatisfied*); higher scores indicate higher levels of relative deprivation. This scale has been used in previous studies with good reliability and validity (Ye and Xiong, 2017; Xiong et al., 2020, 2021). The data of this study showed that the fit indexes of the scale were good (comparative fit index [CFI] = 0.92, Tucker-Lewis Index [TLI] = 0.92, χ^2/degrees of freedom [*df*] = 4.49, standardized root mean square residual [SRMR] = 0.067). In the present study, Cronbach's α for the scale was 0.92.

Prosocial Tendencies

The Chinese version of the Prosocial Tendencies Measure (Carlo and Randall, 2002; Kou et al., 2007) was used to assess

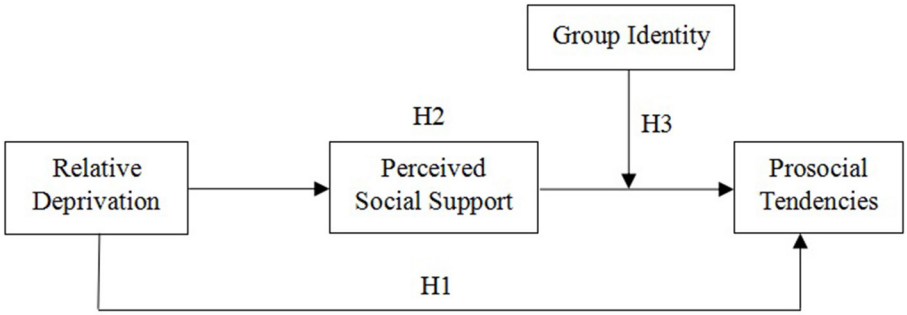

FIGURE 1 | Moderated mediation model of the current study.

migrant children's prosocial tendencies. The scale consists of six dimensions that describe people's prosocial tendencies: openness, anonymity, altruism, compliance, emotionality, and urgency (e.g., "*When other people are around, it is easier for me to help needy others*" and "*It is most fulfilling for me when I can comfort someone who is very distressed*"). This instrument has 26 items and uses a 5-point Likert scale ranging from 1 (*does not describe me at all*) to 5 (*describes me very much*); higher scores indicate higher levels of prosocial tendencies. In the current study, Cronbach's α for the scale was 0.94. Structural validity (CFI = 0.99, TLI = 0.98, χ^2/df =1.67, SRMR = 0.035) was in line with the standards of psychometrics.

Perceived Social Support

The Chinese version of the Perceived Social Support Scale (Ong and Ward, 2005; Fan et al., 2012) was used to assess two factors related to social support: emotional support (e.g., "*People who visit you to see how you are doing*") and instrumental support (e.g., "*People who give you some tangible assistance in dealing with any communication or language problems that you might face*"). Participants answered 18 items on a 5-point Likert scale ranging from 1 (*nobody*) to 5 (*many people*). The higher the scores, the more social support migrant children might receive in those cities. In the present study, Cronbach's α for the scale was 0.96. Structural validity (CFI = 0.98, TLI = 0.98, χ^2/df = 4.21, SRMR = 0.038) was in line with the standards of psychometrics.

Group Identity

Migrant children's group identities were measured using the Chinese version of the In-group Identification Scale (Phinney, 1992; Liu et al., 2013). The scale includes 12 items, categorized into two dimensions: emotional identity [e.g., "*I am happy that I am a member of the group I belong to (e.g., the group of migrant children)*"] and cognitive identity (e.g., "*I have a clear sense of my group background and what it means for me*"). Each item was rated on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The average score was taken as the index of in-group identity, with higher scores indicating a stronger identification with their inner group (i.e., the group of migrant children). In the current study, Cronbach's α for the scale was 0.90. Structural validity (CFI = 0.97, TLI = 0.96, χ^2/df = 4.80, SRMR = 0.048) was in line with the standards of psychometrics.

Data Analysis Strategies

Descriptive statistics and correlation analyses were first conducted using the Statistical Package for the Social Sciences (SPSS) version 22.0. Then, we employed the SPSS macro PROCESS, developed by Hayes (2018), to examine the mediation model (using Model 4) and the moderated mediation model (using Model 14). The macro has been widely used in previous studies to test complex models that include both mediator and moderator variables with the bias-corrected percentile bootstrap method (e.g., van Strien et al., 2016; Liu et al., 2018). Moreover, considering that previous studies found age and gender differences in migrant children's relative deprivation (Zhang and Tao, 2013; Xiong and Ye, 2016), we included age and gender as covariates in all analyses.

The potential common method bias effect was examined by using Harman's single factor test for all of the research items (Podsakoff et al., 2003, 2012). The results showed that there were 11 distinct factors with eigenvalues >1, with the largest factor accounting for 14.97% of the total variance, which was less than the threshold level of 40% (Zhou and Long, 2004). Therefore, the common method bias was not obvious in the present study.

RESULTS

Preliminary Analyses

The results of the descriptive statistics and correlation analyses are presented in **Table 1**. Specifically, relative deprivation was negatively correlated with prosocial tendencies ($r = -0.26$, $p < 0.01$), perceived social support ($r = -0.28$, $p < 0.01$), and in-group identity ($r = -0.32$, $p < 0.01$). Perceived social support was positively correlated with prosocial tendencies ($r = 0.38$, $p < 0.01$) and in-group identity ($r = 0.53$, $p < 0.01$). In-group identity was also positively correlated with prosocial tendencies ($r = 0.51$, $p < 0.01$). These results were consistent with our expectations and supported hypothesis H1.

Testing for the Mediation Model

As shown in **Table 2**, after controlling for gender and age, relative deprivation negatively predicted perceived social support ($B = -0.29$, $p < 0.001$), and perceived social support positively predicted prosocial tendencies ($B = 0.34$, $p < 0.001$). The effect of

TABLE 1 | Descriptive statistics and correlations among core variables.

Variable	*Mean*	*SD*	Age	Gender	RD	PSS	GI	PT
Age	12.29	1.67	1.00					
Gender	—	—	0.00	1.00				
RD	3.24	0.95	0.25**	−0.02	1.00			
PSS	2.75	0.97	−0.05*	−0.00	−0.28**	1.00		
GI	4.01	0.97	−0.05*	0.03	−0.32**	0.53**	1.00	
PT	3.48	0.67	−0.06*	0.06*	−0.26**	0.38**	0.51**	1.00

*N = 1,630. Gender is a virtual variable: 0, female students, 1, male students; RD, relative deprivation; PSS, perceived social support; GI, in-group identity; PT, prosocial tendencies; SD, standard deviation. *p < 0.05, **p < 0.01.*

TABLE 2 | Summary of mediation results.

		Model summary					
Y	***X***	***R***	R^2	***F***	***B***	**SE**	**95%CI**
PT		0.26	0.07	39.42***			
	Age				0.01	0.02	[-0.02, 0.03]
	Gender				0.10*	0.05	[0.01, 0.20]
	RD				−0.26***	0.03	[–0.31,–0.21]
PSS		0.29	0.08	48.03***			
	Age				0.02	0.02	[–0.01, 0.04]
	Gender				−0.01	0.05	[–0.10, 0.09]
	RD				−0.29***	0.03	[–0.34,–0.25]
PT		0.42	0.18	92.05***			
	Age				−0.00	0.01	[–0.03, 0.03]
	Gender				0.11	0.05	[0.02, 0.19]
	RD				−0.16***	0.03	[–0.21,–0.11]
	PSS				0.34***	0.02	[0.30, 0.38]

Effect	*B*	Boot SE	Boot LLCI	Boot ULCI
Direct	−0.16	0.02	−0.21	−0.11
Indirect	−0.10	0.01	−0.13	−0.08

*N, 1,630. RD, relative deprivation; PSS, perceived social support; PT, prosocial tendencies. Bootstrap sample size = 5,000. LL, low limit; CI, confidence interval; UL, upper limit. *p < 0.05, ***p < 0.001.*

relative deprivation on prosocial tendencies was also significant ($B = -0.16$, $p < 0.001$), which suggests that perceived social support partially mediated the link between relative deprivation and prosocial tendencies (indirect effect = −0.10, $SE = 0.01$, 95% CI [−0.13, −0.08]); the bootstrap 95% confidence interval for the mediating effect of perceived social support did not contain 0. The mediation effect accounted for 62.5% of the total effect. Thus, hypothesis H2 was supported.

Testing for the Moderated Mediation Model

Table 3 shows the moderating effect of in-group identity in the mediation model after controlling for gender and age. After adding in-group identity as a moderator in the model, the prediction of prosocial tendencies, by the product term of perceived social support and in-group identity, was significant ($B = 0.07$, $p < 0.001$; see **Table 3**). Furthermore, when performing conditional indirect effect analysis, PROCESS automatically gives the effects of the mediator variable on three levels of the moderator: M –SD, M, and $M + SD$. As shown in **Figure 2**, perceived social support had a significant positive predictive effect on prosocial tendencies among participants with higher levels of in-group identity (*simple slope* = 0.20, $t = 7.27$, $p < 0.001$). However, for participants with lower levels of in-group identity, perceived social support had no positive predictive effect on prosocial tendencies (*simple slope* = 0.05, $t = 1.59$, $p > 0.05$), which indicates that the predictive effect of perceived social support on prosocial tendencies decreased with the decline of migrant children's in-group identities. Thus, hypothesis H3 was supported.

DISCUSSION

We constructed a moderated mediation model to analyze the psychological mechanisms underlying the relationship between

TABLE 3 | Moderated mediation analysis results with in-group identity as a moderator.

		Model summary					
Y	***X***	***R***	R^2	***F***	***B***	**SE**	**95% CI**
PT		0.54	0.29	113.26***			
	Age				−0.01	0.01	[-0.03, 0.02]
	Gender				0.09*	0.04	[0.01, 0.18]
	RD				−0.08***	0.02	[-0.13,-0.04]
	PSS				0.13***	0.03	[0.08, 0.18]
	GI				0.42***	0.03	[0.37, 0.47]
	PSS ×GI				0.07***	0.02	[0.03, 0.10]

Effect	GI values	*B*	Boot SE	Boot LLCI	Boot ULCI
	M-1SD (-0.97)	−0.018	0.01	−0.044	0.009
Indirect	M (-0.01)	−0.038	0.01	−0.057	−0.020
	M+1SD (1.05)	−0.057	0.01	−0.080	−0.036

*N, 1,630. RD, relative deprivation; PSS, perceived social support; GI, in-group identity; PT, prosocial tendencies. Bootstrap sample size = 5000. LL, low limit; CI, confidence interval; UL, upper limit. *p < 0.05, ***p < 0.001.*

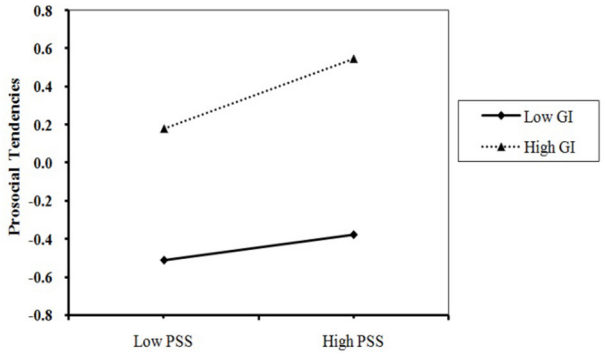

FIGURE 2 | Moderating effect of in-group identity on the prediction of prosocial tendencies.

relative deprivation and prosocial tendencies in migrant children. The results showed that perceived social support acted as a mediator, and in-group identity acted as a moderator on the relationship between relative deprivation and prosocial tendencies. Furthermore, the mediating effect of perceived social support was moderated by in-group identity.

Association Between Relative Deprivation and Prosocial Tendencies

Consistent with previous studies (Zhang et al., 2016; Callan et al., 2017), our findings showed that relative deprivation was negatively correlated with prosocial tendencies. According to the relative deprivation theory (Crosby, 1976; Mummendey et al., 1999; Smith et al., 2012), relative deprivation can lead to emotional experiences of anger and resentment, which may further adversely impact prosocial behaviors/tendencies (Zhang et al., 2016). Anger is a destructive mood state directed at others, often leading to aggressive and antagonistic behaviors (Berkowitz, 1990; Van Coillie and Van Mechelen, 2006; Lemay et al., 2012). Furthermore, anger has been found to inhibit helping-giving (Greitemeyer and Rudolph, 2003). Resentment refers to an individual's strong dissatisfaction or hatred that is based on specific reasons (TenHouten, 2006; Sun, 2012). Feelings of resentment and gratitude can be seen as two opposite ends of a bipolar continuum. Moreover, many studies have shown that gratitude promotes prosocial tendencies (Bartlett and DeSteno, 2006; Tsang, 2006; Nowak and Roch, 2007). In contrast, anger and resentment caused by relative deprivation may inhibit prosocial tendencies. Empirical evidence also demonstrates that relative deprivation inhibits prosocial behavior partially through the tendency to prioritize self-interest over others' welfare (Zhang et al., 2016). Therefore, our findings further confirmed that relative deprivation could lead to a decrease in prosocial tendencies.

Mediating Effect of Perceived Social Support

In the current study, we found that relative deprivation was both directly and indirectly associated with prosocial tendencies through the mediating effect of perceived social support, which was consistent with our expectations. Previous studies have revealed that relative deprivation negatively affects individuals' behaviors (Walker and Smith, 2002; Pettigrew, 2016; Greitemeyer and Sagioglou, 2017). According to the phenomenological variant of ecological systems theory (Spencer et al., 2003), risk contributors (e.g., poverty, racial stereotypes, and racial discrimination) make people susceptible to adverse developmental outcomes. Specifically, as a kind of stress event, relative deprivation may threaten healthy development (Crosby, 1976; Donnenwerth and Cox, 1978; Wright et al., 1999). However, the threat effect of risk contributors may be offset or balanced by support resources and/or perceived social support,

thus weakening the negative effect of relative deprivation on prosocial tendencies.

Life changes and stressful events caused by migrating from rural areas to urban regions may expose children to challenges that impact all aspects of their development, such as their parent-child relationships, peer relationships, and social abilities. In turn, these developmental challenges may cause them to perceive themselves as having fewer social support resources (Cummings et al., 2000). Previous research has demonstrated that relative deprivation can also significantly and negatively predict perceived social support (Han et al., 2017). Empirical studies have indicated that social support directly and beneficially affects people's emotional health and overall well-being, as well as plays a positive role in maintaining mental health in high-pressure situations (Wills, 1985; Dean et al., 1990; Reinhardt et al., 2006). Moreover, migrant children's perceived social support from their parents and peers makes them more inclined to help other people in society (Gest et al., 2001; Zhang and Tao, 2013). Therefore, perceived social support may alleviate the negative impacts of relative deprivation on migrant children's prosocial tendencies. From this result, we can suggest that parents, teachers, and other members of society concerned with children's psychosocial adaptation should provide adequate social support resources to migrant children to mitigate the adverse effects of relative deprivation and promote their prosocial tendencies.

Moderating Effect of Group Identity

This study found that group identity moderates the role of perceived social support in promoting prosocial tendencies in migrant children. This result coincides with the risk and protective factor model (Scal et al., 2003; Xiong et al., 2020), which states that the effect of one risk factor (e.g., relative deprivation) on an outcome (e.g., prosocial tendencies) may be influenced by another protective factor (e.g., group identity). In the current study, migrant children with high in-group identity perceived more social support, which appeared to alleviate the impacts of relative deprivation on their prosocial tendencies.

Specifically, apart from experiencing normal identification and exploration, migrant children may also refine and form group identities related to registered residences while fighting against relative deprivation that may have adverse effects on their development (Fan et al., 2012). If they do not have appropriate support resources and develop appropriate coping strategies, relative deprivation may become a risk factor for increased vulnerability and adverse consequences. Research shows that when an individual identifies with a particular social group, they are more likely to try to help other members of the inner group and are more likely to accept and use the help from other in-group members (Levine et al., 2005). As a result, migrant children with higher in-group identity (i.e., identifying with the group of migrant children) are more willing to trust and accept the help provided by the in-group members (i.e., other migrant children), which may enhance their perceived social support. Furthermore, numerous studies have shown that those who affiliate and identify with their chosen inner group tend to focus on the positive aspects of their inner group that might support and maintain their psychosocial adaptation (Yip et al., 2008; Pascoe and Richman, 2009; Paradies et al., 2015). Previous research has also revealed that when the support provider perceives that a stranger who asks for help holds a social identity similar to their own, the support provider's willingness to help might increase (Levine et al., 2005). In summary, for individuals with high in-group identity, the influence of social support on prosocial tendencies is more significant. Therefore, along with social support resources, parents, educators, and others who are concerned about migrant children's relative deprivation should also foster positive in-group identity, namely identifying with migrant populations, when providing appropriate interventions to improve the children's prosocial tendencies.

Implications and Limitations

This study has significant theoretical implications. On the one hand, this study deepens what is known from previous research by examining the psychological mechanisms underlying the link between relative deprivation and prosocial tendencies. It contributes to a better understanding of how and when relative deprivation is related to the prosocial tendencies of children who have immigrated to new communities. On the other hand, the results show that relative deprivation is both directly and indirectly associated with prosocial tendencies through the mediating effect of perceived social support. This finding effectively integrates the social support differentiation model (Barrera, 1988; Smith et al., 2012) and social identity theory (Tajfel and Turner, 1986); it also has implications for promoting the development of a more comprehensive model of prosocial tendencies.

There are also several practical implications of this study that should be noted. First, it is necessary for parents and educators to help migrant children develop prosocial tendencies by providing adequate social support. Second, considering that social support is a vital mechanism linking relative deprivation and prosocial tendencies, it will be effective for the education authorities to introduce more supportive policies for migrant children, and for the education executive departments to implement appropriate education policies. For example, migrant children are given equal opportunities to receive high-quality educational resources in cities as urban children. Third, this study suggests that we could reduce the negative impact of relative deprivation by deepening the group identity of migrant children to the inner group. We should actively guide the respect for and recognition of the migrant population in society, and change the public communities' cognition and regard of migrant children.

Despite these theoretical and practical implications, this study has several limitations. First, the results should be interpreted with caution in terms of causality, as the present study collected data using a cross-sectional survey. Future studies should conduct longitudinal or experimental research to confirm causal relationships. Second, the representativeness of the sample may restrict the external validity and generalizability of our findings because our participants were all from one country, namely China. Future research should include participants from diverse countries and/or regions to obtain more robust results. Third, self-report methods may restrict the accuracy of the results due to social desirability and

other biases. Future research should collect data from multiple informants. Fourth, considering the multifaced nature of prosocial tendencies and the increasing trend of this research area, future research should possibly unveil the different types (e.g., prosocial tendencies toward in-group and out-group members) and/or dimensions of prosocial tendencies, gaining a more comprehensive picture of the correlations of prosocial tendencies in migrant children. Finally, to avoid ethical risks, this study only uses self-reporting methods to identify migrant children. Further, the study does not distinguish between different types of migrant children, such as those who follow their father, those who follow their mother, and those who follow their parents. Future research should combine subjective reporting with objective criteria and distinguish different types of migrant children, to further validate the findings of this study.

CONCLUSION

The focus of most previous studies on relative deprivation has been its effects on undesirable or destructive psychological and behavioral outcomes, neglecting the potential effects of relative deprivation on positive psychosocial outcomes. Further, previous studies have focused less on a vulnerable under-researched group, namely, rural-to-urban migrant children in China. Hence, we constructed an integrated model to fill in the gaps by testing the mediating role of perceived social support and moderating role of in-group identity on the association between relative deprivation and prosocial tendencies in Chinese migrant children. Relative deprivation was significantly negatively correlated with prosocial tendencies, and this connection can be partially mediated by perceived social support. Moreover, in-group identity moderated the effect of perceived social support on prosocial tendencies, with a high level of in-group identity strengthening the positive association between perceived social support and prosocial tendencies. This study provides a new direction for the scientific training of migrant children's prosocial tendencies. Parents, educators, and others who are concerned about migrant children's psychosocial adaptation should provide adequate social support resources and help them foster positive in-group identity to migrant populations to mitigate the adverse effects of relative deprivation and promote their prosocial tendencies.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee for Psychological Research at the corresponding author's institution. The participants and their legal guardian provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MX conceived and designed the study, performed the survey, and authored and reviewed drafts of the paper. LX analyzed the data, prepared figures and tables, and wrote it into the article. YY conceived and designed the study. All authors were involved in developing, editing, reviewing, and providing feedback for this manuscript and have given approval of the final version to be published.

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Adolescent Empathy Influences Bystander Defending in School Bullying: A Three-Level Meta-Analysis

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Even though numerous studies have shown that adolescent empathy is positively related to bystander defending in school bullying, others have failed to detect a significant association between these two variables. To address this discrepancy, a three-level meta-analysis of 27 papers (35 independent studies, $N = 25{,}012$ adolescents) was conducted. The results showed that empathy was positively correlated with bystander defending. Furthermore, the strength of the relationship between empathy and bystander defending was moderated by the type of empathy and the evaluators of defending. Specifically, the correlation coefficient between affective empathy and bystander defending ($r = 0.27$, 95% CI [0.22, 0.32]) was significantly stronger than that between cognitive empathy and bystander defending ($r = 0.22$, 95% CI [0.17, 0.28]). Finally, the strength of the relationship between empathy and bystander defending was moderated by the evaluator of defending behavior. That is, the correlation coefficient of bystander defending measured by self-evaluation was significantly stronger than that measured by peer-evaluation. The results showed that empathy was closely related to bystander defending. Thus, school bullying can be prevented from the perspective of enhancing empathy among adolescents.

Keywords: bullying, empathy, bystander defending, three-level meta-analysis, cognitive empathy, affective empathy, adolescents

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INTRODUCTION

School bullying is a predominant social issue worldwide and refers to repeated attacks that cause physical and psychological harm to victims (Olweus, 2013). Research by Zhang et al. (2018) showed that 27% of junior high school students in China have experienced school bullying. School bullying has serious adverse effects for all involved. For example, victims have lower academic achievement and are likelier to experience loneliness, depression, anxiety, and suicidal ideation (Nakamoto and Schwartz, 2011). Bystanders feel guilt and shame, causing loss of confidence and lower self-esteem (Mazzone et al., 2016). Furthermore, bullying behavior increases the risk of bullies perpetrating crimes in adulthood (Klomek et al., 2015).

Previous empirical studies show that the behavioral reactions of bystanders greatly influence school bullying. Approximately 74 percent of the individuals involved in bullying are bystanders

(Pouwels et al., 2017). Bystander defending behavior can effectively end bullying behavior (Hawkins et al., 2001) and reduce the incidence of school bullying. Bystander defending refers to the behaviors that are carried out to support the victim, such as comforting the victim in the bullying situation, seeking help from adults or others, resisting the bully, and so forth (Salmivalli et al., 1996). Therefore, promoting bystander defending is essential for the intervention and prevention of school bullying, and researchers are increasingly focusing on interventions for school bullying via bystander defending. However, only 19% of bystanders engage in defending behavior (Hawkins et al., 2001).

Empathy and Defending

Furthermore, previous research indicates that students with a high level of empathy are likelier to engage in bystander defending during school bullying situations (Cuervo et al., 2018). Most studies define empathy as understanding other people's emotions and sharing their emotional states (Davis, 1983; Jolliffe and Farrington, 2004). Currently, empathy is predominantly measured using the Interpersonal Relation Index (IRI) compiled by Davis (1983). It comprises 28 items, including four dimensions: perspective taking, empathic concern, fantasy, and personal distress. Baron-Cohen and Wheelwright (2004) developed the Empathy Quotient (EQ) for abnormal groups (such as people with autism). It comprises 60 items including cognitive empathy, emotional reactivity, and social skills. Jolliffe and Farrington (2006) suggested that the previous scales failed to distinguish sympathy from empathy and to accurately measure cognitive empathy. To address these limitations, they compiled the Basic Empathy Scale (BES) which consists of 20 items, including two dimensions of cognitive empathy and affective empathy.

However, previous studies regarding the relationship between empathy and bystander defending yielded conflicting results. For example, both the empathy-altruism hypothesis (Batson, 1987) and the theory of prosocial moral behavior and development (Hoffman, 2001) propose that witnessing another person in distress stimulates an empathic response, guilt, anger, and a desire to alleviate the distress, which results in helping behavior. Bystander defending is altruistic in a specific situation; that is, when bystanders witness school bullying, they will empathize with the painful experience of the victim, thereby prompting bystanders to engage in defending behavior. Several empirical studies have supported this view and found that empathy has a significant positive correlation with bystander defending (Gini et al., 2007, 2008; Nickerson et al., 2008; Xie and Ngai, 2020). Additionally, the meta-analysis results of Zych et al. (2017) show that empathy can significantly positively predict bystander defending. However, other studies found that empathy was not significantly related to bystander defending (Jenkins et al., 2016; Oh and Park, 2019), or that empathy was negatively correlated with bystander defending in school bullying (Barhight et al., 2013). Therefore, we proposed that empathy is positively correlated with bystander defending (Hypothesis 1).

Moderators of Effect Sizes of Correlates of Defending

Furthermore, the inconsistencies regarding bystander defending and empathy may be because the type of empathy affects the relationship between empathy and bystander defending. Multi-dimensional researchers believe that empathy includes affective empathy and cognitive empathy. Affective empathy refers to the ability to experience the emotional state of others (Lovett and Sheffield, 2007). Cognitive empathy refers to recognizing other people's emotions and understanding their views (Hogan, 1969; Davis, 1983). Some studies showed that the relationship between both types of empathy and bystander defending is directionally inconsistent. For example, Barhight et al. (2013) found that affective empathy was negatively correlated with bystander defending, while Peets et al. (2015) found that cognitive empathy was positively correlated with bystander defending. Moreover, some studies have found that cognitive empathy could significantly predict bystander defending, while affective empathy had no significant effect (Espelage et al., 2012; Polanin et al., 2012). Contrarily, Wolfgang (2017) found that affective empathy was significantly correlated with bystander defending, while cognitive empathy had no significant effect. Finally, previous research indicates that affective empathy is more closely related to bystander defending than cognitive empathy (van der Ploeg et al., 2017; Fredrick et al., 2020). Therefore, we set forth Hypothesis 2: the magnitude of the association between empathy and bystander defending is moderated by the type of empathy.

Furthermore, the evaluators of defending behavior may also moderate the relationship between empathy and bystander defending. Bystander defending is measured using the Participant Role Questionnaire (PRQ) and its revised versions. The questionnaire was first compiled by Salmivalli et al. in 1996 and comprised 50 items. Salmivalli et al. revised the questionnaire in 1998 to 23 items applicable to middle school students (Salmivalli et al., 1998). Subsequently, in 2004, it was reduced to 15 items applicable to primary school students (Salmivalli and Voeten, 2004). Self-evaluation and evaluation by others may lead to inconsistent research results. Moreover, self-evaluation is affected by the social desirability effect, and subjects may thus report more defending behaviors. For example, Zhang (2005) found that the self-reported scores of junior high school students were significantly higher than peer-reported scores regarding defending; that is, they exaggerated their defending tendency in bullying situations. Several studies indicated that when self-evaluation was used to measure bystander defending (Nickerson and Mele-Taylor, 2014; Fredrick et al., 2020), defending behavior was higher than the correlation coefficient when using peer-evaluation (Gini et al., 2008; Wolfgang, 2017). Therefore, we suggested Hypothesis 3: the evaluation method of measuring defending behavior may moderate the association between empathy and bystander defending.

Different age groups will influence the correlation between empathy and bystander defending. For example, there is no significant correlation between empathy and bystander defending in early adolescence (Barhight et al., 2013); however,

there is a significant correlation between empathy and bystander defending in middle adolescence (Correia and Dalbert, 2008). Additionally, Caravita et al. (2009) showed that the correlation coefficient between empathy and bystander defending increased proportionally with students' age. Moreover, the correlation coefficient between empathy and bystander defending among adolescents in middle school (Pozzoli et al., 2017; Yun and Graham, 2018) was stronger than for early adolescents (Pöyhönen et al., 2010; Lucas-Molina et al., 2018). Therefore, we proposed Hypothesis 4: the age of the subjects will moderate the relationship between empathy and bystander defending.

Present Study

The main aim of this meta-analysis was to synthesize results from a large number of published and unpublished studies investigating relations between adolescent empathy and bystander defending in school bullying. We also examined potential moderators of these relations (e.g., the types of empathy, the evaluators of bystander defending, age of the sample). Building on the empathy-altruism hypothesis (Batson, 1987) and the theory of prosocial moral behavior and development (Hoffman, 2001), it is expected that empathy is positively correlated with bystander defending. Also, it is hypothesized that affective empathy is more closely related to bystander defending than cognitive empathy. Also, the relation between empathy and bystander defending assessed by self-report is stronger than bystander defending assessed by peer-report. Finally, the positive association between empathy and bystander defending can be assumed to be strengthened by age.

MATERIALS AND METHODS

Search Strategies

We first conducted an electronic search of the following databases: Web of Science, ProQuest, CNKI, and WanFang Data using combinations of the relevant keywords: empathy* AND defend* or intervention* or bully*. Since bystander defending behavior was proposed by Salmivalli in 1996, the retrieval time was set from 1996 to 2020. Moreover, we examined references cited in other articles using both backward and forward search methods. Based on the above-mentioned retrieval rules, 567 studies were ultimately retrieved.

Four criteria were used to screen the literature: (1) empirical studies on the relationship between empathy and traditional bullying bystander defending; (2) studies distinguishing between the cognitive and affective dimensions of empathy; (3) the necessary data were reported by meta-analysis, including sample size and effect size index, such as a correlation; and (4) the samples comprised school-age children and adolescents. First, 205 duplicate studies were eliminated by the title of the studies. Next, 302 irrelevant topics, e.g., cyberbullying studies, and non-empirical research studies were eliminated by reading the title and abstract. Next, seven articles cannot get the original text. Then, through full-text reading, a total of 26 pieces of literature were excluded, including 20 studies that did not distinguish between cognitive empathy and affective empathy, three studies that did not meet the sample requirements, two studies that did not have the necessary data for reporting, and one study with duplicate samples. Finally, 27 studies were included in the meta-analysis. Of these, six studies included multiple independent samples; thus, 35 independent studies were included in the meta-analysis. The detailed flowchart of the selection process for eligible studies is shown in **Figure 1**.

Coding the Studies

The features of the research included in the meta-analysis were coded, including literature information (author name + publication year), sample size, adolescent development stage, average age, proportion of males, empathy type, evaluation subject of defending behavior, country, and correlation coefficient. When coding adolescent development stages, we found that some studies reported only the grades of the subjects rather than the average age. Thus, the adolescent development stages were divided into early, middle and late stages according to the age and grades of the subjects. The early stage refers to subjects aged under 12 years or in primary school, the middle stage refers to subjects aged 12∼14 years or in junior high school, and the late stage refers to subjects aged over 15 years old or in high school. Since only one included study comprised subjects belonging to the late adolescent stage, the research subjects were coded as the middle stage.

In this study, the first author created the research feature coding table, read the original literature, and completed the coding table prepared in advance. After verification and proofreading by other authors, the results indicated no obvious difference between the two codes, except for a few data deviations. See **Table 1** for the coding data included in the original study.

Analyses

Pearson's product-moment correlation coefficient was used to determine the effect size. To eliminate the influence of different sample sizes, the correlation coefficients of each study were transformed by Fisher's Z, and the average number of Z values after transformation were calculated. The average number of Z values were then transformed into a correlation coefficient (Lipsey and Wilson, 2001).

The outliers were identified by studentized deleted residuals. Values >2.5 were identified as outliers (Deng et al., 2016). We used Cook's distance and standardized *Df Beta* to identify the threatening effect size, which were values >1 (Deng et al., 2016). Research results which had abnormal values and posed a threat to the effect quantity were deleted, and other effect sizes were retained for subsequent analyses.

A three-level random effect model was used to estimate the total effect. Some studies use the same sample to report multiple effects, and the effects from the same study tend to be more similar than those from different studies, which violates the assumption of the independence of effect sizes (Cheung, 2014). In the past, meta-analyses addressed these limitations by deleting parts of effect sizes or combining effect sizes; however, these cause information loss or discount the differences between effect sizes, respectively. Therefore, we adopted the three-level random

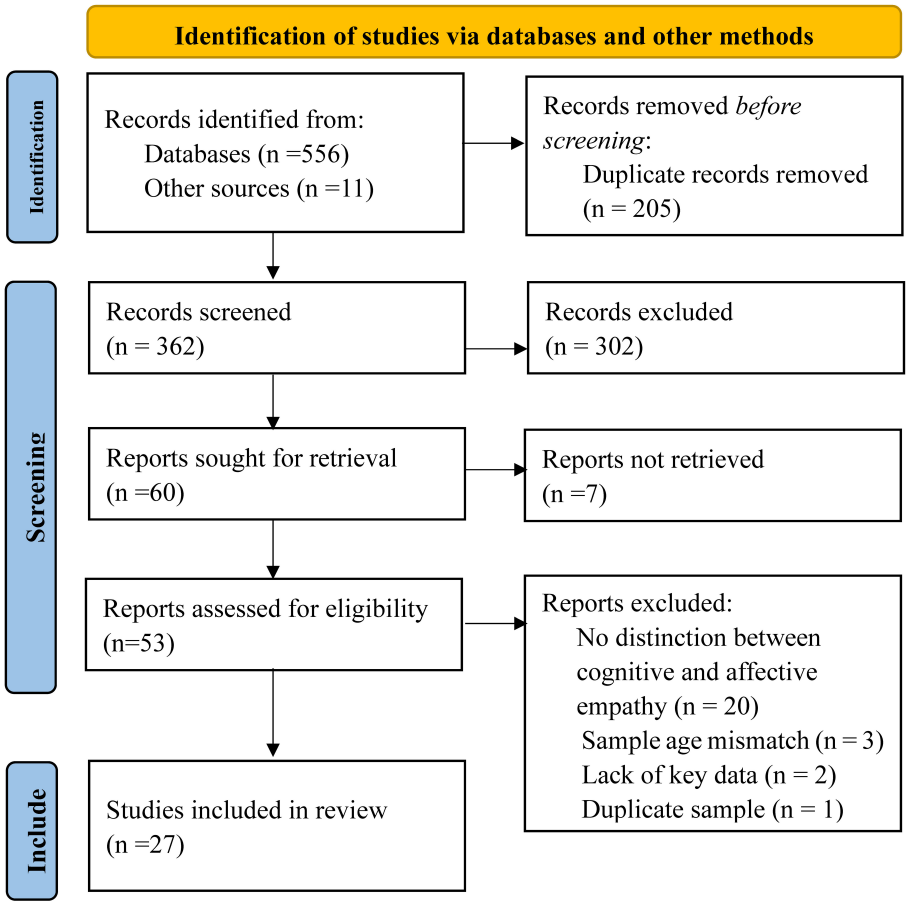

FIGURE 1 | Flowchart presenting the selection process of studies.

effect model, which decomposes the total variance of effect size into sampling variance (level 1), the variance between effect sizes from the same study (level 2), and the variance between studies (level 3) (Van den Noortgate et al., 2013). The three-level random effect model can include the effects from the same research and all available effects to obtain the maximum information and statistical ability.

The funnel plot and Egger's regression method were used to test the publication bias. Some studies have shown that published research is likelier to present significant results than unpublished research, and the meta-analysis includes five dissertations. Thus, it is necessary to evaluate the publishing deviation (Rothstein et al., 2005). Egger linear regression analysis is used to test the symmetry of the funnel plot and significant results indicate publication bias, wherein the trim and fill method is used to analyze sensitivity and correct total effect sizes.

The likelihood ratio test (*LRT*) and variance distribution of effect sizes were used to test whether heterogeneity exists (Van den Noortgate et al., 2013). If the result of *LRT* is significant or the sampling variance accounts for <75% of the total variance, then heterogeneity is confirmed, and it is reasonable to conduct moderator analysis.

The Omnibus Test under the fixed-effect model was used for moderator analysis (Van den Noortgate et al., 2013). For two levels of classified moderator variables, the moderator variables are converted into two virtual variables, and each virtual variable is set at 0/1. The omnibus test follows F-distribution and a significant result indicates that the moderator variables are significant. T-distribution was used to test the effect sizes of each level and whether the difference between them was significant (Raudenbush and Bryk, 2002).

The analyses were conducted using the metafor package for the R environment (Viechtbauer, 2010).

RESULTS

Analysis of Outliers

The results showed that studentized deleted residuals of the second and the 57th effects were 2.88 and 2.96, respectively, and were classified as outliers. The standardized *Df Beta* values of the second and the 57th effect quantity were 1.92 and 1.94, respectively, both of which were threatening effect values. Thus, these two effect sizes were deleted, and other effect sizes were retained for meta-analysis.

TABLE 1 | Studies included in the meta-analysis.

References	Country	*r*	*N*	Male ratio%	average age	Empathy type	Developmental stage	Defending behavior evaluators
Barchia and Bussey (2011)	Australia	0.24	1167	47.47	12	Affective	Middle	Self
Barhight et al. (2013)	United States	−0.17	771	46.17	10.6	Affective	Early	Peer
Caravita et al. (2009)	Italy	0.16	130	100	9.3	Affective	Early	Peer
	Italy	0.06	130	100	9.3	Cognitive	Early	Peer
	Italy	0.23	136	0	9.3	Affective	Early	Peer
	Italy	0.00	136	0	9.3	Cognitive	Early	Peer
	Italy	0.37	104	100	12.4	Affective	Middle	Peer
	Italy	0.14	104	100	12.4	Cognitive	Middle	Peer
	Italy	0.05	91	0	12.4	Affective	Middle	Peer
	Italy	0.14	91	0	12.4	Cognitive	Middle	Peer
Caravita et al. (2010)	Italy	0.19	98	100	10.2	Affective	Early	Peer
	Italy	0.25	113	0	10.2	Affective	Early	Peer
Carroll (2014)	United States	0.27	282	30.85	12.8	Affective	Middle	Self
Correia and Dalbert (2008)	Portugal	0.50	187	51.87	14.5	Affective	Middle	Self
Cuervo et al. (2018)	Mexico	0.36	1224	45.9	13.5	Affective	Middle	Self
Dollar (2016)	United States	0.20	207	43	12.7	Affective	Middle	Self
	United States	0.23	207	43	12.7	Cognitive	Middle	Self
Espelage et al. (2012)	United States	0.41	168	100	NA	Affective	Middle	Self
	United States	0.52	168	100	NA	Cognitive	Middle	Self
	United States	0.40	179	0	NA	Affective	Middle	Self
	United States	0.33	179	0	NA	Cognitive	Middle	Self
Fredrick et al. (2020)	United States	0.28	336	58.93	NA	Affective	Early	Self
	United States	0.32	336	58.93	NA	Cognitive	Early	Self
Gini et al. (2007)	Italy	0.22	176	100	13.2	Affective	Middle	Peer
	Italy	0.10	176	100	13.2	Cognitive	Middle	Peer
	Italy	0.17	142	0	13.2	Affective	Middle	Peer
	Italy	0.16	142	0	13.2	Cognitive	Middle	Peer
Gini et al. (2008)	Italy	0.14	294	52.8	13.3	Cognitive	Middle	Peer
	Italy	0.17	294	52.8	13.3	Affective	Middle	Peer
Lucas-Molina et al. (2018)	Spain	0.10	2050	49.2	9.8	Affective	Early	Peer
Ma (2020)	Taiwan, China	0.21	730	51	12.8	Affective	Middle	Self
Menolascino and Jenkins (2018)	United States	0.12	179	0	NA	Affective	Middle	Self
	United States	0.16	179	0	NA	Cognitive	Middle	Self
	United States	0.36	167	100	NA	Affective	Middle	Self
	United States	0.17	167	100	NA	Cognitive	Middle	Self
Nickerson and Mele-Taylor (2014)	United States	0.37	262	46.18	12.2	Affective	Middle	Self
Oh and Park (2019)	Korea	0.07	163	47.23	NA	Affective	Middle	Self
Peets et al. (2015)	Finland	0.30	6708	49.00	NA	Affective	Early	Peer
	Finland	0.17	6708	49.00	NA	Cognitive	Early	Peer
Pöyhönen et al. (2010)	Finland	0.12	489	47.44	12.3	Affective	Early	Peer
	Finland	0.10	489	47.44	12.3	Cognitive	Early	Peer
Pozzoli et al. (2017)	Italy	0.54	398	52.76	12.3	Affective	Middle	Self
	Italy	0.49	398	52.76	12.3	Cognitive	Middle	Self
Rieffe and Camodeca (2016)	Italy	0.26	182	46.7	13.4	Affective	Middle	Peer
	Italy	0.22	182	46.7	13.4	Cognitive	Middle	Peer
van Beurden et al. (2012)	Netherlands	0.39	92	30.43	15.8	Affective	Middle	Self

(Continued)

TABLE 1 | Continued

References	Country	*r*	*N*	Male ratio%	average age	Empathy type	Developmental stage	Defending behavior evaluators
van der Ploeg et al. (2017)	Finland	0.31	4209	50	11.3	Affective	Early	Peer
	Finland	0.18	4209	50	11.3	Cognitive	Early	Peer
Wolfgang (2017)	United States	0.17	322	34.78	13.4	Affective	Middle	Peer
	United States	0.05	322	34.78	13.4	Cognitive	Middle	Peer
Yun and Graham (2018)	Korea	0.24	828	100	14.0	Affective	Middle	Peer
	Korea	0.24	828	100	14.0	Cognitive	Middle	Peer
	Korea	0.24	545	0	14.0	Affective	Middle	Peer
	Korea	0.16	545	0	14.0	Cognitive	Middle	Peer
Li et al. (2020)	China	0.15	912	56.58	NA	Affective	Middle	Self
	China	0.22	912	56.58	NA	Cognitive	Middle	Self
Ma (2018)	China	0.59	971	NA	NA	Affective	Early	Self
	China	0.54	971	NA	NA	Cognitive	Early	Self

N, number of participants; NA, the unreported average age.

Analysis of Heterogeneity

LRT showed that when comparing the entire model with the model after deleting level 2, there was a significant difference between the effects in the study ($\sigma^2 = 0.003$, $LRT = 90.44$, $p < 0.0001$). When comparing the whole model with the model after deleting level 3, there were significant differences between the studies ($\sigma^2 = 0.015$, $LRT = 12.70$, $p < 0.001$). Therefore, the whole model including levels 2 and 3 were selected for this study. Additionally, the variance distribution results showed that the variance of level 2 accounted for 16.46% and the variance of level 3 accounted for 76.13%. Thus, the total systematic error accounted for 92.59%. Considering these results, it is necessary to investigate the influence of moderator variables on the relationship between them.

Publication Bias and Main Effect Sizes Analysis

The funnel plot showed that the effect sizes were concentrated above the graph and evenly distributed on both sides of the total effect. The Egger's linear regression results were not significant ($t = 0.18$, $df = 54$, $p = 0.86$). This indicates that there is no significant publication bias in this study, and the results of the meta-analysis are reliable.

The random-effect model was used to estimate the correlation coefficient between empathy and bystander defending behavior. The results showed that the correlation between empathy and defending was 0.25 ($CI = 0.21 \sim 0.30$, $p < 0.001$). Gignac and Szodorai (2016) proposed that $0.1 < r < 0.2$ signifies a low correlation, $0.2 \leq r \leq 0.3$ indicates a medium correlation, and $0.3 < r$ shows a strong correlation. Thus, there was a moderate correlation between empathy and bystander defending behavior.

Analysis of Moderator

The omnibus test was used to examine the moderating effects of empathy type, developmental stage, and defending behavior evaluators on the relationship between empathy and bystander defending. The results showed that empathy type significantly moderated the relationship between empathy and bystander defending, [$F_{(1,54)} = 6.31$, $p = 0.02$]. The correlation coefficient between affective empathy and bystander defending was significantly stronger than for cognitive empathy and defending. The evaluator of bystander defending behavior significantly moderated the relationship between empathy and defending, [$F_{(1, 54)} = 15.18$, $p < 0.001$]. Self-evaluation of defending behavior showed a greater correlation coefficient between empathy and bystander defending than for peer evaluation. The subjects' developmental stage did not act as significant moderators, [$F_{(1,54)} = 0.45$, $p = 0.05$]. Specific results are shown in **Table 2**.

DISCUSSION

Empathy and Defending

A total of 35 independent sample studies were included in the current study to perform a meta-analysis regarding the correlation between empathy and bystander defending behavior. Our results supported Hypothesis 1; that is, there was a significant positive correlation between empathy and bystander defending behavior. However, the hypotheses of zero correlation and negative correlation were not supported. The results are consistent with previous research (Van Noorden et al., 2015; Zych et al., 2017; Ma et al., 2019), as well as the meta-analysis results of Nickerson et al. (2015). However, the correlation coefficient obtained in this meta-analysis was lower than that obtained by Nickerson et al. (2015), which may be related to the inclusion criteria for the literature selection. First, compared with Nickerson et al. (2015), we included additional research from 2015 to 2020, and the number of studies may have influenced the results. Secondly, although the meta-analysis of Nickerson et al. (2015) distinguished between cognitive and affective empathy in the literature inclusion criteria, some studies which were included did not actually classify empathy, which may also lead to inconsistent results.

TABLE 2 | Results for the moderators of empathy and defending.

Moderators	*k*	Fisher's Z (95%CI)	Difference (95%CI)	*t*	*r*	Omnibus test	Level-2 variance	Level-3 variance
Empathy type						6.31*	0.002	0.017
Affective	23	0.27 (0.22, 0.32)		10.67***	0.27			
Cognitive	23	0.22 (0.17, 0.28)	−0.05 (0.10, 0.01)*	7.94***	0.22			
Defending behavior evaluators						15.18***	0.003	0.009
Peer	31	0.18 (0.12, 0.24)		6.31***	0.18			
Self	25	0.34 (0.28, 0.40)	0.16 (0.08, 0.24)***	11.62***	0.32			
Developmental stage						0.45	0.003	0.015
Early	16	0.23 (0.14, 0.32)		9.15***	0.26			
Middle	40	0.27 (0.21, 0.33)	0.04 (−0.07, 0.14)	5.13***	0.23			

*k, number of effect sizes. *p < 0.05, ***p < 0.001.*

Ettekal et al. (2015) emphasized the importance of considering affective processes (such as affective understanding and empathy) when studying bullying and bystander behavior, and posited that affective processes affect children's social cognition and thus their social goals. Empathy is conceptualized as an affective feature and a cognitive ability (Davis, 1983; Jolliffe and Farrington, 2006). However, empathy is a necessary but insufficient component in the development of prosocial behavior (Jolliffe and Farrington, 2006). Specifically, empathy elicits the emotional experience of the victim within the individual. Therefore, adolescents with a higher level of empathy are likelier to recognize the victim's feelings and needs, and thus enact defending behavior. Several previous studies have also proven that defending was related to higher empathy. Therefore, enhancing adolescents' empathy is essential in improving their bystander defending behavior in school bullying situations.

Moderation Effects

We found that empathy type moderated the relationship between empathy and bystander defending. Although both cognitive empathy and affective empathy were significantly associated with bystander defending, the correlation between affective empathy and bystander defending was stronger, supporting Hypothesis 2. Past researchers assumed that the cognitive and affective components of empathy were different; thus, cognitive and affective empathy should be considered together (Davis, 1983; Jolliffe and Farrington, 2004). This is consistent with our findings. For example, a review by Van Noorden et al. (2015) also found that affective empathy had a higher correlation with bystander defending than did cognitive empathy. However, our results are inconsistent with the meta-analysis results of Nickerson et al. (2015). This may be because the outliers were not deleted in the meta-analysis of Nickerson et al. (2015), which may reduce the correlation coefficient between the overall affective empathy and bystander defending, leading to empathy types that did not yield moderator effects. Fredrick et al. (2020) examined the relationship between cognitive and affective empathy and five proposed stages of defending in bullying. They found that cognitive empathy was significantly positively correlated with three stages: paying attention to a school bullying incident, undertaking intervention responsibility, and knowing how to deal with a bullying incident. However, affective empathy was significantly positively correlated with interpreting the situation as an emergency and the actual defending behavior. This indicated that while cognitive empathy is important, affective empathy is necessary to spur participation in defending behavior. Compared with affective empathy, cognitive empathy had a weaker correlation with bystander defending; however, it had a positive correlation with bullying behavior. According to previous studies, general empathy includes affective and cognitive components and does not distinguish between defender and outsider (Gini et al., 2008). However, individuals who manipulate situations and other people for their benefit must undergo advanced psychological skills training, including perspective-taking skills and social intelligence to understand and predict others' behaviors (Caravita et al., 2009). Thus, feeling another person's emotions (affective empathy) is likelier to promote positive behavior (defending), while understanding another person's affect (cognitive empathy) may be used to harm that person (Pöyhönen et al., 2010).

In the current study, we found that the evaluators of defending behavior significantly regulated the relationship between empathy and bystander defending, supporting Hypothesis 3. While the correlation between empathy and bystander defending was significant for both self-evaluation and peer-evaluation, it was significantly stronger for self-evaluation. This may be because when self-evaluation is adopted, individuals may readily report defending behaviors. When individuals evaluate their behavior, they will consciously conceal behaviors that do not conform to social expectations, while exaggerating socially desirable behaviors to maintain their image and self-esteem. Ma et al. (2019) suggested that using the self-report method with a

clear description of the imaginary victims can better stimulate teenagers' self-identity to the victims, thus enhancing their willingness to engage in defending. Compared research reporting on actual defending behavior, this tendency may exaggerate the effect size between affective empathy and bystander defending. According to previous studies, compared with self-reported evaluations, the comprehensive judgment of peer students may be a more accurate measurement (Bouman et al., 2012; Hunt et al., 2012). However, there are some constraints regarding peer evaluation because peers may not accurately identify the behavior of individuals in school bullying, and the evaluation of peers is also affected by social pressure. Therefore, future research must employ various methods of reporting to address these inherent limitations.

We found no significant moderating effect of the developmental stage on the relationship between empathy and bystander defending; thus, Hypothesis 4 was unsupported. The correlation between empathy and bystander defending in early adolescence was not significantly different from that of middle adolescence; however, the correlation between empathy and bystander defending in early and middle adolescence was significant. Previous studies suggested that young children were likelier to engage in more defending behavior than older children (Salmivalli and Voeten, 2004; Evans and Smokowski, 2015). Furthermore, Ma et al. (2019) found that younger children were likelier to report defending behavior or to be nominated as a defender than older children. Simultaneously, some studies propose that empathy decreases with age (Phillips et al., 2002). Thus, this may explain why there was no significant difference in the correlation coefficient between empathy and bystander defending behavior in early and middle adolescence. Furthermore, because some studies included in the meta-analysis only reported the grade of the subjects, we divided the adolescent age into early and middle stages according to the grade and age. This general classification method may lead to excessive loss of age information, and if the age of the subjects is considered as a continuous variable for moderator analysis, different results may be obtained.

Limitations

Since most studies included in the meta-analysis did not report the correlation between empathy and the defending behavior of male and female subjects respectively, we did not analyze the moderating effect of gender. Compared with boys, girls tend to participate more in defending behavior (O'Connell et al., 1999; Pozzoli and Gini, 2010; Espelage et al., 2012; van der Ploeg et al., 2017). Several studies have found that girls have a higher level of empathy than boys (Eisenberg and Lennon, 1983; Pöyhönen et al., 2010; Van der Graaff et al., 2014). Therefore, future research can further examine the regulatory role of gender. Additionally, this study could not include all unpublished studies and non-English and Chinese studies and excluded some studies that did not provide effect sizes. This may have led to the loss of some samples. Therefore, the unpublished gray literature can be further included in future research to expand the number of studies.

Conclusion

Adolescent empathy can significantly positively predict bystander defending behavior in school bullying. The relationship is moderated by empathy type and the evaluator of the defending behavior. Furthermore, the correlation between affective empathy and defending is significantly stronger than that between cognitive empathy and defending, and the correlation between empathy and self-evaluative defending was significantly stronger than that between empathy and peer evaluated defending. Nevertheless, empathy type and the evaluator of the defending behavior have to be taken into account and controlled for in future studies. Thus, teaching students how to empathize with others may be crucial for adolescents to engage in defending behavior toward victims. Teaching students to be more aware of emotional distress of others and taking the "emotional" perspective of the victim may enhance affective empathy to aid youth interpreting bullying as a distressing event that requires intervention. This may increase cognitive empathy by teaching them how to recognize certain emotions (e.g., humiliation, fear) and what types of scenarios may elicit such emotions (e.g., a friend joking with another friend would likely not make one individual feel embarrassed).

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

XD conceived and designed the study. JY and YW collected data. XD and JY analyzed the data and wrote the paper. All authors contributed to the article and approved the submitted version.

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*References marked with an asterisk indicate studies included in the meta-analysis.

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Emotional Intelligence and Prosocial Behavior in College Students: A Moderated Mediation Analysis

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This study examined the relationship between emotional intelligence (EI) and prosocial behavior (PSB) and constructed a model for their interaction by examining the mediating effect of social support (SS) and the moderating effect of self-esteem (SE) in this relationship. A total of 742 college students aged from 18 to 20 in Northeast China (M_{age} =19.42 ± 0.53 years) completed a survey measuring the Emotional Intelligence Scale, Prosocial Tendencies Measurement Scale—Chinese Version, Perceived Social Support Scale, and Self-Esteem Scale. The results showed that: (1) EI positively predicted PSB; (2) SS partially mediated the relationship between EI and PSB; and (3) SE moderated the direct effect of EI on PSB and the relationship between SS and PSB. That is, when the SE of college students was higher, the effect of SS in promoting PSB was enhanced. Therefore, our results suggested that under the influence of both internal and external factors, there is an indirect effect of EI on PSB. This finding may potentially provide a theoretical basis for designing college students' mental health courses and cultivating PSB in college.

Keywords: emotional intelligence, prosocial behavior, social support, self-esteem, moderated mediation

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INTRODUCTION

Prosocial behavior (PSB) refers to all behaviors that are favorable to others and conducive to social harmony, such as helping, cooperating, sharing, and comforting (Eisenberg et al., 2006). For the individual, PSB can promote positive social adaptation, which is an important indicator of individual socialization development; for society, PSB can help people maintain a good relationship with each other, which is conducive to justice, harmony, and the development of the entire society (Penner et al., 2005; Wittek and Bekkers, 2015; Ding and Lu, 2016; Ding et al., 2016). PSB not only benefits others and society but also has a positive role in promoting the mental health of those who engage in it and those who receive it, as well as the development of human society (Kou et al., 2007; Yang et al., 2016; El-Khodary and Samara, 2019; Aycock et al., 2020). College students are the major workforce in China. Although the PSBs and its tendencies that college students exhibited in social activities are of great significance, the current situation is not optimistic. Some results showed that college students are lack a sense of security in real life, far away from social groups, self-centered and lack a sense of responsibility for PSB. Therefore, when they faced situations requiring helps, they are willing to have PSB but the duration is relatively short (Xia and Li, 2016; Xiu, 2018). Since urging people to have more PSB can cultivate and develop positive attitude and build a harmonious and stable society, the cause of PSB and the ways to promote individuals to have more PSBs are also worth studying in psychology. In recent years, numerous studies have examined the factors

influencing PSB (Ruan, 2014; Dong et al., 2015; Ding et al., 2016; Zhao et al., 2020; Serrano-Montilla et al., 2021). Studies have examined the two main factors affecting PSB, which are external social factors and internal individual factors (Xiao et al., 2014). So far, most studies have focused on the effects of external macro social factors (Wentzel et al., 2007; Yuan et al., 2019) and individual factors (Eisenberg et al., 2010; Liu et al., 2020) on PSB separately, and little research has been done to examine the interaction effect of internal and external factors on PSB. PSB plays an important role in the socialization of college students, therefore, a deep exploration of the joint effect of internal and external factors of PSB in college students is called for.

Emotional intelligence (EI) is the ability of individuals to monitor their own and others' emotions, and to identify and use this information to guide their thoughts and behaviors (Salovey and Mayer, 1989). According to Eisenberg's PSB theory, the process by which individuals produce PSB includes three stages: paying attention to the needs of others, determining an intention to help others, and linking intention and behavior (Yang et al., 2017). Vorbach and Foster (2002) studied the relationship between emotional components (identifying others' emotions, emotional regulation) and social components (relationship quality and PSB) and found that the ability to identify others' emotions is correlated positively with PSB but negatively with aggressive behavior. In the need-awareness stage of PSB, the individual pays attention to whether others need help and this involves the perception and evaluation of the emotional perception and expression ability of EI on the environment of others and the emotions of others. Simultaneously, after determining that the other person needs help, the individual needs to choose whether to help the seeker. At this time, the understanding and management dimensions of EI are called on so the individual can organize and analyze the information they have and assess whether their intentions to engage in PSB are in line with the current situation (Xu and Li, 2020). Of course, the emotional management dimension of EI also plays a significant role in the final stage of connection between intentions and behavior (Glazer, 2021). Thus, in the process of PSB production, EI plays an important role. The higher a person's EI, the stronger their emotional perceptions of others will be, and the higher the probability that they will engage in PSB.

The ability to perceive and appraise others' emotions may provide information relevant to PSB. Studies have shown that an individual's EI is significantly positively correlated with PSB (Marc et al., 2004; Martí-Vilar et al., 2019). Mayer and colleagues also found that individuals with high EI engage in more positive social behaviors (Mayer et al., 2004). For instance, individuals who perceive others' levels of fear accurately also demonstrate more PSB in social interactions (Kaltwasser et al., 2016). Charbonneau and Nicol (2002) found that EI is positively correlated with good social relations and has a significant predictive effect on PSB. Individuals with high EI show more PSB, better empathy, and fewer negative behaviors in interactions with peers (Ciarrochi et al., 2002; Mavroveli and Sánchez-Ruiz, 2011). In primary school, EI contributes to the socialization. Poulou (2010) conducted a survey on adolescents aged from 12 to 14 and found that students with high EI and better social skills are more likely to exhibit PSB. Recent findings indicated that EI facilitates PSB in adults (Kaltwasser et al., 2016; Martin-Raugh et al., 2016). Furthermore, emotional understanding can significantly and positively predict prosocial tendencies (Liu and Zou, 2010). Although most studies have confirmed the relationship between EI and PSB, the potential mechanism by which EI affects PSB is not clear. According to previous studies, a direct or indirect relationship between EI and PSB may exist under given conditions or be moderated by some factors. Therefore, the mediating and moderating role of EI on PSB needs to be further explored in order to cultivate individual's PSB and provide method and basis for designing college students' mental health courses. Integrating these findings, we postulate the following: Hypothesis 1: EI is positively associated with PSB.

Social support (SS) refers to types of psychological help or material support such as care, respect, and meeting needs from family members, friends, organizations, and other members of society (Feng et al., 2018; Yao et al., 2018). It is an important social resource which is an individual-centered system composed of social interactions between individual and people around them (Zhu et al., 2016). SS is an important personal resource and plays an important role in maintaining and promoting physical and mental health. According to the ability model of EI (Mayer et al., 1999) and mixed model of EI (Goleman, 1995), SS is closely related to EI and PSB.

On the one hand, EI can predict individual SS. The ability model of EI proposed by Mayer et al. (1999) and the mixed model of EI proposed by Goleman (1995) all illustrate the proposition that individuals with high EI can effectively identify and express their emotions; understand the feelings of others; and establish and maintain mutually satisfactory and responsible interpersonal relationships with them (Bar-On, 2005). At the same time, they can establish a stable connection with the outside world and obtain more SS. Some studies have found that EI is a key factor in cultivating communication skills (Cheng and Zou, 2011) and that the individual with higher EI have better interpersonal relationships (Tang et al., 2015). EI is significantly positively correlated with SS (Kong et al., 2012; Xiao and Hou, 2017; He et al., 2020). In particular, individuals with high EI are more active in interpersonal relationships (Schutte et al., 2001), and receive more emotional support from social support system, when they faced bad emotions, they will seek helps from the system (Salovey et al., 2002). Moreover, He et al. (2020) found that SS plays a part of mediating role between EI and PSB. In other words, the higher level of EI an individual has, the more SS one receives, and it has more significant impact on one's mental health. Ma and Wang (2013) also found that college students with high EI have a strong ability to identify and judge their own emotions and those of others, making them more likely to have a large number of high-quality social networks, which is conducive to their obtaining better external SS.

On the other hand, individuals with more SS tend to engage in more PSB (Ciarrochi et al., 2001). PSB occurs in the process of communication, and experience can influence the occurrence of PSB (Lawler and Thye, 1999; Cirelli et al., 2014). Studies have proven that SS is positively correlated with PSB in college students (Tian et al., 2016; Guo, 2018; Wouter et al., 2018; Li

et al., 2019). Wang (2011) explored the characteristics of PSB and the relationship between SS and PSB thoroughly and found that PSB is affected by multiple factors, such as SS, individual satisfaction, and teacher engagement. When individuals feel they have a good interpersonal environment and close organizational relationships, they will have a strong sense of belonging, which promotes altruistic behavior (Twenge et al., 2007; Wei et al., 2017). Positive SS provides a good environment for the practice and development of PSB (Guzman et al., 2013).

In summary, this study investigated that whether there are important relationships among EI, PSB and SS. Zhao et al. (2020) conducted a three-wave longitude study of adolescents to explore the effects of EI on positive and negative emotions, in which SS and PSB as mediation variables affect adolescents' emotions. The results indicate that there is a positive correlation among them. But so far, there is lack of a test that SS may play a mediating role between EI and PSB. Therefore, we postulate the following: Hypothesis 2: SS plays a mediating role to affect the relationship between EI and PSB.

Among the Big Five personality traits, agreeableness, conscientiousness, and neuroticism are highly correlated with PSB and can positively predict PSB (Ashton et al., 1998). According to Eisenberg's PSB theory, SE is a personality factor that motivates altruism and influences intentions to be helpful. The SE level of individuals is highly related to the occurrence of PSB (Qi and Liu, 2013; Wu et al., 2014; Qiao and Wu, 2016). Individuals who have higher SE will have a strong sense of self-worth and tend to be less worried about being threatened. Therefore, they will not be too immersed in self-focus but will devote positive attention to others and can be sensitive to subtle clues to others' needs (Liu et al., 2016). As Turowska (2010) proposed, SE as a personality tendency plays an extremely important role in the relationships between individuals. For example, individuals' altruistic behavior and tendency to cooperate are all related to the level of individual SE. Individuals with high SE have a better adaptive function; in turn, they are more willing to provide help to others (Butler and Gasson, 2005). EI is the ability to perceive emotions and use this information to guide one's behavior; its influence on PSB may be affected by SE. Meng et al. (2021) studied the relationship between SE and PSB and they found that individuals with higher SE were able to produce more empathy, which in turn affected the occurrence of PSB, that is, individuals with higher SE pay more attention to outside and have more emotional perception which is a dimension in the ability model of EI (Mayer et al., 1999). Ding and Ma (2013) found that college students with high SE pay more attention to others' evaluation of them and are good at restraining themselves. They also found it easier to manage their emotions and tend to have a positive attitude toward things. However, individuals with low SE have little self-affirmation, which can easily result in an inferiority complex and negative state, making it difficult for them to manage their emotions reasonably and leading to an unwillingness to engage in PSB. Integrating these findings, we postulate the following: Hypothesis 3a: SE plays a moderated role between EI and PSB.

There is a significant positive correlation between SE and SS (Peng et al., 2003). Based on Rosenberg's Social-Bonding Theory, low SE weakens social connection and thus reduces the consistency between individuals and social norms, thereby increasing aggression (Xin et al., 2007). Individuals with high EI rate themselves more objectively and positively, exhibit more confidence externally (Murrell et al., 2003) and therefore they use less aggressive or hostile behaviors to maintain SE (Li, 2016). The research of Wang and Wang (2005) also supported the above conclusion and indicated that SE is an important personality factor affecting individual PSB. Moreover, individuals with low SE tend to be fearful and have negative and pessimistic evaluations of themselves. In social life, they mostly give people the impression that they wish to dodge social interactions; they tend to come into contact with fewer people and to have a low probability of engaging in PSB (Shi et al., 2017). Thus, SE affects SS, and individuals with high SE tend to process information positively, whereas individuals with low SE are more likely to indulge in negative emotions and engage in negative behavior (Kernis, 2003). In this process, high-SE groups can be more sensitive to changes in their surroundings and tend to be willing to help others when they need it (Hou, 1990). Integrating these findings, we postulate the following: Hypothesis 3b: SE moderates the relationship between EI and PSB and the relationship between SS and PSB.

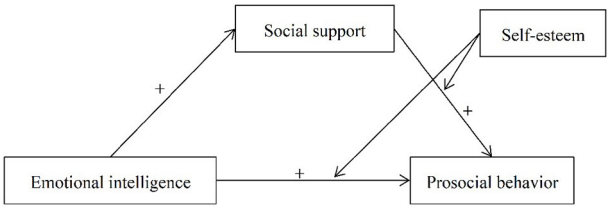

FIGURE 1 | The moderated mediation effect among emotional intelligence, prosocial behavior, social support, and self-esteem. The + sign denotes a positive relationship for a pathway.

Although there is substantial evidence supporting a link between EI and PSB, the mechanisms underlying this link have not been extensively explored. The current study aimed to test an integrated moderated mediation effect to better understand the association between EI and PSB in college students. The first part of the effect examines whether SS mediates the association between EI and PSB. The second part of the effect includes SE as a moderator to understand whether it influences this association; it is hypothesized that SS and SE interact to determine PSB. Moreover, if SE moderates the association between SS and PSB, it is also likely that SE will conditionally influence the strength of the indirect association between EI and PSB. Based on previous findings (Wang and Wang, 2005; Turowska, 2010), SS would mediate the indirect effect when SE level was high, but the indirect effect might be small when SE is low. Thus, in this study, we posit the following moderated mediation effect (see **Figure 1**).

METHOD

Participants

A total of 780 college students were recruited from universities in northeast China by random sampling. Due to missing or invalid

responses, 38 participants were not included in the analyses. Therefore, the final sample consisted of 742 participants (403 females, 54.3%), with the age from 18 to 20 (M = 19.42, SD = 0.53). In the final sample, there were 297 freshmen (40.0%), 143 sophomores (19.3%), 208 juniors (28.0%), and 94 seniors (12.7%). The participants all had normal visual acuity and no mental illness. The study was approved by the Academic Ethics Committee of the College of Psychology of Northeast Normal University.

Measures

Emotional Intelligence

EI was assessed by the Emotional Intelligence Scale (EIS), developed by Salovey and Mayer, translated and revised by Wang (2002). It comprises 33 items, and items 5, 28, and 33 were scored in reverse (e.g., "I think it is difficult for me to understand the body language of others"). It includes four dimensions: emotional perception (12 items, e.g., "I understand the thoughts and feelings of others"), self-regulation of emotions (eight items, e.g., "I can control my emotions"), regulation of others' emotions (six items, e.g., "When others do well in a certain area, I will praise them"), and use of emotions (seven items, e.g., "When I feel a change in mood, some new ideas will spring up"). Participants rated the items on a 5-point Likert-type scale (1 = strongly inconsistent; 5 = strongly consistent), with higher total scores indicating that the more positive emotions an individual usually shows, the more impulsivity they can control, and the more clearly they express their feelings. Higher total scores also indicate that the individual has strong psychological resilience and high self-healing ability. The Cronbach's alpha was 0.904.

Prosocial Behavior

The Prosocial Tendencies Measurement Scale—Chinese Version (PTM) was used to assess PSB in the participating college students (Wei et al., 2017). The PTM consists of 23 items, which are all scored in forward and categorized into six dimensions: openness (four items, e.g., "I will try my best to help others under the eyes of public"), anonymity (five items, e.g., "I prefer to donate anonymously"), altruism (five items, e.g., "I think the most beneficial thing about helping others is that will give me a better image"), compliance (two items, e.g., "I won't hesitate when others ask me for help"), emotion (four items, e.g., "The greatest sense of accomplishment for me is to comfort those who are in great pain"), and urgency (three items, e.g., "I'm willing to give help to those in distress or in urgent need"). The participants were rated on a 5-point Likert-type scale, with higher total scores representing a higher tendency to engage in PSB. The Cronbach's alpha was 0.874.

Social Support

The Perceived Social Support Scale (PSSS) developed by Zimet et al. (1988) was used to assess the perceived SS from various sources of SS, such as family, friends, teachers, and others. The scale consists of 12 items categorized into three dimensions, support from family, friends and others, and each dimension have 4 items. The scale is using a 7-point Likert-type scale (1 = strongly disagree; 7 = strongly agree) and all items are scored in forward. The total scores for all items were taken, with higher scores representing a higher level of the individual's perceived SS. The Cronbach's alpha was 0.911.

Self-Esteem

The Self-Esteem Scale developed by Rosenberg (1965) was used for the survey, and the domestic version was translated and revised by Wang Xiangdong and others (Xia et al., 2017). There were 10 items on the scale, of which five (3, 5, 8, 9, 10) were scored in reverse (e.g., "Ultimately, I tend to feel that I'm a loser"), and all items were scored on a 4-point scale (1 = very disagree; 4 = very agree). Tian (2016) found that the expression of question 8 was not consistent with the national culture; to improve the reliability and validity of the scale, it should be deleted or scored positively. In this study, question 8 was scored positively. The total scores for all items were taken, with higher scores representing a higher level of SE. The Cronbach's alpha was 0.714.

Procedure

Undergraduates from multiple universities agreed to participate this offline survey. Before filling out the questionnaires, the experimenter explained the significance of the survey, emphasizing that it was anonymous and there were no right or wrong answers, and asking the participants to answer according to their actual situation. They were informed that they had the right to withdraw from it at any time. Participants answered in the order of EIS, PSSS, PTM and SES and it took about 30 minutes for the participants to complete all the questionnaires.

Data Analysis

The SPSS21.0 software and the SPSS PROCESS macro program were used for data processing. First, we computed descriptive statistics and conducted Pearson correlations. Second, after all the data were standardized, based on 5,000 bootstrap samples (Hayes and Scharkow, 2013), the mediating effect of SS was analyzed using the PROCESS macro (Model 4) developed by Hayes (2015). Third, based on 5,000 bootstrap samples (Hayes and Scharkow, 2013), we used the PROCESS macro (Model 15) to examine whether SE moderated this mediation process. The effects are significant when the confidence intervals exclude zero.

RESULTS

Because this study collected data through self-reporting methods, it was possible that there could be an issue with common method variance (CMV). To reduce this possible deviation, according to the suggestion by Zhou and Long (2004), in the data collection stage, the participants were told that the results would be kept anonymous and that some items were reverse coded (Zhou and Long, 2004). After the data collection was complete, Harman's one-factor test (Podsakoff et al., 2003) was used to detect CMV because it is the most widely used method and is sensitive under most conditions (Fuller et al., 2015). The result of Exploratory Factor Analysis (EFA) showed a total of 16 factors with eigenvalues greater than one, and the first factor to explain the variance accounted for 19.17%, which was less than

TABLE 1 | Means, standard deviations, and correlations among variables.

Variable	1	2	3	4
1 Emotional intelligence	1			
2 Social support	0.47**	1		
3 Self-esteem	−0.11**	−0.14**	1	
4 Prosocial behavior	0.54**	0.34**	0.06	1
M	3.60	5.05	2.56	3.30
SD	0.46	0.95	0.42	0.51

*N = 742. **p < 0.01.*

the critical value of 40%. Consequently, there was no significant CMV in this study.

Descriptive Statistics and Correlation Analysis

As shown in **Table 1**, EI was found to be positively correlated with SS and PSB. SS was found to be positively correlated with PSB. SE was found to be negatively correlated with EI and SS. Furthermore, SE was not found to be correlated with PSB.

The Mediating Role of Social Support

The PROCESS model 4 was used to examine the mediating role of SS between EI and PSB. **Table 2** summarizes the results of the regression tests. EI was found to have a significant positive predictive effect on PSB ($\beta = 0.54$, SE = 0.04, 95% CI = [0.47, 0.61]). After SS was incorporated as mediating variable into the equation, the positive predictive effect of EI on PSB was still significant ($\beta = 0.49$, SE = 0.04, 95% CI = [0.41, 0.57]). The positive predictive effect of EI on SS was found to be significant ($\beta = 0.47$, SE = 0.03, 95% CI = [0.40, 0.54]), and SS was found to have a significant positive predictive effect on PSB ($\beta = 0.11$, SE = 0.04, 95% CI = [0.04, 0.18]). Thus, SS was found to play a partial mediating role between EI and PSB. The model is shown in **Figure 2**.

The Moderating Effect of Self-Esteem

After identifying the indirect effect of SS on the relationship between EI and PSB, we investigated whether it was moderated by SE. The results demonstrated that the interaction of EI with SE significantly predicted PSB ($\beta = 0.12$, $p < 0.01$; see Model 2 of **Table 3**), and that the interaction of SS with SE significantly predicted PSB ($\beta = 0.08$, $p < 0.05$; see Model 2 of **Table 3**). Next, we plotted simple slopes, which predicted the relationship between EI and PSB as well as between SS and PSB, separately for high and low levels of SE. As presented in **Figure 3**, the slope of the association between EI and PSB was relatively weak for participants with high SE ($\beta_{\text{highself-esteem}} = 0.61$, $t = 12.73$, $p < 0.001$), whereas the slope was relatively strong when the SE of participants was low ($\beta_{\text{lowself-esteem}} = 0.37$, $t = 7.60$, $p < 0.001$). Additionally, as shown in **Figure 4**, the effect of SS on PSB was found to be significant for participants with high SE ($\beta_{\text{highself-esteem}} = 0.20$, $t = 4.10$, $p < 0.001$) but not for participants with low SE ($\beta_{\text{lowself-esteem}} = 0.04$, $t = 0.74$, $p > 0.05$).

Then, we tested the conditional indirect effects of EI on PSB through SS. For participants with low SE, EI was found to have a lesser and indirect effect on PSB ($\beta = 0.02$, SE = 0.02, 95% CI = [−0.03, 0.06]), compared with those with high SE ($\beta = 0.09$, SE = 0.03, 95% CI = [0.04, 0.15]).

DISCUSSION

Based on PSB theory, EI theory, and existing research, the present study aimed to examine the link between EI and PSB. Overall, our findings supported our hypotheses. Generally, the results showed that EI is positively associated with PSB and that EI is indirectly associated with PSB through SS. This indirect effect is moderated by SE. Specifically, for individuals with high SE, SS can mediate the association between EI and PSB, whereas, for those with low SE, the mediating effect of SS was not significant.

The Relationship Between Emotional Intelligence and Prosocial Behavior in College Students

The theory of PSB holds that the premise for PSB is that an individual must pay attention to the plight and needs of others, and EI is just a way of paying attention to the needs of others, experiencing the situations and emotions of others, and guiding one's behavior accordingly (Salovey and Mayer, 1989). In this study, we found that EI is positively associated with PSB. In line with previous research, our data suggested that individuals who have high EI generally engage in more PSB (Ciarrochi et al., 2002; Marc et al., 2004; Mavroveli and Sánchez-Ruiz, 2011; Kaltwasser et al., 2016; Martin-Raugh et al., 2016). EI contributes to individuals' socialization, so individuals with high EI can better perceive the needs of others and thus they can show more PSB (Mavroveli and Sánchez-Ruiz, 2011).

Mediating Effect of Social Support

The results of this study also confirmed that SS partially mediates the relationship between EI and PSB. On the one hand, EI has a certain relationship with social factors such as interpersonal communication (Schutte et al., 2001), and individuals with high EI have better interpersonal relationships (Tang et al., 2015). SS reflects the closeness and quality of a person's connection with society, so individuals with high EI are more likely to get support from people around them. This study further validated the proposition that EI can significantly positively predict the SS of college students, which was consistent with previous findings (Kong et al., 2012; Ma and Wang, 2013; Martí-Vilar et al., 2019; Zhao et al., 2020). Salovey et al. (2002) also found that individuals with high EI have more positive interpersonal relationships and less conflict with others, and can get more emotional support from the SS system. When these individuals encounter negative emotions, they tend to draw more on SS. The findings of Zhao et al. (2020) clarify the underlying mechanism of EI, which can predict individual SS and PSB in a positive way. This is because college students with high EI have a strong ability to understand and infer their own emotions or those of others, which promotes their having more intimate social networks, which help them to

TABLE 2 | Testing the mediation effect of social support between emotional intelligence and prosocial behavior.

Predictors	Model 1 (Prosocial behavior)				Model 2 (Social support)				Model 3 (Prosocial behavior)			
	β	SE	t	95% bootstrap CI	β	SE	t	95% bootstrap CI	β	SE	t	95% bootstrap CI
Emotional intelligence	0.54	0.04	14.47***	[0.47, 0.61]	0.47	0.03	13.60***	[0.40, 0.54]	0.49	0.04	11.75***	[0.41, 0.57]
Social support									0.11	0.04	2.99**	[0.04, 0.18]
R^2	0.29				0.22				0.30			
F	209.44***				185.06***				115.14***			

*N = 742. **p < 0.01, ***p < 0.001.*

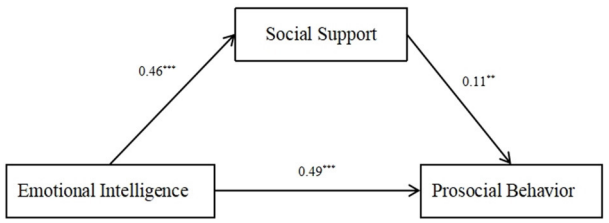

FIGURE 2 | Path models examining the mediation role of social support between emotional intelligence and prosocial behavior. Unstandardized coefficients are presented. ***$p < 0.001$, **$p < 0.01$.

obtain good external SS (Ma and Wang, 2013). Moreover, they can perceive well, use and regulate their own emotions and those of others, and thus frequently experience more positive emotions and fewer negative emotions (Zhao et al., 2020).

On the other hand, individuals with high SS engage in more PSB. The results of this study showed that SS is significantly positively correlated with PSB, indicating that the more SS college students receive, the more obvious their tendency to engage in PSB is, as suggested by previous studies (Tian et al., 2016; Wouter et al., 2018; Li et al., 2019). This showed that SS is an important environmental factor for PSB in college students. Moreover, when individuals perceive themselves as having a good interpersonal environment and close organizational relationships, they will have a strong sense of belonging, which in turn promotes altruistic behavior (Twenge et al., 2007; Wei et al., 2017). This shows that positive SS provides a good environment for the generation and development of PSB (Guzman et al., 2013).

To sum up, the results of this study showed that high EI provides individuals with a better ability to interact with others. This ability promotes the improvement of college students' SS, meaning that they will obtain more benefits and have a stronger sense of belonging. Such individuals will be more willing to engage in PSB, such as sharing and helping. In the meantime, from the perspective of SS, the investigation of the mediating role of SS is not only helpful in understanding the mechanism through which EI affects PSB but also in understanding the factors that influence the formation of individual positive qualities, to better develop individual potential. The results of this study enriched the exploration of the antecedent variables of SS and verified the influence of SS on individual behavior among college students. In light of these results, EI must be regarded as an important stimulant factor that improves PSB. Meanwhile, the results of this study remind us that to increase the probability of college students engaging in PSB, on the one hand, we can cultivate individuals' EI to enhance their perception of the needs and emotions of others, and drive them to help others. On the other hand, the tendency of college students to engage in PSB can be improved by enhancing their perceived SS.

Moderating Effect of Self-Esteem

Previous studies have found that personality variables have a deep impact on PSB. Among the Big Five personality traits, agreeableness, conscientiousness, and neuroticism are highly correlated with PSB and can positively predict PSB (Ashton et al., 1998). Based on PSB theory and social connection theory, the research proposed two moderated roles. The results showed that SE has a significant regulating effect on the direct effect of EI on PSB and between SS and PSB.

This study supported the moderating effect of SE on the direct effect between EI and PSB; that was, the direct effect of EI on PSB in college students was moderated by SE. This may be because both EI and SE are important personality variables that affect individuals' PSB (Qi and Liu, 2013; Xiao and Hou, 2017). When both are at high levels, individuals are more likely to recognize the feelings of others and judge whether they need help, thereby making them more likely to engage in PSB. For individuals with high SE, when they have high EI, they can perceive the emotions, feelings, and needs of others well. Their ability to use this information to guide their behavior and maintain a positive attitude toward things will, therefore, promote the influence of EI on PSB. However, for high-SE individuals, when they have low EI, they tend to adopt negative coping styles to avoid failure when facing stressful situations. Even if individuals believe in their own judgment, they may also engage in less PSB to avoid the risk of helping others. Therefore, the higher the EI of individuals with high SE, the greater the tendency to engage in PSB they have, and the lower the EI, the less their tendency to engage in PSB will be. However, low-SE individuals tend to be negative in their self-evaluation and to show withdrawal, a sense of inferiority, and a lack of self-confidence in communicating with others (Shi et al., 2017), so they are less likely to interact with others or perceive the needs of others, which makes it is difficult for them to engage in helping behavior.

SE has a significant regulating effect between SS and PSB. Specifically, for individuals with high SE, SS can significantly predict PSB, whereas, for individuals with low SE, SS has no

TABLE 3 | Testing the moderated mediation effect of self-esteem.

Predictors	Model 1 (Social support)				Model 2 (Prosocial behavior)			
	β	SE	t	95% bootstrap CI	β	SE	t	95% bootstrap CI
Emotional intelligence	0.47	0.03	13.60***	[0.40, 0.54]	0.49	0.04	12.65***	[0.41, 0.56]
Social support					0.12	0.04	3.20**	[0.04, 0.19]
Self-esteem					0.12	0.03	4.00***	[0.06, 0.17]
Emotional intelligence × self-esteem					0.12	0.04	3.21**	[0.05, 0.20]
Social support × self-esteem					0.08	0.04	2.28*	[0.01, 0.15]
R^2			0.22			0.35		
F			185.06***			74.94***		

*N = 742. *p < 0.05, **p < 0.01, ***p < 0.001.*

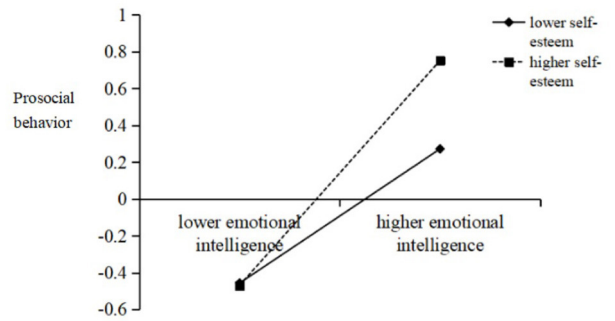

FIGURE 3 | Interaction effect of emotional intelligence and self-esteem on prosocial behavior. High and low levels of emotional intelligence and self-esteem represent one standard deviation above and below the mean, respectively.

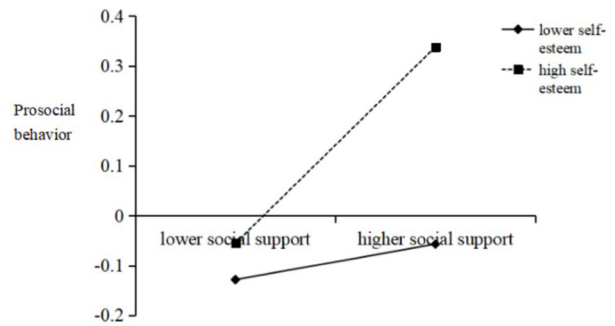

FIGURE 4 | Interaction effect of social support and self-esteem on prosocial behavior. High and low levels of social support and self-esteem represent one standard deviation above and below the mean, respectively.

significant predictive effect on PSB. This can be explained by the social gauge theory of SE. The level of SE influences the maintenance of a good relationship between individuals and others. Individuals with high SE evaluate themselves more objectively, and they seldom use anger, hostility, or aggression against others to maintain their SE (Li, 2016) and are, therefore, more willing to engage in PSB. Moreover, SS is an individual-centered system composed of individuals and the people around them, as well as the social interactions between individuals and these people (Zhu et al., 2016); individuals with high SE usually evaluate themselves positively and show self-confidence (Murrell et al., 2003), and the optimistic attitude changes the individual's SS system—that is to say, it changes the individual's interactions with others, and then promotes their tendency to engage in PSB.

In conclusion, based on PSB theory, EI theory, and social exchange theory, this study investigated the mediating and moderating effect of EI on PSB, examined the joint effect of internal and external factors on PSB, and supplemented our understanding of the ways in and conditions under which EI promotes PSB. The integrated effect can better reflect the joint interaction of various systems and describe the effect of EI on PSB in different situations.

Limitations

Some limitations of this study should be acknowledged. First, the cross-sectional design didn't provide evidence of a causal relationship between EI, SS, and PSB. Our findings, along with previous research, suggested a mechanism through which these factors may be related; longitudinal research is needed to determine whether the direction of the correlations may differ from what is assumed in our theoretical model. Second, although self-reported surveys have shown good reliability, shared method variance may have inflated the relationships found between instruments. Hence, future studies would benefit from using other formats to generalize our findings. For example, we could measure the real SS from parents, teachers, peers, etc. Third, there was a large gap in the proportion of majors and grades of the participants in this study. Thus, future research can pay attention to the selection of the participants to make their composition more representative. Fourth, this study found the mediating role of SS and the moderated effect of SE, respectively, but the moderated effect between SS and PSB was not limited to SE. Therefore, the mechanism of other variables between SS and PSB needs to be further explored. Finally, social expectation wasn't used as a control variable, when measuring the PSB in this study. Social expectation is that individuals make self-evaluation in order to make themselves more suitable

for society. Therefore, in the future, researcher could include social expectation as a control variable to eliminate its potential confound on the results.

CONCLUSIONS

Our results had two important implications. From a theoretical perspective, the present findings extended prior research by showing that SS can be an explanatory factor of EI and PSB. From a practical perspective, according to our findings, the link between EI and PSB was mediated by SS and moderated by SE. It suggests that developing one's SS and SE is important for the development of PSB of college student.

In general, it is necessary to comprehensively consider the external and internal factors of individuals and design a reasonable intervention plan to improve college students' PSB. Our study provided theoretical and empirical support for having mental health education courses for college students. This research explored the indirect path of EI to PSB. Therefore, in future mental health education courses, teachers will not have to only focus on cultivating EI, but can also formulate interventions to improve individuals' SS and SE. The courses can enable them to manage and express emotions more reasonably, thereby promoting them to exhibit more PSB.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Academic Ethics Committee of the College of Psychology of Northeast Normal University. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

HW wrote and modified the manuscript. SW and WW collected and collated the data. CW recruited the participants. All authors contributed to the article and approved the submitted version.

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Social and Emotional Learning in the Ibero-American Context: A Systematic Review

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Social and emotional learning (SEL) has acquired great prominence in recent years, due to the skills it develops in students, influencing personal and social well-being. At the same time, society is moving toward a model in which understanding oneself and others is a fundamental aspect in order to function properly on a social level. Studies on SEL programmes have been carried out in various parts of the world, although recent reviews have focused exclusively on the Anglo-Saxon context. Therefore, the aim of this paper was to synthesize research on the efficacy and effectiveness of SEL programmes in Ibero-American contexts in early childhood, primary and secondary education. Systematic review was used as the method of enquiry, following the standards of The Campbell Collaboration. In total, 22 empirical studies of SEL programmes implemented in Ibero-America were collected. The results showed that the SEL variables with the highest incidence and significant results were self-awareness, social awareness, self-control, relationship skills, decision-making, school climate, well-being, and academic achievement. While no studies focused on sense of belonging or school safety. Finally, the establishment of programme components, duration, and integration, for each variable, scientifically evidences the keys that can ensure the success of future SEL programmes.

Keywords: social and emotional learning (SEL), socioemotional competences, program assessment, primary education, secondary education

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INTRODUCTION

Over the past few years, there has been a considerable increase in educational, social, and political interest in social and emotional learning (SEL), a trend that seems to have arisen from the need to address the high incidence of social, emotional, and behavioral problems among children, adolescents and young adults in today's society, and to build protective factors that enhance their well-being and performance (Oberle et al., 2016). SEL is conceived as "the ability to coordinate cognition, affect, and behavior that enables people to thrive in diverse cultures and contexts and to achieve specific tasks and positive developmental outcomes" (Mahoney et al., 2020, p. 4), and commonly refers to the process in which individuals acquire and effectively apply the knowledge, skills and attitudes necessary to develop healthy identities, manage their emotions, set and achieve positive personal and collective goals, feel and show empathy for others, establish and maintain positive and supportive interpersonal relationships,

manage interpersonal situations constructively, and make responsible and caring decisions (Payton et al., 2008; Durlak et al., 2011; Gutman and Schoon, 2013; Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Weissberg et al., 2015; Taylor et al., 2017; Jagers et al., 2019; Mahoney et al., 2020).

In this sense, SEL is an essential component for personal and socio-emotional development, essential for the learning and success of any person in the different domains of their lives, as it provides them with the necessary tools to effectively and efficiently face the various daily tasks and challenges, thus increasing their satisfaction and productivity (Weissberg et al., 2015; Oberle et al., 2016). To this end, SEL entails the design, implementation and evaluation of a coordinated set of evidence-based intervention programmes and practices that promote a range of social-emotional competencies, such as self-awareness, social awareness, self-control, relationship skills and responsible decision-making, among its participants by establishing safe and supportive learning environments (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019; National Commission on Social, Emotional, and Academic Development, 2019; Mahoney et al., 2020).

Indeed, numerous studies have established certain causal links between SEL programmes and certain socio-emotional, behavioral, and academic outcomes of their participants. Early systematic reviews aimed at determining the impact of these interventions (i.e., Diekstra, 2008; Payton et al., 2008; Durlak et al., 2010, 2011; Sklad et al., 2012) already confirmed the multiple benefits that SEL programmes generate among early childhood, primary and secondary school students, regardless of their socio-demographic and educational characteristics (i.e., children and adolescents from diverse racial, ethnic and socio-economic backgrounds, with and without emotional and behavioral problems, from different educational levels and settings). Programmes of this type, implemented and evaluated both in and out of school, have repeatedly demonstrated their ability to improve students' social-emotional skills, their self-perceptions, their attitudes toward others, their commitment and bond with the school, their prosocial behavior and their academic performance, also promoting a reduction in their emotional, behavioral, and substance abuse problems (Diekstra, 2008; Payton et al., 2008; Durlak et al., 2010, 2011; Sklad et al., 2012). Moreover, the variability of results among some of the interventions included in these initial reviews stimulated interest in identifying those elements and characteristics that most guarantee the success of these intervention measures, i.e., the presence of those practices recommended for the development of socioemotional skills in students, such as using a step-by-step sequenced training approach (sequenced), emphasizing active forms of learning for students to practice the new skills (active), concentrating specific time and attention on skills training (focused) and clearly defining goals (explicit) (SAFE) (Durlak et al., 2010, 2011). In fact, collaborative learning is one of the most frequently used active forms of learning for students to practice new skills (active) (Durlak et al., 2011). Collaborative learning experiences increase the effectiveness of SEL programmes, even more so when supported by technology (Stahl, 2002; González-González et al., 2014; Claros et al., 2016; Collazos et al., 2021).

The results of the other meta-analytic reviews that have been conducted on SEL programmes are along the same lines, including the work of Jagers et al. (2015), Wigelsworth et al. (2016), Sabey et al. (2017), Taylor et al. (2017), Corcoran et al. (2018), Yang et al. (2019), and Murano et al. (2020), not to mention the Collaborative for Academic, Social, and Emotional Learning (2015) guide, which selects and assesses selected SEL interventions, along with evidence on their effectiveness. Specifically, Jagers et al. (2015) found that participation in this type of programme promotes the development of socioemotional competencies among students, in addition to reducing the risk of social exclusion, in very similar terms to the results obtained by Wigelsworth et al. (2016) and Taylor et al. (2017), who also provided evidence on the importance of the type of evaluation to which these interventions are subjected, the people involved in it and the country in which they are implemented (Wigelsworth et al., 2016), as well as on the temporal stability of the results (Taylor et al., 2017). Analyses by Sabey et al. (2017) showed that SEL interventions that incorporate behavioral training have greater effects on the development of prosocial behavior and decreases in antisocial behavior compared to programmes that focus exclusively on social-emotional development. Corcoran et al. (2018) explored research on the effects of these intervention measures on performance in mathematics, reading and science, identifying a positive effect compared to results obtained through traditional methods. Finally, the analyses of the work carried out by Yang et al. (2019) showed that SEL programmes generate improvements in the socioemotional competence of students at risk of academic failure and social exclusion, while the results of Murano et al. (2020) highlight the impact of this type of intervention on the general development of students' socioemotional skills and the reduction of their behavioral problems.

These results have contributed to SEL interventions being among the most successful child and youth development programmes (Payton et al., 2008), which has led to their rapid and widespread diversification and incorporation into schools and classrooms around the world (Wigelsworth et al., 2016), even generating effects on other members of the educational community. For example, this is the case for teachers, among whom higher rates of effectiveness and achievement have been identified in their teacher planning compared to those who did not experience it (Domitrovich et al., 2007; Oberle et al., 2016). However, most of the meta-analytical evidence available on the efficacy and effectiveness of SEL programmes is derived from research carried out in the Anglo-Saxon context, or in which cross-cultural adaptations originally validated in this context have been evaluated, when various interventions based on the SEL model have been developed in Latin America, as is the case of the programmes "INTEMO," "Programa curricular socioemocional," "Educación Emocional," "EDI program," "Programa aulas felices," "Siendo inteligente con la emociones," or "Aprendiendo a ser" (Aguilar et al., 2019).

Taking into account these previous considerations, the purpose of this systematic review was to synthesize the research on the efficacy and effectiveness of SEL programmes

in Ibero-American contexts of early childhood, primary and secondary education. Ibero-American context was established as geographical and/or cultural restriction because the available systematic reviews and meta-analyses on SEL programmes have focused mainly on research carried out in the Anglo-Saxon context, or those that include cross-cultural adaptations originally validated in this context (Wigelsworth et al., 2016), while early childhood, primary and secondary education were determined as participating population because these are the educational stages in which this type of programme is most developed and recommended, especially as a preventive measure against the problems of school adjustment that students tend to present (Taylor et al., 2017; Jones et al., 2019; Mahoney et al., 2020). The following specific objectives were posed: (a) identify the main characteristics of the research that has been carried out at the Ibero-American level on the efficacy and effectiveness of SEL programmes in early childhood, primary and secondary education; (b) describe the most relevant characteristics of SEL programmes implemented in Ibero-American contexts, as well as the empirical evidence of their efficacy and effectiveness in improving the academic and socio-emotional outcomes of students in pre-primary, primary, and secondary education; and (c) issue relevant conclusions and recommendations for future educational practices and policies in this field.

In addition, following the international standards set by The Campbell Collaboration (2019), the following research questions were posed:

1. What are the most outstanding characteristics of the studies (i.e., geographical and temporal distribution, publication typologies, sample selection procedures and group configuration, sample characteristics, evaluation instruments and methodological designs) that have been developed in Latin American countries on this type of intervention with pre-school, primary, and secondary school students?
2. What are the most relevant characteristics of the SEL programmes (i.e., environment in which they are developed, components, procedures, practices, strategies, techniques, and intervention resources) that have been implemented in Latin American contexts with students between 3 and 18 years of age?
3. What is the significant evidence of the studies, with respect to the variables of the SEL model, to generate socioemotional and academic improvements among infant, primary and secondary school pupils in the Ibero-American context?

METHODS

The first action of this systematic review, as specified in the guidelines set out by The Campbell Collaboration (2019) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021), was to design and plan a protocol for its development. The protocol can be found in Fernández-Martín et al. (2020).

Inclusion and Exclusion Criteria

The inclusion criteria were determined according to the general objective of the systematic review, initially establishing the definition or operational characteristics of the independent and dependent variables, and then specifying the methodological designs, the participating population and the geographical, cultural and temporal restrictions.

In this sense, SEL programmes (independent variable) refer to those educational interventions that are based on the SEL model and are aimed at students acquiring and effectively applying the knowledge, skills, and attitudes necessary to develop healthy identities, manage their emotions, set and achieve positive personal and collective goals, feel and show empathy for others, establish and maintain positive and supportive interpersonal relationships, manage interpersonal situations in a constructive way and make responsible and caring decisions (Payton et al., 2008; Durlak et al., 2011; Gutman and Schoon, 2013; Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Weissberg et al., 2015; Oberle et al., 2016; Taylor et al., 2017; Jagers et al., 2019; Mahoney et al., 2020).

SEL programmes promote the development of a series of socio-emotional competencies in the participating students, in addition to promoting certain changes in their immediate environment and surroundings, with the aim of generating substantial improvements in their well-being and performance (Diekstra, 2008; Payton et al., 2008; Durlak et al., 2010, 2011; Sklad et al., 2012; Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2015, 2019; Wigelsworth et al., 2016; Jones and Kahn, 2017; Sabey et al., 2017; Taylor et al., 2017; Corcoran et al., 2018; Aguilar et al., 2019; National Commission on Social, Emotional, and Academic Development, 2019; Yang et al., 2019; Mahoney et al., 2020; Murano et al., 2020). Specifically, these variables were defined in the following terms: (a) Self-awareness or skills to recognize one's own emotions, thoughts and values, strengths, and limitations, as well as how they influence behavior in different situations, while fostering an adequate self-perception (e.g., self-concept, self-esteem, self-efficacy) and confidence in one's own abilities (e.g., growth mindset) (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019; Panorama Education, 2020); (b) Social awareness or cognitive ability that includes skills to develop empathy, perspective-taking, appreciation of diversity and respect for others, regardless of their origin or characteristics, respecting social norms and understanding the influence of the immediate environment (e.g., family, school, community) (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019; Panorama Education, 2020); (c) Self-control or the ability to manage one's impulses and emotions effectively in different situations, handling stress appropriately, delaying gratification, including motivation (e.g., resilience, will, discipline, perseverance, organizational, and planning strategies) to achieve personal and collective goals and objectives (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019; Panorama Education, 2020); (d) Relationship skills or the ability to establish and maintain healthy, supportive relationships and interact effectively with

others (e.g., active listening, empathetic communication, seeking and offering help, conflict resolution, resisting negative social pressure, and working in groups) (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019; Panorama Education, 2020); (e) Responsible decision-making or the ability to consider ethical, safety and social factors when making decisions, so that the individual is able to deal responsibly with academic and social situations in everyday life and contribute to the well-being of the community (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jagers et al., 2019); (f) School climate or perception of the social and learning climate of the school and classroom, i.e., the quantity and quality of interactions with other members of the educational community (Thapa et al., 2013; Panorama Education, 2020); (g) Sense of belonging or feeling of belonging to the school community and feeling an important member of it (Panorama Education, 2020); (h) School safety or perceptions of physical and psychological safety in the school and classroom (Panorama Education, 2020); (i) Well-being or the degree to which a person is fully functioning physically, mentally, and socially, associated with the realization of one's true potential (Ryan and Deci, 2001; Panorama Education, 2020); and (j) Academic performance or results obtained throughout the training process until the corresponding qualification is obtained, i.e., overcoming the minimum requirements or objectives established for passing a subject, subject, course, cycle, or qualification (Rivkin et al., 2005; González et al., 2019).

Obviously, the measurement of the dependent variables had to be done in quantitative terms, using standardized tests, tests, questionnaires, inventories, scales, or structured interviews. The methodological designs adopted by the selected studies were experimental and quasi-experimental designs with comparison groups (Campbell and Stanley, 1963). Logically, in order to set up the groups, it was essential that they used random assignment or matching with appropriate adjustments for any differences in the pretest phase.

In terms of the participating population, studies were limited to children in early childhood, primary and secondary education (i.e., ages 3–18), as these are the educational stages in which this type of programme is most developed and recommended, especially as a preventive measure against the problems of school adjustment that students tend to present (Taylor et al., 2017; Jones et al., 2019; Mahoney et al., 2020).

Finally, geographical and/or cultural restrictions were established in this systematic review, limiting the selection of studies to those carried out in Latin America, mainly because the available meta-analyses on SEL programmes have focused mainly on research carried out in the Anglo-Saxon context, or those that include cross-cultural adaptations originally validated in this context (Wigelsworth et al., 2016). It was also decided that the language of publication of the studies to be included in this research work would be English and Spanish, and no time restriction was applied.

Search Strategy

The literature search was carried out through various procedures and resources in order to ensure the inclusion of all studies related to the subject matter of this research, whether published or unpublished. To do this, firstly, a primary search was carried out on the available electronic platforms and databases, while secondly, a complementary search was carried out, accessing other resources and websites of relevant networks and institutions, contacting experts, and carrying out manual searches, among other actions. The search was conducted in February 2021.

The electronic platforms and databases selected for the primary search were Web of Science (Science Citation Index Expanded; Social Science Citation Index; Arts and Humanities Citation Index; Conference Proceedings Citation Index-Science; Conference Proceedings Citation Index-Social Science and Humanities; Book Citation Index-Science; Book Citation Index-Social Sciences and Humanities; Current Chemical Reactions; Index Chemicus; Emerging Sources Citation Index; BIOSIS Citation Index; BIOSIS previews; Current Contents Connect; Derwent Innovations Index; Korean Journal Database; MEDLINE; Russian Science Citation Index; SciELO Citation Index), ProQuest (ABI/INFORM Collection; APA PsicoArticles®; APA PsicoExtra®; APA PsicoInfo®; APA PsicoTest®; Arts and Humanities Database; Coronavirus Research Database; Early Modern Books; E-book Central; EconLit; Entrepreneurship Database; Health and Medical Collection; MEDLINE; Nursing and Allied Health Database; Periodicals Archive Online; Periodicals Index Online; ProQuest Dissertations and Theses Global; Psychology Database; Social Science Premium Collection; Education Collection; International Bibliography of the Social Sciences; Library and Information Science Collection; Social Science Database; Sociology Collection) and Scopus.

The complementary search involved the following actions: (a) Manual searches of the reference lists of each of the studies included in this systematic review; (b) Google Scholar searches, aimed at identifying unpublished studies on the web; (c) personal contacts with national and international researchers of recognized prestige, with the aim of identifying unpublished reports and research in development or in progress; (d) searches in open access resources or gray literature: OpenGrey GreyNet International-Gray Literature Network Service, National Technical Information Service (NTIS), Directory of Open Access Repositories (OpenDOAR), Open Access Scholarly Information Sourcebook (OASIS), Bielefeld Academic Search Engine (BASE), COnnecting REpositories (CORE) y Library Hub Discover; (e) resource searches on development research: Community Research and Development Information Service (CORDIS); Economic and Social Research Council (ESRC) Regard database, Center for Reviews and Dissemination (CRD), NBER Working Papers, The Campbell Collaboration and RePEc; and (f) searches in relevant networks and institutions: What Works Clearinghouse, Evidence for ESSA, EPPI Center, Educational Evidence Portal (EPP), IZA World of Labor, Social Science Research Network (SSRN), The Campbell Collaboration, CASEL and Panorama Education.

Search terms were selected using the Education Resources Information Center Thesaurus, based on the study inclusion criteria specified above, trying to strike a balance between

sensitivity (i.e., identifying all articles on the topic) and specificity (i.e., identifying only relevant articles).

The search strategy was modified according to the specifications of each platform and electronic database, as well as any other resources used (e.g., Google Scholar). In this sense, for those resources, platforms and electronic databases with advanced search functions, the search terms (in English and Spanish) were classified into two categories (i.e., independent variable and dependent variables, excluding terms related to methodology, population and geographical or cultural restrictions to ensure sensitivity and specificity), which were included in the various search engines to identify the papers under study from the title, abstract and keywords. These categories were combined using the Boolean operator "AND," while the Boolean operator "OR" was used for the search terms in each category and their synonyms. For resources or databases with basic search functions, search terms were adjusted to the limited functionality of their search engines, so searches were conducted by keyword and/or topic-topic, combining or including separate search terms. For example, the terms and combinations used in the search of Web of Science, ProQuest, and Scopus are specified below: ("social and emotional learning" OR "social and emotional aspects of learning" OR "socioemotional learning" OR "socio-emotional learning") AND ("intervention*" OR "program*" OR "practice*" OR "train*" OR "initiative*" OR "action*" OR "project*") AND ("competence*" OR "self-awareness" OR "self-perception*" OR "self-efficacy" OR "self-concept" OR "self-steam" OR "growth mindset" OR "social awareness" OR "empathy" OR "social perspective-taking" OR "self-management" OR "self-control" OR "emotion*" OR "feeling*" OR "attitude*" OR "behavio*" OR "stress management" OR "motivation" OR "self-discipline" OR "perseverance" OR "grit" OR "learning strateg*" OR "metacognit*" OR "resilience" OR "relationship skills" OR "social skills" OR "problem solving" OR "problem-solving" OR "resolving conflict*" OR "conflict resolution" OR "coping" OR "teamwork*" OR "leadership" OR "responsible decision-making" OR "school climate" OR "social climate" OR "classroom climate" OR "students environments" OR "educational environment" OR "classroom environment" OR "sense of belonging" OR "engagement" OR "school safety" OR "well-being" OR "welfare" OR "satisfaction" OR "success" OR "performance" OR "failure" OR "achievement" OR "grade point average" OR "GPA" OR "retention" OR "repetition" OR "dropout" OR "graduation").

On the other hand, Refworks was used for the management and documentation of the process, as it allows the tracking of each of the studies identified in the search process. Therefore, the bibliographic information of the studies resulting from the searches was imported into Refworks and, in order to maximize the transparency and replicability of the search process, the team stored and still has the records, which include the database interface, the type of database, the customized search strategy, the search terms and language, the number of records obtained, search dates and the researcher's initials.

The selection process of the identified studies was carried out by implementing the following actions: (a) first level of screening, where two team members worked in parallel to identify and eliminate duplicate records; (b) second level of screening, where two team members identified and eliminated in parallel those studies that, after careful examination of their title and abstract, did not clearly meet the inclusion criteria; and (c) third level of screening, where two team members in parallel read the full text versions of the studies to determine their eligibility against the inclusion criteria. At the second and third levels, an *ad hoc* selection template was used, while the procedure followed to resolve discrepancies between task force members consisted of an additional review of the full text of the study and discussion of compliance with the inclusion criteria, mediated by a third task force member.

Once the final sample of studies had been confirmed, two members of the team extracted and coded the data and information from each study in parallel around the following variables (Lipsey and Wilson, 2001): (a) contextual characteristics (i.e., reference, country and type of publication); (b) methodological characteristics (i.e., sample selection procedure and group configuration, methodological design, data analysis and biases); (c) sample characteristics (i.e., size, age, gender, stage and educational level); (d) assessment instruments (i.e., standardized tests, tests, questionnaires, inventories, scales or structured interviews used to measure the dependent variables); (e) characteristics of the independent variable or SEL programmes (i.e., the environment in which it is developed, areas or components of the programme, duration of programme, and procedures, practices, strategies, techniques and/or resources of programme); (f) dependent variables (i.e., self-awareness, social awareness, self-control, relationship skills, responsible decision-making, school climate, sense of belonging, school safety, well-being, and academic achievement); and (g) results and conclusions.

This extraction and coding work has been carried out in a data extraction sheet (Excel), while disagreements about it have been resolved through consultation and discussion with a third member of the working team. Finally, the approach adopted for data analysis was, considering the aim of this systematic review, a narrative content analysis (Dochy, 2006).

RESULTS

The general process of searching and selecting records was represented graphically in a PRISMA flow chart (**Figure 1**) (Page et al., 2021).

The selected studies come from four countries: 12 from Portugal, six from Spain, two from Brazil and two from Chile. The studies were published between 2010 and 2020 (2010 = 1, 2012 = 1, 2013 = 2, 2014 = 2, 2015 = 1, 2016 = 4, 2017 = 3, 2018 = 3, 2019 = 1, 2020 = 4). The language of publication was English ($N = 18$), Portuguese ($N = 2$), and Spanish ($N = 2$). Of the studies reviewed, all 23 were journal articles.

In terms of the total sample, 17,104 participants were examined in these studies ($M = 777.45$). The sample size ranged from 50 participants to 5,145 participants. The gender distribution did not vary between the studies, all 23 included samples composed of both males and females. The ages of the

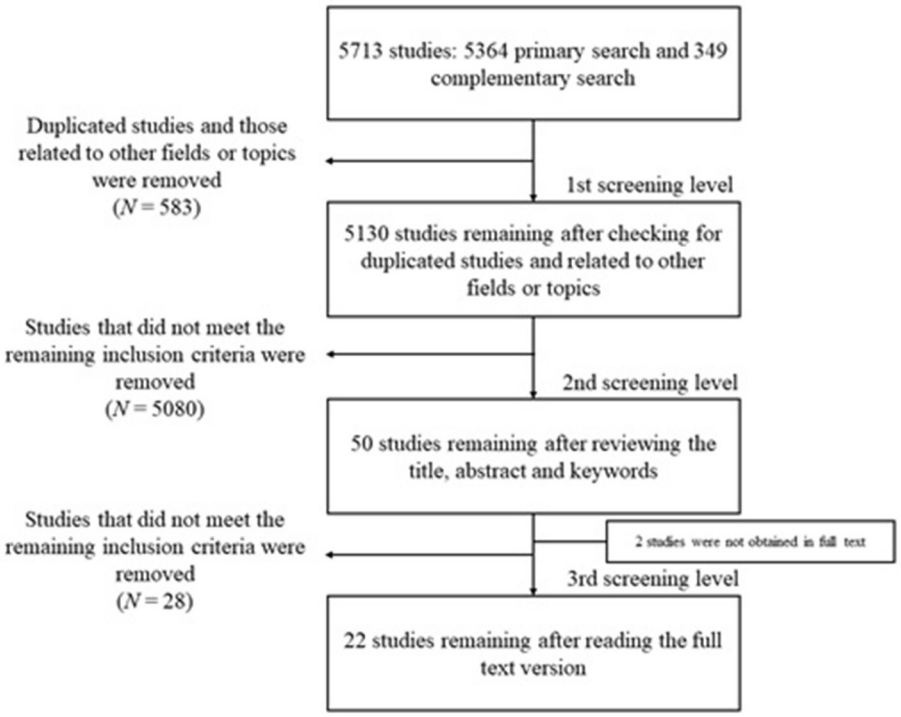

FIGURE 1 | PRISMA flow chart for the literature search and screening (Page et al., 2021).

participants ranged from 5 to 17 years. The educational stage on which the studies focused was primary education ($N = 13$) and secondary education ($N = 9$).

The sampling techniques were distributed as follows: 19 studies used non-probability sampling and three used probability sampling. Regarding cluster configuration, 19 studies used non-random clustering and three used random clustering. Finally, reporting bias was included in 21 studies (95.45%) and missing in 1 study (4.55%).

In relation to the assessment instruments, 21 studies used standardized scales and only one study used *ad hoc* instruments. Regarding the research design, all 22 studies included a quasi-experimental pretest-post-test design, all of them including a non-equivalent control group design.

In terms of research context, the vast majority of experiences took place in public schools located in urban settings (19 out of the total number of papers). However, there are studies that covered the implementation of SEL programmes from an urban and rural perspective (three with a comparative character).

Regarding the characteristics of the programmes, **Table 1** shows the main strategies and techniques that were used during their development. It shows that the duration of the programmes varies, with the longest lasting a total of 4 years (Moreira et al., 2010), and the shortest of 1 month (Berger et al., 2014). As can be seen, a wide variety of techniques are used to promote socioemotional competences, such as role-playing, assemblies, mindfulness, musical dynamics, storytelling, or dramatization, among others.

The instruments used to measure the different constructs assessed in the experiences are also detailed. The Test of Emotion Comprehension (TEC), the Global Self-Esteem scale and the Socialization Battery 3 (BAS-3) stand out for their frequency of use.

On the other hand, **Table 2** shows the distribution of the studies when grouped by analyzed outcomes of the variables linked to the SEL model. For the variable "self-awareness," a total of four studies (18.18%) were found, three of them obtained significant differences between groups and only one showed no difference. Regarding "social awareness," a total of seven studies (31.82%) were found, of which six reported significant differences. Regarding "self-control," nine studies (40.91%) were found, eight reported significant differences between the groups and only one reported no differences. In "relationship skills," eight studies (36.36%) were collected, five with significant differences and three that reported no differences between groups. In "decision-making," two studies were found (9.09%), of which only one showed significant differences. In "school climate," four studies (18.18%) were found, all four with significant differences. In "well-being," eight studies (36.36%) were found, six with significant differences and two with no differences. And finally, in "academic performance," six studies (27.27%) were found, three with significant differences and three that reported no significant differences. There were no

TABLE 1 | Most relevant characteristics of the SEL programmes implemented.

Reference	Components	Duration	Procedure	Instrument
Santos et al. (2020a)	Relationship management; decision making; self-management; social consciousness	7 months	Interspersed outdoor/indoor classroom sessions using debriefing as a technique.	TEC; EQi:YV; Eqi; PCIS; PACS
Cejudo et al. (2020)	Assertiveness; Self-esteem; Decision-making; Emotional Intelligence; Addictions; Conflict Management	1 year	Development of socio-emotional skills through the video game "Isolated."	KIDSCREEN; SWLS; PANAS; MH-5; TEIQue-ASF
Mira-Galvañ and Gilar-Corbi (2020)	Emotional regulation	6 months	Each class incorporated 10–15 min for assembly, ∼5 min for mindfulness practice and 30 min per week (3 times a month) to work on different activities related to the programme.	EQi:YV
Santos et al. (2020b)	Cooperative learning; emotional intelligence; school climate	9 weeks	The programme was developed using 16 lessons from the book "I Can Problem Solve" (ICPS) which focuses on using social dynamics to encourage problem solving.	CPM; School Achievement Test; SSRS-BR
Luna et al. (2019)	Self-control, Relationship management; school climate; wellbeing and academic achievement	6 weeks	Work on socio-emotional skills through an alternative sport called "ringo."	The Kidscreen-10 Index; The Positive and Negative Affect Schedule; TEIQue-ASF; SAS-A
Faria et al. (2018)	Self-Awareness; Emotional Regulation and Intelligence	7 months	Sessions using stories to work on different emotions. Mascots were created to accompany the students during the programme.	TEC
Coelho and Sousa (2018)	Self-awareness; social awareness and self-control	2 years	Development of emotional states through story characters. Narratives with open endings. Creating a wheel of emotions	QACSE; SDQ II
Rodríguez-Ledo et al. (2018)	Social-emotional competences; empathy; social awareness and social skills	9 months	Socio-emotional intelligence model in which they were divided into three key groups that worked on the following aspects: attention and understanding of emotions, emotional regulation, and social adjustment.	EDQ-SEC; EQi-YV; BAS3; IECA
Coelho and Sousa (2017a)	Self-awareness; social awareness; self-control	2 years	It includes all pupils in each class and is infused into the school curriculum and integrated into a multi-year project.	BAS-3; Global Self-Esteem scale; Self-Description Questionnaire II; QACSE-P
Pereira and Marques-Pinto (2017)	Self-awareness; Social awareness; Self-control; Relationship management; Decision-making; Sense of belonging; Well-being	12 weeks	The SEL programme uses an alternative approach using Education through Art. Musical dynamics as well as simple dances were used to work on these skills, as well as motor skills.	ESCQ; SSBS 2; MHC-SF
Coelho and Sousa (2017b)	Self-awareness; Social awareness; Self-control; Relationship management; Decision-making; Sense of belonging; Well-being	8 months	It includes all pupils in each class and is infused into the school curriculum and integrated into a multi-year project.	BAS-3; SDQ I
Coelho et al. (2016a)	Social awareness; self-control; social isolation; social anxiety; leadership; leadership; self-esteem	2 years	It includes all pupils in each class and is infused into the school curriculum and integrated into a multi-year project.	AF-5
Coelho et al. (2016b)	Social awareness; self-control; social isolation; social anxiety; leadership; leadership; self-esteem	1 year	The programme consists of four modules: (1) two sessions on self-awareness; (2) three sessions on developing self-management and social awareness; (3) three sessions on increasing self-esteem; and (4) two sessions on developing responsible decision-making.	BAS-3; SDQ I

(Continued)

TABLE 1 | Continued

Reference	Components	Duration	Procedure	Instrument
Waldemar et al. (2016)	Social, academic, emotional, family, physical, and social self-concept	12 weeks	Breathing mindfulness exercises, reflective and playful activities as well as informal mindfulness exercises were set up.	Strengths and Difficulties Questionnaire; the Youth Quality of Life Instrument; the Swanson, Nolan and Pelham–IV questionnaire
Correia and Marques-Pinto (2016)	Social, academic, emotional, family, physical, and social self-concept	18 weeks	Activities in the "Salto de Gigante" programme included showing instructional videos, storytelling, educational group games, role-playing and artistic expression activities, brainstorming strategies, modeling, constructive feedback, individual positive reinforcement, and group discussion/reflection.	ACES; SSBS-2; BERS-2
Coelho et al. (2015)	Hyperactivity; Emotional problems; Behavioral problems; Behavioral problems	2 years	It includes all pupils in each class and is infused into the school curriculum and integrated into a multi-year project.	BAS-3; SDQ I
Coelho et al. (2014)	School Climate; Academic Behavior; Social Competences; Self-awareness	2 years	It includes all pupils in each class and is infused into the school curriculum and integrated into a multi-year project.	AFA
Berger et al. (2014)	Social awareness; self-control; social isolation; social anxiety; leadership; leadership; self-esteem	1 month	The BASE programme is based on four pillars: (a) holistic developmental perspective; (b) systemic-interactional approach with linkages as a central aspect; (c) students' developmental processes and the construction of a positive self-narrative; and (d) the importance of professional teacher training.	Self-report scale of socio-emotional wellbeing; social climate scale; TAE; Social Cognitive Mapping
Milicic et al. (2013)	Academic, social, emotional, and family self-concept	7 months	The modality of the programme is that of a workshop in which the aim is to generate a space for conversation, personal and collective reflection, and the exercise of socio-emotional competencies in a space of affective support.	Self-report scale of socio-emotional wellbeing; Social climate scale; TAE; Social Cognitive Mapping
Castillo et al. (2013)	Social-emotional well-being; self-esteem; school climate	2 years	Different emotions were worked on through different role plays, art projects, film forums and reflection activities.	AQ and IRI Spanish version
Pérez-Escoda et al. (2012)	Emotional intelligence	9 months	Exercises were carried out to recognize the emotions of others, with conflict resolution techniques, role-playing exercises, debates, and group dynamics.	EQ-i: YV
Moreira et al. (2010)	Self-control; Emotional differentiation; Emotional regulation; Emotional control	4 years	The exploration of socio-emotional concepts was combined with the learning of curricular subjects such as civics, Portuguese language, environment, and mathematics.	CSCS; SPPC; EII; CABS; ERCSI

studies that collected the variables SEL: sense of belonging or school safety.

DISCUSSION AND CONCLUSIONS

The purpose of this systematic review was to synthesize the main characteristics and evidence on the effectiveness of SEL programmes to improve school and socio-emotional outcomes of early childhood, primary and secondary education pupils in Ibero-American contexts. In this regard, with respect to the first research question, the results obtained show that Portugal, Spain, Chile, and Brazil have been the Ibero-American countries that have made the greatest commitment over the last decade to the application and, especially, the evaluation of this type of interventions in compulsory education (i.e., primary and secondary education). Particularly, by a systematic and rigorous evaluation, characterized by the selection of quasi-experimental evaluation methodological designs, with

TABLE 2 | Study results for each dependent variable of the SEL model.

Outcomes	Statistically not significant results	Statistically significant results
Self-awareness	Rodríguez-Ledo et al. (2018)	Coelho et al. (2016a), Faria et al. (2018), Santos et al. (2020a)
Social awareness	Coelho and Sousa (2017a)	Coelho et al. (2014, 2015, 2016b), Coelho and Sousa (2017b, 2018), Santos et al. (2020a)
Self-control	Coelho and Sousa (2017a)	Moreira et al. (2010), Coelho et al. (2015, 2016b), Coelho and Sousa (2017b, 2018), Pereira and Marques-Pinto (2017), Santos et al. (2020a,b)
Relationship skills	Castillo et al. (2013), Rodríguez-Ledo et al. (2018), Santos et al. (2020a)	Pérez-Escoda et al. (2012), Correia and Marques-Pinto (2016), Waldemar et al. (2016), Pereira and Marques-Pinto (2017), Coelho and Sousa (2018)
Decision-making	Coelho and Sousa (2018)	Santos et al. (2020a)
School climate		Milicic et al. (2013), Berger et al. (2014), Correia and Marques-Pinto (2016), Waldemar et al. (2016)
Well-being	Pereira and Marques-Pinto (2017), Rodríguez-Ledo et al. (2018)	Pérez-Escoda et al. (2012), Milicic et al. (2013), Berger et al. (2014), Coelho et al. (2014), Luna et al. (2019), Cejudo et al. (2020)
Academic performance	Coelho et al. (2014), Pereira and Marques-Pinto (2017), Santos et al. (2020a)	Berger et al. (2014), Correia and Marques-Pinto (2016), Mira-Galvañ and Gilar-Corbi (2020)

comparison groups, mostly non-randomly configured, but with statistical adjustments that guaranteed their equivalence in the pretest phase. In the rest of the Ibero-American countries, as in the early childhood education stage, no studies with these characteristics have been identified regarding SEL practices.

In fact, the number of programmes incorporated in this review can be considered quite small, fundamentally when compared to the number of interventions included in systematic reviews developed in the Anglo-Saxon field (e.g., Diekstra, 2008; Payton et al., 2008; Durlak et al., 2010, 2011; Sklad et al., 2012; Jagers et al., 2015; Wigelsworth et al., 2016; Sabey et al., 2017; Taylor et al., 2017; Corcoran et al., 2018; Yang et al., 2019; Murano et al., 2020). However, these results are determined by the large number of SEL experiences that have been excluded throughout the selection process of this work, mainly for one of the following reasons: (a) they did not incorporate evaluation measures, or provided exclusively participation and/or satisfaction results among their participants; (b) they employed qualitative or pre-experimental evaluation methodological designs; or (c) they incorporated quasi-experimental designs, with comparison groups, but with quite limited intergroup comparability.

Regarding the most relevant characteristics of the SEL programmes included in this systematic review, the second research question, the results show that, in general terms, most of these interventions have been developed in urban educational centers, during school time, being implemented by teachers and/or external personnel, often trained for this purpose, as part of the curriculum or tutorial action. In addition, they have a variable duration of more than 12 sessions, with a weekly or biweekly frequency, over a minimum of 5 months, incorporating a wide variety of procedures, practices, strategies, techniques and/or resources (e.g., games, role-playing, video games, forums, debates, stories, art projects, alternative sports, individual, pair and group reflections, dance, mindfulness practices, personal counseling, direct instruction, modeling and group dynamics). However, all SEL programmes, as established in the specialized literature (Durlak et al., 2010, 2011), are mainly aimed at enhancing the development of self-awareness, social awareness, self-control, relationship skills and responsible decision making, using a step-by-step sequenced training approach that emphasizes active forms of learning, concentrating specific time and attention on skills training and in which goals are clearly defined, i.e., sequenced, active, focused and explicit training. Likewise, it is inevitable to highlight the number of studies that have been conducted on some of these SEL interventions, as is the case of the "Bienestar y Aprendizaje Socioemocional (BASE)" programme (Milicic et al., 2013; Berger et al., 2014), but especially the high number of editions that have been carried out of the "Actitud positiva en la escuela" SEL programme, not to mention its large-scale implementation in different geographical areas of Portugal (Coelho et al., 2014, 2015, 2016a,b; Coelho and Sousa, 2017a,b, 2018).

Regarding the third research question, in order to identify evidence on the effectiveness of SEL programmes developed in the Ibero-American context, the results of this systematic review, coming from the impact evaluation of these interventions, are very similar to the results provided by the available systematic reviews on SEL experiences in the Anglo-Saxon context (e.g., Diekstra, 2008; Payton et al., 2008; Durlak et al., 2010, 2011; Sklad et al., 2012; Jagers et al., 2015; Wigelsworth et al., 2016; Sabey et al., 2017; Taylor et al., 2017; Corcoran et al., 2018; Yang et al., 2019; Murano et al., 2020). Therefore, it can be stated that the SEL programmes included in this work also generate improvements among the participating students at the socioemotional level, which usually translates into greater well-being and school performance (Collaborative for Academic, Social, and Emotional Learning, 2015, 2020; Jones and Kahn, 2017; Aguilar et al., 2019; Jagers et al., 2019; National Commission on Social, Emotional, and Academic Development, 2019; Mahoney et al., 2020), although it is true that the percentage of these interventions that include among their dependent variables certain socioemotional competencies (i.e., responsible decision-making), changes in the most immediate environment (i.e., school climate, school safety, and sense of belonging) or indicators of school well-being and performance was quite low, below 35%. However, despite this, as stated by Slavin (2016), the power of the available evidence on the SEL programmes in this systematic review can be considered "moderate," as they are supported by at least one

quasi-experimental study, allowing them to qualify as evidence-based practices.

On the other hand, if we analyse the relationship between the main characteristics of the SEL programmes included in this systematic review and their effectiveness, we can see that the interventions that have been developed in out-of-school time (e.g., Santos et al., 2013; Salgado and Marques-Pinto, 2017), that employ video games (e.g., Cejudo et al., 2020) or alternative sports (e.g., Luna et al., 2019) among their procedures, practices, strategies, techniques and/or resources, with exclusively compulsory secondary education population (e.g., Castillo et al., 2013; Rodríguez-Ledo et al., 2018; Luna et al., 2019; Cejudo et al., 2020), are associated to a greater extent with a lower impact on the dependent variables considered, yielding results that are not statistically significant. Quite the opposite happens with those SEL programmes implemented in school time, as part of the curriculum, in which teachers and/or responsible external staff are trained to carry out a sequenced, active, focused, and explicit SEL training with the participating students (e.g., Milicic et al., 2013; Coelho et al., 2014, 2015, 2016a,b; Berger et al., 2014; Waldemar et al., 2016; Coelho and Sousa, 2017a,b; Coelho and Sousa, 2018; Mira-Galvañ and Gilar-Corbi, 2020), as they reveal a greater impact on socioemotional competencies, well-being, and school achievement.

These results align with many of the key indicators that ensure the success of SEL programmes (e.g., explicit SEL instruction, SEL integrated with school instruction, active role of participants, training of staff responsible for implementation) (Collaborative for Academic, Social, and Emotional Learning, 2020; Mahoney et al., 2020). However, other key indicators related to collaboration and synergies between classrooms, schools, families, and communities, as well as the inclusion of continuous improvement systems (Collaborative for Academic, Social, and Emotional Learning, 2020; Mahoney et al., 2020), are underrepresented in the SEL experiences that have been developed in Ibero-America. It is also necessary to highlight the high frequency with which personnel external to the educational centers are employed for the implementation of these programmes, which considerably affects their sustainability, in addition to the need to further strengthen the fidelity of implementation and the quality of the methodological evaluation designs.

Obviously, this systematic review is not without limitations: (a) the literature search, both primary and complementary, was completed in February 2021, so literature published after that date has not been included in the systematic review; (b) researcher bias in selecting manuscripts may have influenced the final sample of studies, although its effects were attempted to be attenuated by the parallel development of the selection process by two researchers, resolving any dissonance with the participation of a third investigator; and (c) the amount of gray literature included in the review is limited, despite the use of the different search engines that collect this type of literature, which may have increased the threat of publication bias, although a large number of these studies were actually excluded in the selection process, mainly because they used low-quality methodological designs.

As future lines of research, a meta-analysis of the studies collected should be carried out in order to find out the overall effect size of the research. It is also worth highlighting the possibility of continuing to implement SEL programmes in the Ibero-American context with the variables sense of belonging or school safety, since at present no study addresses these SEL variables. The practical implications of the work are linked to the establishment of the key implementation factors of the SEL models for each variable, in terms of programme components, duration and integration. This shows scientific evidence that can ensure the success of future programmes.

The scientific production on the design, implementation, and evaluation of SEL programmes in the Ibero-American context over the last decade differs greatly from the research, practices and policies that have been developed over the last 25 years in the Anglo-Saxon context (e.g., National Commission on Social, Emotional, and Academic Development, 2019), both in quantity and quality. In this sense, the need to improve research on this type of interventions in Ibero-American countries seems evident, in addition to establishing national and international agendas that promote their adoption throughout the educational system, placing them at the center of education, along with school performance, so that they are coordinated and integrated with existing educational priorities (Collaborative for Academic, Social, and Emotional Learning, 2020). Of course, this requires ongoing commitments and efforts on the part of all the agents involved, without forgetting that these efforts must be adequately resourced if the aim is for children and young people participating in these programs to reach their full potential (Mahoney et al., 2020).

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary files, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

J-MR-R and GG-G collected and analyzed the data. F-DF-M, J-MR-R, J-AM-M, and GG-G assisted in literature review and wrote the initial draft of the manuscript. F-DF-M and J-AM-M monitored and supervised all aspects of the study. All authors approved the final version of the paper.

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A Pilot Study of a Parent Emotion Socialization Intervention: Impact on Parent Behavior, Child Self-Regulation, and Adjustment

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Adequate emotion regulation in children is crucial for healthy development and is influenced by parent emotion socialization. The current pilot study aimed to test, for the first time in a Scandinavian population, whether an emotion-focused intervention, Tuning in to Kids (TIK), had positive effects on parent emotion-related socialization behaviors (ERSBs), and children's self-regulation, anxiety, and externalizing behavior problems. We conducted a controlled trial of the 6-week evidence-based TIK parenting program with 20 parents of preschool children aged 5–6 years and 19 wait-list controls. Assessments at baseline and 6 months after the intervention included parent-report questionnaires on parent ERSBs and child adjustment, as well as aspects of children's self-regulation assessed with two behavioral tasks, the Emotional Go/No-Go task (EGNG) and the AX-Continuous Performance Task (AX-CPT). Results showed a significant increase in reported parent emotion coaching behavior and an uncorrected significant decrease in parents' report of child externalizing problems in intervention participants compared to controls. The behavioral data showed an uncorrected significant improvement in child emotion discrimination in the control condition compared to the intervention condition, while measures of children's executive control improved from baseline to follow-up for both conditions but were not significantly different between conditions. These findings suggest that this emotion-focused parenting intervention contributed to improvement in parents' emotion coaching and their appraisal of child externalizing problems, while children's self-regulation showed mainly normative developmental improvements. Further research with a larger sample will be the next step to determine if these pilot findings are seen in an adequately powered study.

Keywords: emotion socialization, parent intervention, self-regulation, externalizing, AX-CPT

INTRODUCTION

Starting school is a major emotional challenge for young children and adjustment during this transition is associated with school success (Margetts, 2005). Without the necessary skills in regulating emotion, cognition and behavior, and parental support to assist this, the transition can result in children displaying challenging behaviors which may inhibit their adjustment, well-being, and subsequent learning (Merrell and Tymms, 2001). How can we assist young children to develop emotional competence, and what factors may contribute to better self-regulation in preschool children?

Previous research has shown that children's skills in regulating emotions, cognitive processes and behavior, if developed early, act protectively and preventatively, reducing the risk that a child under stress will develop internalizing or externalizing problems and social difficulties (Greenberg et al., 1991; Cicchetti and Cohen, 1995; Eisenberg et al., 2001a). Self- regulation is determined by a number of processes within the child, including emotion regulation and executive functions involving cognitive and behavioral control (Posner and Rothbart, 2007; Nigg, 2017)—functions that are shaped over time by socialization processes. The child's self-regulation system is partly shaped by the quality of interpersonal interactions during early development. Parents' responses to, and coaching around, preschool children's emotional learning, termed emotion-related socialization behaviors (ERSBs), have been found to be central for children to develop self-regulation skills (Eisenberg et al., 1998; Morris et al., 2007). For example, parents' discussion of emotions with their children has been shown to be related to higher cognitive self-control in children over 1 year later, which is related to more socially acceptable child behavior (Curtis et al., 2020).

Several studies have shown that parenting programs focusing on emotion socialization that promote development of emotional competence through social and emotional interactions (Grusec, 2011), enhance both parental ERSBs and child adjustment (see i.e., Johnson et al., 2017; England-Mason and Gonzalez, 2020 for relevant reviews). However, most evaluations have only included parent-reported outcomes and no direct assessment of the child, and less is known about the impact of such programs on specific aspects of child self-regulation, including their cognitive counterparts. In their review of childhood interventions and self-control, Gagne and Nwadinobi (2018) argued for the importance of future studies to examine both cognitive and socio-emotional aspects of child development, as well as increasing the use of interventions that include a socio-emotional perspective to assist children in the important transition to starting school. Typically, interventions for child self-regulation focus predominantly on training children's inhibitory control and attention skills, with beneficial outcomes on attention, but training these specific skills may not generalize to children's functioning more broadly, such as how they cope with emotionally challenging situations in everyday life. An alternative strategy for improving children's self-regulation and adjustment is thus to work with parents to build a supportive environment that cultivates the development of self-regulation on a day-to-day basis, which may also enhance other aspects of child and family functioning. Investigating the effects of emotion socialization parenting programs on self-regulation has recently been highlighted as an important path for future studies (England-Mason and Gonzalez, 2020). Better child self-regulation and adequate parent emotion socialization are expected to reduce frequent child adjustment difficulties in preschool age children, such as anxiety and externalizing problems (Johnson et al., 2017; Robson et al., 2020).

The current study is a pilot study of an established evidence-based parenting intervention with emotion socialization from Australia, Tuning in to Kids, conducted with parents of preschool children living in Norway. The main aims of the study were to (a) investigate whether the program had an impact on parental ERSBs, (b) investigate whether the intervention had an impact on child self-regulation as measured with behavioral tasks, and (c) evaluate whether the intervention had a wider impact on child anxiety and externalizing problems. Relevant theoretical perspectives and empirical findings on interventions including parent emotion socialization, and the relation to child self-regulation and adjustment, are reviewed below.

Child Self-Regulation and How to Aid Development of Such Skills

Regulation is a broad and comprehensive construct that involves monitoring and modulation of emotions, thoughts and behavior (Nigg, 2017). Young children's internal state or behavior can be regulated by caregivers or others, referred to as extrinsic regulation, or they can regulate themselves—called self-regulation or intrinsic regulation (Eisenberg and Spinrad, 2004; Nigg, 2017). Self-regulation includes both top-down and bottom-up processes that are mutually dependent. Top-down regulation refers to processes where children deliberately regulate their emotions, cognition or actions—including mental processes that facilitate or inhibit cognitive control and affective responses (Nigg, 2017; Thompson et al., 2020), while bottom-up processes tend to be more automated, and can be either involved in regulation or targets of regulatory processes (see Nigg, 2017, for an overview).

An important focus in the present study was how to aid development of aspects of child self-regulation that are important for school readiness, such as the ability to recognize and identify different emotions and to control impulsive reactions and chose alternative actions (Raver, 2002). Thus, self-regulation in this study was operationalized through emotion discrimination and executive control tasks. When children are able to regulate their reactions, for example by discriminating between various emotional expressions, inhibiting inappropriate responses, and showing self-control when distracted, they cope better in most situations and also elicit more supportive reactions from other people in their surroundings. Difficulty regulating negative emotions, thoughts or actions may contribute to a lack of coping in different settings, and as such linked with the development of problem behavior and maladjustment (Eisenberg et al., 2001b; Silk et al., 2003).

Further, it is important to consider possible distinctions between different self-regulation functions, which have different

developmental courses, and, importantly, may be shaped by various aspects of parenting. The early development of self-regulation likely involves qualitative changes in the organizing of its components, with increasing differentiation with increased age (e.g., Akshoomoff et al., 2018; Hartung et al., 2020). This overlaps with and is followed by gradual quantitative developmental improvements, with functions developing at different speeds (Huizinga et al., 2006; Tamnes et al., 2010; Tottenham et al., 2011). Based on earlier findings, it has been suggested that parenting interventions that target a broader scope of skills including children's emotional and social development and facilitate their development across multiple domains, may be more efficient interventions than tailor-made cognitive training tasks (Diamond and Lee, 2011; Neville et al., 2013).

Even though the self-regulation system is partly shaped by the quality of interpersonal interactions during early development, few interventions have targeted parents' ERSBs as a way of influencing child self-regulation. Programs that enhance parent emotion socialization guide parents in how to directly teach children to identify and name different emotions, and help children modulate their responses in challenging situations within the context of a supportive relationship (Gottman et al., 1996). These are factors that may have both direct and indirect impact on aspects of child self-regulation, like emotion discrimination and executive control, making parent emotion socialization interventions a promising avenue for better child self-regulation. Further, a meta-analysis of the components of highly effective parenting programs found that those that included a component on emotional communication were the most effective (Kaminsky et al., 2008).

Parent Emotion Socialization

Parent emotion socialization refer to the way parents respond to children's emotions, model emotional expressions and how well-parents regulate their own emotions (Eisenberg et al., 1998).

Gottman et al. (1996) have suggested that parent's philosophy about emotions shape their emotion socialization behaviors. Parents' attitudes, thoughts and feelings about their own and their child's emotions are related to their awareness, acceptance and coaching of specific emotions (Katz et al., 2012). Emotion coaching parents are aware of low-intensity emotions in themselves and their children, view children's negative emotions as an opportunity for intimacy and communication about emotions, validate and label emotions, and set limits and solve problems when necessary (Gottman et al., 1996). On the other hand, emotion dismissive parents tend to avoid and ignore emotions, and may convey to their children that emotional expressions are unwarranted (Gottman et al., 1996; Gottman and DeClaire, 1997; Katz et al., 2012). Eisenberg's heuristic model of parent emotion socialization outlines how parents affect children's ability to regulate emotions, cognition and behavior, and parents' ERSBs are typically operationalized as either supportive or non-supportive (Eisenberg et al., 1998; Eisenberg, 2020). Supportive parental responses correspond to emotion coaching, shape children's emotional learning and has been found to be associated with better child self-regulation and functioning (Dunn et al., 1991; Gottman et al., 1996; Lunkenheimer et al., 2007). Conversely, non-supportive or emotionally dismissive responses has been linked to deficits in children's social skills and emotion knowledge, and increased behavior problems (Lunkenheimer et al., 2007; Johnson et al., 2017). Reducing emotion dismissive responses and increasing emotion coaching parenting could therefore potentially improve children's self-regulation and prevent mental health problems during the vulnerable transition to starting school.

Currently, there are no published studies on the effects of parent emotion socialization interventions in Scandinavian countries. Most evaluations of emotion socialization interventions have so far been conducted in English speaking Western countries. Whether similar effects are seen in a Scandinavian context is not known. Norwegian parents receive substantially more economic support post-partum through the welfare system than parents in the USA, including a year of parental leave and universal access to affordable child care (Zachrisson and Dearing, 2015). These Nordic family-friendly policy schemes may contribute to strengthening attachment bonds in early childhood (Eisenberg et al., 1998; Cassidy et al., 2011). In addition, parenting in the Nordic countries is characterized as dialog-based with no tolerance for physical punishment (Hollekim et al., 2016). Thus, Norwegian parents might be more ready to learn emotion coaching and dialog-based parenting strategies, which again may contribute to enhanced child self-regulation. Norwegian parents are normally very good at taking a problem-solving approach. They would typically suggest a solution directly when exposed to the child's expression of a frustrating emotion, before using the other steps in emotion coaching. However, problem solving without responding to the emotion first can be a more dismissive response. To address this, parents in the current intervention were guided to wait with problem solving until after using the first four steps of emotion coaching when their child experiences emotions.

Emotion Socialization Interventions and Child Self-Regulation

Parenting programs that teach emotion coaching are emerging in the evidence-based literature (Eisenberg, 2020; Havighurst et al., 2020). These teach parents' skills in noticing children's emotions, helping children understand their emotions and regulate them, assist parents to regulate their own emotions and set limits around children's behavior.

For preschool children, self-regulation is mainly assisted by the parents or other central care givers, making self-regulation a dyadic process and emphasizing the interpersonal aspects of how to manage emotions, cognitive processes and behavior (Barthel et al., 2018). By communicating accept and validate the child's expression of challenging emotions, the parent provides support and external regulation, which might help the child to practice and internalize self-regulatory skills—i.e., to inhibit and control unwanted responses, discriminate better between different emotions and to be more proactive and respond more adequate to emotional cues (Spruijt et al., 2020). In a review of research on parenting practices and child emotion regulation, Morris et al. (2017) concluded that "parents' emotional support,

positive affect, emotion coaching, and use of joint strategies are all associated with more effective emotion regulation in children" (Morris et al., 2017, p. 236).

In the last two decades, studies evaluating emotion coaching interventions have been found effective in increasing children's emotional competence (see i.e., England-Mason and Gonzalez, 2020; Havighurst et al., 2020, for reviews). To directly measure child outcomes, studies have used assessment of emotion understanding, typically using Denham's (1986) puppet task, also referred to as the Affective Knowledge Test, the Emotion Skills Task, or the puppet interview (see Denham et al., 2015, for a review). In a study of an emotion coaching intervention on 75 mother-child dyads (child age 6–12) in households that had experienced intimate partner violence, Katz et al. (2020) found increased baseline vagal tone in the intervention group children, taken to index increased ability of self-soothing in stressful situations (Porges, 1995). They also found improvement in mothers' emotion regulation abilities, mother and child mental health, parent-child relationship, and mothers' confidence in dealing with child behavior problems.

While parenting has been shown to influence aspects of child emotional competence such as emotion knowledge and understanding assessed by Denham's (1986) puppet task, self-regulation processes, i.e., measured by tasks tapping executive control or emotion discrimination skills, have been less examined within the field of emotion socialization (Ferrier et al., 2014). In a review of the impact of emotion socialization parenting programs on child emotion regulation and executive functioning in preschoolers, England-Mason and Gonzalez (2020) identified three parenting programs that aimed to enhance parental emotion coaching consistent with Gottman and colleagues' definition (Gottman et al., 1996); Tuning in to Kids (TIK; Havighurst et al., 2009), Parent-Child Interaction Therapy-Emotion Development (PCIT-ED; Luby et al., 2012), and Emotion Enhanced Triple P (EETP; Salmon et al., 2014). Of the twelve studies identified, only four used observational assessment of child behavior, and of these, only one study assessed aspects of self-regulation, namely the ability to discriminate between facial expressions of emotions. In an open trial of PCIT-ED, Lenze et al. (2011) examined 8 families with depressed children aged 2–5 years, using the Penn Emotion Differentiation Test, finding that some of the children demonstrated improved emotional discrimination on the computerized task. The children also showed significant reductions in their depression symptoms after the intervention. England-Mason and Gonzalez (2020) highlight that most of the studies used operationalization of emotion regulation that tapped into broader aspects of emotional competence, making it difficult to define regulation processes properly and validly to discriminate between subdomains. As indicated above, children's ability to discriminate between different emotion expressions can help the child both to identify the emotions they observe in other individuals and contribute to decide how they should respond to other people's emotional reactions. Thus, by being more skilled with identifying emotions and modulate their response to emotional cues, i.e., as assessed by emotion discrimination and executive control tasks, children may regulate their emotional and behavioral expressions accordingly, and cope better in challenging emotional and/or relational situations. In such situations, the parents are normally the most important role models. When a parent responds to the child's emotion expression in an accepting and acknowledging way, helping their child to identity and name the emotion, this modeling and coaching parenting behavior can help the child both to identify other's expression of emotion and control their own expression of behavior. Of the few emotion socialization studies that had direct assessment of the children, none have used a population-based sample (England-Mason and Gonzalez, 2020). Thus, there is still a scarcity of studies examining the effect of emotion socialization interventions on direct assessment of child self-regulation, and especially studies that can be generalized to the wider population are needed. Further, better child self-regulation and parent ERSBs are expected to help improve child adjustment (Eisenberg et al., 2001b).

Emotion Socialization Interventions and Child Anxiety and Externalizing Problems

Child adjustment problems are usually classified into two broad categories; internalizing problems (inward-directed problems relating to difficulties in the experience, expression and regulation of feelings, such as symptoms of depression, social withdrawal, fearfulness, and anxiety), and externalizing problems (relating to acting-out or outward-directed problems, such as problems with attention, aggression and non-compliance) (Campbell, 1995; Kovacs and Devlin, 1998). Between 7 and 12% of Norwegian preschoolers meet criteria for a mental health disorder, including internalizing or externalizing behaviors (Wichstrøm et al., 2012); indicating that prior to the transition to school, many children are already having significant problems. In preschool age, internalizing problems are mostly salient through symptoms of anxiety, rather than depression (Costello et al., 2005; Wichstrøm et al., 2012). Both internalizing and externalizing problems are often difficult to halt once they begin, they have been found to have a strong impact on later development of child psychopathology, and are also shown to often persist through to adolescence and adulthood (Trentacosta and Shaw, 2009). Interventions that target parent emotion socialization have been found effective in preventing both internalizing and externalizing problems and promoting adjustment to starting school (Salmon et al., 2009; Havighurst et al., 2010).

A recent meta-analysis of parent emotion socialization and child conduct problems found that parent practices were significantly related to both concurrent and prospective child externalizing problems (Johnson et al., 2017). Non-supportive parental behaviors predicted increasing externalizing problems, while supportive behaviors predicted a decrease in child externalizing. This is supported by a Norwegian study of the relation between parent emotion socialization and child emotion understanding and externalizing behavior, using baseline measures from the same sample as in the current study (Bjørk et al., 2020). They showed that higher levels of parental distress in response to children's negative emotion (i.e., non-supportive parenting) was associated with higher levels of

externalizing child behavior and supportive parental responses were significantly correlated with child emotion understanding. In a study of an emotion socialization parenting intervention on military parents, Zhang et al. (2020) found that improvements in both parents' non-supportive behavior were associated with a decrease in child internalizing behaviors, while improvements in only mothers' non-supportive behavior were associated with a decrease in child externalizing behaviors. Further, the results showed that the intervention over 2 years had indirect effects on child behaviors through non-supportive, but not supportive, parenting. In sum, findings indicate that interventions targeting parental ERSBs contribute to reductions in child internalizing and externalizing problems and appear to work by reducing non-supportive parenting behaviors, with greatest benefits for externalizing, compared to internalizing, problems.

The Present Study

Even though parenting programs focusing on emotional communication have shown to be among the most effective ones to enhance children's emotional competence and reduce problem behaviors (Gottman et al., 1996; Kaminski et al., 2008), interventions that teach emotion coaching are only just beginning to emerge in the literature. The present study implemented the parenting program Tuning in to Kids (TIK: Havighurst and Harley, 2010), which addresses this gap by targeting the responsiveness of parents to the emotional needs that underlie children's challenging behaviors and emotional and self-regulatory difficulties (Havighurst and Kehoe, 2021). The program aims to improve the parents' responsiveness both through their own emotion awareness and regulation and more supportive emotion coaching responses to their children's emotions. TIK, which has been found to improve preschool children's emotional competence, reduce behavior problems, and assist children as they face the transition to school (Havighurst et al., 2009, 2010, 2013; Wilson et al., 2012). Earlier studies of the TIK program with preschooler's have found that the program shows effect on both reductions in parent-reported child externalizing behavior (Havighurst et al., 2010, 2013, 2015a) and anxiety problems (Edrissi et al., 2019). Evaluations of the TIK program have been/are being conducted in the USA, China, Germany, Turkey, Iran and New Zealand (Edrissi et al., 2019; Meybodi et al., 2019; Otterpohl et al., 2020; Qiu and Shum, 2021), however, to date the program has not been tested in a Scandinavian context, to see whether it improves parental ERSBs and children's self-regulation and adjustment.

Aims

An intervention that assists parents to learn specific skills that enhance their ERSBs is expected to mitigate children's risks related to limited emotional, cognitive and behavioral regulation. Hence, the present pilot study aimed to investigate the effects of the emotion-focused parenting program TIK in a Norwegian community setting with parents of 5–6-year-old kindergarten children just prior to the transition to school. The main goals were to examine the impact of the parenting program on parental ERSBs, child self-regulation, and child adjustment. The specific research questions tested were whether, compared to control participants, intervention: (1) parents would report increased emotion coaching and decreased emotion dismissing; (2) children would show improved self-regulation functions as measured with behavioral tasks on emotion discrimination and executive control aspects, and (3) parents would report reductions in their children's anxiety and externalizing problems.

MATERIALS AND METHODS

Participants

Participants were parents and their children recruited from 17 kindergartens in different areas in and around Oslo. The sample consisted of 39 parents with a mean age of 41.87 years (*SD* = 4.46, range = 34–53 at T1), including 29 mothers and 10 fathers, and 40 preschool children with mean age 5.91 (*SD* = 0.32, range = 5.31–6.45 at T1), including 19 girls and 21 boys. The sample included one twin pair, where the parent delivered one questionnaire per twin. There were no differences between the intervention and control conditions in age, gender, socioeconomic measures or family status (**Table 1**). The children did not start school before after post-testing.

Intervention

The Norwegian version of TIK is a direct translation of the Australian TIK program (Havighurst and Harley, 2010). The program teaches parents the five steps of emotion coaching: (a) become aware of low-intensity emotions in your child, (b) view your child's emotions as a time for intimacy and teaching, (c) communicate understanding and acceptance toward your child's emotions, (d) help your child to label their emotions, and (e) if necessary, assist with choices, set limits, or problem solve [based on the five steps of emotion coaching outlined in Gottman and DeClaire (1997)]. A central aspect is to communicate that all wishes and feelings are acceptable, but some behaviors are not. In addition, the program includes activities designed to increase parents' awareness, understanding and regulation of their own and their child's emotions. This includes focusing on experiences in family of origin and exploration of attitudes toward emotions, perspective taking and empathic reflective listening skills, and promoting greater acceptance of emotions. Delivery of program content was via psycho-education, a range of exercises, group discussions, role-plays and homework activities. TIK was delivered for 2 h per week across six weekly evening sessions with two facilitators (authors Havighurst and Karevold). Norwegian translations of the original TIK parent handouts (Havighurst and Harley, 2010) were used. Fidelity checklists were completed after each session, and 100% of core program content was delivered. Each group consisted of up to 12 parents (range: 8–12).

Procedure

Families were recruited through kindergartens. Kindergartens distributed information letters to all parents in the relevant aged preschool classes. Parents that responded with an expression of interest were then contacted by a research assistant, who gave them further information about the study and consent forms. To avoid contamination between parents in the same kindergartens,

TABLE 1 | Descriptive information regarding the sample, divided on intervention and control condition.

	Intervention condition	Control condition	Difference	
	(*N* = 21)	(*N* = 19)		
	N (%)/Mean (*SD*)	*N* (%)/Mean (*SD*)	χ^2/t	*p*
Child sex: Girls	10 (48%)	9 (47%)	< 0.01	1.00
Child age (months)	69.8 (4.0)	71.1 (3.6)	1.21	0.29
Parents' age (years)	43.0 (5.1)	41.0 (3.7)	1.41	0.17
Parental education: four years of university or more	17 (81%)	17 (90%)	0.57	0.66
Employment	1.91	0.49		
80–100% positions	19 (91%)	19 (100%)		
Economy	0.82	0.52		
- Manage very well	14 (67%)	10 (53%)		
- Manage or manage well	7 (33%)	9 (47%)		
Family status	0.26	1.00		
- Residing partner	19 (91%)	18 (95%)		
- Single or not residing partner	2 (10%)	1 (5%)		

All background information is at T1. Fisher's exact test was used to analyze nominal data and Student t-test for continuous data.

parents were allocated to either intervention or control condition based on the kindergarten they attended. Because of limited time for laboratory assessments, parents from the first 8 kindergartens that responded were assigned to the intervention, and the remaining were allocated to the control condition. Both conditions were tested at baseline. After baseline testing, those allocated to the intervention condition received TIK. Approximately 6 months after the intervention, parents in both conditions were invited to a follow-up assessment. Parents in the control condition were offered the intervention after the follow-up assessment. Children were rewarded for participation with a small gift after the testing session. Parents completed online questionnaires while the children were tested by a lab manager and 1–2 research assistants per child. The study is registered in Clinical Trials (ID: NCT04851704: https://clinicaltrials.gov/ct2/show/NCT04851704?term=NCT04851704&draw=2&rank=1), was approved by the Regional Committees for Medical and Health Research Ethics (REC: 2015/2383), and all parents gave written consent for their own as well as for their child's participation in the study. Because of ethical reasons, the material and data are not publicly shared.

Questionnaire Measures

Questionnaires parents answered at baseline and follow-up included self-report scales about parenting, as well as child functioning. Cronbach's alpha on the scales is reported in **Table 2**.

Parent Emotional Style Questionnaire (PESQ)

The PESQ (Havighurst et al., 2010) is an adaptation of the Maternal Emotional Style Questionnaire (MESQ; Lagacé-Séguin and Coplan, 2005) and was used to measure parental beliefs about their child's sadness, anger and fear with items rated on a 5 point Likert scale. Emotion coaching beliefs were assessed with 8 items (e.g., "When my child is worried, I want to know what he/she is thinking"; "Anger is an emotion worth exploring"). Three original items related to problem solving (items 3, 12, and 15) were removed from the Emotion coaching scale, as these are interpreted as not being consistent with emotion coaching taught in the intervention (e.g., "When my child is sad, it's time to problem solve"). Emotion dismissing beliefs were assessed with 10 items (e.g., "Childhood is a happy-go-lucky time, not a time for feeling sad or angry"; "I try to change my child's worried moods into cheerful ones"). The scale was translated and back-translated by bilingual and/or fluent English-speaking developmental psychologists and research assistants.

The Preschool Anxiety Scale Revised (PAS-R)

The PAS-R (Edwards et al., 2010) is a 28-item questionnaire assessing anxiety and worries in children where each item is rated on a 4-point Likert scale. The PAS-R consists of five subscales of anxiety equivalent to the DSM-IV classifications: separation anxiety, social anxiety, physical injury fears, obsessive compulsive, and generalized anxiety. The PAS-R was designed as an adjunct to clinical interview diagnosis for screening those children at-risk for anxiety problems and provides an indication of the child's levels of anxiety. Good construct validity of the PAS-R has been established earlier (Edwards et al., 2010; Wang and Zhao, 2015).

The Eyberg Child Behavior Inventory (ECBI)

The ECBI (Eyberg and Robinson, 1983) is a 36-item parent-report questionnaire that measures children's behavior problems. The inventory has two subscales: an Intensity score, assessing frequency of behavior problems (e.g., "Physically fights with sisters and brothers") with ratings on a 7 point Likert scale, and a Problem score, measuring whether the rater believes the behavior to be a problem or not. The questionnaire has good psychometric properties (Burns and Patterson, 2000; Axberg et al., 2008), and has been widely used and validated (Reedtz et al., 2008; Reedtz and Martinussen, 2011).

TABLE 2 | Cronbach alphas'of outcomes at baseline and post-intervention, and Pearson correlations between outcomes at baseline.

	α pre	α post	*n* control/ Intervention	1	2	3	4	5	6	7	8
1. PESQ emotion coaching	0.66	0.61	19/21								
2. PESQ emotion dismissive	0.82	0.81	19/21	***0.50***							
3. EGNG false alarms			17/20	−0.12	−0.31						
4. EGNG d-prime			17/20	0.03	0.28	***−0.78***					
5. AX-CPT PBI-index			19/21	0.01	0.25	0.01	0.05				
6. AX-CPT Context-d'			19/21	0.04	0.22	−0.28	**0.34**	**0.34**			
7. ECBI intensity	0.86	0.90	19/20	−0.24	−0.09	−0.13	0.09	0.08	0.11		
8. ECBI problems	0.69	0.79	19/19	−0.16	0.10	**0.34**	−0.21	−0.08	0.09	***0.62***	
9. PAS-R total anxiety	0.89	0.88	19/21	0.32	0.17	0.12	−0.10	0.05	0.04	0.28	0.26

[α]*Cronbach's alpha.*

Bold = significant ($p \leq 0.05$) correlation. Bold and italic = $p \leq 0.001$.

PESQ, Parent Emotional Style Questionnaire; ECBI, Eyberg Child Behavior Inventory; PAS-R, Preschool Anxiety Scale—Revised version; AX-CPT, AX Continuous Performance Task; PBI-index, Proactive Behavioral Index; context-d'/d-prime, Hits relative to false alarms; ECBI, Eyberg Child Behavior Inventory; EGNG, Emotional Go/NoGgo task.

Direct Assessment of Child Behavior

Emotional Go/Nogo Task (EGNG)

The EGNG task used in the current study (Hare et al., 2008) was an adaptation from the Go/NoGo task—a well-established cognitive paradigm. When modified with emotional stimuli in the form of faces with different positive and negative emotional expressions serving as either target or non-target, the task allows for behavioral assessment of emotion discrimination, emotion regulation and cognitive control, which are related, yet separable processes (Tottenham et al., 2011). Neuroimaging studies, including studies with children, have been used to validate that the task can dissociate activity in prefrontal top-down control systems from activity in subcortical limbic regions for both negative and positive emotions (Hare et al., 2008; Somerville et al., 2011). The participants were presented with pictures with different facial expressions that was displayed on a screen. When a named target expression was presented, the subjects were instructed to press a button as fast as they could (Go trials), while the subjects were asked to withhold pressing if the facial expression was different from the named target expression (NoGo trials). To ensure that the predominant reaction of the subjects was to respond, the target expression/Go trials occurred in a majority of the trials. Participants were not told what the facial expressions in NoGo trials was, but just instructed to withhold pressing a button for all facial expressions that was not the Go expression. The task consisted of four blocks of different pairs of facial expressions (sad-neutral, neutral-sad, angry-neutral, and neutral-angry), where either the emotional or the neutral expression served as a Go or NoGo stimulus (e.g., when neutral was the Go stimulus, the emotional expression served as the NoGo stimulus). Each block included 30 trials, of which 20 were Go trials and 10 were NoGo trials. Each picture was shown for 1,200 ms and interstimulus interval varied randomly in the range 1,250–1,750 ms. Nine practice trials were administered to ensure that participants understood the task and could execute the responses. Three children did not complete enough trials at baseline, and two children did not complete at post testing. Stimulus was presented and responses recorded using the E-Prime 2.0 software (Psychology Software Tools, Pittsburgh, PA). For the current study we used d-prime, a sensitivity index which balances both number of hits and number of false alarms, as a measure of emotion discrimination (specifically the ability to tell specific emotional faces apart); and false alarms across all blocks as a measure of self-regulation in the context of both emotional and neutral stimuli.

AX Continuous Performance Task (AX-CPT)

The AX-CPT task (a version of the classic Continuous Performance Test, Rosvold et al., 1956) is among the tasks most frequently used to study adaptive cognitive control by cognitive and clinical neuroscientists (Cohen and Servan-Schreiber, 1992; Servan-Schreiber et al., 1996). In particular, the task makes it possible to distinguish between proactive or reactive control modes (Braver et al., 2007; Braver, 2012). Whereas, proactive control refers to anticipatory and sustained maintenance of goal representations (i.e., the context), reactive control reflects transient stimulus-driven reactivation of goal representations. Each trial of the standard AX-CPT consists of two displays: first, a contextual cue is presented, then, after a delay, the probe is presented, and participants decide whether the probe is a target or not and respond by pressing the appropriate button. We adapted the standard AX-CPT to use with children. The AX-CPT have been shown to validly index proactive and reactive control modes in children in preschool age (Chatham et al., 2009; Chevalier et al., 2015). In our "Angry bird" version of the AX-CPT, a green pig or a blue bird were used as contextual cues, and a red apple, or purple grapes were used as probes. The combination pig—apple was defined as the target and constituted 70% of the trial combinations. Children were told that the pig likes apples, but not grapes. When the pig is displayed, followed by the apple, they should press a right-hand key. The remaining combinations constituted 10% each. If the grapes follow the pig, they should press a left-hand key. The blue bird does not like anything, and they should therefore press the left-hand key regardless of the identity of the second picture. Left and right key presses were counterbalanced between participants. A practice block of ten

trials was presented to familiarize the children with the task. The instructions given were to respond as quickly and accurately as possible.

The trial started with a 700 ms fixation period. The cue stimulus followed (pig or bird) was presented for 500 ms, followed by a fixation cross for 1,500 ms. Then the probe stimulus was presented (apple or grapes) for another 500 ms followed by a 1,500 ms screen with a fixation cross. In this interval the children had to press the response button. A feedback screen with a smiley figure lasting 500 ms followed if the child responded correctly. A final fixation cross of 500 ms duration followed and this ended the trial. There were 120 trials in total, divided into 4 experimental blocks of 30 trials. The children were encouraged to complete all trials, but were told that they could terminate whenever they felt too tired to continue. In session 1, 36 participants completed 120 trials or more (one participant completed 180 trials). The remaining three participants completed 30, 60, and 86 trials, respectively. In session 2, 37 participants completed 120 trials. Data from one participant is missing, and the remaining two completed 30 and 60 trials, respectively. Sensitivity analyses, where children with <120 trials on AX-CPT are excluded, find similar effects on AX-CPT as presented in **Table 3**. E-prime 2.0 (Psychology Software Tools) was used for stimulus presentation and recording of responses.

Accuracy was estimated for each trial type (AX, AY, BX, BY) in all experiments. The proactive behavioral index (PBI) was computed for each participant by relating AY and BX error rates, as in previous publications (e.g., Braver et al., 2009), according to the following formula:

$$PI = \frac{E_{AY} - E_{BX}}{E_{AY} + E_{BX}}$$

Where E, the error rate for each condition, is computed using the following formula which avoids complications when the number of errors is small or zero:

$$E = \frac{number\ of\ errors + 0.5}{number\ of trials + 1}$$

The PBI varies between −1 and +1: the closer the score is to +1, the more proactive-like is the strategy of the participant; the closer the score is to −1, the more reactive-like is the strategy. A score of 0 means equal amount of AY and BX errors.

Context-d' was calculated for each participant based on AX hit rates and BX false-alarms. This measure is derived from the d' of signal detection theory and indicates sensitivity to distinguish the different types of probes (target X in AX trials vs. non-target X in BX trials) (Stanislaw and Todorov, 1999). Larger values of context-d' indicate greater sensitivity. In the current study, we used both PBI and context-d' as a measure for the executive control aspect of self-regulation, the former control strategy, and the latter control performance.

Statistical Methods and Preliminary Analyses

Univariate linear mixed effects models were used to investigate condition differences in changes over time. There were no significant differences between intervention and control condition at baseline on any of the outcome (**Table 3**) or background variables (**Table 1**). No confounders or random effects were included in the mixed models due to this similarity between conditions and because of a limited number of participants. The model included the fixed effects of time, condition and the interaction effect between time and condition, in which the interaction effect is the estimate of the intervention effect. In addition, the effect size is presented as Cohen's d calculated based on the mean change in each condition, pre-intervention standard deviations and correlation across both conditions between pre- and post-test results (Morris and DeShon, 2002) using the online calculator no 4 at https://www.psychometrica.de/effect_size.html#repeated. As each outcome represent results regarding different outcomes, we present *p*-values and effect sizes from univariate analyses. In addition to uncorrected *p*-values, *p*-values adjusted for multiple analyses as suggested by Hochberg and Benjamini (1990) and calculated in R version 3.4.4 are also reported. We used IBM SPSS statistics version 25 for all other analyses, significance levels were set at 0.05, and all tests were two-tailed.

Assumptions of homoscedasticity and normally distributed residuals, and thus linearity, were investigated by visual interpretation of Predicted Probability (P-P) plots and scatterplots of predicted values and residuals, and were fulfilled for all models. The univariate analyses did not include any confounder variables; thus multicollinearity was not tested. However, correlation between outcomes, in addition to internal consistency within each outcome, are presented in **Table 2**.

There were few missing cases on each individual item within each scale (mean 1.6%). The participants either reported on almost all items per measure (maximum two missing) or did not report on a large proportion of the items. Thus, we only calculated scores for participants with less than three missing items per scale, based on mean imputation method within each measure. Because of partly overlapping information with **Table 3**, information on changes over time for intervention and control condition is placed in **Supplementary Table 1**. Correlations between changes in the outcome variables are presented in in **Supplementary Table 2**.

RESULTS

Descriptive Analyses

Cronbach's alpha and correlations between the study variables are reported in **Table 2**, while means and standard deviations for the intervention and control conditions are reported in **Table 3**.

Parental ERSBs

There was a significant interaction between time and condition, indicating that the intervention condition had greater increases in their self-reported emotion coaching abilities [d (95% CI) = 0.30, 1.20] compared to the control condition (**Table 3**). There were no significant differences between the conditions in terms of changes in emotional dismissiveness (**Table 3**).

Regarding changes over time, the intervention condition, but not the control condition, had significant increases in both

TABLE 3 | Descriptive information of outcomes, condition differences at baseline and effects of intervention.

	Pre		Post		Effects				
	Intervention ($n = 21$) Mean (*SD*)	Control ($n = 19$) Mean (*SD*)	Intervention ($n = 21$) Mean (*SD*)	Control ($n = 19$) Mean (*SD*)	Condition differences at baseline		Intervention effects (Time*Condition)		
					Estimate (CI)	*p*	Estimate (CI)	*p*	Cohens *d* (CI)
Parental ERSBs									
PESQ emotion coaching	31.0 (3.6)	32.7 (2.6)	33.3 (3.5)	32.1 (2.5)	−1.8 (−3.8. 0.2)	0.08	**3.0 (1.0, 5.0)**	**0.004***	**0.75 (0.30, 1.20)**
PESQ emotion dismissive	27.2 (5.5)	26.4 (5.9)	29.9 (4.8)	28.0 (6.3)	0.7 (−2.8, 4.3)	0.68	1.2 (−1.5, 3.9)	0.39	0.27 (−0.17, 0.71)
Child self-regulation									
EGNG false alarms	9.5 (5.7)[a]	8.4 (7.4)[d]	9.1 (5.2)	8.1 (6.5)[d]	1.0 (−3.1, 5.0)	0.64	0.1 (−3.8, 4.0)	0.95	0.02 (−0.44, 0.48)
EGNG d-prime	1.8 (0.5)[a]	1.7 (0.8)[d]	1.9 (0.6)	2.4 (1.1)[d]	0.1 (−0.4, 0.6)	0.69	**−0.6 (−1,2, −0.1)**	**0.02**	**−1,1 (−1.61, −0.62)**
AX-CPT PBI-index	0.2 (0.3)	0.0 (0.3)	0.3 (0.4)	0.2 (0.4)[c]	0.2 (−0.0, 0.4)	0.09	−0.1 (−0.5, 0.2)	0.53	−0.22 (−0.66, 0.23)
AX-CPT context d-prime	1.2 (1.4)	0.7 (1.5)	2.5 (1.0)	2.2 (1.4)[c]	0.5 (−0.3, 1.4)	0.21	−0.2 (−1.0, 0.7)	0.69	−0.15 (−0.60, 0.29)
Child externalizing and internalizing									
ECBI intensity	117.5 (18.1)[a]	105.0 (18.4)	110.4 (20.2)	102.9 (23.8)	11.7 (−1.2, 24.6)	0.08	−4.2 (−13.4, 4.9)	0.36	−0.42 (−0.87, 0.03)
ECBI problems	7.3 (4.4)[b]	5.5 (2.9)	5.0 (3.8)[b]	5.0 (4.1)[c]	1.8 (−0.7, 4.3)	0.15	**−2.2 (−4.3, −0.1)**	**0.05**	**−0.47 (−0.94, 0.00)**
PAS-R total anxiety	33.5 (15.8)	31.5 (14.9)	32.4 (15.3)	30.9 (11.8)[c]	2.0 (−7.3, 11.3)	0.67	0.3 (−6.3, 6.8)	0.94	0.05 (−0.40, 0.49)

Fixed effects from mixed models without covariates. All results are based on sum scores. There are no significant differences between intervention and control condition at baseline, neither in any of the outcomes nor in child gender, parental age or parental education. No confounders are included in the analyses because of this similarity between conditions at baseline and because of the limited number of participants. EGNG, Emotional Go/NoGo task; d-prime, Hits relative to false alarms; AX-CPT, AX Continuous Performance Task; PBI-index, Proactive Behavioral Index; PESQ, Parent Emotional Style Questionnaire; ECBI, Eyberg Child Behavior Inventory; PAS-R, Preschool Anxiety Scale – Revised version.

[a]$n = 20$, [b]$n = 19$, [c]$n = 18$, [d]$n = 17$.

Bold = significant ($p \leq 0.05$) effect of intervention.

**Significant ($p \leq 0.05$) after adjusting for multiple ($n = 11$) tests as suggested by Hochberg and Benjamini (1990).*

parenting skills measured by PESQ, i.e., emotion coaching and dismissiveness, from T1 to T2 (see **Supplementary Table 1**).

Child Self-Regulation

There was no significant intervention effect on the children's results on the continuous performance test (AX-CPT), nor on the number of false alarms on the EGNG task (**Table 3**). However, the control condition showed an uncorrected significant increase in d-prime on the EGNG relative to the intervention condition [d (95% CI) $= -1.61, -0.62$].

Regarding changes over time for each condition, the children in the intervention condition did not have significantly different results at T1 vs. T2 on the EGNG measures or on the PBI from the AX-CPT task. However, both conditions improved their context-d' from T1 to T2 on the AX-CPT task, indicating greater sensitivity for the probes. The only significant change over time for the EGNG measures was improvement on the d-prime for the children in the control condition, indicating better emotion discrimination. Further details regarding changes over time for each condition are presented in **Supplementary Table 1**.

Child Anxiety and Externalizing Problems

Regarding intervention effects, there was an uncorrected significantly larger decrease in parent-reported child behavioral problems on the ECBI in the intervention condition than in the control condition [d (95% CI) $= -0.94, 0.00$] (**Table 3**). There were no significant differences in change over time between the conditions for intensity of behavior problems or for child anxiety on the PAS-R, even though there was a medium effect size for intensity of behavior problems ($d = 0.42$) (**Table 3**).

Regarding changes over time, the number of child behaviors reported by their parents as a problem decreased significantly across time for both conditions, whereas intensity of behavior problems and total anxiety did not change significantly (**Supplementary Table 1**).

DISCUSSION

This pilot study aimed to test the impact of the TIK parenting program on parental ERSBs, child self-regulation and adjustment in Norway, using both parent-reported and behavioral measures. TIK is an emotion-focused parenting program that has established evidence in community and clinical samples in Australia. By using an intervention-control group design, this study sought to test—for the first time—whether the program would hold promise in a Scandinavian setting. The main results showed that reported emotion coaching parenting behavior in the intervention condition had increased significantly 6 months after the intervention, while there was no increase in the control condition over time. In addition, the parents in the intervention condition reported a significant larger decrease in how problematic they perceived their child's externalizing behavior, compared to the control condition. Finally, the direct measures of child behavior showed an uncorrected significant improvement in emotion discrimination in the control condition relative to the intervention condition, but no significant condition differences for measures more specifically targeting self-regulation. The results will be discussed more thoroughly below.

Impact of TIK on Parental ERSBs

As hypothesized, results showed that the parents who received the intervention reported significantly higher levels of emotion coaching at 6-month follow-up, while control parents did not report any increase. The size of the increase was $d = 0.75$, thus a medium to large effect size, indicating that the intervention was effective in a Scandinavian setting—as the main goal of the TIK program is to enhance parents' emotion coaching (Havighurst and Harley, 2010). The increase in emotion coaching is consistent with earlier findings from Australia on the impact of TIK in preschoolers, both with a community trial (Havighurst et al., 2009, 2010) and with a selected sample of TIK with fathers (Wilson et al., 2016). In contrast to another recent pilot on the TIK study in Iran (Aghaie Meybodi et al., 2017), we found support for the hypothesis that the TIK intervention would lead to increased emotion coaching. Removing the three items on problem solving might have contributed to a more valid measure of emotion coaching. However, while several other TIK studies have found that the main changes were reductions in parent emotion dismissiveness (Havighurst et al., 2009; Wilson et al., 2012, 2016; Aghaie Meybodi et al., 2017), the current study found no significant differences in parents' emotional dismissiveness between the conditions. Further, change in emotion dismissiveness across both groups was related to change in emotion coaching, but not to any of the other outcomes. A possible reason is that an increase in knowledge regarding what is positive parental behavior inflate reports of both parental outcomes. The lack of relations between the increase in dismissiveness and changes in the child, neither parental reported or tested, may be because the increase in dismissiveness is rather a change of their evaluation of their own behavior than a change in what they are actually doing. However, the sample from the present pilot study is small and predominantly well-educated, thus, these findings need to be replicated in a larger more diverse sample to make any reliable conclusions.

Impact of TIK on Child Self-Regulation

The current study used two behavioral assessment paradigms as indication of child self-regulation; an emotion discrimination task (EGNG) and an executive control task (AX-CPT). In the emotion discrimination task, the results indicated that children in the control condition showed increased accuracy on emotion discrimination over time, pointing to age relevant improvements in the control condition for this aspect of self-regulation. This is consistent with other studies showing improvement in accuracy on EGNG with age (Lewis et al., 2006; Tottenham et al., 2011). However, another study did not find any accuracy changes in EGNG with age (Cohen Kadosh et al., 2014), supporting the lack of changes in the intervention condition in the present study. The executive control task included measures of the children's use of control strategies and control performance, and the results indicated that children from both conditions improved their performance sensitivity—pointing to better self-control in task performance. This result is generally in line with

previous studies which have compared AX-CPT performance in preschool children with children aged 6–10 years (Chatham et al., 2009; Lucenet and Blaye, 2014; Chevalier et al., 2015), suggesting that the new version of AX-CPT adequately tapped the expected developmental changes over time in the executive control aspect in children's self-regulation (Diamond, 2013). However, this conclusion should be interpreted with caution since our longitudinal design does not allow for distinguishing between developmental effects from mere training effects.

In contrast to our hypothesis, there was no significant intervention effect for children on either of the self-regulation tasks. The only significant effect when the groups were compared was improvement on the emotion discrimination task for the children in the control group, thus opposite to our hypothesis of improved self-regulation for the children in the intervention group. Few, if any, studies have examined these relations between an emotion socialization intervention and preschoolers' emotion discrimination and executive functions before, thus, we compare the findings with other intervention studies using similar measures of child self-regulation. In a study that aimed to improve parent-child interaction through educating parents in how to support and scaffold the development of cognitive, social-emotional and self-regulatory skills in children that promotes adaptive behavior, they analyzed results from 70 children and their parents, who were randomly assigned to either intervention or control condition (Spruijt et al., 2020). The intervention consisted of four group meetings with home assignments in between. The parents showed improvements in supportive presence and less intrusiveness after the intervention, but they did not find that the educational condition led to improvement in child functioning after a 6-month follow-up. They did however find enhanced attentional control and executive functioning, as measured with the Amsterdam Neurological Tasks (including the Go/No-Go paradigm), in the four- to eight-years-old children of those parents that had improved after the program (Spruijt et al., 2020). The authors argued that most of the studies that have found gains in self-regulatory skills, have been on samples with larger initial deficits or low-income families in studies with longer follow-up (i.e., Diamond and Lee, 2011; Neville et al., 2013; Diamond and Ling, 2016), such that 6 months might be too short follow-up to find detectable effects in a well-functioning sample. These arguments are relevant for the present study, as our sample is economically well off and highly educated, and there was a short time period between the parent intervention and the assessment of child regulation. As suggested and shown by Ferrier et al. (2014), observed emotion expression and executive functioning in preschoolers will over time influence each other. Impact from parent ERSBs may take longer to manifest in the development of children's self-regulation.

Interestingly, in the current study the control condition increased their accuracy of hit vs. false rate significantly more than the intervention condition on the EGNG, indicating that they improved more with emotion discrimination over time. Several non-significant tendencies in the data point to slightly poorer functioning children in the intervention condition compared to the control condition (see pre and post means on child indicators in **Table 3**), which may explain why only the control condition showed a learning effect of the test. As mentioned in the Methods, parents in the intervention conditions were the first to make contact and show their interest in participating in the study. All though speculative, an explanation could be that the intervention parents struggled more with their children's behavior, making them more motivated to participate, thus contributing to a slight bias in condition assignment with the intervention children starting off with somewhat poorer self-regulation. This could also point to the reason for null-findings in self-regulation for the intervention condition participants, i.e., that the intervention children were more challenging to influence compared to the control condition, and also why only the latter seemed to gain more self-control over time. Future studies should test the relationship between parent emotion socialization and child self-regulation behavior in a larger sample with randomized groups and a longer follow-up period.

Impact of TIK on Child Anxiety and Externalizing Behavior

Consistent with the hypothesis, the findings showed a significantly larger decrease in parental reports of child externalizing behaviors in the intervention condition compared to the control condition. We found, however, that the parents differed only on their report of the externalizing behaviors as a problem, and not on intensity levels. Still, as the present study is a pilot study with a small sample size and the intervention is offered to parents and only indirectly addresses child behavior, this is quite a strong indicator. Different versions of TIK have been shown to reduce externalizing problems (i.e., Havighurst et al., 2004, 2015a,b; Duncombe et al., 2014; Lauw et al., 2014), and of these, one was with a large study conducted with preschool children from a population-based sample (Havighurst et al., 2010). Regarding smaller samples like the present pilot study, TIK has been shown to have an impact on externalizing problems in preschool children in the pilot study of Aghaie Meybodi et al. (2017). They, however, used a selected sample only including children with behavior problems, thus a sample expected to have a greater potential for change. Interestingly, our results are different to findings on emotion socialization interventions in general, where most of the studies have shown that a decrease in non-supportive behavior has a stronger effect on reducing child externalizing, compared to an increase in supportive parenting (see Johnson et al., 2017 for a meta-review) that we found in our study. Future research with larger samples is needed to investigate whether this difference in the impact of supportive vs. non-supportive parenting is especially relevant for externalizing behaviors in a Scandinavian culture.

Contrary to our hypothesis, we did not find a significant intervention effect with the parental reports of children's anxiety. This is consistent with findings from earlier studies of TIK with preschool children (Aghaie Meybodi et al., 2017), which also failed to show significant differences between intervention and control conditions on child anxiety. Only one study

using the TIK intervention has so far shown a reduction in parent reported child anxiety symptoms (Edrissi et al., 2019), however this pilot study used a selected sample including children with increased levels of anxiety symptoms. Our finding is also in contrast to Zhang et al. (2020), who found that a parent emotion socialization intervention contributed to lower child internalizing 2 years later. This result was with families that were combat deployed, with expected higher risk for child problems, and the study had 1.5 year longer follow-up than the current study. The impact of emotion socialization interventions on child anxiety problems is still relatively unclear, and future studies should explore more closely what factors in the intervention contribute to improved child internalizing symptoms.

Overall, there are indications that TIK seems better suited for preventing externalizing problems rather than anxiety problems in children within the normal symptom range. Internalizing problems in children are by definition harder to identify for parents, and such symptoms may not be identified and addressed at all, whether with supportive or non-supportive parenting behaviors. Thus, it might be that topics included in the TIK intervention, like showing empathy for (visible) emotion expressions and helping children to label emotions, are easier to apply for parents of children struggling with externalizing behavior problems.

Finally, the current findings are based on a pilot study which had the statistical power to detect medium to large, but not small effects. The functions of a pilot study, like the present with a small sample, can test if changes occur consistently with the theory; whether the measures detect effects and perform as expected; whether the intervention holds promise and is acceptable in the target population. In that respect, findings from the present study were consistent with an emotion socialization perspective and TIK's theoretical background, showing significant changes in parental ERSBs and child behavior in the expected directions and supporting the adaptation of assessment for child self-regulation.

LIMITATIONS

The results of the present study should be considered in light of the following limitations. First, the sample was small, reducing the chance of detecting true effects, but also increasing the effect size variability due to sampling error. Second, the study outcomes were dependent on parent reports for child adjustment, and on self-reports for parental ERSBs. This is measurement which is vulnerable for i.e., social desirability bias, thus multi-informant measures such as including teacher reports of child adjustment should be considered in future studies. Third, the intervention condition included the parents from the first eight kindergartens that showed interest in participating the study, which may have contributed to a selection bias. The parents were put in groups depending on their address and which group time points that suited them, independent of the kindergartens they belonged to, but it could still be that the intervention condition included more motivated parents. The level of parent-reported externalizing problems in the intervention condition tended to be higher, nearly significantly different at baseline ($p = 0.08$), compared to the control condition. This may be an indication of a selection bias, in that the parents who perceived their children to have more externalizing problems, where most motivated and then quick to reply to the study invitation. Kindergarten-level differences may potentially impact the results. This was not measured in the current study; thus, future studies should include such information. It was limited associations between child self-regulation and child adjustment, which may indicate that how children perform on a computer task might be quite different from how they behave in challenging situations during the day. Finally, the parents in the sample were predominantly well-educated, Caucasian Europeans, and middle class. The findings, therefore, may not be generalized to other populations. Further, to be able to detect any effects from a *parent* intervention to direct assessment of *child* functioning, a longer follow-up than 6 months may be crucial.

CONCLUSIONS

In spite of the abovementioned limitations, results from the present pilot study found a medium to large effect of the TIK intervention on parental ERSBs, supporting the effectiveness of the TIK program. Parents in the intervention condition showed significant increases in parent emotion coaching compared to parents in the control condition, and they reported their child's externalizing behavior as significantly less problematic after the intervention. Even with a relatively small sample, the TIK program show significant impact on parental ERSBs and parent reported child externalizing behavior. However, the study did not show any intervention effects on direct assessment of child self-regulation, but only on improvements in the intervention group based on reports from parents. To be able to detect effects from an emotion socialization intervention directed toward parents, to direct assessment of child self-regulation, it is recommended that future studies include larger samples and measure the effects over a longer follow-up than 6 months.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The Regional Committees for Medical and Health Research Ethics (REC: 2015/2383). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

EB: conceptualization, methodology, formal analysis, investigation, data curation, project administration, supervision, funding acquisition, writing—original draft, writing—review and editing. SH: conceptualization, methodology, investigation, validation, resources, writing—review and editing. EN: methodology, formal analysis, writing—review and editing. CT and TE: conceptualization, methodology, investigation, resources, software, formal analysis, writing—review and editing. RB: methodology, investigation, writing—review and editing. MS: methodology, investigation, formal analysis, writing—review and editing. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.730278/full#supplementary-material

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Early Adolescents' Social Achievement Goals and Perceived Relational Support: Their Additive and Interactive Effects on Social Behavior

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The current study examined the additive and interactive effects of early adolescents' social achievement goals and perceived relational support from teachers and peers on their social behavior. Adolescents' social achievement goals (i.e., social development, social demonstration-approach, and social demonstration-avoidance), perceived relational support from teachers and peers, and social behavior (i.e., overt and relational aggression, prosocial behavior, and anxious solitary behavior) were assessed in a sample of fifth and sixth graders (M_{age} = 12.5; N = 677) nested within 26 classrooms. Multilevel modeling results indicated that social goals and relational support from teachers and peers made additive contributions to adolescents' social behavior. Results also indicated the evidence of interactive effects, such that relational support from teachers was negatively associated with overt and relational aggression primarily among adolescents who had high social demonstration-approach goals. Findings underscore the need to consider adolescents' social goals in conjunction with their perceived relational support for educators and practitioners.

Keywords: social achievement goals, relational support, aggression, anxious solitude, prosocial behavior, early adolescence

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INTRODUCTION

Research on social goals has received much attention in recent decades of research. Scholars have drawn attention to more than a dozen different types of social goals that youth pursue with peers (Jarvinen and Nicholls, 1996; Rose and Asher, 1999; Wentzel, 2001) and have highlighted the importance of youth's social goals in their peer relations and social adjustment (Ojanen et al., 2012; Shin and Ryan, 2012; Kiefer and Shim, 2016). Social goals are cognitive representations of things that individuals want to accomplish in the social domain, and provide direction and energy for their behavior in the social relationship (Ryan and Shim, 2008). Whether youth are development or demonstration (or agency or communion) oriented in their social relationships is an important distinction that has shown different linkages with their social behavior (Ojanen et al., 2005; Ryan and Shim, 2006). For instance, adolescents' demonstration-approach (or dominance) goals are

positively associated with aggression, whereas development (or closeness) goals are positively associated with prosocial behavior (Ryan and Shim, 2008; Ojanen and Fineley-Van Nostrand, 2014).

Although the linkages between social goals and social behavior have been extensively examined, scant attention has been paid to the role of social relatedness as a possible moderator. Thus, it remains mostly unclear if the role of social goals on adolescents' social behavior is contextualized by relational support from teachers and peers, which are major social relatedness features for early adolescents. Because interactions with teachers and peers are a salient feature of school, their relational support is likely to affect the associations between adolescents' social goals and their social behavior. Indeed, youth's relationships with teachers and peers have been found to make additive or contingent contributions to youth's social adjustment outcomes such as aggression, behavioral misconduct, and prosocial behavior (e.g., Wentzel et al., 2016; Shin et al., 2019).

The aim of the current study is to examine if youth's social achievement goals and perceived relational support from teachers and peers have the additive and interactive effects on their social behavior. Two main goals are to examine the extent to which social goals and perceived relational support make additive contributions to youth's subsequent social behavior and whether the linkages between social goals and social behavior are moderated by perceived relational support. These goals were addressed using a prospective longitudinal design in which youth evaluate their social goals, social behavior, and perceptions of relational support from both teachers and peers from the adolescent's perspective. With considering the full social context that youth experience in class, the current study will substantiate a more multifaceted understanding on the nature and implications of perceived relational support. Findings on the associations of youth's social goals and relational experiences youth have with teachers and peers, and how they pertain to youth's social behavior will provide important implications for educators and practitioners.

Social Achievement Goals and Social Behavior

Research on social goals has provided insights into adolescents' different behavior and adjustment at school (Caravita and Cillessen, 2012; Kiefer and Shim, 2016). Among different approaches to the conceptualization of social goals, one promising approach has been to examine the social goal orientations. Research applying the social goal orientations approach has examined three different goal orientations youth have toward achieving social competence: social development, social demonstration-approach, and social demonstration-avoidance. These different social goal orientations capture meaningful distinctions in how individuals orient themselves toward forming and maintaining social relationships (Ryan and Shim, 2006).

Social development goals focus on developing social competence. With social development goals, youth use intrapersonal standards to evaluate their social competence. The focus is on whether they are having the growth of social relationships, improving interpersonal skills, or developing their social life in general (Ryan et al., 2012). Since these youth has positive views about their social competence and enhanced efficacy in social interactions, many social challenges provide opportunities for developing social skills and close friendships. They believe that they can improve and grow in positive ways in their relationships and thus mistakes are not threatening which decreases anxiety around peers. With their goals of developing positive friendships, adolescents attend to cues regarding the compatibility with other peers and be thoughtful about what is best for their relationships (Shin and Ryan, 2012). Thus, social development goals are positively associated with intimacy and mutual support as well as prosocial behavior and negatively associated with solitary or aggressive behavior with peers (Ryan et al., 2012).

In contrast, social demonstration goals focus on demonstrating social competence. Social demonstration-approach goals focus on gaining positive judgments from others (e.g., garnering social prestige and positive evaluation), whereas social demonstration-avoidance goals focus on avoiding negative judgments from others (e.g., being seen as socially ineffective or awkward). With both social demonstration goals, youth use interpersonal standards to judge their social competence which concern social comparisons with other peers. With the inherent "approach" nature of social demonstration goals, youth with social demonstration-approach goals are both adaptive and maladaptive in beliefs and behaviors. They generally feel socially efficacious and strive to achieve social status and recognition among peers. However, their behavior strategies focus on social appearance and impression making rather than relationship building (Rodkin et al., 2000). And with the goals to achieve desired social status, their behavioral tactics tend to include social manipulation and overt aggression (Rodkin et al., 2013). Thus, social demonstration-approach goals are positively associated social status among peers such as being popular but negatively associated with developing positive qualities in friendships (Shin, 2017).

With the focus on avoiding negative social judgments, youth with social demonstration-avoidance goals experience maladaptive beliefs and behaviors. These youth generally have negative views of their social competence, fear of failure, and diminished efficacy to achieve desired social outcomes (Ryan et al., 2012). Thus, they usually "withdraw" from engaging in social interactions as it is safer and satisfies their goals of avoiding possible negative social outcomes. Inherent in social demonstration-avoidance goals are the belief that other peers' judgments determine youth's social success or failure. For youth with these goals, mistakes or misunderstandings in social interactions would incur negative evaluations and are therefore threatening. Due to a focus on negative social outcomes and being overly self-conscious and afraid of failure, their peer relationships suffer with increased anxious behavior and avoidant strategies (Kuroda and Sakurai, 2011; Shin and Ryan, 2012). Thus, social demonstration-avoidance goals undermine the development of close friendships as well as social status among peers, and are associated with loneliness and isolation (Mouratidis and Sideridis, 2009; Liem, 2016).

Social Achievement Goals and Social Behavior Among Asian Adolescents

Research on Asian adolescents' social achievement goals is lacking compared to youth in the Western populations. Although the theoretical conceptualizations of social achievement goal orientations and the associations between social goals and social behavior are presumed to be universal in nature, the salience of different goals and whether certain goals are more adaptive or maladaptive for Asian youth is arguably not certain (Makara, 2019). For youth who are in the cultural orientation of individualism, one's well-being is linked to the attainment of one's personal goals, whereas youth who are in the cultural orientation of collectivism focus on group membership and interdependence (Oyserman et al., 2002). Asian countries such as China, South Korea, and Japan tend to have collectivist cultural orientations, in contrast to the United States or European countries which tend to have individualistic cultural orientations (Hofstede, 2001).

Given these differences, it is likely that collectivist or individualistic cultural orientations may have implications for what type of social goals youth pursue and the consequences of endorsing particular social goals. For example, it could be assumed that social development goals may be more dominant in collectivist cultures due to the focus on others more than the self (Makara, 2019). And, social demonstration-avoidance goals could be more maladaptive for Asian youth considering their emphasis on harmonious relationships and interdependence (Markus and Kitayama, 1991). Indeed, in a study with Japanese early adolescents, Kuroda and Sakurai (2011) reported that social development goals reduced the effects of interpersonal stress and protected youth again depression, whereas social demonstration-avoidance goals exacerbated youth's interpersonal stress and depression. However, a lack of cross-cultural research on social achievement goals make it difficult to make comparisons between studies to explore whether similar patterns emerge or not. Using an expanded set of social behavior that characterizes adolescents' social-behavioral orientations as moving toward, away from, or against the social world (i.e., prosocial behavior, anxious solitary behavior, and aggression; Caspi et al., 1988) based on South Korean early adolescents, the current study will provide additional evidence about the nature and the associations between social goals and social behavior.

Social Achievement Goals, Relational Support, and Social Behavior

Person × Environment (P × E) models emphasize that youth's personal characteristics (e.g., social goal orientations) in conjunction with environmental factors (e.g., relational support) jointly affect their developmental trajectories (Ladd, 2003). Although several variants of P × E models have been suggested to elucidate the distinct and conjoint contributions of youth's personal characteristics and relational factors to their adjustment (Ettekal and Ladd, 2017; Ladd et al., 2019), most of the empirical evidence amassed conforms to additive models that consider main effects of social goals on social behavior. Thus, evidence is not sufficient if the role of social goals on social behavior is contextualized by relational supports or stressors for early adolescents. In view of these limitations, the current study considers both additive and interactive models. Additive models imply that, separate from the contributions of youth's social goals, the relational experiences youth have with teachers or peers are positively or negatively associated with their social behavior. Alternatively, interactive models imply that contributions of youth's social goals to social behavior are contingent on the levels of relational experiences that youth perceive and are therefore moderate the effects of social goals on social behavior.

Prior theory and research support the contention that youth vary in the closeness and relatedness of their relationships with teachers and peers (Furrer and Skinner, 2003; Hughes et al., 2014), and personal relational experiences operate as relational supports or stressors in the social context (Ladd et al., 1997). According to self-determination theory (SDT), relatedness is one of the fundamental psychological needs that must be fulfilled (Deci and Ryan, 2000). When youth's psychological need for social relatedness is met, it sets in motion self-system processes that promote positive behavior in the social setting (Connell and Wellborn, 1991). Ryan and Deci (2000) emphasized the social conditions that foster or impede internalization or integration of behavior in SDT. That is, youth engage in behaviors for others when those behaviors are prompted, valued, or modeled by significant others to whom they feel related and attached. Thus, when youth feel close to and supported by their teachers and peers, they would be motivated to comply with the teacher's expectations and act in ways that are valued by their peers.

Indeed, there is compelling empirical evidence that relational support from teachers and peers contributes to emerging patterns of social behavior. Relational support from teachers, characterized by warmth, closeness, and open communication, empowers youth to engage in, rather than withdraw from, social activities in the classroom (Gest et al., 2005). When youth perceived their teachers as supportive and involved and were provided with feelings of caring and encouragement, perceived relational support were positively associated with youth's prosocial behavior and were negatively associated with aggression (Luckner and Pianta, 2011; Shin et al., 2019). In a similar manner, perceived relatedness from peers function as support systems that facilitate youth's social adaptation (Wentzel et al., 2018). Psychological processes such as validation, self-disclosure, and emotional and instrumental help are prominent among friends, and these supportive processes are directly linked with youth's social adaptation (Ladd et al., 1997). In contrast, perceived conflict or hostile interactions works as an impediment to social adaptation because it leads to social alienation and exclusion and restricts youth's access to social activities (Shin, 2019). When youth experienced rejection or victimization by peers, due to its exploitive nature, it amplified youth's loneliness and anxieties as well as irresponsible behavior and dampened social competence and prosocial behavior (Wentzel, 2003; Kingery and Erdley, 2007). Therefore, consistent with theory and empirical findings, it is anticipated that youth's perceived relational support from teachers and peers would make additive contributions to their aggression, prosocial behavior, and anxious solitary behavior.

In addition to the additive effects, relational support from teachers and peers are expected to have interactive effects. That is, the contribution of social goals to social behavior could be moderated by the levels of perceived relatedness. Support for this premise includes previous evidence indicating that the levels of relational support exacerbates or compensates for dysfunctions that are linked with risk factors such as aggression and isolation. For example, positive relationships with teachers attenuated aggressive youth's subsequent aggression while conflicted relationships with teachers were more predictive of aggressive youth's more chronic aggression (Hughes et al., 1999). Further, conflicts with peers or teachers strengthened the linkages between aggression and emerging patterns of maladjustment such as increasing misconduct and declining cooperation (Ladd and Burgess, 2001).

Among youth with social demonstration goals, perceived relatedness may temper the linkages between social demonstration goals and aggression or anxious solitary behavior. Additionally, adolescents' perceived relatedness may have stronger buffering effects for youth who have higher rather than lower levels of social demonstration goals. Such moderated linkages could be anticipated if the processes afforded by perceived relatedness serve to counteract the risks posed by social demonstration goals. For example, if youth with high social demonstration goals perceive that a teacher likes them and cares about them as an individual, they would have fostered feelings of social confidence and self-worth, and be more influenced by teachers' values and expectations (SDT; Ryan and Deci, 2000). Accordingly, their attention to the appearance of the self or concern with others' judgments, strivings to achieve social status or recognition using aggressive actions as well as withdrawal from engaging in social interactions to avoid negative evaluations are likely to diminish (Connell and Wellborn, 1991). In contrast, if youth with high social demonstration goals perceive conflict or rejection from teachers or peers, it would magnify youth's negative emotions such as fearfulness and anxiety, and cause youth to further withdraw from social activities (Ettekal and Ladd, 2020). These youth may be prone to further develop maladaptive social cognitions and become enmeshed in cycles of aggression or isolation. In the current study, this possibility was addressed by examining the degree to which perceived relational support from teachers and peers moderated the magnitude of the associations between adolescents' social goals and their subsequent social behavior.

Gender and Grade

Previous research indicates that boys and girls may differ in their social goal orientations, nature of relationships, and social behavior. Girls tend to be more oriented toward deepening the quality of friendships whereas boys tend to be more oriented toward displaying social competence (Rose and Rudolph, 2006). Thus, boys are more likely to emphasize and communicate assertiveness and dominance (Shin, 2017) and tend to use more overt aggression compared with girls (Dijkstra et al., 2009). In contrast, prosocial behavior is often more prevalent among girls compared with boys (Van der Graaff et al., 2017). Furthermore, boys are less likely than girls to have close and positive relationships with their teachers and peers (Jerome et al., 2009). In general, girls' friendships tend to be characterized by higher levels of intimacy, support, and self-disclosure than boys (Parker and Asher, 1993). In light of this evidence, potential gender differences in the levels of social behavior as well as the associations between social goals, relational support, and social behavior can be expected.

Also, important developmental changes during early adolescence may affect the nature and the associations between social goals and social behavior. Peer climate changes in ways that approve deviance and aggression, and depress compliant and prosocial behavior (Cillessen and van den Berg, 2012). Thus, at this stage, aggressive behavior is often evaluated with more positive light (Galvan et al., 2011). Also, as children enter adolescence, they become more adept at social skills and strategies, and thus may use less discernable aggressive behavior. They use more covert forms of aggression such as relational aggression as an appropriate way to maneuver their peer relationships (Godleski and Ostrov, 2010). With increased levels of self-consciousness and sensitivity to feedback from peers (Steinberg, 2014), the salience of certain social goals and the associations between social goals and aggression, especially relational aggression, may be amplified during early adolescence. Thus, in the current study, potential gender differences in the mean level of research variables as well as the moderating role in any of the individual level associations will be explored with the sample of early adolescents (i.e., fifth and sixth graders in elementary school).

Overview of the Current Study

The current study used a prospective longitudinal design to examine if early adolescents' social goals and perceived relational support from teachers and peers have the additive and interactive effects on their social behavior. One objective was to determine whether early adolescents' social goals and perceived relational support from teachers and peers were additively associated with their subsequent social behavior. A related objective was to ascertain whether the associations between social goals and social behavior were contingently altered by perceived relational support from teachers and peers. In general, it was expected that the contribution of social goals and perceived relational support to social behavior would be additive. It was hypothesized that social development goals and perceived relational support would be positively associated with prosocial behavior, whereas social demonstration goals and perceived negative relational support would be positively associated with overt and relational aggression as well as anxious solitary behavior. In addition, it was expected that perceived relational support would mitigate the associations between social demonstration goals and aggression or anxious-solitary behavior.

MATERIALS AND METHODS

Participants and Procedures

Participants were fifth- and sixth-grade students from public elementary schools in South Korea. In South Korea, the

elementary schools contain first- to sixth-grades, and students stay in a same classroom with a teacher and the peers for the entire school day. For the current study, students participated in the research when they began (Wave 1: August) and at the end (Wave 2: December) of their second semester. The students' parents received a letter explaining what was involved in participating in the research, and if they did not want their children to participate, they could opt out by contacting the school; otherwise, students took part in the study. Students were informed that their participation was voluntary and that their responses would be kept confidential, and they signed an assent form indicating that they understood the conditions and wanted to participate prior to starting the survey. In order to make model comparisons, students who participated in both waves were included, which results in a final sample of 677 students nested within 26 classrooms (339 fifth graders, 48% male, M_{age} = 12.46).

Measures

Consistent with our conceptualization that social achievement goals precede social behavior, we used a prospective longitudinal design to investigate whether social goals foreshadow subsequent social behavior (5-month time span). Self-reported measures of social achievement goals, relational support from teachers and peers were assessed in Wave 1. Self-reported measures of overt aggression, relational aggression, prosocial behavior, and anxious solitary behavior were assessed in Wave 2. All self-reported measures described below used a five-point scale that ranged from 1 to 5. Since we used self-reported measures for all research variables, we checked the common method biases using Harman's single factor score, in which all items are loaded into one common factor, to assuage concerns about the possibility of common method effects underlying observed results. If the total variance extracted by one factor exceeds 50%, it suggests that common method bias is present and affect the results (Podsakoff et al., 2012). In our data, the total variance extracted by one factor was 17.74% and it is less than the recommended threshold of 50%. Thus, there was no problem with common method bias in our data.

Social Achievement Goals

Three social achievement goals were measured with Ryan and Shim (2008)'s scale for early adolescents. Social development goal items focus on developing youth's social competence (e.g., "One of my goals is to be a better friend to others"). Social demonstration-approach goal items focus on demonstrating youth's social desirability and gaining positive evaluations from others (e.g., "I try to do things that make me look good to others"). Social demonstration-avoidance goal items focus on avoiding negative judgments from others (e.g., "It is important to me that I don't embarrass myself around my friends"). The measure was consisted of eighteen items (six items for each social goal orientation) and students were instructed to report on a scale that ranged from 1 (*not at all true of me*), 3 (*somewhat true of me*), to 5 (*very true of me*) for all items. The average score of the items was computed, with higher scores indicative of higher goals. The scale was reliable in the current sample (α = 0.88, 0.88, and 0.80 for social development, social demonstration-approach, and social demonstration-avoidance goals, respectively).

Teacher Support

Students' perceived social support from their teacher was assessed using the teacher social support subscale of the Classroom Life Measure (Johnson et al., 1983). The measure was consisted of four items and sample items are "My teacher tries to help me when I am sad or upset" and "I can count on my teacher for help when I need it." Students were instructed to report on a scale that ranged from 1 (*never*), 3 (*sometimes*), to 5 (*always*) for all items. The average score of the items was computed, with higher scores indicative of higher teacher support. This scale was reliable in the current sample (Cronbach's α = 0.86).

Peer Support

Students' perceived peer support was measured using the negative peer interaction subscale of the Inventory of School Climate-Student (Brand et al., 2003). The measure was consisted of five items and sample items are "Students are often teased or picked on," "Most students are friendly to each other." Students were instructed to report on a scale that ranged from 1 (*never*), 3 (*sometimes*), to 5 (*always*) for all items. Negative items were reverse-coded. The average score of the items was computed, with higher scores indicative of higher peer support. This scale was reliable in the current sample (Cronbach's α = 0.78).

Overt Aggression

Students' overt aggression referred to physical or verbal acts of aggressive behavior. To assess the overt aggression, the student-report version of the Aggression subscale of the Interpersonal Competence Scale (Cairns et al., 1995) was used. It was consisted of three items: "I fight with others," "I argue with others," and "I get in trouble." Students were instructed to report on a scale that ranged from 1 (*never*), 3 (*sometimes*), to 5 (*always*) for all items. The average score of the items was computed, with higher scores indicative of higher overt aggression. This scale was reliable in the current sample (Cronbach's α = 0.80).

Relational Aggression

Students' relational aggression referred to relationship manipulation including acts of gossiping and social exclusion, and was measured using the Children's Social Behavior Scale (Crick, 1996). It was consisted of four items and sample items are "I ignore some friends or stop talking to them," and "I try to keep certain friends from being in my group." Students were instructed to report on a scale that ranged from 1 (*never*), 3 (*sometimes*), to 5 (*always*) for all items. The average score of the items was computed, with higher scores indicative of higher relational aggression. This scale was reliable in the current sample (Cronbach's α = 0.83).

Prosocial Behavior

Students' prosocial behavior referred to cooperative and help-providing behavior. To assess the prosocial behavior, the measure from Cassidy and Asher (1992) and Crick (1996) was used. It was consisted of five items and sample items are "I help others," "I am considerate of others' feelings," and "I am kind to others."

Students were instructed to report on a scale that ranged from 1 (*never*), 3 (*sometimes*), to 5 (*always*) for all items. The average score of the items was computed, with higher scores indicative of higher prosocial behavior. This scale was reliable in the current sample (Cronbach's $\alpha = 0.82$).

Anxious Solitary Behavior

Students' anxious solitary behavior was assessed using Gazelle's measure (Gazelle and Ladd, 2003; Gazelle and Rudolph, 2004). The measure was consisted of eight items and sample items are "I play alone more than most peers," "I am self-conscious or easily embarrassed," "I am shy or timid," and "I am anxious around peers." Students were instructed to report on a scale that ranged from 1 (*not true*), 3 (*sometimes true*), to 5 (*always true*) for all items. The average score of the items was computed, with higher scores indicative of higher anxious solitary behavior. This scale was reliable in the current sample (Cronbach's $\alpha = 0.82$).

Analytic Strategy

Multilevel modeling was used due to the nested nature of the observed data. Two-level models (i.e., students nested within 26 classrooms) were estimated in R 4.0.3 with the nlme package (v3.1-152; Pinheiro et al., 2021). Separate parallel models were built to examine the contributions of social achievement goals and relational support from teachers and peers on subsequent four different social behavior (see the equation in the **Supplementary Appendix**). Gender and grade were included as level 1 covariates in each model. When gender and grade were included in the multilevel models, responses were dummy coded such that zeros reflected males and fifth graders, while ones reflected females and sixth graders, respectively. To create classroom level relational support, students' individual perceptions of teacher support and peer support were aggregated to create a level 2 mean score for each classroom (variability between classrooms), while students' individual reports (representing their personal perceived relational support) were retained at level 1 (variability within classrooms). All student-level variables (Level 1) were classroom group-mean centered and classroom-level variables (Level 2) were grand-mean centered.

Multilevel models were built beginning with the null models before adding student-level variables (i.e., social achievement goals, individual perceived relational support) and level 1 interactions, and then proceeding to level 2 main effects and exploring cross-level interactions (Snijders and Bosker, 2012). The first model examined student-level associations between the independent and dependent variables, beginning with students' gender and grade, followed by social achievement goals, individual-level relational support, and interactions between independent variables (e.g., social achievement goals × teacher support, gender × teacher support). Then, at the classroom-level, following model examined between classroom differences in relational support by adding both the level 1 and level 2 relational support from teachers and peers. Next, cross-level interactions between classroom-level and individual-level variables (e.g., teacher support mean × social achievement goals, teacher support mean × gender) were examined. Only significant interaction terms from the full model were retained in the final model and simple slope tests were conducted for significant interaction (Preacher et al., 2006). The multilevel equation representing the full model that was estimated for students' social behavior is presented in the **Supplementary Appendix**.

RESULTS

Descriptive Statistics

Bivariate correlations for social achievement goals, relational support from teachers and peers, and social behavior are presented in **Table 1**. For the most part, an expected pattern was found among the variables. Social development goals were negatively associated with overt and relational aggression but positively associated with prosocial behavior. Social demonstration-approach goals were positively associated with overt and relational aggression, whereas social demonstration-avoidance goals were positively associated with anxious solitary behavior. Both teacher support and peer support were negatively associated with overt and relational aggression as well as anxious solitary behavior but positively associated with prosocial behavior.

The means and standard deviations as well as gender and grade differences for all variables are presented in **Table 2**. Girls reported higher social development goals ($t = -5.57$, $p < 0.001$), social demonstration-approach goals ($t = -2.52$, $p < 0.05$), prosocial behavior ($t = -3.37$, $p < 0.001$), and anxious solitary behavior ($t = -3.01$, $p < 0.01$) than boys, whereas boys reported higher overt aggression ($t = 4.09$, $p < 0.001$) than girls. Sixth graders reported higher relational aggression ($t = -2.28$, $p < 0.05$) than fifth graders.

Multilevel Modeling Results

Unconditional multilevel models were first investigated to examine how much variability existed within and between classroom levels for research variables. Excluding the non-significant intraclass correlation for anxious solitary behavior (less than 1%), overt aggression exhibited the lowest variability between classrooms (3%) followed by prosocial behavior (4%) and relational aggression (9%). The sizeable proportion of variance occurred at the classroom-level for teacher support (13%) and peer support (7%). Social achievement goals exhibited the lowest variability between classrooms (social development = 2%, social demonstration-approach = 1%, social demonstration-avoidance = 5%, respectively). Based on these analyses, the within classroom (Level 1) associations between students' gender and grade, social achievement goals, individual-level relational support and their levels of social behavior were examined. Preliminary models explored all possible interaction effects among individual level variables, and only significant interaction terms (i.e., social demonstration-approach goals × teacher support, teacher support × gender) were retained in the models. Then, by additionally incorporating relational support at the classroom-level means (Level 2), following models examined the main effects associated with between classroom

TABLE 1 | Correlations among social goals, relational support from teachers and peers at Wave 1, and social behavior at Wave 2.

	1	2	3	4	5	6	7	8
Wave 1								
1. Social development								
2. Social demonstration-approach	0.38***							
3. Social demonstration-avoidance	0.47***	0.42**						
4. Teacher support	0.29***	0.14***	0.17***					
5. Peer support	0.05	0.05	0.02	0.24***				
Wave 2								
6. Overt aggression	−0.08*	0.09*	−0.01	−0.12**	−0.11**			
7. Relational aggression	−0.10*	0.09*	−0.03	−0.18**	−0.21***	0.58***		
8. Prosocial behavior	0.34***	0.13**	0.19**	0.28***	0.09*	−0.14**	−0.18**	
9. Anxious solitary behavior	0.01	0.08*	0.18**	−0.11**	−0.18**	0.45**	0.45**	0.01

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

TABLE 2 | Means and standard deviations of social goals, relational support from teachers and peers, and social behavior.

		All	Boys	Girls		5th	6th	
	N	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*t*	*M* (*SD*)	*M* (*SD*)	*t*
Wave 1								
Social development	618	4.12(0.66)	3.97(0.72)	4.26(0.57)	−5.57***	4.13(0.65)	4.11(0.68)	0.25
Social demonstration-approach	627	2.94(0.90)	2.84(0.88)	3.02(0.92)	−2.52*	2.93(0.95)	2.94(0.85)	−0.10
Social demonstration-avoidance	626	3.60(0.77)	3.56(0.76)	3.64(0.78)	−1.28	3.65(0.75)	3.55(0.79)	1.52
Teacher support	622	3.20(0.90)	3.15(0.89)	3.24(0.90)	−1.31	3.22(0.88)	3.17(0.90)	0.61
Peer support	623	2.11(0.70)	2.16(0.71)	2.07(0.69)	−1.67	2.09(0.70)	2.14(0.70)	0.91
Wave 2								
Overt aggression	677	2.51(0.86)	2.65(0.88)	2.38(0.82)	4.09***	2.49(0.84)	2.54(0.88)	−0.81
Relational aggression	677	2.29(0.87)	2.29(0.87)	2.29(0.88)	−0.13	2.21(0.87)	2.36(0.87)	−2.28*
Prosocial behavior	677	3.42(0.76)	3.32(0.76)	3.51(0.74)	−3.37***	3.41(0.80)	3.43(0.72)	−0.22
Anxious solitary behavior	677	2.62(0.83)	2.52(0.83)	2.71(0.83)	−3.01**	2.57(0.83)	2.68(0.82)	−1.78

Ranges for all variables were 1–5.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

differences in relational support after all individual level variables have been accounted for. When relational support from teachers and peers from both levels were included, teacher support at level 2 was not significant for all social behavior, and peer support at level 2 was significantly associated with only prosocial behavior. Next, the last model examined all possible cross-level interactions between classroom-level and individual-level variables in the full model. However, all of these cross-level interactions were not significant and thus only the main effects of the classroom level relational support from teachers and peers were retained in the final model. The final results for each social behavior are presented in **Table 3** and are described below.

Overt Aggression

At the individual level, gender, social demonstration-approach goals, and relational support from teacher and peers were significantly associated with overt aggression. Girls reported lower levels of overt aggression than boys ($\beta = -0.34$, $p < 0.001$), and social demonstration-approach goals were positively associated with overt aggression ($\beta = 0.15$, $p < 0.01$), such that students with high social demonstration-approach goals reported higher levels of overt aggression. Perceived teacher support and peer support demonstrated the strong negative associations with overt aggression ($\beta = -0.41$, $p < 0.001$; $\beta = -0.13$, $p < 0.01$). There was a significant interaction between social demonstration-approach goals and perceived teacher support, such that the positive association between social demonstration-approach goals and overt aggression was only found when youth perceived low teacher support ($\beta = 0.13$, $p < 0.01$); there was no significant relation when youth perceived high teacher support ($\beta = 0.04$, $p = 0.70$; see **Figure 1**). Further, there was a significant interaction between perceived teacher support and gender: The influence of perceived teacher support on overt aggression was only found for boys ($\beta = -0.22$, $p < 0.001$); the influence of perceived teacher support on overt aggression was not significant for girls ($\beta = -0.02$, $p = 0.74$; see **Figure 2**). To calculate changes in variance that these variables accounted for, the unexplained variance in the final model from the null model was subtracted and divided by the total variance. Together, these individual-level variables reduced the unexplained variance by 6%. At the classroom-level, classroom-level means for teacher support and peer support were unrelated to students' overt aggression ($\beta = -0.06$, $p = 0.88$; $\beta = 0.01$, $p = 0.78$).

TABLE 3 | Multilevel models predicting social behavior at Wave 2 from individual- and class-level variables at Wave 1.

	Overt aggression β (*SE*)	Relational aggression β (*SE*)	Prosocial behavior β (*SE*)	Anxious solitary behavior β (*SE*)
Fixed effects				
Intercept	0.41 (0.20)*	−0.19 (0.24)	−0.24 (0.19)	−0.49 (0.19)*
Level 1				
Gender[a]	−0.34 (0.08)***	0.03 (0.07)	0.15 (0.08)	0.21 (0.08)*
Grade[b]	0.07 (0.10)	0.15 (0.14)	−0.01 (0.09)	0.11 (0.09)
Social development	−0.04 (0.05)	−0.10 (0.04)*	0.25 (0.04)***	−0.12 (0.05)*
Social demonstration-approach	0.15 (0.04)**	0.16 (0.04)***	−0.03 (0.04)	0.04 (0.04)
Social demonstration-avoidance	−0.03 (0.05)	−0.01 (0.04)	0.06 (0.04)	0.22 (0.05)***
Teacher support	−0.41 (0.15)***	−0.10 (0.04)*	0.19 (0.04)***	−0.10 (0.05)*
Peer support	−0.13 (0.04)**	−0.19 (0.04)***	0.02 (0.04)	−0.19 (0.04)***
Demonstration-approach × teacher support	−0.10 (0.03)*	−0.11 (0.03)**		
Teacher support × gender	0.21 (0.09)*			
Level 2				
Teacher support mean	−0.06 (0.16)	−0.26 (0.21)	0.10 (0.15)	−0.05 (0.15)
Peer support mean	−0.01 (0.19)	−0.15 (0.26)	0.35 (0.19)*	−0.10 (0.19)
Random effects				
Student-level variance	0.68	0.65	0.47	0.61
Classroom-level variance	0.03	0.06	0.02	0.01
Model fit				
−2Log likelihood	−854.21	−843.44	−733.36	−817.22
AIC	1736.42	1712.89	1490.72	1658.44

[a]*Gender is coded 0 = male and 1 = female.*
[b]*Grade is coded 0 = 5th grader and 1 = 6th grader.*
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

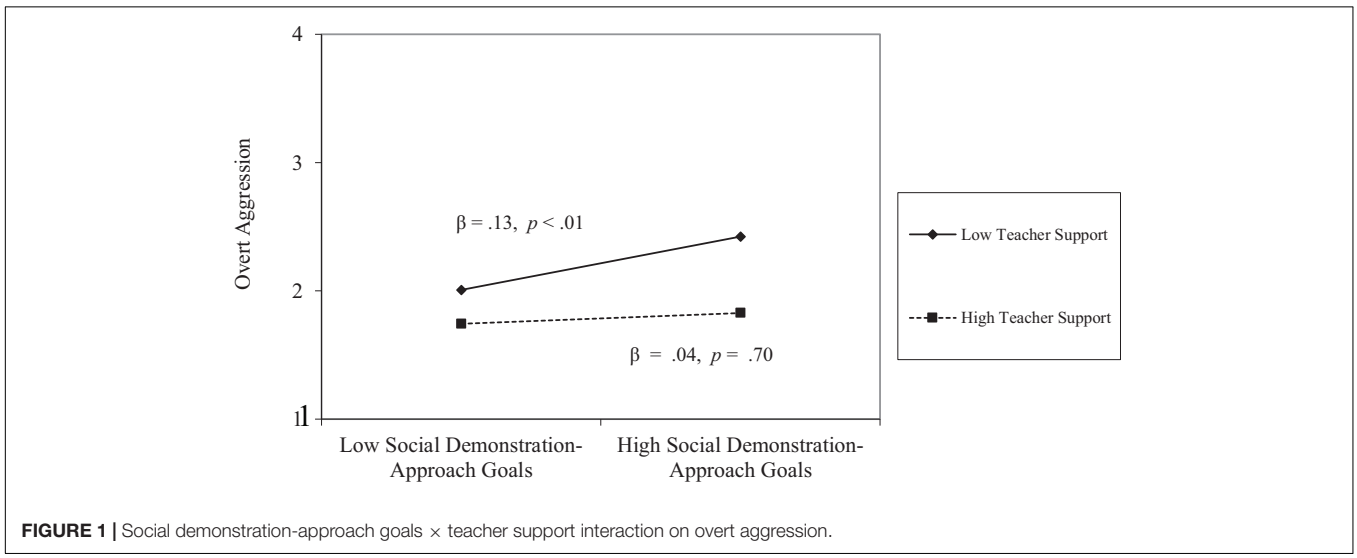

FIGURE 1 | Social demonstration-approach goals × teacher support interaction on overt aggression.

Relational Aggression

At the individual level, social development and social demonstration-approach goals, and relational support from teachers and peers were significantly associated with relational aggression. Social development goals were negatively associated with relational aggression (β = −0.10, $p < 0.05$), and social demonstration-approach goals were positively associated with relational aggression (β = 0.16, $p < 0.001$). Perceived teacher support and peer support demonstrated the negative associations with relational aggression (β = −0.10, $p < 0.05$; β = −0.19, $p < 0.001$). There was a significant interaction between social demonstration-approach goals and perceived teacher support. Similar to the patterns that were found with overt aggression, the positive association between social demonstration-approach goals and relational aggression was only found when youth perceived low teacher support (β = 0.15, $p < 0.001$); there was no significant relation when youth perceived high teacher support (β = 0.03, $p = 0.76$; see **Figure 3**). Students' individual-level

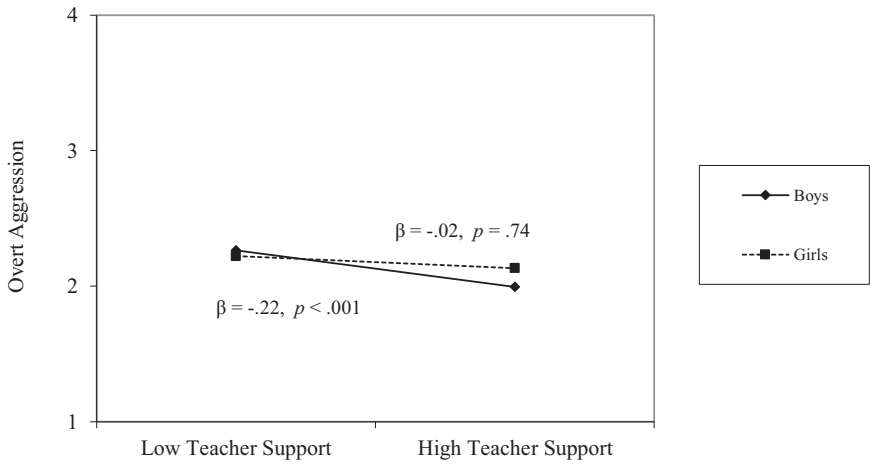

FIGURE 2 | Teacher support × gender interaction on overt aggression.

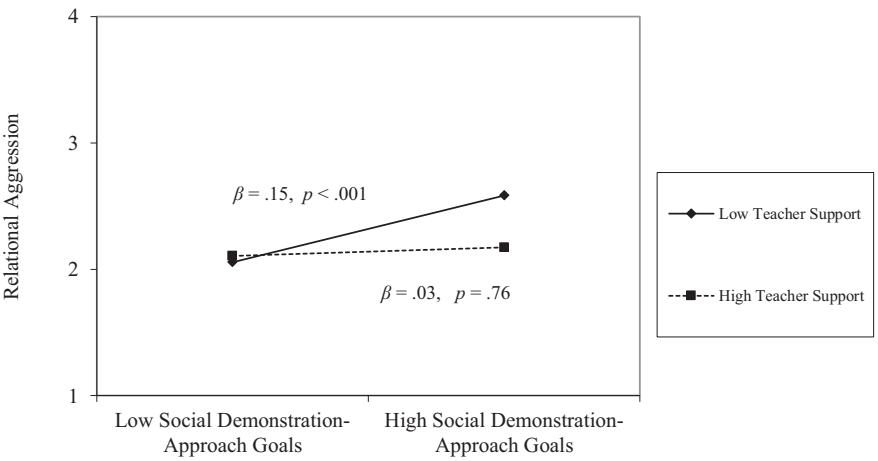

FIGURE 3 | Social demonstration-approach goals × teacher support interaction on relational aggression.

variables reduced the unexplained variance by 7% from the null model. At the classroom-level, similar to the patterns that were found with overt aggression, classroom-level means for teacher support and peer support were unrelated to students' relational aggression (β = −0.26, p = 0.15; β = −0.15, p = 0.56).

Prosocial Behavior

At the individual level, social development and relational support from teachers were significantly associated with prosocial behavior. Social development goals were positively associated with prosocial behavior (β = 0.25, p < 0.001), and perceived teacher support was positively associated with prosocial behavior (β = 0.19, p < 0.001). Results for the classroom-level indicated that students' collective perceptions of peer support were positively associated with students' prosocial behavior (β = 0.35, p < 0.05). Therefore, the classroom level peer support provides a unique contribution that explains variability in students' prosocial behavior in addition to students' individual level relational support from teachers and peers that were incorporated into the model. Together, students' individual level variables reduced the unexplained variance by 14% at level 1, and classroom level variables reduced the unexplained variance by 30% at level 2.

Anxious Solitary Behavior

At the individual level, gender, social development and social demonstration-avoidance goals, and relational support from teachers and peers were significantly associated with anxious solitary behavior. Girls reported higher levels of anxious solitary behavior than boys (β = 0.21, p < 0.05). Social development goals were negatively associated with anxious solitary behavior (β = −0.12, p < 0.05), and social demonstration-avoidance goals were positively associated with anxious solitary behavior (β = 0.22, p < 0.001). Perceived teacher support and peer support

demonstrated the negative associations with anxious solitary behavior (β = −0.10, $p < 0.05$; β = −0.19, $p < 0.001$). Students' individual level variables reduced the unexplained variance by 9% from the null model. At the classroom level, classroom level means for teacher support and peer support were unrelated to students' anxious solitary behavior (β = −0.05, $p = 0.15$; β = −0.10, $p = 0.19$).

DISCUSSION

Adolescents perceive and engage differently in their social interactions and relationships with others. Although as a group they may have shared knowledge and understanding about their social worlds, the personal meanings of their interpersonal environments varies for individuals. Psychological processes occur in tandem with the visible social interactions present in the social setting, and individual differences in psychological processes are associated with youth's different social behaviors and adjustment (Crick and Dodge, 1994). The results of the current study show that youth have significant differences in psychological processes of social goals and perceived relatedness, and these differences matter for youth's social behavior. Specifically, findings emphasized that youth's social goals and perceived relational support from teachers and peers made additive and interactive contributions to their emerging social behavior. The results provide important evidence as to which aspects of youth's cognitive representations and perceived relational features may operate as protective or risk factors separately or in conjunction with each other.

Consistent with previous findings (Ryan et al., 2012; Shin and Ryan, 2012), social achievement goals set in motion different processes for how youth approached, withdrawed, and functioned in social situations. Social development goals were positively related to prosocial behavior and negatively related to relational aggression and anxious solitary behavior. Social demonstration-approach goals were positively related to overt and relational aggression, and social demonstration-avoidance goals were positively related to anxious solitary behavior. These results suggest that a focus on the growth of social relationships and social competence leads to a positive orientation toward youth's social worlds that sets in motion adaptive beliefs and favorable behaviors. In contrast, a focus on the appearance of the self, achieving social status and recognition or avoiding negative social judgments could be easily associated with maladaptive behavior (Ryan et al., 2012).

Current findings with Asian early adolescents indicate that, in general, overall patterns of the associations between social goals and social behavior are similar between youth in Asia and the Western populations. Thus, the relations between social goals and social behavior seem to be universal during this phase of development. However, results showed that Asian youth adopted higher social development goals ($M = 4.12$) compared to youth in the West ($M = 3.78$; see Ryan and Shim, 2008), whereas social demonstration goals were similarly endorsed by youth in both contexts. In addition, social demonstration-avoidance goals were more strongly associated with anxious solitary behavior among Asian youth ($r = 0.18$) compared with youth in the West ($rs = 0.09$–0.16; see Ryan and Shim, 2008; Shin and Ryan, 2012). These findings indicate that collectivist orientations that emphasize harmonious relationships and interdependence may have implications for what type of social goals youth pursue and the consequences of endorsing particular social goals. Social goals focused on the growth of friendships may be more dominant and social goals focused on avoiding negative evaluations may be more maladaptive in collectivist cultures due to a focus on others more than the self (Markus and Kitayama, 1991; Makara, 2019). However, since there is not yet sufficient evidence to draw strong conclusions, these differences should be interpreted with some caution.

Beyond social achievement goals, youth's perceived relational support from teachers and peers were negatively associated with subsequent overt and relational aggression as well as anxious solitary behavior. Further, perceived teacher support was additionally positively associated with prosocial behavior. These results conform to the view that personal relational experiences function as relational supports or stressors (Ladd and Burgess, 2001) and suggest that social relatedness affects emerging social adjustment beyond the impact of cognitive factors, such as social achievement goals. Evidence was found for perceived relational support from both teachers and peers. Results for testing teacher and peer support simultaneously indicated that relational support from both operated as relational supports, while teacher support made a unique contribution to youth's prosocial behavior over and above the substantial contribution of peer support.

At the same time, results indicated that the effects of social goals on social behavior were moderated by the levels of perceived teacher support. Findings were congruent with the view that relational support compensates for dysfunctions that are linked with the risk factors (Hughes et al., 1999). Results suggested that relational protective factors such as teacher support was negatively linked to the levels of aggression primarily among youth who had high social demonstration-approach goals, and these moderated linkages were found for both overt and relational aggression. Current results add to the growing evidence that peers are substantial for youth's social adjustment, while also emphasizing the continued significance of teacher support (Shin and Ryan, 2017). The fact that perceived teacher support made a unique contribution to youth's prosocial behavior and attenuated the magnitude of the associations between social demonstration-approach goals and their subsequent aggression suggests that teacher support matters for early adolescents. The lack of evidence for moderating effects of peer support suggests that having relational support from peers is not enough to develop positive social adjustment when their perceptions of teacher support are low. Therefore, effective interventions may need to aim for developing positive relationships with both teachers and peers, and more individualized interventions should be taken place for these youth, even when they are surrounded by multiple friends.

It should be noted that although we did not find a significant association between peer support and prosocial behavior and the moderating effects of peer support at the individual level, results for the classroom-level indicated that early adolescents' collective perceptions of peer support were positively associated with prosocial behavior. Therefore, the classroom level peer support made a unique contribution to youth's prosocial behavior over and above the substantial contribution of youth's individual level relational support from teachers and peers. This suggests that youth's perceived relational climate (e.g., how youth collectively perceive and characterize their overall class climate) contributes to their levels of prosocial behavior. It is also possible that our measure of peer support could only capture youth's perceptions of their immediate peer interactions or class climate rather than their dyadic relationship with peers. Compared to teacher support measure that ask youth to report on their individual relationship with their teacher (e.g., "My teacher tries to help me when I am sad or upset"), our measure of peer support ask youth to report on their perceived interactions with all other peers in class (e.g., "Most students are friendly to each other). Given the limited body of research that use both individual and class-level indicators of perceived relational support, further research that incorporate individual and class characteristics to clarify their relative associations with youth's social behaviors is needed to confirm these associations.

As anticipated, the levels of aggression and anxious solitary behavior and the degree to which perceived teacher support played a role in aggression was affected by gender. Boys reported higher overt aggression than girls, and girls reported higher anxious solitary behavior than boys. Also, moderation analyses showed that perceived teacher support was negatively related to the levels of overt aggression, especially for boys. At large, girls report higher levels of social relatedness than boys in general, and boys are less likely than girls to have close and positive relationships with their teachers (Jerome et al., 2009). Thus, potentially unique experiences of having close relationships with their teacher may serve as stronger protective factors and have a more salient impact on their social adjustment for boys compared with girls. Collectively, the current results emphasize that given that boys generally perceive less relational support from their teacher than do girls (Gest et al., 2005), having social relatedness from a teacher will be especially beneficial for boys.

Although the associations between social goals, perceived relational support, and social behavior were affected by gender, we did not find evidence that these associations were varied by grade. This could be because our cohorts were only 1 year apart. Perhaps grade level differences become stronger in middle school. Since we investigated only change over a semester and compared these within-semester processes for early adolescents of fifth and sixth graders in elementary school, we may not detect meaningful developmental characteristics. Future research that follows the same cohort of early adolescents across multiple years would be informative about how adolescents' broad social-behavioral orientations as moving toward, away from, or against the world change from early adolescence through late adolescence against the backdrop of changing social contexts. Starting with even middle childhood in earlier grades and tracking youth beyond the middle school would provide greater contrasts and expanded insight into the influence of perceived relational support in developmental trajectories of social adjustment.

Although findings of the current study provide many insights, limitations should be noted and addressed in future research. First, all constructs used in the present work stem from self-reported measures. With the focus on youth's cognitive representations and perceptions, using self-reported measures could provide important insights into psychological processes of social goals and perceived relational support, that appear to contribute to varied social behaviors. However, relying on only self-reported measures could have inflated the associations between the constructs. Obtaining reports of youth's behavior from additional sources such as teachers or peers could enhance the measurement validity of the construct and provide a different perspective. Second, to consider the full social context that youth experience in the class, the current study focused on perceived relational support from teachers and peers. However, to better understand youth's divergent developmental paths, examining proximal relationships with adolescents and their other significant social partners, such as parents at home, is needed. Given multiple social contexts work together to shape individual differences in adjustment, future research could examine the joint implications of parent, teachers, and peers in youth's social adjustment.

CONCLUSION

Adolescents' social goals have received much attention due to their influence on youth's adjustment. Although the linkages between social goals and behavior have been extensively examined, scant attention has been paid to the role of social relatedness as a possible moderator. The current study examined if youth's social goals and perceived relational support had the additive and interactive effects on their social behavior. Findings make several contributions to the literature. Results indicate that social goals and perceived relational support make additive contributions to youth's social behavior. Social development goals and perceived relational support were positively related to prosocial behavior and were negatively related to aggression and anxious solitary behavior, whereas social demonstration-approach goals were positively related to aggression. Results also indicate the evidence of interactive effects. Perceived teacher support was negatively related to the levels of aggression primarily among youth who have high social demonstration-approach goals. Overall, findings indicate that individual differences in psychological processes of social goals and perceived relatedness matter for youth's social adjustment, and they emphasize the need to consider adolescents' social goals in conjunction with their perceptions of the relational features of their interpersonal environments.

DATA AVAILABILITY STATEMENT

The datasets used in this study are not readily available because all data are treated with complete confidentiality. Descriptive information can be provided upon request.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Oklahoma State University, United States. Informed consents and assents were obtained from all participants included in the study. Students signed an assent form indicating that they understood the conditions and wanted to participate prior to starting the survey. The students' parents received a letter explaining what was involved in participating in the research, and if they did not want their children to participate, they could opt out by contacting the school; otherwise, students took part in the study.

AUTHOR CONTRIBUTIONS

HS conceived of the study, did the analyses and interpreted the data, and drafted the manuscript.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.767599/full#supplementary-material

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Preschoolers' Empathy Profiles and Their Social Adjustment

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Preschoolers face new challenges in their social life: the development of social and emotional abilities in order to have positive relationships with peers and adults. Empathy, the ability to share and understand the emotions of others, contributes to this socio-emotional adjustment. This exploratory study examines mothers and fathers' perceptions of their child's empathy and individual factors, such as age, gender, and personality, which are related to cognitive and affective empathy in 63 typically developing preschoolers. Links between children's individual characteristics (empathy and personality) and their social adjustment on the one hand and risk of developing internalized vs. externalized behaviors on the other were also investigated. Parents completed four questionnaires about their child's empathy, personality, and social (mal)adjustment. The results showed that mothers and fathers perceived their children's cognitive and affective empathy, attention to others' feelings, and social actions (such as helping), in the same way, except for emotion contagion. Gender differences appeared specifically for some components of empathy: girls were said to pay more attention to others' emotions while boys had better cognitive empathy. Moreover, children's empathy as perceived by mothers or fathers was positively linked with their age, and with personality factors (extraversion, emotional stability, agreeableness, and openness to experience). Cognitive empathy and personality were found to be partly related to higher social skills and lower externalized and internalized behaviors. The results nuanced specific links between cognitive and affective empathy and social adjustment as well as behavior problems at preschool age. These results may have some implications for future research and prevention in childhood.

Keywords: personality, affective empathy, cognitive empathy, social adjustment, preschoolers

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INTRODUCTION

Preschoolers face new challenges when they enter kindergarten. In this social environment, their social interactions multiply and they experience or witness various emotional situations with peers and adults, in school environment. In order to experience positive social relationships with other children and to behave in a socially appropriate way, they must regulate their emotions, be open to others' perspective, cooperate, and respect social conventions or rules, depending on the context. In addition, preschoolers need to learn about the sharing of positive and negative emotions felt by others or by themselves. They themselves may experience difficult social situations, conflict, aggressive behavior, isolation, or distress, or they may see other children doing so. Preschoolers may have difficulties in managing their emotions and social behaviors, in responding adequately

in situations of this kind or in expressing empathy toward another child and giving help. At this age, the most significant mental health risks are externalizing problems (e.g., verbal and physical aggression, opposition, irritability, and bullying) and internalizing problems (e.g., anxious or depressive disorders, isolation), which need to be identified and addressed in targeted interventions in order to prevent them during childhood. The challenge for parents and teachers is therefore to observe, to understand strengths and weaknesses in children's socioemotional profiles, and to identify any victims, bullies, or witnesses in critical social situations. To better understand socio-emotional abilities and take effective steps in response to these early signs of bullying/aggression or internalizing behaviors in young children as soon as possible, it is essential to assess and boost children's socioemotional skills and to promote prosocial and social behaviors. Relevant theoretical models and empirical research must guide assessment and evidence-based interventions for preschoolers, taking into account their social information processing (SIP, Crick and Dodge, 1994), their understanding of affective and cognitive mental states (Theory of Mind, ToM, Flavell, 1999), their emotion regulation in social interactions (Shields and Cicchetti, 1997), and their empathy abilities (Hoffman, 2000). Assessment and intervention should also reflect the way in which these skills are linked and contribute to social adjustment or maladjustment (Denham et al., 2003; Yeates et al., 2007; Nader-Grosbois and Thirion-Marissiaux, 2011). Numerous studies have investigated bi-directional and predictive links at preschool age, between emotion regulation or social adjustment, and SIP (Yeates et al., 2007; Barisnikov and Hippolyte, 2011), or ToM (e.g., Deneault et al., 2011; Deneault and Ricard, 2013).

Empathy Development and Components

Empathy is defined as an emotional response that arises from understanding the emotions of others (Eisenberg et al., 2006, p.647). In the developmental model of empathy of Hoffman (2000), five stages are explained, from early signs of empathy in babies to true empathy, which carries on developing until adulthood. Hoffman (2000) describes the different empathic behaviors and reactions of children as they grow up when confronted with the distress of others. In the first stage, called *newborn reactive cry*, and up to the age of 6 months, babies cry when they hear another baby crying. At the end of the first year of life, in the *egocentric empathic distress* stage, infants always react to others' distress, but in a less intense way. They confuse their distress with that of others, but begin to adopt some behaviors that soothe their own pain. During the *quasi-egocentric empathic distress* stage, at the beginning of the second year of life, toddlers understand that another person is in distress, feel it, and attempt to comfort or to help the person by displaying some behaviors which help to soothe their own distress but are not adapted to overcoming the other person's distress (e.g., giving their own security blanket to another child). The *veridical empathic distress* stage develops from the end of the second year, by which time children understand what people feel and that their own internal state is distinct from others' internal state, and are able to take others' perspective and respond to the perceived needs of the distressed person in a prosocial way. Between 5 and 8 years old, in the *empathic distress beyond the situation* stage, children can understand that people can feel emotions in general contexts of life and not only in the situation experienced at that time. Few studies have examined empathy and prosocial behaviors in preschoolers using validated and adapted measures based on developmental theoretical conceptions such as adult-reported questionnaires (Belacchi and Farina, 2012), performance-based measures or observational designs (Bensalah et al., 2016). For example, to apprehend developmental changes at early and preschool age, Rieffe et al. (2010) have created a questionnaire that includes three subscales, inspired by the first three stages of this developmental model. The first subscale concerns *emotion contagion,* which refers to automatic imitation and synchronization of other person's expressions, vocalizations, and behaviors (Hatfield et al., 1993). The second subscale, called *attention to others' feelings,* refers to the child's capacity to be aware of others' emotions. The third subscale covers the *prosocial actions* provided by the child to respond to others' emotions (Rieffe et al., 2010).

Since the 1980s, researchers in developmental psychology and developmental neuropsychology have postulated distinct components in empathy and investigated their characteristics in typical and atypically developing populations. "Affective or emotional empathy" refers to the capacity to share in other people's emotional state, while "cognitive empathy" corresponds to the ability to understand others' emotions (Decety et al., 2015). Most of models conceive empathy as a bi-dimensional construct but some authors integrate other components in their model, such as motor empathy (Blair, 2005) and emotion regulation (Decety and Jackson, 2006). Recently, a "behavioral" component of empathy has been introduced into some conceptual models to describe behaviors that arise from affective and cognitive empathy. These behaviors may or may not be socially appropriate (Rieffe et al., 2010; Reid et al., 2013; Bensalah et al., 2016). However, in empirical studies, prosocial behaviors are often perceived as observable consequences of empathy rather than as a distinct component of empathy. In this view, a majority of studies targeted affective and cognitive empathy, or only one of these two components.

Some authors claim that children's affective empathy remains stable over time in childhood (Roberts and Strayer, 1996; Schwenck et al., 2014; Bensalah et al., 2016), while others suggest that it is subject to development (Rieffe et al., 2010). Other studies have highlighted improvements in cognitive empathy as children grow older (McDonald and Messinger, 2011; Davidov et al., 2013; Schwenck et al., 2014). At preschool and school age, it has been all too common for studies to treat empathy as a unidimensional construct and not differentiate between affective and cognitive components, despite the existence of measures capable of recording both components. For example, questionnaires such as the Griffith Empathy Measure (GEM, Dadds et al., 2008) can be used to create profiles based on specific "affective" and "cognitive" scores rather than just a global empathy score.

Empathy, Prosocial and Social Behaviors, Externalizing, and Internalizing Problems

Research has shown that empathy plays a role in protecting social abilities and positive relationships (Mayberry and Espelage, 2007; Girard et al., 2014) and promotes cooperation and group cohesion (Zahn-Waxler et al., 1992; Jolliffe and Farrington, 2006b). However, the positive link between empathy and prosocial behaviors has been mainly studied in school-age children (e.g., Girard et al., 2014; Murakami et al., 2014; Deschamps et al., 2015; Taylor and Glen, 2020) and specifically in adolescents (e.g., LeSure-Lester, 2000; Wang et al., 2019), but to a less extent at preschool age (e.g., Roberts and Strayer, 1996; Williams et al., 2014). Most of these studies have treated empathy as a unidimensional construct, or have only taken one of the two components of empathy into account. For example, Williams et al. (2014) emphasized that empathic 3- to 6-year-old children demonstrated more prosocial behaviors, sharing more with others and withholding fewer benefits for themselves. Moreover, this study indicated that prosocial behaviors were more motivated by empathic concern for others' emotions than by personal distress. Roberts and Strayer (1996) found the same results on a sample with a larger age range, from 5- to 13-years old, divided into three groups (5, 9, and 13 years old). This research reflected results obtained by other authors with young (Zahn-Waxler et al., 1992), preschool (Strayer and Roberts, 2004; Eisenberg et al., 2010; Zava et al., 2021), and school-age children (Warden and Mackinnon, 2003; Deschamps et al., 2015), and adolescents (LeSure-Lester, 2000; Wang et al., 2019). According to Wang et al. (2019), children and adolescents with high level of empathy are more accepted by their peers due to their prosocial behaviors (but also their low level of aggression). Two recent studies have investigated this relation considering the affective and cognitive components of empathy. For example, Belacchi and Farina (2012) reported that preschoolers aged between 3 and 6 years who are perceived by their teachers as defenders and mediators (prosocial role) have better affective empathy, although cognitive empathy is not taken into account. Cavojová (2012) obtained the same conclusion with adolescents: those who were perceived by their peers as prosocial display higher affective empathy but also better cognitive empathy. However, these two studies took place in school environment and did not consider the parent's point of view regarding social situations of children's daily life in other contexts.

Conversely, weaker empathy is thought to entail a risk of inappropriate social behaviors, displayed through aggressivity and conflict, for example (Dahmen et al., 2004). Most studies have emphasized that empathy is negatively related to externalizing problems at an early age (Noten et al., 2020), preschool age (Strayer and Roberts, 2004; Ekerim-Akbulut et al., 2020), and school age (Deschamps et al., 2015, 2018; Malcolm-Smith et al., 2015), and in adolescence (LeSure-Lester, 2000; Lovett and Sheffield, 2007; Pouw et al., 2013). Feeling the same emotion as others discourages children from acting inappropriately, for example by hitting or mocking them (Hastings et al., 2000). Conversely, a low level of empathy is positively associated with aggressive or antisocial behaviors in preschoolers (Belacchi and Farina, 2012), schoolers (Deschamps et al., 2018), and adolescents (Jolliffe and Farrington, 2007). It prevents them from understanding and responding appropriately to the emotional states of others or from controlling their own states (Vachon et al., 2014). As for the relation between empathy and prosocial behaviors, a few studies have analyzed the contribution of affective and cognitive empathy to antisocial behaviors. Belacchi and Farina (2012) highlighted that hostile behavior is negatively predicted by affective and cognitive empathy. In other words, preschoolers perceived as bullies by their teachers have low levels of affective and cognitive empathy. These results partially corroborate those of the study of Jolliffe and Farrington (2006b), in which adolescents' affective empathy (but not their cognitive empathy) was found to be negatively related to bullying. The authors explained that these results are consistent with the empathy profiles of children and adolescents with externalized behavioral problems, who seem to have a deficit in affective empathy but not in cognitive empathy. Sufficient cognitive empathy skills allow bullies to understand others' emotions, to know exactly what to do to hurt others without feeling any emotions (Sutton et al., 1999).

Although most studies confirm the negative link between empathic skills and externalizing behaviors, several authors have reached more nuanced conclusions. In their meta-analysis, Miller and Eisenberg (1988) and Lovett and Sheffield (2007) posit that the relation between empathy and aggressivity is more robust when children are older. By contrast, Hastings et al. (2000) demonstrated that a high level of aggressivity can coexist with a good level of empathy in children aged between 4 and 10 years.

Concerning internalizing behaviors, the literature shows that extremely high levels of empathy lead to higher levels of internalizing behaviors (Tibi-Elhanany, 2011; Pechorro et al., 2015), but Tone and Tully (2014) state that this relation exists when other factors are combined. For example, Tully and Donohue (2017) compared the link between affective and cognitive empathy and internalizing behaviors in children of depressed and non-depressed mothers. The results showed that children of depressed mothers presented a higher level of internalizing behaviors when they expressed higher levels of affective and cognitive empathy; comparison with children of non-depressed mothers suggested that a mother's depression plays a role in the development of children's internalizing behaviors relative to their empathy. Conversely, children of non-depressed mothers who had a higher level of affective empathy with regard to happiness did not have internalizing difficulties. Raine and Chen (2018) obtained the same relation for cognitive empathy: children with better cognitive empathy skills are less withdrawn. However, these results should be considered with caution because studies of the link between empathy and internalizing behaviors are very scarce at preschool age (Raine and Chen, 2018).

Empathy Development Related to Different Factors

It is well-known that empathy is influenced by genetic factors (Knafo et al., 2008), individual factors (such as age, gender, or personality), and factors related to family environment.

However, abilities in other domains are also involved in empathy development, such as attachment, language, and cognitive skills (McDonald and Messinger, 2011; Davidov et al., 2013; Stern and Cassidy, 2018).

Although the potential gender difference in empathy has been widely studied, the results are controversial. Considering empathy as a unidimensional construct, most of studies have emphasized that girls are more empathic than boys (Zahn-Waxler et al., 1992; de Wied et al., 2007; Auyeung et al., 2009; Lucas-Molina et al., 2018). The authors of these studies argue that children learn at an early stage the roles assigned to their gender, which is why girls are more concerned about others' emotions than boys, in accordance with their caregiver role (Strauss, 2004). However, some authors have nuanced these conclusions, studying gender influence on affective and cognitive components separately. Some of these studies found that girls have better affective and cognitive empathy than boys (Strayer and Roberts, 2004; Gini et al., 2007; Belacchi and Farina, 2012), while others failed to show any gender differences in either component (Bensalah et al., 2016). A further group of studies have arrived at more balanced results, finding, for example, that at an early age, girls have better affective empathy whereas boys have better cognitive empathy (Volbrecht et al., 2007). Reid et al. (2013) found that preschool girls have better cognitive empathy than boys but that their level of affective empathy is equal, while Schwenck et al. (2014) observed the reverse. Fabes and Eisenberg (1998) argued that the disparity of results could be explained by the different methodologies employed to measure empathy profiles and analyze the gender effect.

Although some authors consider empathy to be a personality trait (Davis, 1980, 1983; Hoffman, 1982; Jolliffe and Farrington, 2006a), others have explored how temperament in young children or personality factors could vary the development of empathy. Concerning preschoolers, a few studies have considered inhibited the link between temperament or shyness and empathy, reaching inconsistent results (Findlay et al., 2006; Cornell and Frick, 2007; Zava et al., 2021): children with an inhibited temperament, who are more shy and fearful with unknown people or situations, are characterized as more empathic by parents (Cornell and Frick, 2007) but these findings contrast with those of Findlay et al. (2006), who indicated that shy preschoolers presented more difficulties in empathy. Liew et al. (2011) reported that fearful children are more affected by personal distress, which forces them to disengage from social (or non-social) activities. However, Zava et al. (2021) did not observe any significant results concerning the link between empathy and inhibited temperament. Beyond personality factors, some studies have explored specific patterns of empathy in children who exhibit psychopathic traits, characterized by antisocial behaviors, low emotionality, and callousness (Hare, 1995). For example, Dadds et al. (2009) reported that children between the age of 3 and 13 with psychopathic traits exhibited deficits in affective empathy (boys only) that increased with age. Concerning cognitive empathy, deficits increased over time in girls while boys were able to overcome it in adolescence. These results corroborated with those of Jones et al. (2010) for affective empathy and partially for cognitive empathy in adolescence. Indeed, the group of boys with psychopathic traits was found to have similar cognitive empathy skills to the control group. Even if some authors studied specific personality factors or disorders in empathy development, no study examined the link between affective and cognitive empathy and the five-factor personality model at preschool age.

Among predictors of empathy, social adjustment or prosocial behaviors, several studies examined personality factors. In their meta-analysis, Silke et al. (2018) highlighted findings obtained in adolescence: empathy (only cognitive empathy) or prosocial behaviors are positively related to extraversion, openness, conscientiousness, and agreeableness (Jolliffe and Farrington, 2006a; Caprara et al., 2010; Tariq and Naqvi, 2020). Concerning neuroticism, Jolliffe and Farrington (2006a) have shown that this personality factor, in girls, was positively related to affective empathy, but not to cognitive empathy. Conversely, prosocial behaviors seem to be negatively linked with neuroticism (Tariq and Naqvi, 2020), while internalizing behaviors are positively related to neuroticism and negatively to extraversion (Slobodskaya and Akhmetova, 2010; Delgado et al., 2018) and externalizing problems are linked to a less agreeable, conscientious, open, and emotionally stable personality (Meunier et al., 2011).

In terms of developmental factors that have been studied, some studies have argued that progression in empathy is linked to the simultaneous development of executive functions (Davidov et al., 2013) or language abilities (McDonald and Messinger, 2011). Other studies focusing on attachment have demonstrated that secure children are more empathic than insecure children (Stern and Cassidy, 2018). Quality of parent–child relationship and parenting style have also been emphasized as protective factors in the development of empathy. Parents using consistent rules, inductive reasoning, warmth, parental sensitivity, and responsiveness and having high expectations have children with better empathic skills (Miller et al., 1989; Kiang et al., 2004; Vinik et al., 2011; Wagers and Kiel, 2019). Moreover, some parental emotional socialization strategies, such as conversations about emotions with the child, or parental expression of emotions, help him or her to develop empathy skills (Brown and Dunn, 1991; Valiente et al., 2004; Taylor et al., 2013). According to Jambon et al. (2019), it seems that siblings play also a role in the development of empathic skills. Indeed, older brothers and sisters pay attention to and are more concerned about younger children, which amplifies their empathy (Jambon et al., 2019).

Objective of the Study

The literature highlights that, for both affective and cognitive empathy, the progression from emotion contagion to attention to others' feelings and prosocial actions in empathy development could help to improve our understanding of empathy profiles in preschoolers. The associations of the different components of empathy, depending on age, gender, personality factors, needs to be explored in more detail, and research is needed to examine how social adjustment or maladjustment is promoted or impeded by these factors and by empathy. The present exploratory study aimed to examine (1) how mothers and fathers perceive their child's affective and cognitive empathy, (2) whether

their perceptions of empathy vary depending on children's individual factors, including gender, age, and personality, and (3) how social competences or internalizing and externalizing behaviors are linked and predicted by children's cognitive and affective empathy and personality. For each objective, hypotheses were formed:

- In the hypothesis 1, it was expected that parents, due to their co-parenting and shared educational values, would be found to perceive their children's empathy in a similar manner.
- In the hypothesis 2, given the controversial findings about similarities vs. differences in affective and cognitive empathy depending gender, we postulated that gender differences could appear either in affective empathy or in cognitive empathy in preschoolers. Moreover, affective and cognitive empathy were expected to be positively related to age and personality factors and in particular emotional stability, agreeableness, extraversion, openness to experience.
- In the hypothesis 3, according to the literature it was expected that social competences are promoted by higher affective and cognitive empathy and personality factors (emotional stability, agreeableness, extraversion, openness to experience), and that internalizing and externalizing problems are negatively associated to these same variables.

METHODS

Participants

The participants were 63 typically developing children (36 girls and 27 boys) and their parents (63 mothers and 42 fathers) from the French-speaking area of Belgium. The children were aged from 36 to 79 months ($M = 54.62$; $SD = 11.174$). As inclusion criteria, children had to be between 3 and 6 years old, be in ordinary preschool education and speak French. Children with any deficiency or clinical difficulties (delay, behavior disorders, or clinical diagnoses) were excluded.

Concerning the family's socioeconomic status and sociocultural level, two indicators were collected through a short questionnaire: parents' education level and family income. For education level, the majority of mothers had a high school certificate (20.3%), a bachelor's degree (20.3%), or a master's degree (35.9%). Six mothers had a Ph.D. (10.9%). The majority of fathers had a high school certificate or a master's degree (38 and 35.7% of the sample respectively). Of the remaining fathers, six had a bachelor's degree (14.2%) and one had a Ph.D. (2.3%). This information was missing for one mother and one father. In terms of family income, parents indicated the range into which their monthly salaries and benefits fell on a 13-point scale from 0 to 500 to more than 6,000 euros. The mean income reported by parents was 7.95 points, corresponding to the range 3,000–3,500 euros.

Measures

Two different empathy questionnaires were used in order to take account of the developmental aspects of empathy described by Hoffman (2000) and the cognitive and affective components of empathy. These were the Empathy Questionnaire (EmQue, Rieffe et al., 2010), inspired by Hoffman's (2000) developmental stages, and the GEM (Dadds et al., 2008), giving a score for each component, both of which were completed by parents. To assess personality and social adjustment, parents completed the Bipolar Rating Scales, based on the Five-Factor Model (EBMCF, Roskam et al., 2000), and the Social Competences and Behavior Evaluation Scale (SCBE, LaFrenière et al., 1992) respectively.

Empathy Questionnaire; EmQue, EmQue-French-Version

The Empathy Questionnaire (Rieffe et al., 2010), translated in French by Nader-Grosbois and Simon (2019), evaluates adults' perceptions of children's empathy through 19 items. Parents estimate how frequently children's empathic reactions and/or behaviors have occurred in the last 2 months on a four-point Likert scale for each item, from "never" (1) to "always" (4). Three scores are obtained, referring to the first stages of Hoffman's developmental model (Hoffman, 2000). *Emotion contagion* (six items) refers to the intense distress felt by children when observing others' distress. *Attention for Others' Feelings* (seven items) concerns the awareness of children that, if another person feels distressed, this distress is not their own feeling. *Prosocial Actions* (six items) correspond to the capacity of children to react to others' emotions by helping, comforting, or sharing, for instance (Rieffe et al., 2010). The internal consistency of the original version of the EmQue was good for "Attention for Others' Feelings" and "Prosocial Actions," with Cronbach's alphas of 0.71 and 0.81, respectively. This indicator was lower but still acceptable for the "Emotion Contagion" scale (0.58). In the present study, Cronbach's alphas varied between 0.68 and 0.78.

Griffith Empathy Measure (GEM, GEM-French-Version)

This hetero-reported questionnaire (GEM, Dadds et al., 2008), adapted from the Bryant's Index of Empathy for Children and Adolescents (Bryant, 1982) and translated in French by Nader-Grosbois et al. (2019) assesses parents' perceptions of affective and cognitive empathy in their children aged between 4 and 16 years old. For each item, the parents rate children's behaviors on a nine-point Likert scale, ranging from "Strongly disagree" (−4) to "Strongly agree" (4). Of the 23 items, 6 concern cognitive empathy, 9 concern affective empathy, and 8 combine both cognitive and affective empathy, giving a total empathy score. Cronbach's alphas in the original version of this questionnaire were 0.81 for all items, 0.62 for cognitive empathy, and 0.83 for affective empathy. In the present study, Cronbach's alpha varied between 0.55 and 0.75.

Bipolar Rating Scales Based on the Five-Factor Model (EBMCF)

This hetero-reported questionnaire (EBMCF, Roskam et al., 2000), containing 25 items, measures parents' perceptions of children's personality. For each item, parents place children on a continuum formed by a nine-point scale whose positive and negative poles consist of a pair of adjectives (e.g., shy—self-confident) reflecting opposite personality facets. Five factors

are differentiated, with five items for each one: extraversion, agreeableness, conscientiousness, emotional stability, and openness. The "extraversion" factor refers to children who experience positive emotions, appreciate having contact with others, need stimulation, and are full of energy. The "agreeableness" factor concerns children who are compassionate, cooperative, helpful, and cooperative. The "conscientiousness" factor describes children who are organized, self-controlled, and efficient. The "emotional stability" factor corresponds to children who are viewed as less emotionally reactive, and stable, self-confident, and calm. Finally, the "openness" factor concerns children who are curious, creative, and open to experiences and novelty. The validation study shows that this questionnaire revealed a good internal consistency, with Cronbach's alphas of between 0.70 and 0.93. In the present study, the Cronbach's alphas varied from 0.65 to 0.86.

Social Competence and Behavior Evaluation Scale (SCBE)

SCBE (LaFrenière et al., 1992) assesses parents' perceptions of children's social competences. Through 80 items, parents evaluate how often the child's behaviors occur, using a six-point Likert scale from "never" (0) to "always" (5). A socio-affective profile is established through eight dimensions on the basis of 10 items: angry–tolerant, anxious–secure, isolated–integrated, dependent–autonomous, resistant–cooperative, aggressive–controlled, egoistic–prosocial, and depressive–happy. For each dimension, children's weaknesses and strengths are considered on a continuum between the positive and negative poles. Some of these dimensions concern interactions with peers (isolated–integrated, egoistic–prosocial, aggressive–controlled) or adults (dependent–autonomous, resistant–cooperative), while others are related to the affective domain (depressive–happy, angry–tolerant, and anxious-secure dimensions). For each scale and the global scales, the higher the score, the less behavioral/affective difficulties the child has. Four global scales can be considered by grouping several dimensions. The externalizing problems scale includes four dimensions (angry–tolerant, resistant–cooperative, egoistic–prosocial, and aggressive–controlled), while the internalizing problems scale takes into account the other four (anxious–secure, depressive–happy, isolated–integrated, and dependent–autonomous). For these two global scales, a high score reflects the absence of internalizing or externalizing problems. The social competence scale includes affective maturity and social adjustment in interactions with peers and adults, on the basis of 40 positive items. Finally, the total score for the 80 items gives a score for general adjustment. In the present study, only social competence, externalizing, and internalizing problems were taken into account. The scores of the four scales and the eight dimensions can be converted into T-scores to compare children's skills with standard levels according to gender and age. In this way weaknesses and strengths can be identified when T-scores are lower than 38 or higher than 68, respectively. Children with a T-score between 38 and 68 thus have a non-clinical profile. Internal consistency of the French version of the SCBE is good, with Cronbach's alphas varying from 0.79 to 0.91 for the eight dimensions. The correlations for inter-judge agreement are 0.79 and 0.82, and for test–retest reliability, from 0.70 to 0.87.

Procedure

The Hospital-Faculty Ethics Committee of Saint-Luc-UCLouvain and the Ethics Committee of the Psychological Sciences Research Institute UCLouvain approved this research procedure. Recruitment took place on a voluntary basis, through an invitation to participate being issued through kindergartens and social media. A brief document, explaining the aims of the research project and the conditions for participation, was communicated to parents who expressed an interest and a consent form was sent to them. Only questionnaires were used, as public health rules in connection with the Covid-19 pandemic ruled out the use of other performance-based measures with the children. The EBMCF and the SCBE were completed by the two parents together, while the two questionnaires on empathy, the GEM-vf and the EmQue-vf, were completed separately by both mothers and fathers. These four questionnaires were completed either on a paper version or online. At the end of their participation, parents, or children received a small gift.

RESULTS

Descriptive Statistics

Table 1 presents descriptive statistics, indicating means and standard deviations for the sample's demographic and individual children's characteristics (including chronological age and personality) and empathic and social competences as perceived by parents. The EBMCF scales give indications about children's personality facets while the empathy measures provide information about children's strengths and weaknesses. However, these different scores are not compared to standards. In terms of personality, children are situated on a continuum from less to more extrovert, open to experience, emotionally stable, conscientious, and agreeable. For the empathy questionnaires, children's scores are not below average for the GEM-vf and the EmQue-vf. However, both boys and girls have higher scores on the "Attention for Others' Feelings" scale of the EmQue-vf. For the SCBE, girls obtained T-scores of 49, 49, and 40 for social competences, internalizing problems, and externalizing problems, respectively, whereas boys obtained 51, 40, and 45, respectively. For both girls and boys, the results showed that their social competences were representative of a typically developing sample, as their T-scores lay between 38 and 68. In other words, they did not have clinical internalizing and externalizing problems. Regarding their T-scores; the eight dimensions provided more details about children's socioaffective profiles. Boys and girls were less autonomous (T-score of 46 for both groups) and less cooperative in their interactions with adults (T-scores of 45 and 38, respectively), more egoistic with their peers (T-scores of 49 and 33, respectively), but more integrated (T-scores of 52 and 53, respectively). Moreover, girls were perceived as more aggressive (T-scores of 43) than boys, who were more controlled in interactions with other children (T-scores of 51). Both of these groups are perceived as joyful (T-score of 52 for boys and girls).

TABLE 1 | Mean scores and standard deviations in children's characteristics, empathic skills as perceived by both mothers and fathers, and social competences as perceived by parents.

Children's variables	Girls *M* (SD)	Boys *M* (SD)	Total *M* (SD)
Children's characteristics			
Sample	36	28	64
Age (in months)	53.89 (10.19)	55.59 (12.49)	54.62 (11.17)
Extraversion (max = 9)	6.80 (1.28)	6.50 (1.24)	6.65 (1.26)
Emotional stability (max = 9)	4.96 (1.15)	5.40 (1.26)	5.14 (1.21)
Conscientiousness (max = 9)	6.40 (1.33)	6.27 (1.17)	6.34 (1.26)
Openness (max = 9)	7.82 (0.77)	7.88 (0.84)	7.84 (0.79)
Agreeableness (max = 9)	6.80 (0.98)	7.08 (0.78)	6.91 (0.91)
Children's empathic skills			
Perceived by mothers			
Emotion contagion (max = 24)	11.00 (2.95)	10.16 (2.59)	10.63 (2.80)
Attention for others' feeling (max = 28)	20.40 (4.24)	20.52 (3.02)	20.45 (3.73)
Prosocial actions (max = 24)	13.61 (2.56)	13.72 (3.28)	13.66 (2.88)
Affective empathy (max = 4)	0.51 (1.02)	0.33 (1.10)	0.43 (1.05)
Cognitive empathy (max = 4)	0.54 (1.16)	1.17 (1.21)	0.71 (1.28)
Empathy total (max = 4)	1.17 (0.85)	1.09 (0.77)	1.14 (0.81)
Children's empathic skills			
Perceived by fathers			
Emotion contagion (max = 24)	11.77 (2.75)	10.88 (2.11)	11.42 (2.52)
Attention for others' feeling (max = 28)	20.84 (2.97)	19.22 (2.73)	20.18 (2.95)
Prosocial actions (max = 24)	13.48 (2.27)	14.33 (2.58)	13.82 (2.41)
Affective empathy (max = 4)	0.60 (0.71)	0.18 (1.01)	0.44 (0.85)
Cognitive empathy (max = 4)	0.71 (1.28)	0.71 (1.47)	0.71 (1.34)
Empathy total (max = 4)	1.16 (0.88)	0.79 (0.74)	1.02 (0.84)
Children's social adjustment			
Social competences (max = 200)	130.89 (17.81)	128.04 (22.06)	129.67 (19.63)
Internalizing problems (max = 100)	74.20 (10.00)	71.88 (13.79)	73.21 (11.73)
Externalizing problems (max = 100)	63.49 (11.78)	65.54 (13.51)	64.37 (12.48)
Depressed–joyful (max = 50)	39.77 (4.12)	39.82 (5.49)	39.79 (4.71)
Anxious–confident (max = 50)	37.65 (5.46)	36.48 (5.29)	37.15 (5.38)
Angry–tolerant (max = 50)	24.97 (5.86)	27.48 (6.27)	26.04 (6.12)
Isolated–integrated (max = 50)	39.43 (4.71)	37.26 (6.99)	38.51 (5.84)
Aggressive-controlled (max = 50)	34.95 (4.36)	33.94 (4.64)	34.52 (4.47)
Egoistic–prosocial (max= 50)	28.42 (6.16)	28.80 (5.26)	28.59 (5.75)
Resistant-cooperative (max = 50)	33.26 (5.43)	34.19 (6.17)	33.65 (5.72)
Dependent–autonomous (max = 50)	31.98 (6.84)	32.38 (5.32)	32.15 (6.20)

Mothers' and Fathers' Perceptions of Children's Empathy

To investigate the differences between mothers' and fathers' perception of children's empathy, several paired sample *t*-tests were used. Only one significant difference between mothers and fathers was obtained, concerning children's emotion contagion ($t = -2.092$, $p = 0.042$). Fathers perceived their children as being more overwhelmed by others' emotions than mothers (see **Table 2** for means and standard deviations). Analyses brought out no other significant difference between parents' perception of children's empathy, in scores for other scales of the EmQue-vf and the GEM-vf.

Children's Empathy in Link With Gender, Age, and Personality

Before running analyses, it was considered to aggregate mothers' and fathers' scores. Therefore, a factorial analysis has been realized to test if those scores of affective and cognitive empathy obtained by mothers and fathers loaded on the same factors. As it was not the case, separated scores has been kept.

To examine potential gender differences in children's empathy, two separate one-way MANOVA analyses were conducted, for maternal reports and paternal reports. For maternal perceptions of children's empathic skills, the one-way MANOVA showed no effect of gender ($F = 1.562$; $p = 0.188$;

TABLE 2 | Means, standard deviations, and *t*-test concerning parents' perception of children's empathy.

Empathy variables	Mothers *M* (SD)	Fathers *M* (SD)	*t*	*d*
Affective empathy	0.43 (1.05)	0.44 (0.85)	0.882	0.01
Cognitive empathy	0.71 (1.28)	0.71 (1.34)	0.492	0.00
Empathy total	1.14 (0.81)	1.02 (0.84)	1.669	0.14
Emotion contagion	10.63 (2.80)	11.42 (2.52)	−2.092*	0.29
Attention for others' feelings	20.45 (3.73)	20.18 (2.95)	0.509	0.08
Prosocial actions	13.66 (2.88)	13.82 (2.41)	−0.349	0.06

*$p < 0.05$.

$\eta^2 = 0.135$). However, tests of between-subjects demonstrated a significant difference depending on gender in cognitive empathy ($F = 9.525$; $p = 0.013$; $\eta^2 = 0.109$), in the sense that boys scoring higher than girls (see **Table 1** for means). No gender difference was obtained by the one-way MANOVA of paternal perceptions of children's empathy ($F = 2.467$; $p = 0.051$; $\eta^2 = 0.261$). On the scale of attention for others' feelings, a significant gender difference was identified by the test of between-subjects ($F = 5.844$; $p = 0.020$; $\eta^2 = 0.130$), indicating that girls were perceived by their fathers as more attentive to others' feelings than boys (see **Table 1** for means).

Table 3 presents the intercorrelations between children's empathic abilities and their individual characteristics (age and personality). It reveals that age is only positively related to the total score of the GEM completed by mothers ($r = 0.345$; $p = 0.006$). Concerning personality factors, extraversion ($r = -0.538$; $p = 0.000$), emotional stability ($r = 0.318$; $p = 0.034$), and agreeableness ($r = -0.331$; $p = 0.026$) were negatively correlated with emotion contagion as rated by fathers, while emotional stability ($r = -0.296$; $p = 0.021$) was negatively linked to affective empathy as perceived by mothers. Openness to experience and agreeableness was positively and significantly related to cognitive empathy as rated by mothers ($r = 0.297$; $p = 0.020$; $r = 0.443$; $p = 0.000$, respectively) and to prosocial actions as rated by both mothers ($r = 0.298$; $p = 0.027$; $r = 0.342$; $p = 0.011$, respectively) and fathers ($r = 0.357$; $p = 0.016$; $r = 0.367$; $p = 0.013$, respectively).

Several multiple linear regressions with a stepwise method were performed to explore the extent to which children's age and personality could predict their empathic abilities. Children's ages were entered in Step 1 and the five factors of children's personality in Step 2. The variance inflation index (VIF) was used to control multicollinearity. There was no multicollinearity between variables in the different analyses. **Tables 4**, **5** present the results for significant predictors of children's empathy as perceived, respectively, by their mothers (**Table 4**) and their fathers (**Table 5**). Emotional stability explained 6.8 and 7.8% of the variance in affective empathy scores given by mothers and fathers, respectively, while agreeableness explained 14.3% of the variance in children's cognitive empathy as evaluated only by mothers. Regarding the total score for the GEM-vf, 6.4% of the variance was explained by age when empathy was rated by mothers. Agreeableness explained 10.7% of the variance in prosocial actions in the EmQue-vf, rated by mothers, while openness to experience explained 8.5% of the variance of prosocial actions as assessed by fathers. Model 3f, including age ($\beta = -0.097$, $p < 0.494$), extraversion ($\beta = -0.430$, $p < 0.004$), and emotional stability ($\beta = -0.295$, $p < 0.027$), explained 27.9% of the variance in emotion contagion as rated by fathers. Before personality was integrated in the model, age remained a significant predictor and explained 6.9% of the variance in emotion contagion.

Children's Social Adjustment in Link With Their Personality Factors and Empathy

Table 6 presents the intercorrelations between children's social competences and internalizing and externalizing problems in SCBE on the one hand and their personality and empathy on the other. Social competences are positively and significantly linked with factors of personality, except that no such link was found between emotional stability (r between 0.255 and 0.490; p between 0.000 and 0.047) and attention for others' feelings as rated by mothers ($r = 0.413$; $p = 0.001$), cognitive empathy as rated by mothers ($r = 0.395$; $p = 0.001$) and by fathers ($r = 0.372$; $p = 0.015$), or the total GEM score as assessed by fathers ($r = 0.315$; $p = 0.042$). Concerning internalizing problems, positive correlations were found with all factors of personality, except for conscientiousness and openness to experience (r between 0.295 and 0.438; p between 0.000 and 0.021); this positive correlation was also found with cognitive empathy only as rated by mothers ($r = 0.399$, $p = 0.001$). Externalizing problems were positively and significantly related to emotional stability ($r = 0.485$, $p = 0.000$), agreeableness ($r = 0.377$, $p = 0.003$), and cognitive empathy as assessed by mothers ($r = 0.355$; $p = 0.004$) and fathers ($r = 0.326$, $p = 0.035$), and negatively correlated with affective empathy as perceived by mothers ($r = -0.294$, $p = 0.019$) and fathers ($r = -0.316$, $p = 0.041$).

Linear regression analyses using a stepwise method were performed to explore the part of variance of social adjustment explained by empathy and personality. The focus was on the extent to which children's empathy and personality predicted the variance in the three global scores of the SCBE, including social competences, internalizing problems, and externalizing problems. Two separate models were presented, the first incorporating empathic skills as rated by mothers and the second as rated by fathers. Children's ages were entered in Step 1, the five personality factors of the EBMCF in Step 2, and the affective and cognitive scales from the GEM-vf and the emotion contagion and attention for others' feelings scales from the EmQue-vf in Step 3. The prosocial actions scale of the EmQue was not entered because this scale evaluated social behaviors too similar to those included in the dependent variable measure. Multicollinearity was controlled for and values did not exceed 1. There was no multicollinearity between variables.

Table 7 presents the results for significant predictors of children's social adjustment, depending on children's individual characteristics and their empathic abilities as perceived by mothers. Model M3a, including openness ($\beta = 0.359$, $p < 0.003$),

TABLE 3 | Spearman correlations between children's individual characteristics and skills in empathy rating by mothers and fathers.

Children's characteristics	Age	Extraversion	Stability	Conscientiousness	Openness	Agreeableness
Empathy variables						
Perceived by mothers						
Emotion contagion	−0.085	−0.137	−0.191	−0.090	0.107	0.006
Attention for others' feelings	−0.109	0.009	−0.124	0.111	0.244	0.180
Prosocial actions	0.049	0.009	−0.030	0.154	0.298*	0.342*
Affective empathy	0.105	−0.044	−0.296*	−0.057	0.007	0.101
Cognitive empathy	0.103	0.213	0.123	0.076	0.297*	0.443***
Empathy total	0.345**	0.054	−0.078	0.093	0.170	0.191
Perceived by fathers						
Emotion contagion	−0.273	−0.538***	−0.318*	−0.156	−0.053	−0.331*
Attention for others' feelings	−0.260	0.034	−0.013	0.132	−0.024	−0.064
Prosocial actions	0.085	0.147	−0.120	0.019	0.357*	0.367*
Affective empathy	−0.140	−0.30	−0.283	0.072	−0.110	−0.138
Cognitive empathy	−0.100	−0.049	0.035	0.121	0.126	0.259
Empathy total	0.176	0.240	−0.177	0.170	0.142	0.141

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

TABLE 4 | Predictors of children's empathy skills as perceived by Mothers according to children's individual characteristics.

Predictors	*B*	*SE/B*	*β*	R^2_{adj}	*F*
Affective empathy					
Model 1a				0.068	5.391*
Stability	−0.252	0.109	−0.289*		
Cognitive empathy					
Model 1b				0.143	11.014**
Agreeableness	0.528	0.159	0.397**		
Empathy total					
Model 1c				0.064	5.136*
Age	0.021	0.009	0.283*		
Prosocial actions					
Model 1d				0.107	7.474**
Agreeableness	1.124	0.411	0.352**		

*$p < 0.05$; **$p < 0.01$.

TABLE 5 | Predictors of children's empathy skills as perceived by fathers according to children's individual characteristics.

Predictors	*B*	*SE/B*	*β*	R^2_{adj}	*F*
Affective empathy					
Model 1e				0.078	4.468*
Stabillity	−0.217	0.103	−0.317*		
Emotion-contagion					
Model 1f				0.069	4.251*
Age	−0.071	0.034	−0.300*		
Model 2f				0.206	6.708**
Age	−0.030	0.035	−0.129		
Extraversion	−0.861	0.297	−0.426**		
Model 3f				0.279	6.668***
Age	−0.23	0.033	−0.097		
Extraversion	−0.869	0.283	−0.430**		
Stability	−0.601	0.263	−0.295*		
Prosocial actions					
Model 1g				0.085	5.089*
Openness	0.933	0.413	0.325*		

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

agreeableness ($\beta = 0.255$, $p < 0.034$), and attention for others' feelings ($\beta = 0.257$, $p < 0.026$), explained 36.2% of the variance in social competences. In Model M3b, 22.8% of the variance in internalizing problems was explained by extraversion ($\beta = 0.253$, $p < 0.042$), emotional stability ($\beta = 0.259$, $p < 0.034$), and cognitive empathy ($\beta = 0.316$, $p < 0.012$). Model M2c, with personality as predictor, explained 22.6% of the variance in externalizing problems: significant predictors were emotional stability ($\beta = 0.334$, $p < 0.008$) and agreeableness ($\beta = 0.317$, $p < 0.012$).

Table 8 presents the significant predictors of children's social adjustment, depending on children's empathic skills and their personality as perceived by fathers. Model F1a, including openness ($\beta = 0.532$, $p < 0.000$) and cognitive empathy ($\beta = 0.281$, $p < 0.033$), explained 36.7% of the variance in social competences. Model F3b, composed of emotional stability ($\beta = 0.388$, $p < 0.003$), extraversion ($\beta = 0.445$, $p < 0.001$), and cognitive empathy ($\beta = 0.371$, $p < 0.005$), explained 40.2% of the variance in internalizing problems. Model F2c, comprising emotional stability ($\beta = 0.411$, $p < 0.006$) and cognitive empathy ($\beta = 0.294$, $p < 0.042$), explained 22.2% of the variance in externalizing problems.

DISCUSSION

The aims of this study were to investigate how mothers and fathers perceive their child's empathic abilities according to developmental stages and affective and cognitive components

TABLE 6 | Spearman correlations between children's individual characteristics, empathy and social skills, and behavioral problems.

	Social competences	Internalizing problems	Externalizing problems
Age	0.012	0.193	0.032
Extraversion	0.255*	0.438**	−0.003
Stability	0.070	0.359**	0.485***
Conscientiousness	0.266*	0.212	0.222
Openness	0.471***	0.266*	0.471***
Agreeableness	0.490***	0.295*	0.377**
Empathy as perceived by mothers			
Emotion contagion	0.168	−0.194	−0.131
Attention for others' feelings	0.413***	0.041	−0.057
Prosocial actions	0.444**	0.131	0.218
Affective empathy	−0.008	−0.246	−0.294*
Cognitive empathy	3.95***	0.399***	0.355**
Empathy total	0.194	−0.073	−0.072
Empathy as perceived by fathers			
Emotion contagion	−0.180	−0.285	−0.159
Attention for others' feelings	0.133	0.173	−0.058
Prosocial actions	0.408**	0.202	0.202
Affective empathy	−0.178	−0.302	−0.316*
Cognitive empathy	0.372*	0.161	0.326*
Empathy total	0.315*	−0.095	−0.060

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

(1), in order to study whether their perceptions of empathy vary depending on children's individual factors, including gender, age, and personality (2), and to examine how social competences or internalizing and externalizing behaviors are linked with children's cognitive and affective empathy and personality (3).

No previous study has compared mothers' and fathers' perceptions of affective and cognitive empathy in children at preschool age. As it was hypothesized, the results of this study showed similar levels in both cognitive and affective components of empathy, in "attention to others' feelings" and in "prosocial actions." As fathers are spending more and more time with their children (Smeaton and Marsh, 2006), it was expected that they would be found to observe their children's behaviors in interactions with peers or adults in the same way as mothers. Moreover, it was hypothesized that parents share common values about the importance of interest in others, empathy, and prosociality in their children's upbringing. However, the results indicated one significant difference, in that fathers were more inclined than mothers to perceive their child as displaying emotion contagion. This perhaps suggests that these fathers' tolerance of the emotion contagion or regulation displayed by their child in social critical situations differed from that of the mothers. Because fathers would like that their child becomes more independent, they could pay more attention to the way their child controls his or her emotions. Therefore, small emotional reactions by a child to others' feelings could be considered as emotion contagion by their father. Conversely, mothers could see their child as more competent to regulate his or her emotions and less overwhelmed by other's emotions.

In terms of gender similarities or differences, the comparison of girls' and boys' empathic abilities revealed that fathers perceived girls as paying more attention to others' feelings than boys, i.e., as displaying more affective empathy. This result was largely consistent with the existing literature (Zahn-Waxler et al., 1992; de Wied et al., 2007; Auyeung et al., 2009; Lucas-Molina et al., 2018). As argued by Strauss (2004), in our society children assume behaviors and attitudes which correspond to their gender at an early age. Therefore, girls display more affective empathy and behave more prosocially than boys. This difference between girls and boys implicitly reflects behaviors and attitudes may be valorized differently with respect of their social roles. That correspond to their future caregiver roles. Concerning emotion contagion and affective empathy as perceived by mothers or fathers, no difference according to gender was highlighted in our results, in line with Bensalah et al. (2016) and Schwenck et al. (2014). However, boys were perceived by their mothers as having better cognitive empathy than girls. Our results corroborated those of Volbrecht et al. (2007), who found in an observational measure that boys aged between 12 and 25 months engaged more in hypothesis testing (considered as an indicator of cognitive empathy at an early age) to understand their mother's distress than girls. However, even if the present results corroborate with those of some studies, it seems to be difficult to reach out a general conclusion about the gender factor in the development of children's empathy. Indeed, as reported by Fabes and Eisenberg (1998), studies used different kinds of measures to assess empathic abilities and concerned different age ranges.

TABLE 7 | Predictors of children's social skills according to children's individual characteristics and their skills in empathy as perceived by mothers.

Predictors	*B*	*SE/B*	*β*	R^2_{adj}	*F*
Social competences					
Model M1a				0.245	18.814***
Openness	12.665	2.920	0.508***		
Model M2a				0.311	13.397***
Openness	9.928	2.999	0.398**		
Agreeableness	6.918	2.783	0.299*		
Model M3a				0.362	11.407***
Openness	8.938	2.917	0.359**		
Agreeableness	5.909	2.714	0.255*		
Attention for others' feelings	1.414	0.616	0.257*		
Internalizing problems					
Model M1b				0.076	5.504*
Extraversion	3.153	1.344	0.304*		
Model M2b				0.144	5.624**
Extraversion	3.307	1.295	0.319*		
Stability	2.723	1.185	0.28*		
Model M3b				0.228	6.400***
Extraversion	2.618	1.258	0.253		
Stability	2.454	1.128	0.259		
Cognitive empathy	2.949	1.136	0.316*		
Externalizing problems					
Model M1c				0.143	10.146**
Stability	4.000	1.256	0.398**		
Model M2c				0.226	9.044***
Stability	3.358	1.218	0.334*		
Agreeableness	4.510	1.724	0.317*		

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

TABLE 8 | Predictors of children's social skills according to children's individual characteristics and their skills in empathy as perceived by fathers.

Predictors	*B*	*SE/B*	*β*	R^2_{adj}	*F*
Social competences					
Model F1a				0.303	18.393***
Openness	12.346	2.879	0.566***		
Model F1a				0.367	12.585***
Openness	11.602	2.764	0.532***		
Cognitive empathy	3.968	1.788	0.281*		
Internalizing problems					
Model F1b				0.137	7.355**
Stability	3.709	1.368	0.422*		
Model F2b				0.276	8.643***
Stability	3.707	1.252	0.433**		
Extraversion	3.577	1.226	0.355*		
Model F3b				0.402	9.973***
Stability	3.613	1.139	0.388**		
Extraversion	4.059	1.126	0.445***		
Cognitive empathy	3.262	1.088	0.371**		
Externalizing problems					
Model F1c				0.154	8.280**
Stability	3.981	1.383	0.418**		
Model F2c				0.222	6.723**
Stability	3.905	1.327	0.411**		
Cognitive empathy	2.641	1.254	0.294*		

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

As expected in the second hypothesis, the linear regressions showed that personality factors, and more precisely emotional stability, extraversion, agreeableness, and openness to experience, are associated with empathy. Concerning the affective component, emotional stability was negatively related to the affective empathy score of the GEM-vf, as evaluated by mothers and fathers. These results are coherent with those of Jolliffe and Farrington (2006a) who found that neuroticism, the reverse of emotional stability, is positively correlated with affective empathy in adolescent girls, indicating that certain facets of neuroticism (like self-consciousness and guilt) might ease the empathic experience. Moreover, Cornell and Frick (2007) obtained the same results for preschool age by studying the link between inhibited temperament, characterized by anxiety and fearfulness, and global empathy. Children with an inhibited temperament, characterized as shy and fearful with unknown people or situations, are characterized as more empathic by parents. These results support the claim of Blair (1999) and Kochanska (1993) that children with some difficulties in inhibiting their behaviors lack what is regarded as a precursor of empathy: they are not affected by others' distress. Similarly, our results showed that extraversion and emotional stability are negatively related to emotion contagion as perceived by fathers. In other words, children who experience positive emotions are calmer and more stable, and children who are less emotionally reactive are less affected by others' emotions, as was reported by Jolliffe and Farrington (2006a) and Liew et al. (2011). In accordance with the definition of agreeableness (Mervielde and De Fruyt, 1999), our results showed that agreeable children are perceived by their mothers as having more cognitive empathy. Agreeableness is characterized by compassion, cooperation, consideration, help and seeking social harmony. Conversely, disagreeable children do not generally take an interest in others' well-being and may appear cold toward others (Mervielde and De Fruyt, 1999). Conceivably, children's desire to help others implies that their understanding of what they feel leads them to adapt their behavior to their needs. Children's prosocial actions as perceived by mothers in EmQue-vf are positively related to agreeableness, while the same component as perceived by fathers is positively linked to openness to experience. These two personality factors are also positively related to prosocial behaviors in the results obtained by Tariq and Naqvi (2020). Moreover, it makes sense that agreeableness and prosocial behaviors are associated, in view of the definition of this personality factor (Mervielde and De Fruyt, 1999). Concerning openness to experience, children with a high level of this personality factor are more curious, creative, and imaginative, while children who are less open to experience resist change and prefer proximity and familiarity (Mervielde and De Fruyt, 1999). Less open children may also be less likely to

help other children in distress, as they may be more resistant to other's perspectives and emotions.

Age was only positively related to the total score of the GEM-vf, in line with the developmental model of empathy of Hoffman (2000). However, the specific affective and cognitive components of empathy were not significantly linked to age in these preschool children, contrary to the results reported by Bensalah et al. (2016) and Schwenck et al. (2014). Moreover, emotion contagion, as perceived by fathers, decreased as children grow up, as hypothesized by Rieffe et al. (2010). However, when personality factors were added as predictor variables in the analyses, age ceased to be a significant predictor. It seems that personality explains a greater part of the variance in empathy than age, at preschool level. Therefore, the second hypothesis concerning the influence of age on empathic skills is partially confirmed.

Numerous studies have investigated the relation between empathy and social competences or externalizing behaviors, but few have analyzed the link between empathy and internalizing behaviors. In the present study, it was hypothesized that empathy perceived by mothers and fathers, as well as personality factors (emotional stability, agreeableness, extraversion, openness to experience) could be positively related to children's social competences. Moreover, the third hypothesis suggests that empathy and those personality factors could contribute to be protective factors against internalizing and externalizing problems. Concerning social competences, it was observed that attention to others' feeling as perceived by mothers, openness to experience and agreeableness are positively related to social competences. In other words, open and agreeable children who pay more attention to others' emotions and distress are more socially adjusted in interactions with peers or adults; this is consistent with the definitions of openness and agreeableness (Mervielde and De Fruyt, 1999) and reflects the results of affective empathy observations (Belacchi and Farina, 2012; Girard et al., 2014; Hirn et al., 2019). The significant predictive value of openness to experience for social competences was revealed when paternal perceptions of empathy were considered. Indeed, children who were perceived by their fathers as more competent in cognitive empathy had better social competences; this corroborates the results reported by Hirn et al. (2019) on adolescents. These results suggested that children's affective and cognitive empathy, as well as their openness to experience and their agreeableness are positively related to their social competences. Therefore, it could be considered that empathy and personality are favorable factors in social competences development at preschool age.

Little previous research has been conducted about the relation between empathy and internalizing behaviors; our study demonstrated that emotional stability, extraversion, and cognitive empathy, as perceived by mothers and by fathers, are negatively related to internalizing behaviors. In other words, stable and extrovert children with better cognitive empathy are less likely to display internalizing behaviors at preschool age. Children with stable and extrovert personalities are defined as presenting most social characteristics and as being little affected by others' emotions (Mervielde and De Fruyt, 1999); this is thought to play a role in protecting them against developing internalizing behaviors (Slobodskaya and Akhmetova, 2010; Delgado et al., 2018). Conversely, more introvert and neurotic children are more anxious, withdrawn, and disengaged in social activities, which is similar to what is observed in children with internalizing problems (Achenbach et al., 1987). As predicted by Raine and Chen (2018), our results showed that high cognitive empathy abilities reduced the risk of internalizing problems. However, according to Tone and Tully (2014), when children display an extreme level of empathy, this may contribute to a higher level of internalizing behaviors, particularly when other risk factors in the family (e.g., mother's depression) are involved. Although our sample consisted entirely of typically developing children without pathological internalizing disorders, it should be stressed that both affective and cognitive empathy and personality factors could be considered as protective factors against the development of internalizing behaviors.

The multiple linear regressions found that, when maternal perceptions of affective and cognitive empathy was considered, only personality was negatively related to externalizing problems, characterized by impulsivity, aggressivity, opposition, or disobedience (Achenbach et al., 1987). In other words, agreeable and stable children, who are friendly, generous, helpful, calm, and less emotionally reactive (Mervielde and De Fruyt, 1999), present fewer externalizing behaviors, as found by Meunier et al. (2011). Empathy as rated by mothers did not appear as a significant predictor of externalizing problems. By contrast, cognitive empathy as perceived by fathers and emotional stability did predict a lower level of externalizing behaviors. This result is consistent with the third hypothesis of this study and the findings reported by Belacchi and Farina (2012), that children perceived as more hostile have lower levels of cognitive empathy. However, some adolescents who bully others may present high cognitive empathy, as observed by Jolliffe and Farrington (2006b). The same conclusion has been reported by Jones et al. (2010) in the case of children and adolescents with psychopathic traits who present antisocial behaviors. Regarding these controversial results, it is possible that empathy and personality have been considered as protective factors for externalizing behaviors in children except for those who present psychological disorders. Further investigations are therefore needed to throw more light on this relation.

This exploratory research makes new contributions to the field of empathy and socio-emotional development at preschool age. It shows the relevance of taking account of the respective influence of personality, gender, and the multi-dimensional aspects of empathy in order to gain a clearer picture of how empathy profiles could be linked to social competences vs. maladjustment risk. Looking at the perceptions of fathers and mothers concerning their children's empathy profiles offers new ways of understanding their socio-emotional development. For

research and prevention purposes, multi-informant assessment may help to detect strengths or weaknesses in empathy profiles and social adjustment in children. Future research could test whether specific prevention or interventions in classroom targeting SIP or theory of mind and adapted to preschool age (e.g., such as ToM and SIP program conceived by Honoré et al., 2020) improve empathy profiles beyond social adjustment.

Although this study helps to refine knowledge about the development of social and emotional skills, some limitations should be taken in account. First, the sample size of 63 typically developing children, and especially when the sample is divided into boys and girls, is small and the questions need to be investigated in a greater sample in families from more diverse socio-cultural and socioeconomic backgrounds. Second, this study used only other-reported questionnaires and not performance-based measures of empathy. It may be interesting to involve children in the data collection with observational settings or by asking them questions about stories. In another study in the research project, observational and performance-based measures and questionnaires about empathy have been used in order to examine these questions in greater depth. Asking teachers to complete questionnaires on empathy and social competences may reveal how children display these skills in the social environment of kindergarten, in classroom, and at break. Third, it is possible that parents have some difficulties in completing some of the items of empathy questionnaires, because they have variable and limited opportunities to observe their children in interaction with others in critical situations or in distress. The final limitation concerns the use of measures of empathy that do not allow the level of empathy to be specified. Regarding the literature about empathy in children and adolescents with internalizing behaviors, establishing if their level of empathy is excessive or defective could refine our knowledge in this field. Unfortunately, no existing questionnaires make it possible to identify a pathological degree of empathy.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Hospital-Faculty Ethics Committee of Saint-Luc-UCLouvain and Ethics Committee of the Psychological Sciences Research Institute in UCLouvain. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

PS collected and analysed the data and wrote the manuscript. NN-G supervised the research and contributed to write the manuscript. Both authors approved the submitted version.

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Adolescents' Resilience During COVID-19 Pandemic and Its Mediating Role in the Association Between SEL Skills and Mental Health

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The main purpose of this paper is to investigate the role of social and emotional learning (SEL) skills and resilience in explaining mental health in male and female adolescents, during the COVID-19 pandemic. Three self-report questionnaires were administered to 778 participants aged between 11 and 16 years (mean age = 12.73 years; SD = 1.73) and recruited from 18 schools in Northern Italy. The SSIS-SEL*b*-S and the CD-RISC 10 assessed SEL and resilience skills respectively, while the Strengths and Difficulties Questionnaire (SDQ) was used to measure mental health in terms of internalizing problems, externalizing problems, and prosocial behavior. We found that SEL and resilience skills were positively and significantly associated with each other, negatively associated with internalizing and externalizing problems, and positively related to prosocial behavior. Three linear regression analyses showed the significant role of resilience, age, and gender in explaining the variance of internalizing problems; the significant role of SEL skills, resilience, age, and gender in explaining the variance of externalizing problems; and the role of SEL skills, age, and gender in explaining prosocial behavior. Importantly, we found that resilience fully mediated the relationship between SEL skills and internalizing problems, partially mediated the relationship between SEL skills and externalizing problems and didn't mediate the relationship between SEL skills and prosocial behavior. The paper concludes with a discussion of the limitations of the study as well as its practical implications.

Keywords: mental health, social-emotional learning, resilience, adolescents, externalizing behaviors, internalizing behaviors, prosocial behaviors

INTRODUCTION

The aim of this study was to investigate the role of protective factors such as social and emotional learning (SEL) and resilience skills on the mental health of adolescents. This age-group is particularly vulnerable because of their demanding developmental tasks, such as construction of identity, critical and moral thinking, and romantic relationships. The implementation of these tasks

has been extremely exacerbated by the COVID-19 pandemic (Singh et al., 2020).

Over the past 20 years, the study of adolescence as a crucial stage of lifespan development has become one of the most important issues in developmental psychology (Hendry and Kloep, 2002; Cavioni et al., 2021). Plenty of studies have shown that identity construction during adolescence is a complex process connected to individual, social, and contextual factors that influence the developmental trajectories, both typical and atypical, from early to late adolescence (Grazzani et al., 2011; Ferrer-Wreder and Kroger, 2019).

Recent research pointed out an increased number of mental health problems among adolescents (Erskine et al., 2015; WHO, 2018, 2020). The incidence of diagnosable mental health problems is approximately around 20%, with half of all mental health issues starting at 14 years of age; moreover, anxiety, depression, eating disorders, addictive disorders, suicidal attempts, and self-harm being the most common mental health issues (Green et al., 2005; Gore et al., 2011; Twenge et al., 2018; Burstein et al., 2019). Recent studies estimated that most of such cases remain undetected and only one-third of these young people receive the necessary psychological support (Merikangas, 2018; Deighton et al., 2019; Twenge, 2020). During the COVID-19 period, adolescents have been severely and negatively affected by the lockdown measures namely social distancing and the closure of schools (Viner et al., 2020). Feeling of stress, anxiety, worries, helplessness, depression, and lack of motivation have been frequently reported among adolescents as a consequence of the pandemic (Fegert et al., 2020).

Recent literature on risk and protective factors has shown that SEL and resilience influence well-being and mental health from the preschool years onward (Cefai et al., 2018; Cahill and Dadvand, 2020; Cavioni et al., 2020a). Nevertheless, few studies have focused on either of these variables during adolescence or on their combined contribution to explain variability in reported mental health during the COVID-19 pandemic. Thus, we look at this recent and emerging literature to build up the rationale of the present study.

SEL and Mental Health in Adolescence

SEL is defined as the process through which children, young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel, and show empathy for others, establish, and maintain supportive relationships, and make responsible and caring decisions (CASEL, 2020; Mahoney et al., 2020). According to the CASEL model, SEL is composed of five core inter-related competences namely self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Supporting SEL competences in adolescence (Williamson et al., 2015; Hurrelmann and Quenzel, 2018) can be particularly worthwhile as young people are required to develop their personal and social identities (self-awareness), regulate complex emotions and behaviors appropriately (self-management), improve their perspective-taking skills for interpreting social cues accurately (social awareness), effectively negotiate relationships and conflicts with peers and adults (relationship skills) and make ethical decisions about daily challenges contributing to one's own and others well-being (responsible decision making).

Comprehensive, universal, and multi-year SEL initiatives have been largely implemented in the last three decades (Durlak and Wells, 1997; Catalano et al., 2002; Ross and Tolan, 2018). Regarding adolescents, outcomes indicated that SEL has twofold benefits: first, the promotion of mental health; and second, the prevention of psychological problems. With regard to mental health outcomes, the comparison between pre- and post-test scores of experimental and control populations showed improved social-emotional skills, including self-control, decision-making, communication, and problem-solving skills, as well as more positive attitudes about self and others (Payton et al., 2008; Sklad et al., 2012; O'Connor et al., 2018). Furthermore, several studies showed that SEL programs yielded benefits in reducing the likelihood of internalizing—e.g., stress, anxiety, depression, social withdrawal, self-harm, suicidal thoughts, and suicide—and externalizing problems such as conduct problems, impulsivity, violence, crime, high-risk sexual behaviors, and substance use (Greenberg et al., 2003; Browne et al., 2004; Weare and Nind, 2011; Wallender et al., 2020). Notably, follow-up studies indicated these effects persisted over time (Taylor et al., 2017).

Previous studies have shown gender differences in adolescents' mental health, with girls displaying more internalizing behaviors (e.g., related to anxiety, depression, and somatic complaints) and males showing greater externalizing behaviors (e.g., concerning aggressive and delinquent conducts; see, for instance, van der Ende and Verhulst, 2005). In the meta-analysis by Durlak et al. (2011), it was also noted that gender is a factor that may influence the impact of SEL programs on mental health. For instance, in the study by Taylor et al. (2002), boys gained more benefit in self-management and reduced aggressive behaviors compared to females. Although social and emotional skills seem to operate differently on mental health outcomes for girls and boys, research is still needed to further examine the role of gender in explaining how SEL competences impact on mental health.

Recent evidence also suggests that social and emotional competences tend to decline from childhood to adolescence (Ciucci et al., 2016; West et al., 2018; Green et al., 2021). However, studies focusing on how the core five SEL skills develop throughout adolescence and how they impact on mental health are still limited (West et al., 2020; Farina et al., 2021) with research tending to mainly explore social and emotional skills and mental health during early childhood or primary school periods (e.g., Ahlen et al., 2015). Therefore, there is a clear need for research testing the empirical SEL model in adolescent populations, its relationship with mental health outcomes, and how this relationship may change across years during adolescence (Ross and Tolan, 2018; West et al., 2020).

Resilience and Mental Health in Adolescence

Resilience is defined as the dynamic capacity, processes, or outcomes of successful adaptation in the context of significant

threats to function or development (Rutter, 1999; Masten, 2011). Research has identified resilience as a complex construct resulting from a dynamic relationship between risk and protection factors in which individuals may use personal and contextual resources to overcome adversities (Luthar et al., 2000; Ungar, 2018; Höltge et al., 2021). Thus, resilience serves to protect and promote individuals' psychological well-being mitigating the negative effects of stressful events, accelerating the recovery, and reducing the risk of developing mental health problems (Davydov et al., 2010). Resilience may vary according to age due to changes occurring during the lifespan (Masten, 2001; Masten and Barnes, 2018). In adolescence, key assets for resilience include coping skills, stress management, and self-efficacy (Connor and Davidson, 2003), which can help deal with adversities and setbacks, rejection, family conflict, loss, bullying and peer conflicts, life changes and life transitions while protecting young people from the negative consequences associated with exposure to risk situations (Fergus and Zimmerman, 2005; Cefai et al., 2015). Recent work underlined the connection between resilience and mental health, suggesting that more resilient adolescents are less prone to mental health problems, including depression and anxiety problems (Hjemdal et al., 2011; Fischer et al., 2019; Ollmann et al., 2021).

Studies exploring the relationship between resilience and mental health in the light of gender differences suggest greater vulnerability in girls, namely depressive and anxiety symptoms (e.g., Nolen-Hoeksema et al., 1999; Wichstrøm, 1999). These findings have been discussed by Hjemdal et al. (2006, 2011), arguing that adolescent girls seem to be more exposed to stress from their social environment, showing a lower sense of mastery in their lives. Therefore, the gender differences in mental health outcomes may be influenced by the different gendered patterns in facing the challenges of the social environment.

Though resilience is a widely used construct, the relationship between resilience and mental health among adolescents has been scarcely explored in healthy adolescents. In the context of the current COVID-19 pandemic, this association deserves special attention. In fact, the experienced prolonged stressful situation may have shaped the adolescents' capacity to effectively cope with stress and respond to challenges and, in turn, this may have positively or negatively affected their mental health (Loades et al., 2020; Masten and Motti-Stefanidi, 2020).

SEL Skills and Resilience in Adolescence

Previous research has largely documented that SEL provides opportunities to develop resilience skills to face stressors and difficulties across the life span (Domitrovich et al., 2017). As such, several studies have examined the relation between the five key SEL competences and resilience (Cavioni et al., 2018; Cahill and Dadvand, 2020).

For instance, having a growth mindset is an essential self-awareness ability. The extensive body of research by Dweck (e.g., Dweck, 2006) on the implicit theories of intelligence underlined that students who hold growth mindsets interpret challenges, setbacks and failures as opportunities to improve their learning and skills, believing that they can learn and succeed if they persist. Consequently, adolescents who exhibit higher levels of self-awareness are more likely to successfully face significant life challenges persevering despite difficulties. Furthermore, they tend to show better self-efficacy and hope, which in turn may enhance the ability to effectively recover from traumatic situations (Meng et al., 2018).

The link between self-management and resilience is also well-documented. In adolescence, the ability to regulate emotions and behaviors to pursue specific goals has been found to contribute to resilience (Dishion and Connell, 2006). The positive adaptation to, and successful coping with difficulties have been related to the ability to regulate emotions and behaviors, to reflect critically and to apply effective strategies to moderate or remove the negative effects of stress (Compas et al., 2001). Therefore, higher levels of self-management, including monitoring, and adapting emotional responses, behaviors, emotions, and cognitive strategies, contribute to improving the ability to achieve the desired goals in adverse situations.

Social awareness encompasses various abilities including showing empathy and prosocial behaviors toward others and being able to value and understand others' perspective, a skill present since childhood (Grazzani et al., 2017; Conte et al., 2018; Ornaghi et al., 2020). According to Brooks and Goldstein (2003), empathy is a key component of resilience because by placing yourself in others' situations and understanding others' emotions and thoughts, one can learn and apply resilience without being personally involved into stressful situations. Various studies have explored the relation between social awareness and resilience in adults (e.g., Smith and Hollinger-Smith, 2015), however, this relationship, has been scarcely explored in adolescence. Thus, research is needed to investigate the contribution of social awareness to resilience during adolescence.

Relationship skills include the ability to establish and maintain positive relations, to collaborate and constructively solve conflicts and seek or offer help when needed. Having trusted relationships with others (e.g., peers, family members, teachers) and perceived social support act as protective mechanisms in successfully facing difficult situations (Rutter, 1999). Furthermore, in adolescent girls, closed relationships with peers better facilitate resilience when compared with boys (Graber et al., 2016).

Finally, responsible decision-making is also positively related to resilience. For instance, Smokowski et al. (2000) noted that resilient adolescents develop and apply effective strategies and coping skills to adapt to stressors in decision-making tasks. Furthermore, the capacity of adolescents to reflect on the ethical consequences of their actions on personal, social, and collective well-being is associated with reduced rates of at-risk behaviors (Cahill and Dadvand, 2020).

The Present Study

In view of this empirical background, the present study attempts to fill a gap in the literature, examining how SEL and resilience skills contribute to mental health in adolescence. On one hand, the relationship between SEL skills and mental health has been scarcely investigated in adolescents (e.g., West et al., 2020; Farina et al., 2021). On the other hand, resilience is usually explored in disadvantaged and atypical populations which cope with difficult adaption (e.g., Masten, 2011), whereas the COVID-19

pandemic has been certainly a special period to examine how resilience skills are activated and impact on mental health in a typical population of adolescents. Thus, we set the three following objectives.

The first objective was to test the existence of associations between SEL skills, resilience, and mental health. We hypothesized that SEL and resilience skills had negative associations with internalizing and externalizing problems, and positive associations with prosocial behavior. In addition, in accordance with previous studies we expected to find differences in SEL and resilience skills and mental health as a function of age and gender.

The second objective was to investigate the role of SEL and resilience skills on adolescents' mental health, controlling for age and gender. Specifically, we hypothesized that SEL and resilience skills impacted mental health, and gender contributed to it, with females displaying more internalizing problems and males more externalizing problems.

The third objective was to examine whether resilience mediated the relationship between SEL skills and mental health amongst adolescents, exploring the hypothesis that resilience was a mediator in the association between SEL skills and internalizing problems, externalizing problems, and prosocial behavior.

METHOD

Participants

The sample comprised 778 adolescents (413 females) aged from 11 to 16 years ($M = 12.73$ years; $SD = 1.73$). They were grouped into two age-groups: 59.4% (aged between 11 and 12 years) attended lower secondary school, and 40.6% (aged between 13 and 16 years) attended high secondary school. This sample guarantees a maximum margin of error of 3.5% assuming a 95% confidence level. The participants were recruited from 18 schools located in medium SES, urban areas in northern Italy, and were stratified by gender and school level. Thus, cluster sampling was used to select the schools ensuring good geographical representation, while stratified sampling was used to select the students from several classrooms within the selected schools. The study was conducted in conformity with the recommendations of the University of Milano—Bicocca Ethics Committee. Parental informed consent was obtained for all participants in line with the Declaration of Helsinki. Participants were free to withdraw from the study at any time, and no monetary or other financial rewards were provided.

Measures

The participants completed the online Italian self-report versions of three questionnaires aimed at assessing adolescents' social-emotional learning, resilience, and mental health, respectively. The instruments were selected on the basis that they are validated measures and suited to the age of the participants.

Social Skills Improvement System, Social Emotional Learning Edition Brief Scales – Student Form (SSIS-SEL*b*-S) (Elliott et al., 2020). This is a self-report measure of social and emotional learning of students in grades 3-12. It is built on the theoretical model of CASEL, consisting of five SEL domains: self-awareness, self-management, social awareness, relationship skills, and responsible decision making. Overall, it includes 20 items rated on a 4-point scale ranging from 0 (not true) to 3 (very true). The composite score can range from 0 to 60. Each of the five subscales consists of 4 items, with a possible range of scores between 0 and 12. The original instrument has strong reliability, with Cronbach's alphas of 0.91 for the composite score and ranging from 0.67 to 0.72 across the five subscales (Anthony et al., 2020). In the current study, Cronbach's alpha was 0.83 for the composite scale and ranged from 0.50 to 0.75 for the five subscales. Only the composite score was used in this work.

Connor Davidson Resilience Scale (CD-RISC 10; Campbell-Sills and Stein, 2007). This is a self-report measure of resilience in adolescents and adults. The short version of the scale consists of 10 items on a 5-point Likert scale, from 0 (not true at all) to 4 (true nearly all the time). The total score can range from 0 to 40. The Italian version of the tool has demonstrated good internal consistency (Cronbach's alpha = 0.89, Di Fabio and Saklofske, 2014). In the current study, the Cronbach's alpha was 0.84.

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ is a brief questionnaire for assessing 3–16-year-olds' mental health. For 11-year-olds and older, the self-report version can be used (Goodman et al., 1998). The SDQ consists of 25 items rated on a 3-point Likert scale, where 0 = "not true," 1 = "somewhat true," and 2 = "certainly true." As recommended by Goodman et al. (2010), three scores can be calculated for general population samples: Internalizing Problems (10 items, which include emotional symptoms and peer relationship problems; range of scores: 0-20), Externalizing Problems (10 items, which include conduct problems and hyperactivity/inattention difficulties; range of scores: 0-20), and Prosocial Behavior (5 items; range of scores: 0-10). In the original instrument, Cronbach's alphas were 0.66, 0.76, and 0.66 for Internalizing, Externalizing, and Prosocial scales, respectively (Goodman et al., 2010). In the current study, the Cronbach's alphas were 0.75 for the Internalizing scale, 0.76 for the Externalizing scale, and 0.70 for the Prosocial scale.

Overview of Analysis

Prior to conducting the main analyses, the data were checked for univariate normality (i.e., distribution, kurtosis, and skewness). The internalizing and externalizing problems and prosocial behavior score distributions were skewed and did not satisfy the normality assumption. To address this limitation, bootstrap standard errors and confidence intervals were provided to account for intrinsic asymmetry and non-Gaussian trends in the regression model. Unlike parametric approaches, bootstrapping resamples a single dataset to create many simulated samples without making any assumptions for the population distribution. This process enables researchers to calculate standard errors, construct confidence intervals and perform hypothesis testing for various types of sample statistics. Next, the main descriptive statistics and zero-order correlations were computed.

Regarding the second and third objectives of the study, three general linear regression models were fitted to relate each of the three outcome variables (internalizing and externalizing problems and prosocial behavior) to four predictors (gender, age,

TABLE 1 | Means, standard deviations, and zero-order correlations among the study variables.

	M	*SD*	1	2	3	4	5	6
1. SEL	39.19	7.74	-					
2. Resilience	21.97	7.95	0.466**	-				
3. Internalizing	5.51	3.79	−0.0216**	−0.0494**	-			
4. Externalizing	5.96	3.63	−0.466**	−0.382**	0.519**	-		
5. Pros. Behavior	7.60	1.81	0.603**	0.319**	−0.105*	−0.261**	-	
6. Age	12.73	1.73	−0.205**	−0.179**	0.291**	0.225**	−0.177**	-

*$p < 0.05$, **$p < 0.001$.

TABLE 2 | Regression outcomes for the target variable Internalizing problems.

					95% Conf. Interval	
	B	**SE**	***t***	***p***	**Lower bound**	**Upper bound**
Intercept	5.1392	1.2111	4.244	<0.001	2.762	7.517
SEL	−0.0002	0.0177	−0.013	0.990	−0.035	0.035
Resilience	−0.2023	0.0173	−11.67	<0.001	−0.236	−0.168
Age	0.4160	0.0695	5.983	<0.001	0.280	0.553
Gender	−1.1751	0.2486	−4.727	<0.001	−1.663	−0.687

$R^2 = 0.308$, *Gender is a categorical predictor, where male = 1, female = 0.*

SEL and resilience skills). Regression model measures the impact of each predictor on the dependent variable, while holding the other predictors constant. It relies on several assumptions, including linearity, homoscedasticity, independence and normality that are often violated. For each model, a 0.05 level of significance will be adopted to determine statistical significance. Baron and Kenny (1986) describe a four-step procedure to test for mediation by fitting three regression models. In this paper, the first model relates the outcome variable to SEL skills; the second model relates resilience (mediator) to SEL skills; and the third model relates the outcome variable to both resilience and SEL skills collectively. The Sobel test is then used to determine whether the indirect effect between the dependent variable and SEL skills via resilience is significant, using a 0.05 level of significance. The software used for all analyses was IBM SPSS Statistic 27.

RESULTS

Descriptive statistics and zero order correlations for the variables under study are reported in **Table 1**. The correlational analysis revealed that internalizing and externalizing problems are positively and significantly related indicating that adolescents who have peer and emotional problems also tend to have conduct and hyperactivity problems. Moreover, prosocial behavior, SEL skills and resilience are positively and significantly related, indicating that adolescents who are resilient and have good social and emotional competencies tend to exhibit more prosocial behavior. Conversely, as shown in **Table 1**, internalizing and externalizing problems are negatively and significantly associated to prosocial behavior, SEL skills, and resilience, which implies that adolescents with personal and behavioral difficulties tend to be less prosocial, less resilient and have poorer social and emotional competencies. In addition, internalizing and externalizing problems significantly increased with age whereas SEL skills, resilience, and prosocial behavior were negatively and significantly associated with age. Gender was negatively correlated with resilience and positively correlated with SEL skills, prosocial behavior and internalizing problems, indicating that male participants as compared to females obtained higher scores at resilience and lower scores at SEL skills, prosocial behavior and internalizing problems.

A first regression analysis was carried out to investigate whether adolescents' SEL skills, resilience, age, and gender explained the variance in mental health. The first model relates the internalizing problem score to four predictors (SEL skills, Resilience, Age and Gender). **Table 2** displays the parameter estimates and corresponding 95% confidence intervals, standard errors, and biases. This four-predictor model explains 30.8% of the total variation in the internalizing problem score ($R^2 = 0.308$), where three predictors are significant (Resilience, Age and Gender). The internalizing problem score is expected to increase by 0.416 for every 1-year increase in age and decrease by 0.202 for every 1 unit increase in the resilience score. Moreover, males are expected to score 1.175 less than females, given that other effects are kept constant. Although SEL skills are not significant in this four-predictor model, they become significant on removing resilience from the model fit, suggesting resilience as a full mediator variable.

The second regression relates the externalizing problem score to the four predictors (SEL skills, Resilience, Age and Gender). **Table 3** displays the parameter estimates and corresponding 95% confidence intervals, standard errors, and biases. This four-predictor model explains 27.7% of the total variation in

TABLE 3 | Regression outcomes for the target variable Externalizing problems.

					95% Conf. Interval	
	B	**SE**	***t***	***p***	**Lower bound**	**Upper bound**
Intercept	12.2529	1.1954	10.25	<0.001	9.906	14.600
SEL	−0.1810	0.0175	−10.36	<0.001	−0.215	−0.147
Resilience	−0.0741	0.0171	−4.330	<0.001	−0.108	−0.041
Age	0.2077	0.0686	3.026	0.003	0.073	0.342
Gender	−0.6216	0.2454	−2.533	0.012	−1.103	−0.140

R^2 = 0.227, Gender is a categorical predictor, where male = 1, female = 0.

TABLE 4 | Regression outcomes for the target variable Prosocial behavior.

					95% Confidence Interval	
	B	**SE**	**t**	**p**	**Lower bound**	**Upper bound**
Intercept	3.1365	0.5547	5.655	<0.001	2.048	4.225
SEL	0.1274	0.0081	15.72	<0.001	0.111	0.143
Resilience	0.0133	0.0079	1.678	0.094	−0.002	0.029
Age	−0.2083	0.0671	−3.104	0.002	−0.339	−0.071
Gender	−0.2516	0.1138	−2.210	0.027	−0.479	−0.034

R^2 = 0.374, Gender is a categorical predictor, where male = 1, female = 0.

the externalizing problem score ($R^2 = 0.227$), where all four predictors are significant. The externalizing problem score is expected to increase by 0.208 for every 1-year increase in age, decrease by 0.181 for every 1-unit increase in the SEL skills score, and decrease by 0.074 for every 1 unit increase in the resilience score. Moreover, males are expected to score 0.622 less than females, given that other effects are kept constant. The removal of resilience from the model fit makes SEL skills a stronger predictor, suggesting resilience as a partial mediator variable.

The third regression relates the prosocial behavior score to the four predictors. **Table 4** displays the parameter estimates and corresponding 95% confidence intervals, standard errors and biases. This four-predictor model explains 37.4% of the total variation in the prosocial behavior score ($R^2 = 0.374$), where three predictors are significant (SEL skills, Age and Gender). The prosocial behavior score is expected to decrease by 0.056 for every 1-year increase in age and increase by 0.127 for every 1 unit increase in the SEL skills score. Moreover, males are expected to score 0.252 less than females in prosocial behavior, given that other effects are kept constant.

A mediation model was then performed to further investigate the association between SEL skills and mental health via the inclusion of resilience as a mediator variable. More precisely, to investigate whether resilience mediates the relationship between SEL skills and internalizing problems, three linear regression models were fitted. A summary of the results of these models is displayed in **Figure 1**. The first model which relates internalizing problems (dependent variable) to SEL skills (independent variable) yields the total effect size (c = −0.216). The second model which relates resilience (mediator) to SEL skills (independent variable) yields the effect size (a = 0.466; B = 0.474, S.E. = 0.033, t = 14.402, $p < 0.001$). The third model which relates internalizing problems to both resilience and SEL skills yields the sizes of the effects (b = −0.502 and c' = 0.017; respectively: B = −0.239, S.E. = 0.017, t = −13.945, $p < 0.001$; B = 0.008, S.E. = 0.017, t = 0.467, $p = 0.641$). The Sobel test shows that the indirect effect between SEL skills and internalizing problems via resilience (ab = −0.234) is significant (z = −10.047, S.E. = 0.0113, $p < 0.001$). However, the direct effect (c' = 0.017) is not significant. This implies full mediation, which indicates that better SEL skills enhance resilience, which in turn reduces internalizing problems (B = −0.105, S.E. = 0.017, t = −6.062, $p < 0.001$).

A similar procedure was used to investigate whether resilience mediates the relationship between SEL skills and externalizing problems, as shown in **Figure 2** (B = −0.217, S.E. = 0.015, t = −14.461, $p < 0.001$). The Sobel test shows that the indirect effect between SEL skills and externalizing problems via resilience (ab = −0.097) and the direct effect (c' = −0.374) are both significant (z = −5.438, S.E. = 0.0082, $p < 0.001$). This implies partial mediation, which indicates that both resilience and higher levels of SEL skills are essential to reduce externalizing problems (respectively: B = −0.172, S.E. = 0.016, t = −10.476, $p < 0.001$; B = −0.094, S.E. = 0.016, $t = -5.924$, $p < 0.001$).

A similar procedure was utilized to investigate if resilience mediates the relationship between SEL skills and prosocial behavior, as shown in **Figure 3** (B = 0.140, S.E. = 0.007, t = 20.730, $p < 0.001$). The Sobel test shows that the indirect effect between SEL skills and prosocial behavior via resilience (ab = 0.022) is not significant (B = 0.011, S.E. = 0.007, $t = 1.456$, $p = 0.146$). However, the direct effect (c' = 0.581) is significant (z = 1.562, S.E. = 0.0033, $p = 0.118$). This implies no

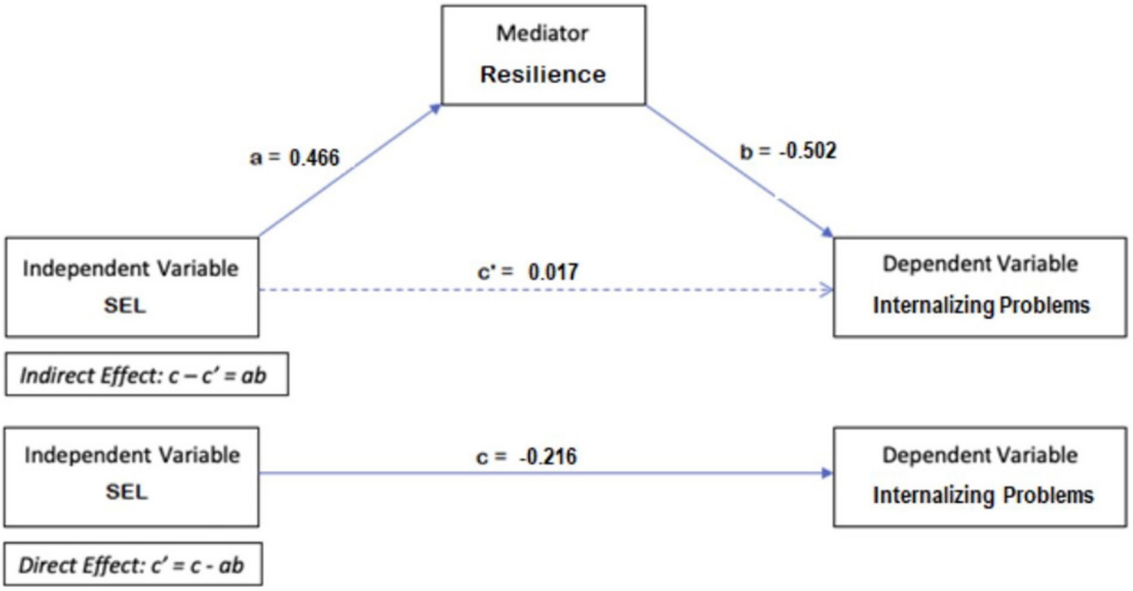

FIGURE 1 | Mediation model for internalizing problems.

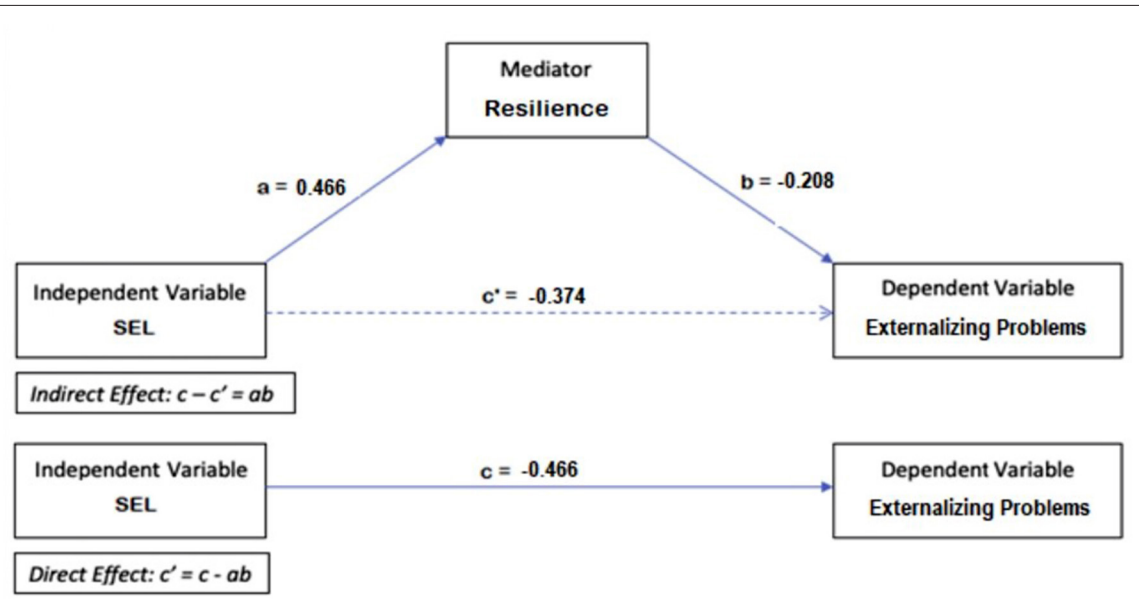

FIGURE 2 | Mediation model for externalizing problems.

mediation, which indicates that prosocial behavior is improved with better SEL skills, but resilience has negligible impact on this positive relationship.

DISCUSSION

The aim of the current study was to investigate the relationship between resilience, SEL skills, and mental health, and how this varies by age and gender in an adolescent sample. This topic was investigated during a challenging period, that is the COVID-19 pandemic, in which people were in a position to use and exploit their resilience skills. To the best of our knowledge, this is the first study to have examined such variables in adolescence, with a specific focus on resilience as a mediating factor between SEL skills and mental health. We obtained three main findings. Firstly, SEL skills, resilience and mental health were significantly associated; secondly SEL skills, resilience, age, and gender were found to significantly contribute to explain the variance in mental health; and thirdly, resilience fully mediated the relationship between SEL skills and internalizing problems and partially

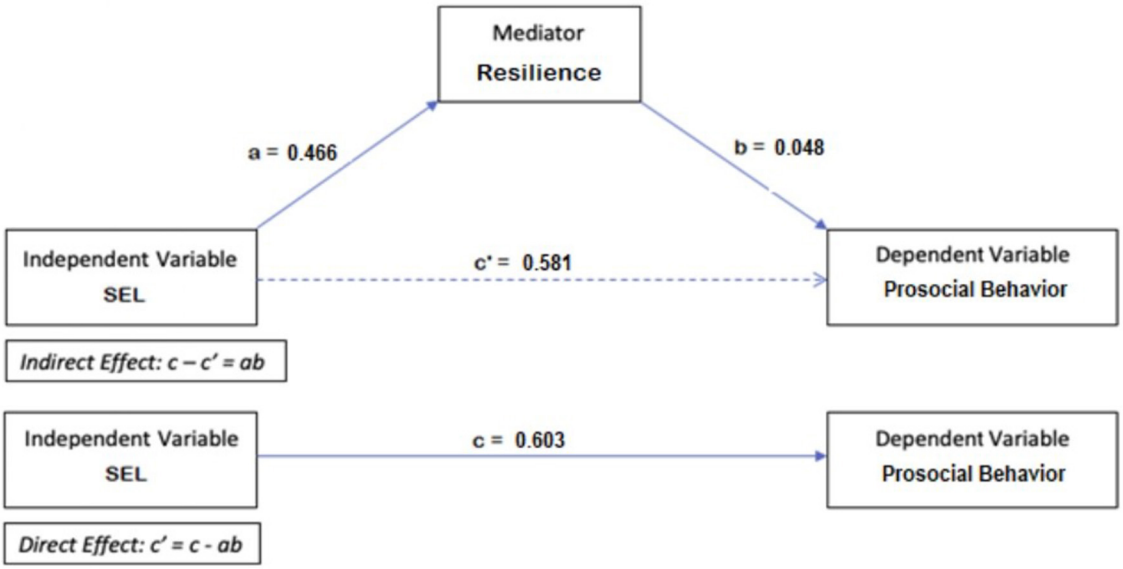

FIGURE 3 | Mediation model for prosocial behavior.

mediated the relationship between SEL skills and externalizing problems. We discuss these main findings in more detail below.

Associations Between SEL Skills, Resilience, and Mental Health

The first objective of this study was to examine the associations between SEL skills, resilience, and mental health. As expected, SEL skills and resilience were positively associated, consistent with previous research showing that SEL competences represent a protective factor which helps individuals to be more resilient and adequately face stressors and challenges across the life span (e.g., Durlak et al., 2011; Domitrovich et al., 2017).

Furthermore, both SEL and resilience skills were associated to mental health. Specifically, we found that SEL and resilience skills were negatively related to internalizing and externalizing problems and positively related to prosocial behavior. Evidence-based programs have widely demonstrated that the development of social and emotional competences have 22-fold benefits, namely the prevention of psychological problems and the promotion of mental health (Greenberg et al., 2003; Payton et al., 2008; Sklad et al., 2012; Taylor et al., 2017; O'Connor et al., 2018). Although the association between resilience and mental health has been scarcely explored in healthy adolescents (e.g., Fischer et al., 2019), our findings are consistent with the literature and suggest that more resilient adolescents display more prosocial attitudes and less mental health problems.

The Role of SEL Skills, Resilience, Age, and Gender on Mental Health

The second aim of this study was to investigate the role of SEL skills, resilience, age, and gender on adolescents' mental health. Results of regression analyses show that resilience, age, and gender explained variance in internalizing problems. This is in line with results of previous studies attesting that higher resilience predicts lower scores of depression, anxiety, and other internalizing problems (Hjemdal et al., 2011; Ollmann et al., 2021). On the other hand, SEL skills did not play a significant role in explaining these problems, suggesting that it is not sufficient to prevent internalizing problems. These findings are consistent with van der Ende and Verhulst's (2005) report of an interaction between age and gender and internalizing problems. Indeed, adolescent girls, compared to boys, self-reported more anxiety and depressive symptoms, and the difference increased with increasing age.

With regard to externalizing problems, we found that SEL and resilience skills are associated with decreased aggressive behavior, violence, and risk behaviors, which is consistent with previous studies (Catalano et al., 2002; Greenberg et al., 2003; Weare and Nind, 2011). Again, with regards to internalizing problems, both age and gender played a significant role. van der Ende and Verhulst (2005) reported that adolescents' externalizing problems increase from 11 to 15 years, reaching a peak at this point, and then they decrease. Since adolescents who participated in our study were aged between 11 and 16 years, it is possible that they self-reported their behaviors during this critical phase when externalizing problems are more likely to be prevalent. Surprisingly, our findings suggest that females were more prone to display externalizing problems than males, which is contrary to our expectations. Externalizing problems are usually more prevalent in boys than girls (van der Ende and Verhulst, 2005). It is likely that adolescent girls were more sensitive to their own and others' negative emotions (e.g., fear, anger, frustration) generated by the COVID-19 pandemic. This may have resulted in higher levels of conduct problems, hyperactivity, and inattention as they struggled to cope with the stress experienced in their life contexts (Bianco et al., 2021).

Finally, SEL skills contributed to prosocial behavior, which is in line with previous studies (Payton et al., 2008; Sklad et al., 2012; O'Connor et al., 2018). The more the adolescent can recognize and manage one's own emotions and behaviors, appreciate others' perspectives, make responsible decisions, and effectively negotiate relationships, the more they will be able to display comforting, sharing, helping, and other positive behavior toward other people. This is particularly true for females, who were inclined to display more prosocial behaviors than males. Girls are generally expected to be more caring and sensitive than boys and this representation drives socialization practices from early stages of life (Eisenberg and Fabes, 1998). During adolescence, physical, cognitive, and social-relational changes lead males and females to progressively adhere to gender role expectations, resulting in gender differences in prosocial behavior (Van der Graaff et al., 2018). Changes in adolescence occur because of hormonal and neural modifications that can also affect adolescents' abilities to regulate their own emotions and to pay attention to goals, needs, and emotions of other people (Crone and Dahl, 2012; Van der Graaff et al., 2018). This could explain why adolescents' prosocial behaviors decreased over time in our study.

The Mediating Role of Resilience

The third objective of this study was to examine resilience as a mediator between SEL skills and mental health. The study of resilience has been focused on understanding the processes of positive recovery, adaptation, or transformation in contexts of adversity (Ungar, 2018). The data in this study has been collected during the COVID-19 pandemic, which represented an unprecedented challenging time for adolescents' lives. In general, increased prevalence of internalizing problems among adolescents has been largely reported due to the measures taken to reduce the spread of the pandemic, namely lockdown, social distancing, and quarantine measures as well as school closure (Cusinato et al., 2020). Among adolescents, greater levels of stress, depressive and anxiety disorders, both during the initial stage of the pandemic and over time, have been reported (Singh et al., 2020; Wang et al., 2020a,b).

The mediation analysis in our study supported the key role of resilience in mental health. Despite previous research that documented the direct link between SEL competences and mental health (e.g., Durlak et al., 2011; Cavioni et al., 2020b), a potential interesting interpretation of our results is that SEL skills, compared to resilience, may be a weaker protective factor of mental health, as it acted indirectly on internalizing problems during challenging times. It contributed to resilience which, on the other hand, acted directly on adolescents' ability to cope with internalized problems in the challenging pandemic period. Resilience fully mediated the relation between SEL skills and internalizing difficulties, helping to decrease adolescents' depressive symptoms, anxiety, and stress. On the other hand, SEL and resilience skills are both essential in reducing externalizing behavior, while resilience, in contrast to SEL competences, does not impact prosocial behavior. Our study suggests that, in the context of the challenging pandemic context, SEL and resilience skills both impact mental health but through different mechanisms, namely both SEL and resilience skills impact externalizing behavior directly, but whilst SEL competences impact internalizing problems through resilience, resilience has little direct impact on promoting prosocial behavior. Whilst resilience appears to be particularly impactful in reducing mental health difficulties, especially internalizing ones, SEL skills becomes more salient in promoting mental health such as prosocial behavior. These relationships warrant further investigation to establish more clearly how SEL competences and resilience are interrelated to mental health, particularly in times of challenge and stress.

Limitations, Strengths, and Implications

Three limitations of this study should be noted. Firstly, data were collected with a large sample of Italian adolescents. Consequently, findings need to be generalized with caution to the adolescents' population in other contexts and cultures. Secondly, given the cross-sectional design of this study, caution must be taken when making causal inference from our findings. Thirdly, data were collected via self-report questionnaires only. Therefore, answers provided by the participants might be subjected to social desirability bias. To circumvent these limitations, future research needs to collect data from adolescents coming from different contexts and cultures, include follow up data collection and use a multi-informant approach.

Despite these limitations, the key strengths of the present study are represented by the large sample and the timing of data collection during the COVID-19 pandemic. In fact, this study has the added value of investigating the contribution of resilience to mental health in a sample of healthy adolescents during a challenging time. Recent studies have called for the urgent need to address the increasing concern of mental health in adolescents, also in the light of the growing depressive and anxiety symptoms due to the COVID-19 pandemic (e.g., Idele and Banati, 2021). Our findings suggest that resilience may be an important protective factor against the incidence of such internalized disorders especially in the face of adversity and challenging situations. Therefore, understanding the role of resilience in the present situation of the pandemic becomes crucial to plan adequate interventions and prevent any further increase in psychological distress and negative consequences for the mental health and well-being of adolescents.

CONCLUSION

A growing number of studies have been conducted to explore the psychological impact of the COVID-19 on adolescents as a consequence of the prolonged experience of forced social isolation (Tang et al., 2020; De France et al., 2021). Given the increased level of severe mental health problems, it's imperative to further deepen the understanding of the mechanisms of counterbalancing the negative effects of the pandemic to face the psychological vulnerability and distress among adolescents. Our findings suggest a tendency to experience higher internalizing and externalizing problems that progresses with age. Consequently, late adolescents appear to be at heightened risk for developing mental health difficulties during the pandemic. Therefore, it is crucial to address the promotion of resilience specifically among this age group. As Cefai and colleagues noted (Cefai and Cavioni, 2015; Cefai, 2021), resilience

should be addressed by adopting a systemic perspective that considers the relationships with family members, social groups, and communities that the adolescents live in, a key protective factor against the development of mental health difficulties. Therefore, an essential component to promote the mental health of adolescents during the pandemic should be maintaining and nurturing supportive social relationships (Zhou, 2020).

The outcomes of the present study contributed to identify resilience as a strong protective factor particularly in reducing internalizing problems. Moreover, a fundamental remark has to be made concerning gender, since we found that adolescent females were more vulnerable to the negative psychological effects of the pandemic, experiencing greater levels of internalizing and externalizing problems than males. Therefore, this study represents a significant contribution not only to explore the relationships among social and emotional learning, resilience and mental health in adolescence but also to better understand the specific impact of the pandemic, suggesting that there may be different manifestations of psychological distress across genders during this highly stressful event. To conclude, the importance of developing resilience and social and emotional competences underpins increasing efforts to start promoting these abilities in the early years of life, as documented by recent innovative lines of research with toddlers (Grazzani et al., 2016a,b; Ornaghi et al., 2019; Brazzelli et al., 2021).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethical Committee of the University of Milano-Bicocca. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

IG made a key contribution to designing the research, interpreting the data, and drafting and revising the manuscript. AA contributed to the conception and design of the research and to data collection. VC and EC has made substantial contributions to the conception and design of the research study, to the collection of the data, and the drafting and revision of the manuscript. SG contributed to the conception and design of the research and in data collection. ML has been involved in the conception of the study and contributed to collecting the data. VO made a key contribution to designing the research, analyzing, interpreting the data, drafting, and revising the manuscript. FR has been involved in the development of the study and revising the manuscript critically. CC has made substantial contributions to the conception and design of the research, interpreting the data, and revising of the manuscript. PB has been involved in the conception and design of the research, interpreting the data, and revising of the manuscript. LC contributed to the conception and design of the research, analyzing and interpreting the data, and drafting the manuscript. MO has been involved in the conception and design of the research and analyzing the data. All authors read and approved the final manuscript.

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frontiers in Psychology

BRIEF RESEARCH REPORT
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Social Sustainability in Late Adolescence: Trait Emotional Intelligence Mediates the Impact of the Dark Triad on Altruism and Equity

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Adolescence involves a profound number of changes in all domains of development. Among others, adolescence yields an enhanced awareness and responsibility toward the community, representing a critical age to develop prosocial behaviors. In this study, the mediation role of Trait Emotional Intelligence (TEI) was detected for the relationship between the dark triad and prosocial behavior based on altruism and equity. A total of 129 healthy late adolescents filled in the Dark Triad Dirty Dozen, measuring Machiavellianism, psychopathy, and narcissism; the Altruistic Action Scale, evaluating behaviors directed at helping others; the Equity Scale, assessing behaviors directed at equity in different forms; and the TEI Questionnaire-Short Form. Results showed that TEI mediated the negative effects of the three dark triad traits on both altruism and equity. This finding suggests that TEI, which relies on a set of dispositions (e.g., emotional management of others, social competence, and empathy), might reduce the malevolent effects of the dark triad on altruism and equitable behavior in late adolescence. This led to assume that intervention programs focused on improving emotional skills, also in late adolescence, can promote prosociality.

Keywords: late adolescence, personality, dark triad, trait emotional intelligence, pro-social sustainability, altruism, equity

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INTRODUCTION

Exploring what brings people to engage in prosocial actions is relevant for targeting the social crisis of our times. Specifically, late adolescence (18–22 years) depicts the passage to adulthood characterized by an enhanced civic involvement and responsibility toward the community that brings to a deeper understanding of the social and cultural settings in which people live (Zarrett and Eccles, 2006). Tackling the social crisis implies moving to a set of deliberate, effective, and anticipatory actions focused on safeguarding the social environment, ensuring the social sustainability of the planet for today and forthcoming generations. According to Tapia-Fonllem et al. (2013) framework, social sustainability lies in the concept of inclusiveness by embracing prosocial practices such as altruistic and equitable actions (Tapia-Fonllem et al., 2013). Altruism reflects a set of actions that benefit others at a personal cost (Kerr et al., 2004), while equity relies on actions guaranteeing a fair distribution of natural and social resources among people (Corral-Verdugo et al., 2015). Although people vary in expressing their prosociality in daily life, personality

represents one of the main contributors to such individual differences (Oda and Matsumoto-Oda, 2022). We considered the personality-prosocial behavior association in late adolescence, focusing on the understated role of the dark triad on social sustainability through the effect of Trait Emotional Intelligence (TEI).

The Dark Triad and Prosocial Behaviors

The dark triad (Machiavellianism, psychopathy, and narcissism; Paulhus and Williams, 2002) depicts a constellation of subclinical and malevolent personality traits, sharing a common core in terms of antisocial and aversive behaviors, including a tendency to deceive, manipulate, and exploit others (Paulhus and Williams, 2002). Machiavellianism lays on cynical behaviors and the inability to recognize the emotions of others (Láng and Birkás, 2014). In turn, psychopathy relies on callous affect, erratic lifestyle, and antisocial behavior (Neumann et al., 2007), whereas narcissism incorporates a blend of vanity, egocentric admiration, and a desire for superiority that negatively impacts social relationships (Kauten and Barry, 2016). Overall, adolescents with high dark triad tend to be antisocial, vulgar, and academically disengaged (Zhang et al., 2015). Specifically, adolescents with high Machiavellianism show emotional problems such as lack of sympathy (Sutton and Keogh, 2000) and behavioral problems (Zhu et al., 2021), including aggression, a higher tendency toward antisocial practices, lower altruistic concerns (Swami et al., 2010), and equity sensitivity (Woodley and Allen, 2014). Psychopathy is also negatively related to prosocial practices (Papageorgiou et al., 2020) and different social skills such as communication, group collaboration (Anwar and Zubair, 2021), altruistic prosociality (White, 2014), and equity sensitivity (Woodley and Allen, 2014). Regarding narcissism, research emphasized a positive association (Papageorgiou et al., 2020), revealing that to increase the admiration of others, narcissists intentionally distort the memory of events to increment their self-esteem (Hart et al., 2018), and, in turn, accommodate their grandiose image as altruistic people (Palmer and Tackett, 2018). However, some studies revealed that this trait was positively related to antisocial and aggressive behaviors and, thus, negatively associated with prosociality: through aggressive behaviors, narcissists can dominate over peers and reinforce their grandiose self-image (Fanti and Henrich, 2015). Notably, narcissism was also found uncorrelated to prosocial behavior, such as equity sensitivity (Woodley and Allen, 2014).

Dark Triad and Trait Emotional Intelligence

Trait Emotional Intelligence involves a constellation of emotion-related dispositions, which lay at the lower levels of personality hierarchies (Petrides and Furnham, 2001; Petrides et al., 2007). Research about the relationships between the dark triad and TEI in adolescents is extremely scarce. Zhang et al. (2015) revealed that adolescents (13–19 years old) with higher levels of Machiavellianism and psychopathy showed lower levels of TEI, whereas adolescents with higher levels of narcissism demonstrated higher levels of TEI. Studies on adults showed that both psychopathy (Petrides et al., 2011; Jauk et al., 2016) and Machiavellianism (Austin et al., 2014) were negatively related to TEI (Miao et al., 2019), although Machiavellianism was also found positively related to higher levels of TEI in men (Jauk et al., 2016) and the perspective-taking facet of cognitive empathy (Szabó and Bereczkei, 2017). The positive Machiavellianism-TEI association can rely on emotional competence as a necessary means for manipulative behavior (Jauk et al., 2016). Yet, a meta-analytic review of Miao et al. (2019) showed that narcissism and TEI are unrelated, since some studies showed positive correlations between narcissism and the different facets of TEI (Petrides et al., 2011; Szabó and Bereczkei, 2017), including assertiveness (Watson et al., 1988), optimism (Farwell and Wohlwend-Lloyd, 1998), positive social relationships (Foster and Campbell, 2005), whereas others showed negative relationships, as narcissists showed lower levels of empathic concern (Watson and Biderman, 1994). These contradictory results can be in part due to the double facet of narcissism, involving grandiosity (high self-esteem, interpersonal dominance, and tendency to overestimate one's capabilities), or vulnerability (defensive, avoidant, insecure, hypersensitive, and vigilant for criticism) (Miller et al., 2011). Thus, grandiosity would be positively related to TEI, whereas vulnerability would be negatively related (Zajenkowski et al., 2018).

Trait Emotional Intelligence and Prosocial Behaviors

Adolescence marks the development of more efficient forms of prosocial behaviors persisting into adulthood (Eisenberg et al., 2005). Adolescents' development depends on both social contexts and personality characteristics such as TEI (Gallitto and Leth-Steensen, 2019). Emotional and social competencies underpinned by TEI (e.g., emotionality and sociability) are crucial in acting prosocially (Petrides et al., 2006). Managing emotions allows people to elaborate their own perception of people's feelings into motivation to help and collaborate with others (Zhao et al., 2020). Petrides et al. (2006) found that higher TEI scores were related to more nominations from children for being cooperative, kind, and having leadership qualities and fewer nominations for being a bully. In addition, TEI was positively correlated with social competencies and kindness. Mavroveli et al. (2007) confirmed that adolescents with higher TEI scores were more likely to be nominated as cooperative by their classmates, whereas Mavroveli and Sánchez-Ruiz (2011) showed that higher TEI was associated with higher peer-ratings for prosocial and fewer nominations for antisocial behaviors. In addition, youth emotional and sociability competencies underpinned caring and connections with others positively predicted social sustainability both in terms of altruism and equity (Giancola et al., 2021).

The Current Study

Based on personality approach on prosociality (e.g., Oda and Matsumoto-Oda, 2022), describing personality as one of the main contributors to people's disposition to act prosocially and the feeling-oriented approach (e.g., Cialdini et al., 1987), stating that prosocial practices mainly rely on emotional regulation and

positive emotional experiences, this study detected the mediating effect of TEI on the association between the dark triad and prosocial sustainability declined in terms of altruism and equity.

Hypotheses were formulated as follows:

H1: Machiavellianism, characterized by cynical behaviors and the inability to recognize emotions (Láng and Birkás, 2014), was found negatively associated with prosocial practices and TEI (Woodley and Allen, 2014; Miao et al., 2019); thus, TEI negatively mediates the interplay between Machiavellianism and both altruism and equity.

H2: Psychopathy, characterized by callous affect, erratic lifestyle, and antisocial behaviors (Neumann et al., 2007), was found negatively related to prosocial practices and TEI (Miao et al., 2019; Papageorgiou et al., 2020); thus, TEI negatively mediates the interplay between psychopathy and both altruism and equity.

H3: Although research on the association between narcissism and prosocial behaviors provides misleading results, narcissism mainly relies on a high desire for superiority that negatively impacts social relationships (Fanti and Henrich, 2015; Kauten and Barry, 2016). This led to an assumption that narcissism was negatively related to altruism and equity. Besides, grandiose narcissism was positively associated with TEI, whereas vulnerable narcissism was negatively related to TEI (Zajenkowski et al., 2018). Notably, although both grandiose and vulnerable narcissism are not separated into two factors by the Dirty Dozen used in this study, the scale captures both dimensions (Maples et al., 2014). Consequently, it was expected that (H3a) TEI negatively mediates the relationships between narcissism and prosociality, and (H3b) TEI positively mediates the relationships between narcissism and prosociality.

METHODS

Participants and Procedure

A total of 129 healthy late adolescents (85 women; M_{age} = 19.96 years; SD_{age} = 1.05; $range_{age}$ = 18–22 years) participated in the study. This study used a cross-sectional web-based survey design, and data were collected in September and October 2021. Using an online link distributed *via* different social media platforms, all participants were requested to electronically sign the informed consent, and complete the self-report measures and a short demographic questionnaire. Given the cross-sectional-based survey design, participants were selected from different regions of Italy, mostly from Abruzzo. The internal review board approved the study.

Measures

The Dark Triad Dirty Dozen (Schimmenti et al., 2019) assesses Machiavellianism (e.g., *I tend to manipulate others to get my way*), psychoticism (e.g., *I tend to be unconcerned with the morality of my actions*), and narcissism (e.g., *I tend to seek prestige or status).* It consists of 12 items along a 5-point Likert-type scale (0, not at all; 4, very much). Cronbach's α was 0.64 for psychopathy, 0.77 for Machiavellianism, and 0.82 for narcissism.

The Trait Emotional Intelligence Questionnaire—Short Version (TEIQue—SF; Di Fabio and Palazzeschi, 2011) evaluates TEI. The questionnaire was formed by 30 items along a 7-point Likert-type scale (1, completely disagree; 7, completely disagree) (e.g., *Expressing my emotions with words is not a problem for me*). In this study, the global TEI score was used and Cronbach's α was 0.85.

The Altruistic Actions Scale (Corral-Verdugo et al., 2015) evaluates altruism as behaviors directed at helping others (e.g., visiting sick people and giving money to poor people). It consists of 10 items along a 4-point Likert-type scale (0, never; 3, always engage in such an action) (e.g., "*Provides some money to homeless*"). Cronbach's α was 0.80.

The Equity Scale (Corral-Verdugo et al., 2015) taps behaviors directed at setting equal opportunities and treating conditions, regardless of gender and economic status. The scale is formed by seven items along a 5-point Likert-type scale (0, totally disagree; 4, totally agree) (e.g., "*Girls and boys have the same educational opportunities*"). Cronbach's α was 0.61.

RESULTS

All statistical analyses were performed using IBM SPSS Statistic 24 for Windows. According to Hahs-Vaughn and Lomax (2020), data normality was tested by skewness and kurtosis values. Descriptive statistics are displayed in **Table 1**.

Spearman's rho correlational analysis was computed to preliminarily evaluate the relationships involving the variables of interest (refer to **Table 2**), whereas to test the mediating role of TEI on the dark triad and prosocial behaviors, the PROCESS macro for SPSS (version 3.5; Hayes, 2017) was used. Specifically, we advanced six mediation models in which the three dimensions of the dark triad, namely, the focal predictors, altruism, and equity were the outcomes, and TEI was the mediator.

Mediation analyses were examined through indirect effects with bootstrapped (samples = 5,000) SEs and bias-corrected 95% CIs. Considering altruism as the outcome, results showed that the indirect effects of Machiavellianism [b = −0.05, 95% CI (−0.1161, −0.0189)], psychoticism [b = −0.07, 95% CI (−0.1241, −0.0274)], and narcissism [b = −0.04, 95% CI (−0.0871, −0.0100)] on altruism through TEI were significant. Besides, the mediating analyses with equity as the outcome show that the indirect effects of Machiavellianism [b = −0.02, 95% CI (−0.0661, −0.0004)], psychoticism [b = −0.03, 95% CI (−0.0780, −0.0024)], and narcissism [b = −0.01, 95% CI (−0.0467, −0.0004)] on equity through TEI were also significant (refer to **Figure 1**).

DISCUSSION

Scientific research showed that adolescence involves increased perception, understanding, regulation, and functioning with emotions to achieve positive marks on behavior and personality,

TABLE 1 | Descriptive statistics for study variables.

Variable	*N*	Min	Max	*M*	SD	Skewness (std. error)	Kurtosis (std. error)
Machiavellianism	129	0.00	2.75	0.65	0.74	1.22 (0.21)	0.63 (0.42)
Psychoticism	129	0.00	3.00	0.81	0.73	0.92 (0.21)	0.55 (0.42)
Narcissism	129	0.00	3.50	1.01	0.88	0.79 (0.21)	−0.19 (0.42)
TEI	129	2.00	6.81	5.06	1.09	−1.00 (0.21)	0.72 (0.42)
Altruism	129	0.00	2.90	1.67	0.53	−0.06 (0.21)	−0.24 (0.42)
Equity	129	2.00	4.00	3.48	0.39	−1.18 (0.21)	1.34 (0.42)

TEI, Trait Emotional Intelligence.

TABLE 2 | Correlations among study variables.

	1	2	3	4	5	6
Machiavellianism (1)	1					
Psychoticism (2)	0.31**	1				
Narcissism (3)	0.60**	0.47**	1			
TEI (4)	−0.36**	−0.30**	−0.24**	1		
Altruism (5)	−0.37**	−0.22*	−0.15	0.41**	1	
Equity (6)	−0.29**	−0.12	−0.23**	0.27**	0.27**	1

*N = 129. *p < 0.05, **p < 0.01 (two-tailed).*

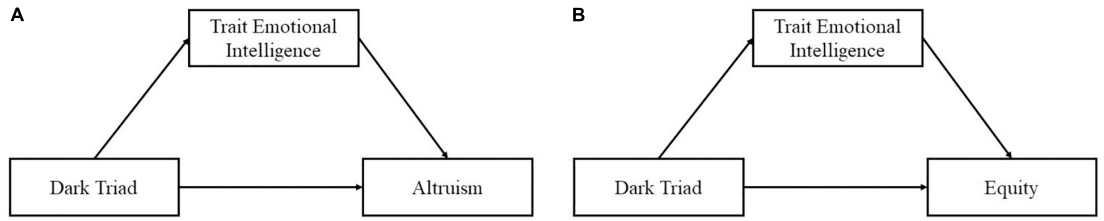

FIGURE 1 | The mediating models advanced in this study, including the dark triad as the independent variable, Trait Emotional Intelligence (TEI) as the mediator, and altruism and equity as the outcomes. **(A)** TEI significantly mediated the relationship between Machiavellianism and altruism [indirect effect = −0.05, 95% CI (−0.1161, −0.0189); direct effect = −0.15, 95% CI (−0.2735, −0.0313); total effect = −0.21, 95% CI (−0.3324, −0.0897)], between psychoticism and altruism [indirect effect = −0.07, 95% CI (−0.1241, −0.0274); direct effect = −0.07, 95% CI (−0.2018, −0.0487); total effect = −0.14, 95% CI (−0.2730, −0.0231)], and between narcissism and altruism [indirect effect = −0.04, 95% CI (−0.0871, −0.0100); direct effect = −0.05, 95% CI (−0.1550, 0.0492); total effect = −0.09, 95% CI (−0.2016, 0.0090)]. **(B)** TEI significantly mediated the relationship between Machiavellianism and equity [indirect effect = −0.02, 95% CI (−0.0661, −0.0004); direct effect = −0.12, 95% CI (−0.2213, −0.0385); total effect = −0.15, 95% CI (−0.2448, −0.0669)], between psychoticism and equity [indirect effect = −0.03, 95% CI (−0.0780, −0.0024); direct effect = −0.09, 95% CI (−0.1924, −0.0041); total effect = −0.12, 95% CI (−0.2200, −0.0383)], and between narcissism and equity [indirect effect = −0.01, 95% CI (−0.0467, −0.0004); direct effect = −0.10, 95% CI (−0.1826, −0.0314); total effect = −0.09, 95% CI (−0.2005, −0.0504)].

bringing youth to increase emotionality and prosociality, with consequences on various behaviors.

This study aims to investigate the involvement of TEI in association with the dark triad and social sustainability during late adolescence, a developmental stage characterized by a variety of changes, including dispositions toward the community (Zarrett and Eccles, 2006). Specifically, we advanced a mediation model, in which the dark triad (Machiavellianism, psychopathy, and narcissism) were the focal predictors, altruism and equity were the outcomes, and TEI was the mediator.

Results showed that Machiavellianism correlated negatively to both altruism and equitable behaviors; psychopathy correlated negatively only to altruism, whereas narcissism correlated negatively only to equitable behavior. This scenario revealed that the relationship between the dark triad and the different facets of prosociality is rather complex. Machiavellianism was confirmed as a dark trait fully oriented toward antisocial behaviors (Vernon et al., 2008; Muris et al., 2013); psychopathy as a disposition oriented specifically toward selfishness, affective callousness, and lack of empathy (Miller et al., 2011; White, 2014), and narcissism (presumably grandiose) as a trait negatively oriented toward equity.

Interestingly, TEI negatively mediated the relationships between the dark triad and both altruism and equitable behavior (H1, H2, H3b). In other words, lower levels in the dark triad were found to exhibit higher levels in TEI, which, in turn, positively impacted both altruism and equitable behavior. These findings suggest that prosociality results from the interaction between subclinical and malevolent personality traits, underpinned by the dark triad and positive emotion-related dispositions, which rely on TEI. In this vein, our results are in line with previous studies showing TEI as a protecting factor against the negative effects of the dark triad on different human behaviors, such as risk-taking and burnout (Grover and Furnham, 2021a,b). Specifically,

TEI depicts a constellation of bright personality dispositions, including emotional management of others, emotion perception, social competence, and trait empathy, closely related to prosociality and cooperative practices (Petrides and Furnham, 2001; Petrides et al., 2007). This blend of positive dispositions and competencies, useful to increment people's adaptability in different everyday life contexts (Fiorilli et al., 2019), could play an essential role in modeling negative dark triad dispositions into positive behavioral responses toward others.

To sum up, according to the feeling-oriented approach (e.g., Cialdini et al., 1987), stating that prosociality is closely related to emotionality, and personality theories on prosociality (e.g., Oda and Matsumoto-Oda, 2022), this study provides further empirical support on the protecting role of TEI against the malevolent and antisocial effects of the dark triad on prosociality. Notably, this mechanism assumes even more relevance during adolescence, a developmental stage that involves profound changes and represents a clear opportunity to increase, among others, socio-emotional abilities.

Limitations and Future Directions

This study has at least two limitations worth noting. First, the researchers used a web-based survey design; thus, further studies should include performance tasks for measuring altruism and equity. Second, the dark triad was evaluated by a concise measure that did not highlight subfactors, such as primary and secondary psychoticism or grandiose and vulnerable narcissism. Thus, future research should consider more specific subdimensions of the dark triad to evaluate their differential effects on prosociality and TEI.

CONCLUSION

Our findings enrich the knowledge about prosociality and provide a new perspective on the interaction of different facets of personality on social sustainability. Specifically, in this study, TEI results as a crucial factor against the effects of the dark triad on both altruism and equity, implying that late adolescents' emotional perception and social effectiveness can be crucial in developing and maintaining positive attitudes and behaviors toward others. From an educational perspective, promoting emotional competencies, which support TEI, could reduce people's antisocial dispositions and increase interest in prosocial practices and community efforts for social sustainability.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of L'Aquila. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MG performed conceptualization, methodology, formal analysis, investigation, data curation, writing the original draft, and writing review and editing. MP performed conceptualization, writing the original draft, and writing a review. SD'A performed conceptualization, supervision, resources, and writing review. All authors contributed to the article and approved the submitted version.

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Prosocial Behavior in Preschoolers: Effects of Early Socialization Experiences With Peers

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Over the last decades, many studies had focused on the psychological outcomes of children who have received early socialization outside of the family context, highlighting that the daycare experience can both positively and negatively influence the child's social-emotional development. Despite the number of studies conducted, there is a lack of observational research on this topic. The purpose of this study is to investigate whether the early daycare experience can influence the prosocial behaviors that children exhibit during free-play social interactions with peers, focusing on their quantity and quality. In addition, the associations between the enactment of prosocial behaviors and social-emotional and behavioral competence were investigated. 160 preschoolers, 77 of whom had previously attended daycare, participated in the study and were focally observed during two free play sessions with peers. Each prosocial behavior was identified and subsequently classified using a coding scheme designed to consider the self-initiated or required origin of prosocial actions and their underlying motive. Emotion comprehension was measured using a standardized test, while social-emotional and behavioral competence was assessed using a questionnaire filled out by teachers. The main findings showed that children who had attended daycare had higher anger and aggression scores than those who had not, who, in turn, were rated by their teachers as having more internalizing behaviors. These characteristics seemed to account for the differences found in the tendency to act prosocial acts in response to a peer's request, which was lower in children who had a previous daycare experience. Moreover, early socialization outside of the family context appeared to foster the comprehension of others' intent to achieve emotional or instrumental personal goals and, at the same time, to reduce conventional/affiliative prosocial acts. Overall, this study suggested that the incidental effects of daycare on prosocial behavior might be canceled due to the peculiar social-emotional and behavioral characteristics of the two groups of children.

Keywords: prosocial behavior, daycare attendance, social-emotional competence, behavioral skills, preschool children

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INTRODUCTION

Prosociality refers to a broad class of positive social behaviors that have been deeply investigated in the last 50 years. Currently, this term is used to label intentional acts that share the intent to benefit another person to satisfy his/her needs (Eisenberg et al., 2006; Tomasello, 2009, 2016, 2019; Svetlova et al., 2010; Dunfield and Kuhlmeier, 2013). In this sense, the adjectives prosocial and altruistic are often used in the literature as synonyms even though they subsume only partially overlapping meanings: in fact, altruism implies a personal cost for the actor and, consequently, altruistic behaviors should be considered a subcategory of prosocial ones (Eisenberg et al., 2006).

As suggested by Dunfield and Kuhlmeier (2013) engaging in prosocial behaviors can be considered a three-step process: (1) recognizing the presence of cues (behavioral or situational) that suggest another individual is experiencing a negative state of need, desire, or distress; (2) identifying the appropriate intervention to help the other achieve alleviation of his/her negative state; and (3) being motivated to engage in prosocial behaviors on his/her favor.

Contrary to the common view that children only gradually learn to be prosocially responsive to others as a function of successful socialization, the early emergence of a wide range of spontaneous positive behaviors is well documented by the end of the first year of life. In fact, concerning the first step of engaging in prosocial behavior, studies have shown that despite poor social cognition skills and the developing ability to differentiate one's own internal states from those of others, a child's attitude toward prosocial behavior is so strong that simple cues to affiliation can elicit both helping and sharing behaviors and deliberate efforts to comfort others in need. Indeed, from the beginning of the second year, toddlers can spontaneously provide both useful information, through the pointing gesture, and instrumental help without explicit requests or expectation of rewards (Svetlova et al., 2010; Newton et al., 2014). In other words, children recognize the need for help in others early on, even though the forms of response show different developmental patterns from infancy to preschool age and little cross-task correlation (Dunfield and Kuhlmeier, 2010, 2013).

Regarding the second step in the process that leads to the production of prosocial behaviors, there are many different actions that individuals can engage in to benefit others so that different classifications can be found in the literature. About this, Tomasello (2009) has suggested that prosocial behavior can be classified by distinguishing three main categories of helping others, namely, with services, goods, and information. Dunfield and Kuhlmeier (2013) also identified three main classes of human needs: instrumental need (being unable to complete a goal-directed behavior if alone), emotional distress regulation (experiencing an unpleasant emotional state), and material desire (being unable to acquire the desired resource). Despite this, most studies have focused on one or two specific forms of behavior (among which helping, comforting, sharing material resources, and providing information are those most investigated), then generalizing the results obtained to the broader class of prosocial behaviors. In addition, it is important to note that previous studies which have examined and compared multiple forms of prosocial acts have reported mixed results and only a few of them found interrelationships between the different behaviors considered, however low. For this reason, the literature often reports discrepant interpretations regarding the developmental trajectories of prosocial behavior (Brownell et al., 2013; Dunfield and Kuhlmeier, 2013; Flook et al., 2019) from early infancy to middle childhood so that, despite the large body of work that has been conducted on this topic, our general understanding of this social phenomenon is still not very straightforward.

Concerning the underlying motivation for engaging in prosocial behaviors, recent studies, primarily focused on the first 5 years of life, have shown that, during development, the enactment of these behaviors is, in a sense, "normed" by social rules and by the understanding of which is the most appropriate behavior to exhibit in specific circumstances; moreover, the expectation that the same behavior will be directed, in turn, toward oneself becomes important (reciprocity social rule). With development, therefore, there should be a general increase in the enactment of prosocial behaviors, but also a greater selectivity with respect to the recipient (Tomasello, 2009, 2016, 2019; Kuhlmeier et al., 2014).

On this point, the recent debate is oriented toward some specific issues: one of the main questions concerns the relationship between prosociality and social competence; moreover, another debated matter relates to the effect of social norms on the natural tendency to be responsive to the needs and/or desires of others, enacting behaviors in their favor (Laible et al., 2014; Newton et al., 2014; Tomasello, 2016). Previous studies have found positive links between prosocial behavior and social competence from preschool to late elementary school: prosociality serves to create cohesion among people, that is the goal of social competence (Laible et al., 2014; Flook et al., 2019), and findings have shown that prosocial children have more frequent positive interactions with peers and obtain high social preference (Chung-Hall and Chen, 2010; Farina and Belacchi, 2021); prosocial preschool children also show increased development of some abilities considered to be relevant to social competence, such as communicative-linguistic skills (Conte et al., 2018; Bouchard et al., 2020) and those concerning Theory of Mind and emotion understanding (Imuta et al., 2016; Conte et al., 2018; Traverso et al., 2020). However, from a developmental perspective, it should be assumed that the characteristics that define social competence in one period might be different from those that characterize other developmental phases.

In light of this, the preschool period can be considered particularly interesting to investigate these issues since many maturational and experiential changes occur rapidly in this developmental phase, allowing quantitative and qualitative "jumps" in many social-emotional skills, including emotion comprehension and emotional and behavioral self-regulation (Hartup, 2011; Rose-Krasnor and Denham, 2011).

Moreover, considering this period of life it is also possible to investigate whether and how early socialization may foster or inhibit prosociality (Tomasello, 2016, 2019; Flook et al., 2019; Schmerse and Hepach, 2021). Many studies have focused

on the psychological outcomes that may emerge if children also receive early socialization outside of the family context, i.e., in daycare, where they have various experiences with the peer group, under the guidance of one or more teachers (McCormick, 2018; Bleiker et al., 2019). This environment is structured according to specific guidelines that are geared toward good practices to promote the overall wellbeing and development of children, even though attending daycare means, for the child, experiencing daily separation from significant family members and dealing with the resulting stress. In addition, the daily experiences within it, especially those of free play with peers, can represent pleasant and enriching opportunities for cooperation but, at the same time, also for conflict, depending on the circumstances (Hartup, 2011).

In this regard, available evidence testifies that the daycare experience can either positively or negatively influence child development, or not influence it at all, as shown by various studies concerning cognitive and communicative-linguistic development (Bulgarelli and Molina, 2016; Bleiker et al., 2019). With specific reference to social-emotional and behavioral skills, the main hypothesis is that early relational experience with an extended peer group can foster general capacities for understanding other children and their needs and, consequently, promote prosocial behavior. In line with this hypothesis, a few studies have shown that the daycare experience promotes the comprehension of both others' state of mind and emotions (Rose-Krasnor and Denham, 2011).

It is important to underline that also daycare teachers often promote prosocial behavior among children (Quigley and Hall, 2016; McCormick, 2018; Bleiker et al., 2019; Schmerse and Hepach, 2021), focusing their attention on others' distress as the mothers usually did (Döge and Keller, 2014) and encouraging helping behaviors (Grazzani et al., 2016) more than cooperation during structured activities or play (Li et al., 2016).

However, studies in this area of investigation are quite scarce. A recent study by Schmerse and Hepach (2021) found that both parent and teacher socialization goals, but also the social climate among peers in the classroom group, predicts young children's concern for others and their subsequent acts of help between the ages of two and four: children who received good quality of care in both the family and daycare environments and who experienced a pleasant climate of peer interaction exhibited more prosocial behavior than children who grew up early only in the family context. These findings are consistent with those from previous studies that showed good daycare experience can promote prosociality (Hyson and Taylor, 2011; Grazzani et al., 2016; Quigley and Hall, 2016; McCormick, 2018). In contrast, Bleiker et al. (2019) highlighted that prosocial behavior of children aged 18-24 months who attended daycare did not differ from that of family-raised peers; furthermore, a study by Pingault et al. (2015) showed that, at age six, children with daycare experience were more sociable but equally prosocial than others.

At the same time, it has also been well established that children who attend daycare are prone to be more aggressive and disobedient than those who grow up in families (NICHD Early Child Care Research Network, 2002, 2003; Varin, 2007; McCartney et al., 2010). It is hypothesized that this increase in aggression depends primarily on the number of hours spent in that educational context (Ansari, 2018), as evidenced by the direct association found between the amount of daily time spent in the daycare center and children's cortisol levels (Watamura et al., 2003). The occurrence of such aggressive behaviors can certainly be an indicator of discomfort and stress due to the long period spent away from the family; however, other reasons can also be at the origin of such behaviors since the child also feels the desire to assert him/herself and his/her independence from others. According to evolutionary theory, Hawley and Vaughn (2003) argued that humans are often in a competitive state for resources; therefore, aggressive behavior and trait aggression could be interpreted as adaptive in the sense of promoting access to physical and psychological resources in preschoolers who are not yet able to negotiate with others. Furthermore, social competence and social dominance are closely intertwined during childhood, and aggressive behavior may be characteristic of socially competent preschoolers. In other words, prosocial and aggressive behaviors can be viewed as two different ways of interacting with peers that children can use to achieve their goals and satisfy their needs, depending on the circumstances: one more cooperative and one more coercive (Ostrov and Crick, 2007).

To date, it is unclear how long these effects of daycare may influence subsequent behavior, i.e., whether the experience of daycare can be considered a protective or risk factor regarding different social skills (Filho et al., 2016; Muñoz et al., 2017; Ansari, 2018). In addition, it is important to note that most research has been conducted through questionnaires completed by teachers and parents, and there is a lack of observational research on the prosocial behaviors that children exhibit every day during free-play social interactions with their peers (Conte et al., 2018; Bouchard et al., 2020).

Aims of the Study

Moving from the above considerations, the present study was designed to achieve two primary goals. The first was to investigate the possible influence of the daycare experience on preschoolers' social-emotional skills, looking at the long-term effects of this experience by comparing children who had attended daycare in early childhood with those who had been experiencing family care. The focus was on the prosocial behaviors displayed by children during interactions with peers and, more specifically, the attention has been paid not only to the productivity associated with such positive social behaviors but also to their quality, considering both their spontaneous or on-request nature and the various underlying motives. Since this type of investigation has usually adopted indirect methods of assessment, using direct observation of children's behaviors might help disambiguate some of the mixed results reported in the literature, by overcoming some of the limitations associated with this type of measurement.

In addition, to better understand the influence that daycare attendance might have on prosociality, the differences in certain social-emotional and behavioral skills of children who had such early socialization experience and those who had not

were also examined. At the same time, the synchronic interrelations between prosocial behavior and social-emotional and behavioral competencies were investigated. Several studies highlighted that negative emotionality could inhibit prosocial behaviors and that children who have attended daycare show higher levels of aggression and disobedience. Therefore, it is reasonable to hypothesize that these aspects might have a different impact on the prosocial behavior observed in these two groups of children.

MATERIALS AND METHODS

Participants

The study involved 160 children (Males = 83) aged between 3 and 6 years ($M = 4.74$; $SD = 0.86$) recruited from eight kindergartens in four cities in northern Italy.

The research project has been presented to both school administrators and teachers and following their approval the informed consent documents were handed out to the parents of each child. In addition, they were given a socio-demographic questionnaire to obtain information regarding the age of the children, their previous attendance or non-attendance at the daycare, the presence or absence of siblings, and both the educational level and occupation of the parents.

The socioeconomic status of the families was assessed based on maternal and paternal employment and educational level of both parents: 29.4% were low-SES families (parents with compulsory education, manual occupation, or low responsibility job), 56.9% were mid-SES (parents with a high school diploma and middle management profession), and the remaining 13.8% were high-SES (parents with a bachelor's degree, or higher, and a profession of high responsibility). In cases of discrepancy between parental status, priority was given to maternal characteristics. Most of the participants had siblings (78.8%).

Participants were divided into two groups based on whether or not they had previously attended daycare: the first group (G1: Males = 36; Females = 41) included children with early group experience, whose ages ranged from 3.14 to 6.13 years ($M = 4.62$; $SD = 0.89$), while the second group (G2: Males = 47; Females = 36) consisted of children with no early group experience, aged between 3.13 and 6.26 years ($M = 4.87$; $SD = 0.82$). Children in the two groups did not significantly differ for age ($t_{(162)} = -1.872$; $p = 0.063$) and gender distribution ($\chi^2_{(1)} = 1.560$, $p = 0.212$).

The study met ethical guidelines for human subject protections, including adherence to the legal requirements of Italy, and received formal approval by the local Research Ethical Committee of the University of Milano-Bicocca.

Procedure and Instruments

The research was conducted using different data collection methods, both direct and indirect. Specifically, direct observation was used to examine prosocial behaviors, while social-emotional and behavioral skills were assessed *via* an indirect observation instrument. Finally, emotion understanding was measured using a standardized test.

Naturalistic Observations and Coding System of Prosocial Behaviors

Before beginning with the observational sessions, the observers were adequately trained, for approximately 2 months, by one of the authors using a series of videos of peer interactions. The training ended when they reached a 90% agreement rate (compared to criterion protocols) regarding both the identification and the classification of prosocial behaviors. Subsequently, in pairs, they carried out a period of familiarization, spending a minimum of 3 days in the classroom to reduce the children's reactivity to their presence. Each child was focally observed in two sessions, each lasting 20 min, during free play activities with peers that can be considered qualitatively and structurally similar across the different kindergartens involved in the study. To collect a representative sample of the child's behaviors, each observational session was conducted at about 15-day intervals, one scheduled in the morning and one in the afternoon. Each observation started at the time the target child began to interact freely with peers and was suspended if he or she moved away from other children or engaged in solitary play; so, the time that the focal child did not spend in social exchanges was not considered in determining the temporal duration of the observation.

Each observer described all social behaviors exhibited by the target child using an audio recorder, also including the antecedents of the behaviors themselves and the reactions of all children involved in the interaction. On approximately the same day the observations were conducted, the observers transcribed their audio descriptions and drew up the narrative observational protocols, adding more details as possible and paying particular attention to communicative intentions and other fundamental aspects of non-verbal communication.

From the transcripts, all prosocial behaviors produced by each child, defined as voluntary actions intended to benefit another person by improving their wellbeing and reducing their state of distress, were identified firstly. These behaviors were, then, classified using a coding system specifically developed by the authors for the purpose of the study, considering both the self-initiated or required origins of prosocial actions and their underlying motives.

More specifically, three main motives were identified considering other's needs:

- affiliative or conventional: concerns cases in which the action is predominantly driven by social rules, that is the prosocial behavior is more closely associated with socialization than with the others' wellbeing (i.e., greeting and hugging a classmate who is coming up);
- empathic: refers to actions prompted by a peer's emotional distress and need for hetero regulation (i.e., comforting a peer after a physical accident, or taking the role of peacemaker in other children's conflicts)
- other's desire: pertains to behaviors enacted as a result of understanding the other's intent to achieve instrumental and/or cognitive goals (i.e., retrieving an object that another child is looking for and giving it to him/her; providing information).

Finally, positive social actions omitted by children (both those that followed an explicit request and those whose antecedent was an implicit request) were considered.

From this classification, the following measures were then calculated: (1) the total frequency of prosocial behaviors; (2) the proportion of self-initiated prosocial behaviors out of the total number of prosocial behaviors produced; (3) the proportion of required prosocial behaviors out of the total number of requests received (both explicit and implicit); and (4) the proportions of prosocial behaviors associated with each motive category out of the total number of prosocial behaviors enacted.

Interrater reliability was calculated using the percentage of agreement on the occurrence of prosocial behaviors (87.24%) and Cohen's κ coefficient on their classification ($\kappa = 0,\ 89$).

Social-Emotional and Behavioral Competence

In order to assess children's social-emotional and behavioral skills, teachers were asked to fill in the Italian version of the Social Competence and Behavior Evaluation-Short Form questionnaire (SCBE-30; LaFreniere and Dumas, 1996; Sette et al., 2015), designed to assess social competence, emotion regulation and expression, as well as adjustment difficulties in children between 30 and 78 months of age. The scale is composed of 30 items referable to three subscales, each of which includes 10 items; in particular, the subscales Anxiety-Withdrawal and Anger-Aggression investigate maladaptive behavior patterns, while the Social Competence subscale explores adaptive behaviors.

For each item, teachers were asked to indicate the frequency a child exhibited a target behavior or emotional state on a 6-point Likert scale ranging from 1 ("never") to 6 ("always"). Scores for each subscale were considered for analysis.

Emotion Comprehension

Each child's understanding of emotion was assessed by means of the Test of Emotion Comprehension, Italian version (TEC; Pons and Harris, 2000; Albanese and Molina, 2008), which is appropriate for children ages 3–11 years. It refers to nine components regarding the nature of emotions (i.e., recognition of basic emotions and understanding of mixed emotions), the causes of emotions (i.e., external causes, memories, desires, beliefs, and moral values), and the ability to control the expression of emotions (i.e., regulation of an experienced emotion and discrepancy between felt and expressed emotions).

The test consists of a picture book composed of a series of cartoon scenarios, available in both male and female versions, shown at the top of each page; at the bottom, four possible emotional outcomes represented by as many facial expressions (*"happy," "sad," "angry,"* and *"scared"*) are placed.

The child is read a short story while looking at the scenario of the cartoon and, afterward, is asked to point out the facial expression that corresponds to the emotion felt by the character in the story. One point is assigned for each component answered correctly.

Children were individually tested in a separate room at their kindergartens and each assessment typically lasted about 15 min. Overall, data collection was conducted by two researchers who were specifically trained to ensure both consistency and uniformity in the administration of the test and to transcript and code children's responses according to the scoring system.

Analyses were carried out using the global score (which can range from 0 to 9) obtained by summing the sub-scores for each component.

RESULTS

Statistical Analyses

IMB SPSS Statistic 27 was used to conduct data analyses. Although the gender variable was equidistributed within the two groups of children examined, a series of preliminary *t*-tests were conducted to assess its possible influence on all the observed variables. None of the differences attributable to the gender of the participants were found to be statistically significant. Moreover, given the large variability associated with participants' age, correlational analyses were also preliminarily conducted to test its association with the measures considered; from the results obtained, this variable was then controlled in all the analyses performed.

A multivariate analysis of covariance was carried out to assess the first aim regarding the presence of differences in the quantity and quality of prosocial acts as a function of daycare attendance. A similar analysis was conducted to investigate any differences in social-emotional and behavioral competencies in the two groups of children.

Finally, partial correlations have been performed to explore the concurrent associations among prosocial behavior and social-emotional and behavioral competencies.

Prosocial Behavior

The first group of analyses focused on the productivity of prosocial behaviors, both in their totality and with respect to their spontaneous or required origin, to verify the presence of any differences between children who attended daycare centers and those who did not.

Since the frequency of prosocial behaviors observed during social exchanges positively correlated with age ($r = 0.230$, $p = 0.003$), a multivariate analysis of covariance was conducted with daycare attendance as the independent variable, the total number of prosocial acts, and the proportion of both self-initiated and required prosocial behaviors as dependent variables, and age in months as the covariate.

There were no statistically significant differences between the two groups of children in either the total number of prosocial behaviors produced [$F_{(1)} = 0.621$, $p = 0.432$, $\eta^2 = 0.004$] or the proportion of those enacted spontaneously [$F_{(1)} = 1.227$, $p = 0.270$, $\eta^2 = 0.008$]. In contrast, children who had attended daycare were significantly less likely to engage in prosocial behaviors in response to implicit and explicit requests from other children [$F_{(1)} = 6.29$, $p = 0.011$, $\eta^2 = 0.043$].

A similar analysis was conducted to verify the effect, if any, of daycare attendance on the specific motivations underlying the enactment of children's prosocial behaviors. Results showed that children who had previously attended daycare produced a higher proportion of prosocial behaviors driven by the fulfillment of a desire expressed by another individual, compared

to those that had not such socialization experience [$F_{(1)} = 5.735$, $p = 0.018$, $\eta^2 = 0.035$]. Moreover, the same children showed prosocial behaviors generated by affiliative/conventional motivations in smaller proportions, although this difference is only marginally statistically significant [$F_{(1)} = 3.010$, $p = 0.085$, $\eta^2 = 0.019$]. No statistically significant difference was found in prosocial behaviors associated with empathic motives [$F_{(1)} = 1.156$, $p = 0.284$, $\eta^2 = 0.007$].

The descriptive statistics of all the measures considered were summarized in **Table 1**.

Social-Emotional and Behavioral Competence

An additional set of analyses was conducted to investigate whether daycare attendance contributed to influencing children's social-emotional and behavioral competence. **Table 2** summarizes the descriptive statistics of all measures considered.

A series of preliminary correlational analyses were performed to test for the relationships between the three components of social-emotional and behavioral competencies assessed using the SCBE-30 and age in months.

The results showed that the scores children obtained on the Social Competence subscale significantly increased as a function of age ($r = 0.386$, $p < 0.001$), whereas an opposite pattern of association was found regarding the Anxiety-Withdrawal component ($r = -0.219$, $p = 0.005$). The correlation calculated between the Anger-Aggression score and children's age was not statistically significant ($r = -0.077$, $p = 0.336$).

Given these results, a multivariate analysis of covariance was performed considering the scores obtained in each of the subscales of the SCBE-30 as the dependent variables, daycare attendance as the independent one, and age as the covariate. Children who had attended daycare were characterized by higher scores on the Anger-Aggression subscale than their peers who had not this socialization experience [$F_{(1)} = 9.747$, $p = 0.002$, $\eta^2 = 0.058$], whose, in turn, displayed higher scores concerning the Anxiety-Withdrawal component [$F_{(1)} = 4.459$, $p = 0.036$, $\eta^2 = 0.028$]. No statistically significant difference was found between the two groups concerning the Social Competence score [$F_{(1)} = 1.777$, $p = 0.184$, $\eta^2 = 0.011$].

In addition, about emotional competence, a univariate analysis of covariance was carried out considering the TEC score as the dependent variable, the daycare attendance as the independent factor, and age in months as the covariate since this last variable resulted positively correlated with the emotional competence measure ($r = 0.500$, $p < 0.001$). The results obtained did not show a statistically significant main effect of the independent variable on children's emotional comprehension [$F_{(1)} = 1.208$, $p = 0.273$, $\eta^2 = 0.008$].

Relationships Between Prosocial Behavior and Social-Emotional and Behavioral Competence

Results of correlational analyses carried out on the entire group of participants to assess associations between prosocial behavior measures and social-emotional and behavioral variables, controlling for children's age, are shown in **Table 3**.

Children who were rated by their teachers as more socially competent were also those who exhibited more prosocial behaviors during spontaneous interactions with their peers; moreover, the same children also showed a more advanced level of emotion understanding, although the correlation calculated was only marginally statistically significant. In addition, emotion comprehension was also positively associated with the proportion of prosocial behaviors enacted following an explicit or implicit request by a peer; this last variable is

TABLE 1 | Descriptive data for prosocial behavior measures.

	All participants ($n = 160$)			G1 (daycare attendance; $n = 77$)			G2 (no daycare attendance; $n = 83$)		
	M	SD	Range	*M*	SD	Range	*M*	SD	Range
Total prosocial behaviors	18.19	9.82	1–46	17.12	10.68	1–45	19.19	8.89	3–46
Spontaneous prosocial behaviors	0.78	0.16	0.00–1.00	0.77	0.18	0.00–1.00	0.80	0.14	0.31–1.00
Requested prosocial behaviors*	0.68	0.31	0.00–1.00	0.61	0.31	0.00–1.00	0.74	0.30	0.00–1.00
Affiliative/conventional motive	0.50	0.20	0.00–1.00	0.48	0.21	0.00–1.00	0.53	0.18	0.00–0.85
Empathic motive	0.07	0.11	0.00–0.67	0.06	0.09	0.00–0.54	0.08	0.13	0.00–0.67
Other's desire	0.43	0.20	0.00–1.00	0.46	0.22	0.00–1.00	0.39	0.16	0.00–0.77

n was slightly different as some children did not receive implicit or explicit requests from their peers. The related values were: n = 152 (all participants); n = 73 (G1); n = 79 (G2).

TABLE 2 | Descriptive data for social-emotional and behavioral measures.

	All participants ($n = 160$)			G1 (daycare attendance; $n = 77$)			G2 (no daycare attendance; $n = 83$)		
	M	SD	Range	*M*	SD	Range	*M*	SD	Range
Anxiety-withdrawal score	20.28	6.71	10–46	19.40	5.75	10–33	21.10	7.44	10–46
Anger-aggression score	18.51	8.31	10–52	20.66	9.55	10–52	16.52	6.39	10–41
Social competence score	36.79	10.68	15–59	37.19	10.83	15–59	36.41	10.58	17–57
TEC score	4.71	2.06	0–9	4.70	2.05	0–9	4.71	2.09	0–9

TABLE 3 | Pearson partial correlations performed between prosocial and social-emotional and behavioral measures (values of *p* in brackets).

	Anxiety-withdrawal score	Anger-aggression score	Social competence score	TEC score
Total prosocial behaviors	−0.024 (0.765)	−0.134 (0.101)	0.371 (<0.001)	0.150 (0.066)
Spontaneous prosocial behaviors	−0.178 (0.029)	0.122 (0.135)	0.080 (0.328)	0.048 (0.555)
Requested prosocial behaviors	−0.045 (0.584)	−0.159 (0.052)	0.126 (0.124)	0.164 (0.044)

marginally negatively associated with the anger-aggression dimension scores. Finally, in children who were described as having higher levels of anxiety and withdrawal a fewer spontaneous prosocial acts were observed too.

DISCUSSION

The main goal of this study was to investigate whether and how early group experience, such as that of children attending daycare centers, may or not influence the predisposition to enact prosocial behaviors throughout the preschool years. To summarize the results, no differences were found between the two groups of children examined concerning the productivity of prosocial behaviors; however, some differences emerged in the quality of enacted behaviors that appeared to be associated with certain social-emotional and behavioral characteristics.

Indeed, the daycare experience requires children to create new relationships outside the family very early on, and this means to engage in interactions with peers, to adapt to teachers' expectations and demands, and to test and modify their social-emotional abilities by experience (Hyson and Taylor, 2011; Grazzani et al., 2016). As some studies have shown, while attending daycare children are frequently exposed to prosocial behaviors and, consequently, they are prone to enact such behaviors themselves for two main reasons: one refers to social imitation processing, the other to the evidence that through the care that the young children receive, they learn to care for others (Quigley and Hall, 2016; McCormick, 2018; Bleiker et al., 2019; Schmerse and Hepach, 2021). Furthermore, the study of Over and Carpenter (2009) evidenced that the mere condition of familiarizing children with photographs in which group situations are represented, and thus clearly affiliative and social, leads them to enact more helping behaviors than children who have been exposed to non-affiliative pictures, in which isolated individuals are represented. Therefore, it is legitimate to hypothesize that this early group experience may encourage the development of positive social behaviors.

However, previous studies found discrepant results in this regard because children who attended daycare are generally considered more socially competent, but it is not so clear whether they are also more prosocial than those who did not attend it (Erel et al., 2000; Belsky et al., 2007; Ansari, 2018; Bleiker et al., 2019). At the same time, daycare attendees may also be more involved in and exposed to aggressive behaviors among peers, as children exhibit their peak of physical aggression generally between 18 and 30 months of age (Huston et al., 2015; Pingault et al., 2015; Filho et al., 2016; Ansari, 2018). Observing other children's aggressive behavior has a noticeable effect, as children tend to imitate it. In this regard, as reported by several authors, it is important to specify that aggressive attitudes can themselves be considered adaptive; in fact, in some circumstances, it is feasible that assertiveness may be confused with aggression or disobedience, especially in the case of toddlers and preschoolers who are not yet sufficiently competent to negotiate in a mature assertive way with others (NICHD Early Child Care Research Network, 1998, 2001, 2003; Pingault et al., 2015; Ansari, 2018).

The results of this study revealed no noteworthy differences in the overall production of children's prosocial behaviors enacted during a free play situation attributable to their previous daycare experience. Similarly, no differences in teachers' evaluations of the social competence level of the two groups of children were found, as measured by the corresponding subscale of the SCBE-30. It is relevant to specify that the Social Competence subscale of SCBE-30 mainly refers to prosocial behaviors; thus, this result may represent further confirmation of the similarity in the level of prosocial skills that characterized the two groups of children considered. Moreover, the positive association found, in the whole sample, between the scores on this SCBE-30 subscale and the total number of prosocial acts detected by direct observation further confirm that the two measures considered refer to the same construct.

However, differences emerged between the two groups concerning the origin of the observed prosocial behaviors, self-initiated or requested; specifically, children who have not attended daycare engaged in prosocial acts required by peers more than those who had a previous daycare experience. To interpret this result, it may be helpful to consider the social-emotional and behavioral characteristics of these children who, in the judgment of teachers, were more anxious, solitary, and withdrawn (SCBE-30 Anxiety-Withdrawal subscale score). For this reason, they may be more susceptible to external solicitations and act prosocially when prompted. On the other hand, the findings obtained also indicated that children with previous daycare experience were rated by their teachers as having more externalizing behaviors (SCBE Anger-Aggression subscale score). Other studies found similar findings, emphasizing that these children were more likely to exhibit aggressive behaviors and engage in conflict with other children, not only at preschool age but also later in life.

In this study, these characteristics appeared to negatively influence the propensity to respond to others' requests for positive social behaviors, as evidenced by the correlation, on the whole sample, between the SCBE Anger-Aggression subscale score and the proportion of requested prosocial acts.

Such a result can be interpreted considering those previous studies that have highlighted how negative emotionality (anxiety,

sadness, fear, and rage) can inhibit prosocial behavior (Taylor et al., 2014; Edwards et al., 2015; Xiao et al., 2019), although they had not distinguished between spontaneous and required acts. This view was also supported by the negative association between anxiety-withdrawal scores and the propensity to spontaneously produce prosocial acts, found when considering all participants in this study. Overall, the main social-emotional and behavioral differences found between groups seemed to influence more the propensity to engage in prosocial acts on request than spontaneously.

Concerning the motives underlying prosocial behavior, children who had previously attended daycare showed, proportionately, more behaviors directed toward satisfying the desire of another person. So, an early group experience could support the ability to correctly identify and interpret the intentions of others and respond to them appropriately, enacting the right helping action (Newton et al., 2014). However, daycare experience seemed to have an opposite effect on prosocial actions supported by affiliative motivations, which were lower in children who have attended daycare. This outcome appears congruent with the fact that children who had experienced various forms of non-maternal care during the first years of life were described as less compliant with adults and more transgressive (NICHD Early Child Care Research Network, 1998, 2001, 2003, 2006; Varin, 2007) so they may be less likely to engage in prosocial behavior based on shared social rules.

In addition, the main differences between the two groups of children cannot be explained by emotion comprehension since they did not differ in this ability. According to this outcome, the two groups were also similar in the rate of prosocial acts driven by the emphatic comprehension of others' needs. However, in line with previous literature (Rose-Krasnor and Denham, 2011; Grazzani et al., 2016), emotion comprehension ability was positively associated with the propension to engage in prosocial behaviors, particularly those on request, as we found in the whole sample. In this regard, it is important to remember that, according to our coding system, also implicit requests of emotion regulation were considered; therefore, this ability might play a principal role when requests for help are implicit, that is when they are expressed indirectly by specific signals of a negative emotional state. These signals are species-specific, and children with a greater ability to understand emotions might detect them better (Tomasello, 2019).

On the whole, the present study has shown that the differences in prosocial behavior of children who have attended daycare or who have not can be attributed, at least partially, to some social-emotional and behavioral characteristics that distinguish them. Among these, the propensity to anger-aggression, on the one hand, and anxiety-withdrawal, on the other, were those that seemed to affect more the quality of prosocial behaviors, rather than their quantity. In other words, this study suggested that the incidental effects of daycare on prosocial behavior might be canceled due to the peculiar social-emotional and behavioral characteristics of the two groups of children.

The use of naturalistic observation as a method of measurement permitted to distinguish between spontaneous and requested prosocial acts, allowing to obtain new suggestions about the controversial issue concerning the links between prosocial behavior and children's social-emotional characteristics. As anticipated, most previous studies have been conducted by parent and/or teacher evaluations and experimental designs. In this respect, it is worth noting that adult evaluations might be influenced by biases (Bouchard et al., 2020), whereas in experimental designs, children might be influenced by social expectations; in fact, at approximately 5 years of age, children come to be concerned about their reputations and show the emergence of self-promotional strategies, increasing prosociality in public compared to private settings (Engelmann and Rapp, 2018; Rapp et al., 2019). Thus, naturalistic observations of children's behaviors allow to overcome these potential limitations and obtain some precise information about the antecedents and recipients of children's prosocial acts.

However, this study presents some limitations concerning relevant information about the early caring experiences of the two groups examined. In particular, the main lack of information about children with daycare experience concerned both the age of entry and the average daily time spent in that context, and its quality. Instead, for the other group of children, we have no data available regarding some features such as primary caregivers, caring strategies, and frequency of peer relationships.

All of these variables can influence children's social-emotional development, accounting for different patterns of outcomes that can be observed in children who have attended daycare, as shown by several studies (Varin, 2007; Pingault et al., 2015; Bulgarelli and Molina, 2016). Similarly, family socioeconomic status was not directly considered in this work. However, there is some evidence that the main differences between children with and without daycare experience were modulated by this variable since the positive effects of daycare attendance appeared to be greater for children with a low SES (Andersson, 1992; Ansari, 2018).

In addition, given the wide variability associated with the age of the participants, their preschool attendance also differed; this may have impacted, at least in part, the effects attributable to the previous daycare experience, although the age variable was controlled for in the analyses performed.

Moreover, important developmental changes in various social-cognitive skills occur during the preschool period, including theory of mind (Peterson and Wellman, 2019), self-regulation (Montroy et al., 2016), emotion understanding (Pons and Harris, 2005). Consequently, children's social behavior may result from different mechanisms depending on the specific age under consideration (Eisenberg et al., 2011). For these reasons, it would be appropriate to conduct longitudinal studies in order to better define the effect of daycare attendance over time.

CONCLUSION

The current study represents one of the first attempts to examine the long-term effects of daycare attendance on preschoolers' prosocial behaviors by using direct observation

of their spontaneous interactive exchanges. This choice allowed to generalize some results already present in the literature and mainly focused on prompted prosocial behavior in structured conditions, extending them to the natural context of kindergarten.

New data are provided confirming that daycare attendance does not appear to have an impact on the enactment of prosocial behaviors when considering the total amount of such behaviors, not only in the immediate (Bleiker et al., 2019), but also in later periods (Pingault et al., 2015; Schmerse and Hepach, 2021). However, at the same time, this early socialization experience appears to negatively influence, specifically, the production of prosocial acts following a request from a peer. This evidence suggests the need to consider the possible role that the social partner (an adult rather than another child) may assume in encouraging or not the occurrence of prosocial acts. In addition, as supported by other studies (Schuhmacher et al., 2017), some social factors, including daycare attendance, as well as individual factors, such as social-emotional and behavioral abilities, may differentially influence the motivations underlying prosocial action, accounting for the distinctiveness of different types of prosocial behavior observed.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article and further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Research Ethical Committee of the University of Milano-Bicocca. Written informed consent to participate in this study was provided by the participants' legal guardian/ next of kin.

AUTHOR CONTRIBUTIONS

NS and CC: conceptualization and methodology, data collection, data coding and analysis, writing original draft, review and editing. All authors contributed to the article and approved the submitted version.

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Perspective Taking Ability in Psychologically Maltreated Children: A Protective Factor in Peer Social Adjustment

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Perspective taking is conceptualized as a multidimensional construct characterized by three components: cognitive, affective, and visual. The experience of psychological maltreatment impairs the child's emotional competence; in particular, maltreated children present difficulty in understanding and regulating emotions and in social understanding ability. In addition, the literature contains several contributions that highlight maladaptive behaviors of children with a history of maltreatment in peer interactions in the school context. Perspective taking ability has rarely been studied in maltreated children and the existing studies have produced different and often conflicting results that require further insights. On the grounds of these premises, the main objective of the present research is to investigate perspective taking ability in preschool children from maltreating and non-maltreating family contexts and its role in social adjustment, in terms of prosocial and aggressive behavior toward peers inside the kindergarten. A second objective is to verify the effectiveness of a training aimed to promote perspective taking ability in victims of psychological maltreatment. This research, organized into two separate studies, involved 249 preschool children: 206 children from non-maltreating family contexts and 43 brought up in psychologically maltreating families. Perspective taking was measured *via* the administration of several tests, and prosocial behavior and aggressiveness were observed *via* non-participant observations in the school context. The training involved maltreated children in small-group meetings based on familiar and appealing activities within the mother–child community. The overall results show that children's perspective taking ability, in particular the affective perspective taking, contributed to social adjustment. In fact, greater affective perspective taking ability was correlated to a higher frequency of prosocial behaviors toward peers and minor frequency of aggressiveness. Finally, the results of the training (pre/post-test comparison) showed an increase in perspective taking, especially in the affective dimension, and a consequent increase in prosocial behaviors and a decrease in aggressive ones. Therefore, the affective perspective taking ability seems to represent a very significant protective factor, which should be focused and strengthened in order to improve the social adaptation of preschool children who are victims of psychological abuse.

Keywords: perspective taking, social adjustment, prosocial behaviors, aggressiveness, maltreatment, preschoolers

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INTRODUCTION

The construct of social–emotional competence refers to a set of interrelated skills that are learned in social interactions from the earliest years of life and that are progressively developed in these interactions and which enable one to be *emotional effective* in everyday social exchanges (Saarni et al., 2007). Skills of social–emotional competence range from recognizing emotions in oneself and in others, to feeling empathy and emotional participation in the affairs of others, expressing emotions according to the performance rules of the culture they belong to, knowing the causes that provoke them, being able to name them using an appropriate emotional vocabulary and being able to self-regulate (Tucker et al., 2017; Murano et al., 2020).

One core social–emotional skill is perspective taking. Some authors consider perspective taking as a multidimensional construct characterized by three components: cognitive, affective, and visual. *Cognitive perspective taking* refers to the understanding of others thoughts and intentions (Baron-Cohen, 2001; Eisenberg et al., 2001), the *visual* one is identified as the ability to make inferences about how an object is seen by a person occupying a different position (Vogeley and Fink, 2003; Moll and Tomasello, 2006; Moll and Meltzoff, 2011; Frick et al., 2014) and the *affective* one as the ability to understand others' emotional states (Harwood and Farrar, 2006; Hinnant and O'Brien, 2007; Fireman and Kose, 2010; Sette et al., 2015).

Research into these issues has revealed that perspective taking could influence children's social adjustment. In fact, it seems that perspective taking is related to a constellation of social and relational skills that underlie positive interactions with the outside world: the ability to read and decode social cues, to resolve conflict, to adjust adequately one's own emotions to the context and to manifest prosocial and altruistic behaviors (Eisenberg et al., 2003). Research findings indicate that people more skilled at perspective taking are less likely to stereotype others (Galinsky and Moskowitz, 2000), respond less aggressively when provoked (Richardson et al., 1998), and develop more positive relationships with those who hold beliefs that differ from their own (Galinsky and Moskowitz, 2000; Gehlbach et al., 2015). Other research (Gal Endres, 2003) has shown that the development of perspective taking is significantly related to social competences and that "good perspective takers" are also considered more socially competent by their teachers (Lalonde and Chandler, 1995), and are more accepted by friends (Klin et al., 2000; Fitzgerald et al., 2003).

Based on the evidence of these positive influences of perspective taking on children's social adjustment, many authors have investigated the possibility of educating children to take on the perspective of others through specific training and then measuring its effectiveness. Results obtained from research articles and literature reviews (Hofmann et al., 2016; Mori and Cigala, 2016) show that targeted intervention procedures can effectively increase perspective taking, both in cognitive (Tsuji, 2020), visual and affective dimensions (Ornaghi et al., 2015), whether the focus is on enhancing one dimension at a time or on perspective taking in its multidimensional nature (Cigala et al., 2015; Mori and Cigala, 2016). Moreover, Mori and Cigala (2016), have shown that, in general, the implemented trainings refer to three main analytical perspectives: the cognitive approach (Theory of Mind) the behaviorist approach (Relational Frame Theory) and finally, the socio-constructionist approach. These approaches, although differing in the dimension of perspective taking investigated and the methodologies used, have made it possible to demonstrate that it is indeed possible to help preschool children to understand other people's points of view.

Given the adaptive nature of perspective taking and, in particular, its contribution to the children's social adjustment, some scholars have analyzed this ability in children with a history of maltreatment. Psychological maltreatment in general and its subcategories of neglect and assisted violence can result in short-term effects and long-term physical and psychological symptoms that usually characterize a child's entire development (Margolin and Gordis, 2004; Fantuzzo and Fusco, 2007; Pears et al., 2010; Moreno-Manso et al., 2017). There is empirical evidence that maltreatment impairs the child's emotional competence in particular, maltreated children present difficulty in understanding and regulating emotions and in social understanding ability (Cicchetti et al., 2003; Pears and Fisher, 2005; Shipman et al., 2007; Luke and Banerjee, 2013; Cigala and Mori, 2016a,b). In addition, the literature contains several contributions that highlight maladaptive behaviors of children with a history of maltreatment in peer interactions in the school context. In particular, studies have shown a difficulty for maltreated children to implement prosocial and empathic behaviors, a greater tendency to behave aggressively and impulsively, externalizing behavioral disorders, and maladaptive management of peer relationships (Fantuzzo et al., 1991; Martin and Clements, 2002; Holmes, 2013; Moreno-Manso et al., 2017; Dickerson et al., 2019; Thibodeau et al., 2019).

The socio-constructive perspective attributes a fundamental role to the family context and in particular to the type of family relationships in the development of perspective taking skills (Cicchetti and Lynch, 1995). Growing up in a maltreating family context, often poor in supporting elements, empathy, and appropriate educational practices, essential to developing the ability to understand the feelings, thoughts, and perspectives of others could represent a threat for the development of appropriate perspective taking abilities (Macfie et al., 2001; Cicchetti and Toth, 2005; Burack et al., 2006). In addition, inadequate practices of emotional socialization could be a barrier to the construction in the family of a space of sharing and explication of emotions within which children can learn to attribute meanings to their own and other emotions (Meins et al., 2002, 2003; Cicchetti et al., 2003; Cigala and Mori, 2014). Support, affection, empathic modeling, conversations about other people's inner states are important variables in the development of the ability to understand others' feelings and perspectives, and to have a coherent sense of self (Cornell et al., 2017; Ornaghi et al., 2020).

Among the components of socio-emotional competence investigated in relation to maltreatment situations, perspective taking ability rarely appears, and the existing studies have produced different and often conflicting results that require further insights.

In particular, a study focused on the cognitive dimension of perspective taking, demonstrating poorer abilities in solving false beliefs tasks in maltreated children compared to non-maltreated ones. This study considered children abused physically, sexually, and emotionally from 4 to 8 years of age (Cicchetti et al., 2003). Other authors (Pears and Fisher, 2005) analyzed the ability of perspective taking by separating the affective dimension from the visual-cognitive one in preschool children victims of different types of maltreatment (e.g., physical, sexual, emotional abuse, and neglect), inserted in family planning programs. The results showed that the maltreatment conditions are significantly associated with a poor understanding of all basic emotions (e.g., happiness, fear, sadness, and anger) and difficulties in solving visual and cognitive decentralization tasks. From a literature review (Luke and Banerjee, 2013) a lack of agreement has emerged in the literature with respect to the consequences of maltreatment on perspective taking skills in school children. In particular, some studies have reported poorer perspective taking abilities in maltreated children than in non-maltreated peers in tasks when they were asked to retell a story that had just been heard from another person's point of view (Barahal et al., 1981; Burack et al., 2006).

However, other research did not reveal significant differences in performance in perspective taking tasks between physically abused children (Walker and Downey, 1990) and the victims of multiple forms of abuse (physical, sexual, emotional, and neglect; Lazaro and Lopez, 2010) and non-maltreated peers. Finally, from research that adopted a multidimensional approach on perspective taking (Cigala and Mori, 2014) no significant differences emerged with regard to the visual and cognitive dimension of perspective taking between maltreated and non-maltreated children. The only differences emerged in the affective component, in which maltreated children showed worse performances, demonstrating their lower ability to understand emotional expressions and emotional situations and to predict their own emotion of sadness.

On the grounds of these premises, we consider that there is a need for further studies that investigate perspective taking ability in order to better understand the relationships between children's perspective taking ability and social adjustment in peer interactions, both in the presence of maltreatment and in typically developing groups. In particular, starting from the analysis of the cited recent literature (Luke and Banerjee, 2013; Tejada and Linder, 2020) the need emerges to focus future research on preschool age that has hardly at all been investigated. In fact, in the field of maltreatment, many more studies on the relationship between emotional competence and prosocial behavior have been carried out on children of school age. The decision to focus this study on the preschool age group was based on the evidence that it represents a particularly salient phase in the development of perspective taking. It is, in fact, from about 3 to 6 years of age that the ability to understand points of view other than one's own emerges, develops, and, above all, consolidates in children. Finally, the preschool age is more significant at the level of prevention and intervention: In this age period, the maladaptive "vicious circle" between the family context and adaptation with peers is not yet so consolidated and structured. It is, therefore, very interesting to carry out investigations at an increasingly early age in order to gather evidence that can enable the implementation of paths to promote perspective taking in children (Self-Brown et al., 2012; Toth and Cicchetti, 2013; Moreno-Manso et al., 2017).

The Current Contribution

Based on the previous premises, the main aim of the present research was to investigate the perspective taking ability in preschoolers belonging to maltreating and non-maltreating family contexts and the influence that perspective taking ability could have on social adjustment in terms of prosocial and aggressive behaviors toward peers inside the kindergarten. In particular, two different studies were implemented.

Study I Had Two Main Objectives

a. To compare maltreated and non-maltreated children with respect to perspective taking and adaptive functioning in the school context, expressed in terms of prosocial behaviors and aggressiveness, also controlling the influence of other variables: gender, siblings, and age. We hypothesized to detect differences between the two groups, with regard to the affective dimension of perspective taking, and in particular, we expected to find better affective decentralization skills in children belonging to a normative family context (Cigala and Mori, 2014). As regards social adjustment, we expected to detect a higher frequency of aggressive behaviors among maltreated children (Fantuzzo et al., 1991; Martin and Clements, 2002; Holmes, 2013). In line with the literature, we did not expect to find gender differences in perspective taking ability but more aggressive behaviors and prosocial behaviors in males than in females (Rose and Rudolph, 2006). Finally, we expected that having siblings could promote the perspective taking ability akin to what occurs with other similar social skills (Perner et al., 1994; Ruffman et al., 1998).
b. To assess whether perspective taking ability could play a role in social adaptation, expressed in terms of prosocial behaviors and aggressiveness with peers in a group of children with a history of psychological maltreatment and in a group belonging to non-maltreating families. We expected that children's social adjustment expressed in terms of prosocial peer behavior could be positively related to the perspective taking ability of children in both groups. On the other hand, we expected that children's social maladjustment expressed in terms of aggressive peer behavior could be negatively correlated to children's perspective taking abilities (Carlo, 2005; Dodge et al., 2006; Cigala et al., 2015; Mori and Cigala, 2019).

Study II Had Two Main Objectives

a. To verify the efficacy of a specific group training in promoting perspective taking ability in maltreating children.
b. To verify whether the enhancement of the visual, affective, and cognitive perspective taking ability in the group of maltreated children following a specific training could improve social adjustment in terms of prosocial and aggressive behaviors among peers in the school context. The hypothesis was that after the training, there would be an increase in perspective taking abilities (visual, cognitive, and affective);

moreover, the advancement of perspective taking was associated with an increased frequency of prosocial behavior and a reduction in aggressiveness (Cigala et al., 2015; Mori and Cigala, 2019).

STUDY I

Materials and Methods

Participants

The group of participants comprised 249 preschoolers: 206 children belonging to non-maltreated families and 43 children, victims of psychological abuse. The 206 non-maltreated preschoolers (without referral by social services) are aged between 45 and 65 months ($M = 54.72$, $SD = 4.61$), 104 males ($M = 54.65$, $SD = 4.49$) and 102 females ($M = 54.78$, $SD = 4.74$); 54 children are an only child and 152 have at least one sibling. Children attended 10 classes in 8 kindergartens in northern Italy and belonged to middle socioeconomic status families. For the formation of the maltreated children's group, the following inclusion criteria were established: (1) Age between 3 and 5 years; (2) Absence of clinical diagnosis; (3) Presence of psychological abuse (neglect/assisted violence); (4) Knowledge of Italian (both comprehension and production). The presence of psychological maltreatment was ascertained with interviews with the directors of the communities in which the research was conducted (all having professional profiles as psychologists).

The 43 preschool victims of psychological abuse are aged between 36 and 68 months ($M = 53.07$, $SD = 9.41$), 21 males ($M = 51.19$, $SD = 8.87$) and 22 females ($M = 54.86$, $SD = 9.77$); 25 children are an only child and 18 have at least one sibling. Children residing, together with their mothers, in 15 mother–child communities are located in 9 Northern Italian provinces. All the children were Italian native speakers and had Italian nationality, although 18 came from families of foreign origin (10 from North Africa, 4 from Central Africa, and 4 from Eastern Europe).

Of the 15 considered communities, six were of a therapeutic nature, in which mothers were on a rehabilitation path to recover from drugs, alcohol, and medicines and 9 were so-called "welcoming communities," in which the hosted women presented a variety of problems (e.g., social malaise, poverty, application for political asylum, and conflicting separations). Specifically, 17 children lived in therapeutic communities and 26 in host communities. The average residence time within the communities was 18.91 months ($SD = 13.945$; Range: 1–52 months). Only 25 children had sporadic contacts with their fathers (once or twice a month) usually during supervised meetings in the presence of educators of the community, often inside the prison where the father was being detained.

Design and Procedure

This study is part of a larger project that involves the collaboration between University, the School Institution, and a *Mother–Child Communities* network in northern Italy. Before launching the study, a preliminary phase was implemented during which the kindergartens were contacted, through the managers and coordinators of the Educational Services of the various municipalities or the school directors. After obtaining initial consent to participate, the explanatory research project was sent to the school containing a detailed description of the objectives, methods, and timeframe for carrying out the research. The next step was to present the project first to the teachers and then to the parents, who were given the informed consent form. These meetings proved to be particularly useful as they gave everyone the opportunity to listen, reflect, make and answer questions, raise doubts and uncertainties that could have been an obstacle for the continuation of the research.

For the children belonging to maltreated families, the preliminary phase consisted in contacting therapeutic/welcoming communities (20 communities), in some cases with the prior consent of the Social Services, in others through direct agreements with the managers of each organization. Fifteen communities (6 therapeutic and 9 welcoming) accepted to participate in the research and received the research project. The next phase involved presenting the project first to the directors and educators of the communities and then to the mothers, who were given the specific document for their informed consent.

Instruments

Socio-Emotional Competence: Perspective Taking

For each child, affective, cognitive, and visual perspective taking were assessed. Three tasks were proposed to each child in order to detect each component of perspective taking. The perspective taking instruments were administered individually in three 20–25-min meetings in a quiet room of the kindergarten or the community. These tasks were pleasant, non-invasive, and were designed to not evoke emotionally distressing situations for the children (**Table 1**). The administration of the task battery was conducted by a trained research assistant, who was blind to the specific aims and hypotheses of the study.

Cognitive perspective taking was assessed by classical false belief tasks (*unexpected location and unexpected content*; Wimmer and Perner, 1983; Baron-Cohen et al., 1985; Perner et al., 1987) and the appearance–reality distinction tasks (*deceptive object*; Flavell et al., 1986) whose assumption is the child's ability to attribute different thoughts and beliefs to other people.

Three types of tasks were proposed for the analysis of *visual perspective taking*. Two of them are *visual-perceptual tasks*

TABLE 1 | Perspective taking assessment tasks (Study I).

Affective PT	Cognitive PT	Visual PT
TEC (Pons and Harris, 2000)	Sally and Anne (Wimmer and Perner, 1983)	The grub sleeping on a pillow (adapted from Flavell et al., 1981)
Emotional decentralization task (Harwood and Farrar, 2006)	Nesquik box with pencils (re-adapted from Perner et al., 1987)	The land before time (adapted from Hughes and Donaldson, 1979)
Rainbow and his friends (adapted from Donovan, 2002)	Rubber-walnut (adapted from Flavell, 1993)	The crocodile (adapted from Flavell, 1966)

(Flavell et al., 1981; Mori and Cigala, 2019): children were shown two tables featuring the same sketch/image on both sides, but with a different detail; the challenge was to consider both points of view. The third test is represented by a modified and adapted version of the *"policeman task"* (Hughes and Donaldson, 1979; Mori and Cigala, 2019) consisting of a three-dimensional model in which the child's task is to simulate the game of hide-and-seek, placing a character in such a way that the other character cannot see. The scene is presented so that the child's point of view does not coincide with the characters' point of view.

For the analysis of *affective perspective taking* the Italian version of the TEC (*Test of Emotion Comprehension*; Pons and Harris, 2000; Albanese and Molina, 2008) was first proposed to the children. Secondly, an adapted version of the *emotional decentralization task* (Harwood and Farrar, 2006) was proposed, in which the children were presented 12 short stories involving themselves and a friend. After each story, the researcher asked how the child and his/her friend would feel in such a situation. Finally, each child was told an illustrated story, specifically created for the recognition of the four basic emotions (i.e., happiness, fear, anger, and sadness) and asked to recognize the emotion felt by the involved characters.

Social Adjustment: Prosocial Behavior and Aggressiveness

Prosocial behavior and *aggressiveness* were investigated through direct non-participant observations by means of an observation grid, created on the basis of prosocial behaviors assessment code systems (D'Odorico et al., 2000; Roche Olivar, 2002; Bergin et al., 2003; Cigala et al., 2015; Mori and Cigala, 2019). Observations were conducted in the kindergarten attended by children in three different 45-min sessions on different days during lunch and in moments of free play both before and after lunch. Target behaviors (more than fifty) were operationalized into 4 behavioral categories: *helping* (e.g., to help a friend in need and to help a friend wash their hands), *consoling/supporting* (e.g., to get close to a sad friend and to give a toy to a sad friend) and *sharing* (e.g., to share toys or materials with friends and to tell personal experiences with friends) that we considered as prosocial behaviors, and *aggressiveness* (e.g., physically assaulting a peer by pushing, biting or scratching, and taking over other children's games even if they complain). The observer, blind to the hypotheses and previously trained, noted in the grid every time a target behavior was performed by the observed child. Then the behaviors were summed, so as to evaluate the frequency of emission of each of the aforementioned behavior categories. This coding grid had already been used in previous research (Cigala et al., 2015), and Cronbach's alpha score for the reliability of the internal consistency of the coding grid is 0.69 for each behavior separately.

Results

Score Coding

Before the analysis of the results, the scores obtained by the children in the individual perspective taking tasks and in the observation sessions had to be recoded. The recoding procedure was based on the one already used in other studies (see Mori and Cigala, 2019). In order to have a single perspective taking indicator for each dimension, first, three new scores for each dimension (*affective, cognitive,* and *visual PT*) were calculated according to following formula:

$$\left[\begin{array}{l}\text{PT index} = \left(\text{score on task 1} / \text{max score on task 1}\right) + \\ \qquad\quad \left(\text{score on task 2} / \text{max score on task 2}\right) + \\ \qquad\quad \left(\text{score on task 3} / \text{max score on task 3}\right)^{*} 1/3\end{array}\right]$$

Then the values were multiplied by 100 in order to increase readability. In this way, we obtained three new scores ranging from 0 (poorer performance) to 100 (best performance): visual PT, affective PT, and cognitive PT. Moreover, a global Index of perspective taking was computed by averaging the three scores described (*totalPT*).

In a previous study, in order to evaluate the extent to which the different test would measure similar construct, a confirmatory factor analysis was performed for pre-test and post-test measures separately (see Mori and Cigala, 2019). More precisely, a model with three latent factors (i.e., affective, cognitive, and visual PT) each measured by three indicators was tested using maximum likelihood estimation with robust standard error. For the pre-test, the results indicated a good fit of the three-factor model, v2 (23) = 8.13, $p = 0.99$, CFI = 1.00, RMSEA = 0.00 [90% CI = 0.00–0.00], $p = 0.99$, SRMR = 0.022. Moreover, all the observed variables were significantly measured by the intended latent factor (ps $\leq$ 0.05). Factors core determinacy was 0.81 for affective, 0.77 for cognitive, and 0.93 for visual dimension of PT. Similar results were obtained for post-test measures. Indeed, goodness of fit was acceptable, v2 (23) = 33.02, $p = 0.08$, CFI = 0.966, RMSEA = 0.046 [90% CI = 0.000–0.079], $p = 0.54$, SRMR = 0.044, and all observed variables were significantly represented by the intended latent dimension (ps < 0.01). Factor score determinacy was 0.96 for affective, 0.84 for cognitive, and 0.84 for visual dimension of PT. Finally, an indicator of prosocial behavior was also computed by summing the frequency of every single behavioral category: *helping*, *consoling/supporting,* and *sharing* (*Prosocial total*). An indicator of aggressiveness was also computed by summing the frequency of every single aggressive behavioral (*aggressiveness*).

Analysis and Results

In relation to the first objective of the study I, the two groups of maltreated and non-maltreated children were compared by means of a multivaried analysis with respect to perspective taking and adaptive functioning, expressed in terms of prosocial behaviors and aggressiveness. A multivariate analysis was conducted with the presence of *maltreatment* as independent variable; *age, gender,* and the presence of *siblings* as covariates; *affective, cognitive,* and *visual perspective taking*, *prosocial* and *aggressive behaviors* as dependent variables. From this analysis a significant effect of maltreatment on *affective perspective taking* [$F_{(1,244)} = 28.12$, $p < 0.001$], *prosocial behaviors* [$F_{(1,244)} = 9.98$, $p = 0.002$], and *aggressive behaviors* with peers [$F_{(1,244)} = 27.55$, $p < 0.001$] emerged. The analysis of the mean values (**Table 2**)

showed that the group of maltreated children was characterized by a lower affective perspective taking, a lower frequency of prosocial behaviors, and a greater frequency of aggressive behavior toward peers.

With respect to the second objective, two linear regression models were conducted in order to verify the predictor variables of prosocial and aggressive behavior among peers in school contexts.

In particular, in the first model, the *total prosocial behavior* (derived from the sum of the *help, consoling,* and *sharing* behaviors) was considered as dependent variable, while the following were included as predictors: *visual, affective, and cognitive perspective taking*, *age* (younger/older based on the average value), *gender, sibling* (only child/at least one sibling) and the presence of maltreatment (*maltreatment*/*non-maltreatment*).

The zero-order correlation between *perspective taking* and *prosocial behaviors* (**Table 3**) pointed out that children's ability in *affective perspective taking* ($p < 0.01$) and *cognitive perspective taking* ($p < 0.05$) are positively correlated with the frequency of *prosocial behaviors*.

The regression model was significant [$F_{(7,241)} = 3.23$, $p = 0.003$, $R^2 = 0.09$; *VIF* = *range* 1.04–1.20; *VIF Tolerance* > 0.2]. The significant predictors were: *affective perspective taking* ($b = 0.60$, $SE = 0.03$, $p = 0.032$), and the presence of *maltreatment* ($b = -2.11$, $SE = 0.92$, $p = 0.022$; **Table 4**).

In particular, the descriptive statistics (**Table 2**) showed that the presence of *maltreatment* is associated with lower levels of *prosocial behaviors* toward peers and the correlations (**Table 3**) pointed out that children's ability in *affective perspective taking* is positively correlated with the frequency of *prosocial behaviors*.

In the second model of regression analysis, the *aggressive behaviors* were included as dependent variable, while the predictors variable were the same as in the previous model.

The zero-order correlation between *perspective taking* and *aggressive behaviors* (**Table 3**) pointed out that aggressive behavior is inversely correlated with *affective perspective taking*.

The regression model (**Table 5**) was significant [$F_{(7,241)} = 9.77$, $p < 0.001$, $R^2 = 0.22$; *VIF* = *range* 1.04–1.20; *VIF Tolerance* > 0.2]. The significant predictors were: *affective perspective taking* ($b = -0.09$, $SE = 0.02$, $p < 0.001$), the presence of *maltreatment* ($b = 2.65$, $SE = 0.72$, $p < 0.001$) and the *gender* ($b = -1.32$, $SE = 0.51$, $p = 0.010$).

In particular, the presence of *maltreatment* ($M = 5.77$, $SD = 6.34$ vs. $M = 1.81$, $SD = 3.54$) and male *gender* ($M = 3.30$, $SD = 5.17$ vs. $M = 1.68$ $SD = 3.29$) are associated with a higher frequency of aggressive behaviors among peers (**Table 2**), while *affective perspective taking* is inversely correlated with aggressive behavior (**Table 3**).

STUDY II

Materials and Methods

Participants

The group of participants, consisting of 43 children victims of psychological abuse, corresponds to that of study I, whose

TABLE 4 | Linear Regression Model I: prosocial behaviors.

	b	*SE*	*Beta*	*p*
Maltreatment (vs. non-maltreatment)	−2.11	0.92	−0.16	0.02
Gender (0 = male)	−0.10	0.64	−0.01	0.88
Age	−0.27	0.65	−0.03	0.68
Siblings	0.21	0.71	0.02	0.77
Affective PT	0.06	0.03	0.16	0.03
Cognitive PT	0.03	0.01	0.12	0.08
Visual PT	0.00	0.01	0.02	0.82

TABLE 2 | Perspective taking, prosocial, and aggressive behaviors for the presence of maltreatment: descriptive statistics.

	Non-maltreated (*N* = 206)		**Maltreated (*N* = 43)**		**Total (*N* = 249)**	
	M	***SD***	***M***	***SD***	***M***	***SD***
Affective PT	58.43	11.98	47.62	14.62	56.56	13.10
Cognitive PT	53.51	22.96	55.55	26.45	53.86	23.55
Visual PT	69.66	28.90	67.05	35.73	69.21	30.12
Total PT	60.53	15.35	57.20	13.81	59.96	15.12
Prosocial total	13.18	4.95	10.42	5.34	12.71	5.11
Aggressiveness	1.81	3.54	5.77	6.34	2.49	4.41

TABLE 3 | Zero-order correlation between perspective taking, prosocial behaviors, and aggressiveness.

S. No.		**1**	**2**	**3**	**4**	**5**
1.	Affective PT	–	0.251**	0.281**	0.231**	−0.347**
2.	Cognitive PT		–	0.109	0.145*	0.003
3.	Visual PT			–	0.076	−0.019
4.	Prosocial total				–	−0.161*
5.	Aggressiveness					–

*$p < 0.05$, $N = 249$.
**$p < 0.01$, $N = 249$.

TABLE 5 | Linear Regression Model II: aggressive behaviors.

	b	*SE*	*Beta*	*p*
Maltreatment (vs. non-maltreatment)	2.65	0.73	0.23	0.001
Gender (0 = male)	−1.32	0.51	−0.15	0.01
Age	−0.36	0.52	−0.04	0.48
Siblings	−0.89	0.57	−0.09	0.12
Affective PT	−0.09	0.02	−0.28	0.00
Cognitive PT	0.01	0.01	0.07	0.25
Visual PT	0.01	0.01	0.07	0.23

characteristics have been described above. None of the children had previously taken part in similar research.

Design, Instrument, and Training

The study was conducted with a quasi-experimental design composed of three phases: pre-test (T1), training (T2), and post-test (T3). The aim of the *pre-test* (T1) was to assess the child's perspective taking abilities, prosocial behaviors, and aggressiveness toward peers, and it corresponds to the data collection of the previous study.

The *training phase* (*T2*) had the aim of promoting the children's ability to take others' point of view through various activities according to a protocol created *ad hoc* that have been shown to be effective in the literature (Cigala et al., 2015; Mori and Cigala, 2019). The training, described in all its parts in previously studies (Cigala et al., 2015; Mori and Cigala, 2019, 2021), consists of nine sessions (three for each perspective taking dimension) with a three-weekly frequency, lasting 45 min each. In these sessions, the children were proposed some activities, such as reading stories, reflection/discussion, dramatization, drawing, and empirical exercises of decentralization, in order to enhance their ability to assume others' visual, affective, and cognitive perspective. The activities were proposed to small groups of children (about 4–5 children for each group) within the community. As described in previous articles (Mori and Cigala, 2019), the adult's role in this training is to guide the activities, supporting a mutual exchange among the children allowing each of them, without pressure, to express and share their thoughts with their classmates. The adult also provides explanatory feedback, in order to help each member of the group take on other perspectives. Precisely, the trainer in this path had two-fold role: a. to put forward situations and stimuli to promote the children's awareness of their own point of view (i.e., visual, cognitive, and affective) and the awareness of the existence of points of view different from their own; b. to highlight the coexistence of different looks and perspectives creating in the various meetings a perspective taking space, in which different perspectives can coexist and be explained. The training had already been used with children of this age with typical development and the measure treatment fidelity inter-rater reliability calculated across the sessions was 80% (Mori and Cigala, 2019).

In the *post-test* phase (T3), followed the training, perspective taking abilities, prosocial behaviors, and aggressiveness toward peers were assessed again, in three sessions lasting 20–25 min each, by administering different but similar versions of the same instruments as in the pre-test (**Table 6**). For the assessment of prosocial and aggressive behaviors, the same observational procedure was used as for the pre-test.

TABLE 6 | Perspective taking assessment tasks: pre-test and post-test (Study II).

	Affective PT	Cognitive PT	Visual PT
PRE-TEST	TEC (Pons and Harris, 2000)	Sally and Anne (Wimmer and Perner, 1983)	The grub sleeping on a pillow (adapted from Flavell et al., 1981)
	Emotional decentralization task (Harwood and Farrar, 2006)	Nesquik box with pencils (re-adapted from Perner et al., 1987)	The land before time (adapted from Hughes and Donaldson, 1979)
	Rainbow and his friends (adapted from Donovan, 2002)	Rubber-walnut (adapted from Flavell, 1993)	The crocodile (adapted from Flavell, 1966)
POST-TEST	TEC (Pons and Harris, 2000)	The mice "Stefano e Alberto" (Liverta Sempio et al., 2005)	The turtle sleeping on a pillow (Flavell et al., 1981)
	Emotional decentralization task (Harwood and Farrar, 2006)	Bottle water with candy (Perner et al., 1987)	The Lego farm (Hughes and Donaldson, 1979)
	Pingu and his friends (Von Flüe, 1990)	Syringe-Highlighter (adapted from Flavell et al., 1986)	The dog (Flavell et al., 1981)

Results

For the evaluation of the effectiveness of the training, repeated-measure analysis with pre- and post-test within-subject variables was implemented. In these analyses, the *perspective taking* scores (affective, visual, cognitive dimensions, and total scores), *aggressive* and *prosocial behaviors* were considered as between-subject variables. The results are reported in **Table 7**.

The training improved the perspective taking ability of maltreated preschoolers, in particular the *affective* and *cognitive* dimensions. No differences were detected in visual component of perspective taking before and after the training (**Table 7**). With respect to social adjustment, an increase in *prosocial behavior* toward peers exhibited in the school context appeared after the training and this was due mainly to improving in sharing behavior and, with a lesser extent, to helping behavior (**Table 7**). Similarly, the *aggressive behaviors* toward peers decreased after the training, form pre-test to post-test.

Discussion

Overall, the data emerging from the study seems to advance our knowledge in several directions. On the one hand, they help to clarify the relationship between the social adjustment of preschool children and their perspective taking ability. On the other hand, the data contribute to understanding the development of perspective taking in children with a history of maltreatment, also concurring to integrate the evidence in the literature, which, as seen in the Introduction, at the present

TABLE 7 | Descriptive statistics and values of the pre-test/post-test variables.

	N	Pre		Post		*F*(*1,42*)	*p*
		M	*SD*	*M*	*SD*		
Affective PT	43	47.62	14.62	63.15	13.23	48.86	<0.001
Cognitive PT	43	55.55	26.45	80.88	15.40	24.52	<0.001
Visual PT	43	67.05	35.73	62.02	29.62	0.55	0.463
Total PT	43	57.20	13.81	68.68	13.78	15.29	<0.001
Prosoc_tot	43	10.42	5.34	13.02	5.84	15.95	< 0.001
Helping	43	2.09	2.40	2.65	2.77	4.18	0.047
Consoling/encouraging	43	0.81	1.03	0.84	1.25	0.02	0.912
Sharing	43	7.51	3.67	9.53	3.71	13.18	0.001
Aggr_tot	43	5.77	6.34	3.81	4.66	4.24	0.048

time appears to be inconsistent (Cicchetti et al., 2003; Pears and Fisher, 2005; Luke and Banerjee, 2013).

In particular, the first study shows that children's social adaptation, expressed in terms of prosocial behavior in the school context toward peers, is significantly influenced by the ability of affective perspective taking. It emerges, then, that children's ability to recognize and understand the emotional states of others, identifying both positive and negative emotions (especially sadness and anger), represents a competence that can promote prosocial behaviors of help, comfort, and sharing among peers in the school context.

It is interesting to note that the other dimensions of perspective taking, particularly the visual one, seem to be less related to social adjustment. The data on cognitive perspective taking, that is, children's ability to understand another person's thoughts in a given situation, are worth noting. Although this component of perspective taking is significantly correlated with prosocial behavior, it is close to statistical significance in the regression model as a predictor, although it does not reach it. This finding would seem partially incongruent with several previous studies that have shown a relationship between theory of mind and prosocial behavior (Imuta et al., 2016). However, it is believed that age probably plays an important role in explaining these results. In fact, the Theory of Mind at preschool age is at an early stage of acquisition; it is still immature level of development probably explains the difficulty of transferring this understanding to the level of behavior in different contexts, such as school. Otherwise, the understanding of other people's emotions begins to develop even before the age of 3, this probably allows affective perspective taking to be more transferable to children's behavior (Fernández-Sánchez et al., 2014).

The data also show that the ability of affective perspective taking is associated with the aggressive behaviors toward peers. This means that children who show a lower capacity of emotional decentralization (i.e., to grasp the emotional states of another person in a specific situation) tend to behave aggressively toward peers in the school environment. It is likely that, as other studies have shown (Grolnick et al., 1999; Vallotton and Ayoub, 2010), a child's adequate understanding of a peer's emotional state enables them to regulate their own emotional experience of anger in certain situations and specifically to regulate behavioral manifestations or impulses to act accordingly, in order to be better adapted to the context. Affective perspective taking thus represents a key competence related to the development of good social adaptation in peer relationships in the school context, both in terms of implementing prosocial behaviors of help, comfort, and sharing and in terms of mitigating aggressive behavior.

Finally, the analyses of the first study show that there are other variables that seem to contribute to the social adaptation of preschool children, such as history of maltreatment and gender. With regard to the latter variable, gender does not seem to play a significant role in predicting prosocial behavior, but rather aggressive behavior, as several studies have shown and as had been hypothesized, connotes males more than females (Rose and Rudolph, 2006; Hastings et al., 2007). This finding seems to be congruent with studies on gender stereotyping in emotional socialization, which show, for example, that caregivers are more likely to tolerate negative reactive emotions, such as anger, in male children than in female children (Eaton, 1983; DiDonato et al., 2012).

In contrast to other studies (Hughes et al., 2018), there is no significant role of the presence of siblings in the development of prosocial or aggressive behavior. These data could also be affected by the fact that in the group of children with a history of maltreatment, the sibling variable differs from that of non-maltreated children, since the presence of siblings does not always translate into a real and daily relationship with them.

In the first study, regression analysis models show that the presence of psychological maltreatment in the children's history is also related to a lower adaptive functioning in relationships with peers at school. In particular, maltreated children are less able to enact prosocial behaviors and are more prone to aggressive behavior. This finding supports previous studies that have identified the maladaptive functioning of these children in the school context (Cicchetti, 2013; Manly et al., 2013). The interesting aspect of the results of this study is that maltreatment, albeit having a significant role, does not turn out to be the only predictor of social functioning, but, as we have seen, in both regression models it turns out to be associated with the ability of affective perspective taking. This fact generates several reflections on the important role of affective perspective taking as a protective factor, with respect to the possibilities of social adaptation of all children and, in particular, of those with a history of maltreatment.

It is from these results and the emergence of affective perspective taking as a possible protective factor in maltreatment situations

that the need arises to further investigate the developmental characteristics of perspective taking in the group of maltreated children. In this regard, the analyses have shown that it is the dimension of affective perspective taking, and not so much the cognitive and visual dimension, that appears to be more critical in the development of maltreated children compared to non-maltreated ones. This difficulty, linked in particular to the level of emotional understanding, which has already been documented in the literature by several studies (Cigala and Mori, 2016b), can be explained from different perspectives. According to a socio-constructivist explanation, these children have usually experienced family contexts in which the processes of emotional socialization of coaching are lacking, particularly of negative emotions, and in which styles of dismissing or rejecting these emotions can often be found (Gottman et al., 1997; Shipman et al., 2007). The latter styles of emotional socialization do not allow moments of listening, understanding, and elaboration of emotions, and as such do not promote an adequate ability in children to understand their own and others' emotions. According to a psychodynamic approach, instead, in abusive families the reflexive functions and the parental emotional containment are highly compromised, damaging the development of the child's ability to mentalize (Fonagy and Fonagy, 2018).

In view of these data from the study I, the next step of the research, as previously illustrated, was to enhance, in the group of maltreated children, the perspective taking ability by means of a training already used in several previous studies (Mori and Cigala, 2019). Moreover, the aim was to verify the consequent development of adaptive behavior of these children in interactions with peers in the school context. The results of study II, although involving a small number of children, seem to be very encouraging and evidences the central role of the perspective taking ability in the promotion of adaptive behavior. In fact, participation in the training, alongside an increase in perspective taking ability, especially in its affective and cognitive components, has contributed to a significant increase in prosocial behavior, in particular helping and sharing. Since prosocial behavior was not the focus of the training conducted with the children, it is presumable that the increase in the frequency of these behaviors in the school context is connected to the children's increased ability in perspective taking.

In line with the initial hypothesis of study II after the training, a decrease in aggressive behavior toward peers in the school context was observed. We believe that these results are particularly interesting both from a scientific and clinical point of view. From a scientific perspective, these results represent a further proof of the relationship between perspective taking and social adaptation in the developmental age. From a clinical point of view, these results allow us to outline possible interventions to promote and enhance the ability of children with histories of maltreatment to put themselves in another person's shoes. An ability that, as the data show, could make it possible to break the vicious circle of aggression and allow children with a history of maltreatment to co-construct more positive interactions with their peers (Maughan and Cicchetti, 2002; Graham et al., 2010; Amédée et al., 2019). The statistical significance of the differences of aggressive behaviors from pre-test to post-test was not very high. Probably, in order to obtain a greater modification of aggressive behavior, a longer lasting training with a greater number of sessions would be necessary to consolidate the achievements.

The present studies have some important limitations: the small number of abused children involved, the lack of a control group (study II) and of a follow-up phase (study II), the impossibility to control some variables that could play a significant role, such as the type of maltreatment and finally the cross-sectional nature of the study that does not allow the identification of causal relationships between considered variables.

As regards the results obtained and the aforementioned limits, future research should replicate the studies on a larger sample and suggest interventions specifically focused on affective perspective taking, a dimension that has proven to be the most deficient. It would also be desirable to include a control group and to conduct a follow-up to assess the efficacy of intervention and the maintenance over time of the perspective taking ability acquired following the training. Moreover, other variables could be controlled in future studies, such as children's emotion regulation, the socioeconomic status of maltreated children, and the type of maltreatment. It would also be interesting to realize longitudinal research designs that allow for the causal interpretations of the results. Finally, in future studies it could be of interest to carry out interventions that involve the entire community system, which includes the mothers of children as well as the stakeholders, so that daily life routines can become opportunities to take up different points of view.

Overall, the results of the studies have great practical implications as they allow us to identify in perspective taking, specifically the affective perspective taking, a key ability that can influence the social adaptation of preschoolers, increasing prosocial behaviors and decreasing aggressive behaviors among peers. In particular, for children with history of maltreatment the perspective taking ability represents a relevant protective factor in the development of positive social adjustment. Hence, it would be very useful in continuing a professional development path aimed at teachers and professionals who work daily with children, to disseminate and share this knowledge, because especially in everyday contexts, children can learn the perspective taking ability. Furthermore, from study II some relevant indications emerge regarding specific possible interventions applicable both in the school and community contexts, in order to promote the maltreated children's capacity for affective, cognitive, and visual perspective taking.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent to

participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

AC and AM contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the manuscript. All authors contributed to the article and approved the submitted version.

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Representation of Friendship and Aggressive Behavior in Primary School Children

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This study examines the representation of friendship during middle childhood and its impact on aggressive behavior. The literature shows that friendship is almost a "gym of social skills," which, in turn, are protective factors against aggressive behavior; in this regard, the quality of friendship is especially important, but this quality becomes less and less accessible to direct observation as children grow older and spend most of their time in the externally regulated environment of primary school. To assess friendship quality requires allowing children to present their own perspective on the relationship, a goal that we have tackled through drawing. Children aged 6–11 years were individually asked to draw themselves and a close friend in two situations (i.e., relational wellbeing and relational distress) and to complete a 20-item scale of physical and verbal aggression. Data were analyzed with three main aims, namely, (1) to show if and how the representation of two core features of relationships (i.e., relatedness and individuality) changes according to the situation and/or according to the children's gender; (2) to focus on the representation of distressing situations to verify if they coincide with forms of conflict and if they differ according to the children's gender; and (3) to verify if the strength of indices of relatedness and individuality, both in situations of wellbeing and distress, predicts children's tendency to enact aggressive behaviors. The results confirm that relatedness is the dominant feature of friendship, especially in the situation of wellbeing and when the situation becomes distressing. Conflict is not always present when children do not feel fine with their friends; boys and girls do not differ significantly in this regard, but they do differ in terms of the management of relatedness and individuality when problematic situations arise. In line with previous studies, sex is the main predictor of aggressive behavior with peers, with boys more at risk than girls; however, the capacity to relate with one's own friend even in difficult times (in which boys are not inferior to girls) predicts lesser aggression with peers in general.

Keywords: friendship quality, aggressive behavior, children's gender, pictorial representation, middle childhood

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INTRODUCTION

Social Competence and Friendship

This study has been conducted in the framework of research about the protective role that friendship, as an arena for developing social competence, plays against aggression in middle childhood. Social competence has been defined as the capacity to adapt to various situations in ways that are satisfying for the individual but are also accepted by their partners (Rose-Krasnor, 1997),

and many studies demonstrate its negative correlation with behavioral problems (Huber et al., 2019; Hukkelberg et al., 2019). Since social competence is *cross-sectional* and *transactional* in its nature, different experiences with both adults and peers are required for its acquisition (Milligan et al., 2017). Precisely for this complexity, the molecular components of social competence are difficult to enlist, as various authors have repeatedly observed in the last 40 years (Waters and Sroufe, 1983; Cavell, 1990; DuBois and Felner, 1996; Topping et al., 2000; Cillessen and Bellmore, 2011). However, there is a large agreement about the developmental nature of social competence and about the importance of relevant experiences at appropriate ages to build it. An effort to specify this experiential timing has been carried out recently by Junge et al. (2020). Based on a model originally proposed for preschoolers by Rose-Krasnor and Denham (2009) and supported by rich empirical data, these authors traced a series of steps from infancy to adolescence, outlining the skills most necessary according to the children's age and contexts. While child-adult relationships are crucial in infancy, at the onset of childhood, new challenges are posed by interactions with peers; subsequently, in the primary school context, gaining peer acceptance and developing more stable and intimate friendships become important, setting the stage for the most complex social tasks of adolescence (Junge et al., 2020). Middle childhood is also a period in which aggressive behavior, normative to some extent in preschoolers, declines, because of the increasing ability to regulate emotions and control one's own behavior (Tremblay et al., 2017); these skills become more important to avoid rejection and maintain friendly relationships, goals that are equally important for boys and girls of this age, even if addressed with different strategies, as we will discuss in the following sections (Underwood et al., 2006).

Friendship is undoubtedly important *per se*, being central to our lives at every age, and its many facets have been studied by philosophers (Helm, 2021); social, cross-cultural, and developmental psychologists (Harré and Moghaddam, 2014; Wrzus and Neyer, 2016; Lu et al., 2021); and sociologists (Allan, 2022) and cultural anthropologists (Hruschka, 2010). From their distinct approaches, we know that some features of friendship vary according to the partners' environment and their personal characteristics; however, the voluntary character and reciprocal concern on the part of each friend for the welfare of the other are unanimously recognized as constitutive properties.

To maintain this reciprocity and personal satisfaction, a balance is required between relatedness and individuality (Krenz et al., 2021). Relatedness (and the germane concepts of affiliation, connectedness, bonding, or simply psychological proximity) and individuality (and the germane concepts of agency, exploration, and autonomy) are considered universal ingredients of social relationships, even if in diverse proportion according to culture, type of relationship, and circumstances (Guisinger and Blatt, 1994; Rothbaum and Trommsdorff, 2007). Also as suggested by theorists of child relationships (Clark and Ladd, 2000; Neff and Harter, 2003), relatedness and individuality are not opposite poles of a single dimension, but rather components that vary to some degree in any relationship, friendship included; however, a certain degree of relatedness must always be there, otherwise the relationship dissolves.

This implies that some competence in interpersonal exchanges is necessary to keep a friendship alive even in face of occasional disagreements or other relational difficulties (Erdley et al., 2001; Gifford-Smith and Brownell, 2003). The context of primary school and the notable cognitive development that takes place during middle childhood make this period especially important for friendship development (Miller et al., 2020). A qualitative study by Walker et al. (2016) found that 9-year-olds were able to describe the virtues needed to qualify a friendship as "real" vs. "fake," including commitment, loyalty, forgiveness, and many others. Adopting a friendship quality scale, Maunder and Monks (2019) found that since the age of 7 years, children with high scores of companionship, help, security, closeness, and low scores of conflict had more lasting relationships with their best friends. A good friendship is the result of social competence but also provides an opportunity to improve it: For example, a longitudinal study conducted by Glick and Rose (2011) showed that the quality of friendship (including strategies of conflict solution) predicted an increase of competent social responses from middle childhood to early adolescence more than the sheer number of friends. Finally, children from environments as different as the United States and China recognize friendship as a factor of wellbeing and resilience in their primary school experience (Ni et al., 2018).

Conflict, Aggression, and Gender Differences

In their manual about *Interpersonal Conflict,* Hocker et al. (2022, p. 3) present conflict as "an expressed struggle between at least two interdependent parties who perceive incompatible goals, scarce resources, and interference from others in achieving their goals." As such, conflict does not imply aggression in itself but easily lends to it if not appropriately managed, as many studies have demonstrated (Forgas et al., 2011). Friendship is not immune to conflict, since partner discrepant goals or expectations may lead to mild opposition or even to aggressive confrontation; sometimes, difficulties lead to moving away, momentarily suspending the relationship. In general, a certain degree of aggressiveness is quite common in preschoolers but decreases at the time of school entry; continuing aggressive behavior is a source of risk more or less severe, according to the frequency and severity of aggressive acts (Campbell et al., 2006). During middle childhood, many children develop the ability to cope with provocation and to dissimulate anger (Salvas et al., 2011), which allows them to avoid aggressive conflicts and maintain their friendships. A study of aggressive children shows that they have difficulty tolerating provocations from unfamiliar peers, but they also mismanage conflicts with best friends, interrupting interaction rather than resolving the ongoing conflict (Burgess et al., 2006). This can have long-lasting effects, as shown by a retrospective study carried out with about a thousand young adults (King et al., 2017): The authors found a correlation of adult aggressive behavior not only with the difficulty of maintaining their current friendships

but also with the poor quality of the friendships experienced during childhood.

Boys and girls are likely to manage difficult times in friendship differently. Boys are notoriously more inclined than girls to open aggression, physical and verbal, while relational aggression (e.g., gossip or exclusion) is more frequent for girls (Card et al., 2008). In the context of friendship, difficulties are more likely to result in direct confrontation and even aggressive acts for boys than for girls, who are instead more prone to try compromise solutions; for these reasons, girls are often considered more competent than boys in maintaining their friendships, at least during middle childhood (Xu et al., 2020). In one of the studies based on young children's self-report, Murphy and Eisenberg (2002) described some frequent reasons of conflict with friends and non-friends in children from 7 to 11 years of age: physical offense (not necessarily intentional); damaging or taking another's object; trying to impose oneself on the partner; ignoring him/her; breaking a rule or lying; and verbally offending. Physical harm as a cause of the conflict was mentioned more often by boys; girls described more constructive behaviors aimed at conflict solution. These results are in line with the higher frequency of boys' physical confrontations, and the superior relational competence attributed to girls in the field of peer relationships (Rose and Rudolph, 2006). However, a more recent work by MacEvoy and Asher (2012) has challenged this view, presenting data about stronger reactions of girls to hypothetical situations in which a friend violated friendship expectations. Therefore, if the inappropriate actions of the partner go, so to speak, at the heart of the relationship, girls do not seem so good at negotiating constructive solutions.

In any event, a good friendship should survive occasional difficulties, and the ability to maintain the relationship alive is a crucial social competence. A longitudinal study demonstrated that socially inappropriate behaviors make it difficult for children to sustain lasting friendships (Murray, 2012). Complementing this finding, another longitudinal study with fifth graders showed that, controlling Time 1 aggression, boys who lost a friendship and were unable to replace it became significantly more aggressive than boys who had a best friend at both Times 1 and 2 (Wojslawowicz Bowker et al., 2006). These studies exemplify how the ability to manage interpersonal exchanges without resorting to aggression, even in case of disagreement or conflict, is a very important component of social competence (Milligan et al., 2017) and point to the importance of documenting the presence of this ability even at the beginning of school age.

Methodological Problems in the Study of Friendship in Middle Childhood

The quality of friendship is not equally easy to examine across ages. Similar to any other close relationship, children's friendship is made up of both actions and thoughts. As leading scholars such as Kelley (1984), Berscheid (1985), and Hinde (1987)—to cite a few—already suggested more than 30 years ago, the interactions are only the building blocks of relationships: What partners do at any given moment is always a function of their memory of previous interactions and expectations for future ones. This focus on internal factors still remains the basis for the *science of relationships* (Regan, 2011) and continues to produce a methodological problem from a developmental perspective.

Young children's interpersonal behavior is sufficiently "transparent" that visible exchanges between children who declare a mutual preference would allow observers to understand a lot about their friendship; however, this is no longer true as children grow older. In fact, friendship functions change, passing from kindergartners' coordinated play to the appreciation of personal qualities and shared norms in middle childhood and reaching that adolescents' search for intimacy and "mirroring into each other" that Sullivan first proposed as the friendship benchmark (Sullivan, 1953); accordingly, relevant features of friendship become less obvious "from outside."

Besides these changes, the context of primary school offers much less opportunities to observe free interactions than preschool and kindergarten. Thus, during early childhood, behavioral observation can be the choice method, from the age of 6 or 7 years, but now it becomes essential to question the protagonists themselves about their relational experiences. Since the convenient format of written questionnaires would be unsuitable for children at their early steps of schooling, one way to access their ideas is the oral interview, a method expensive in terms of time and difficulty. Moreover, as some classical studies have shown (Selman, 1980; Youniss, 1980) and recent inquiries have confirmed (Marcone and Caputo, 2019), the explicit conceptualization of relationships, including friendship, is still "in progress" at this age, somewhat obscuring the tacit knowledge that guides children's interpersonal behavior.

Giving Voice to Children by Means of Drawing

This methodological difficulty is perhaps one of the reasons why research, after concentrating on younger children at its beginnings (Bukowski et al., 1997), has focused more on preadolescents and adolescents, with whom it is easier to use structured verbal tools. A fairly recent review (Crowe et al., 2011) examined the instrument for studying social functioning published over a period of 20 years; although the scope of the review was broader (including not only relationships but also interactions, emotions, and personal characteristics), only a dozen of the 86 instruments reviewed were aimed at first or second graders; moreover, the few instruments focused on friendship quality were suggested for use not earlier than third grade (Parker and Asher, 1993; Grotpeter and Crick, 1996) or fifth grade (Bukowski et al., 1994). Yet, children's voice is important, especially when problematic aspects of a personal relationship are studied: In fact, an effective children's guidance to manage such difficulties requires as its basic feature a genuine understanding of the child's perspective (Gartrell, 2017).

Drawing is precisely a way to give voice to children, even at a relatively early age; it provides an alternative form of representation, tapping into visual and emotional meanings; it leads to a succinct presentation of the key elements of participants' experiences, and, last but not least, "it allows participants' unique experiences, rather than researcher

constructs, to be communicated" (Freeman and Mathison, 2009, p. 114). This is especially important when you want to question a school-age child, whose negative experiences occur more and more farther from the direct gaze of adults and on which, therefore, it is difficult to ask "the right questions." Examples of the use of pictorial representations of relationships (in this case, family) with children of this age are Carlson et al. (2004) and, more recently, Pace et al. (2020); refer to also Pace et al. (2021) for a useful review and discussion of this pictorial approach.

The interpretation of drawings collected outside a clinical setting has been often criticized for the risk of misinterpretation (e.g., Joiner and Schmidt, 1997). The method adopted here, i.e., PAIR (Pictorial Assessment of Interpersonal Relationship; Bombi et al., 2007), was developed precisely to overcome the limits of subjective interpretations. The way in which drawings are collected for PAIR stresses the adult's need to know something from the child (friendship, in this case), which can be shown through a drawing. The scales for coding the drawings are based on several studies designed to test their validity (summarized in Bombi et al., 2007) and provide information about several distinct features of dyadic interpersonal relationships, including relatedness, individuality, and conflict management, whose importance in friendship has been discussed above. PAIR has been applied to a variety of children's relationships by our research group (Lecce and Pinto, 2004; Pinto and Bombi, 2008; Laghi et al., 2014; Cannoni and Bombi, 2016) and by other independent researchers (Misailidi et al., 2012; Rabaglietti et al., 2012; Sándor et al., 2012; Guidotti et al., 2020). A further strength of PAIR is the use of two drawings for each participant, a manageable task even for young children, and useful for the researcher to keep under control any pictorial idiosyncrasies, not to be interpreted as indicative of ideas on the theme drawn.

Aims and Hypotheses

Based on the literature summarized above, this study aims:

(1) To examine how girls and boys depict themselves and a friend in two opposite situations, namely, wellbeing and distress. Children are expected, independently from gender, to show more relatedness than individuality in both drawings, to communicate the existence of the friendship between the depicted characters. However, the balance between these components of the relationship should be altered in the representation of distress, with a loss of relatedness and an increase of individuality that reflects the lesser harmony implicit in any distressing situation or an increase of relatedness with negative valence (i.e., approaching the partner to hit them; talking to insult); in the light of literature quoted above, these different ways of representing a distressing situation are likely to characterize, respectively, girls' and boys' drawings.

(2) To verify how often, for boys and girls, distress is perceived as conflictual and in which form. The request of representing a distressing situation is an open task, in which children cannot resort to those scenarios of happy play, conversation, and exchange of affect that commonly portray friendship. Instead, they have to select the specific situations that hinders the wellbeing of themselves, of their friend, or both; these can be real instances of what happens in their daily lives, or examples of what they fear most, and which perhaps they have experienced only a few times. In short, they must choose to show the adult what they consider most destructive for wellbeing in a friendly relationship. Again, in light of the studies presented above, we expected that boys and girls will present different types of distressing situations, even if it seems not possible to advance more precise hypotheses due to the novelty of our approach.

(3) To investigate if relatedness and individuality in wellbeing and distress predict aggressive behaviors in peer relationships (i.e., outside the friend's dyad). We expected that, in line with most studies, the male gender would predict higher aggressiveness and the representation of friendship should add information in this regard. In particular, given the importance of friendship quality as a protective factor, it is possible that a representation of strong relatedness and reduced individuality in each situation would predict lesser aggressiveness with other peers; or it is possible that only the ability to maintain relatedness in distressing situations, without stressing one's own individuality, would constitute a predictor. In the absence of studies specifically based on pictorial representation, we will test both hypotheses.

MATERIALS AND METHODS

Participants and Procedure

Participants were 133 primary school children, recruited through convenience sampling based on the school's willingness to participate in the study. They were 64 boys and 69 girls, aged 6–11 years (M_{age} = 8.6; SD_{age} = 1.12). Data were collected in central Italy. The educational level of mothers who provided the required demographic information (70% of participants) was as follows: 5% only grade school, 38.3% only high school degree, and 56.7% college degree.

Data of this study came from a broad research project on the social and emotional competence of children in Italian primary schools. Only the measures considered in this study were described. A questionnaire about demographic information was completed by parents, after accepting informed consent ensuring the voluntariness and anonymity of their participation and participation of their children. Children too orally accepted informed consent and completed drawings and a questionnaire about physical and verbal aggression. This research and its procedure were approved by the ethics committee of [*blinded for peer review*].

Measures

Individual Information

Parents reported the gender (0 = girl; 1 = boy) and age of the son/daughter about whom they were completing the questionnaire and information about their own educational level.

Children's Representation of Friendship

Children's representation of friendship was assessed through drawings. Each child was given a white sheet of 8 1/2 × 11 in. and a pencil and was required to draw themselves with a friend in two circumstances, namely, when "things go well, you feel fine

TABLE 1 | Descriptive statistics and bivariate Pearson's correlations on study variables.

	1	2	3	4	5	6	7	8	Range	*M* (*SD*)boys	*M* (*SD*)girls	*M* (*SD*)total
1. Gender(1 = boys; 2 = girls)	1								–	–	–	–
2. Age	0.08	1							6–11			8.6 (1.12)
3. Wellness-cohesion	0.04	0.12	1						0–6	1.83 (1.16)	1.92 (1.45)	1.87 (1.30)
4. Wellness-distancing	0.17*	0.07	0.04	1					0.6	1.14 (1.22)	0.78(0.87)	0.97 (1.08)
5. Distress-cohesion	−0.12	0.06	0.34**	0.14	1				0–6	1.72 (1.14)	1.44 (1.32)	1.59 (1.23)
6. Distress-distancing	0.20*	0.11*	0.23**	0.15	−0.24	1			0–6	1.00 (0.89)	1.45 (1.31)	1.22 (1.13)
7. Physical and verbal aggression	0.27*	0.15	−0.16	−0.07	−0.02	0.12	1		0-2	0.53 (0.40)	0.34(0.27)	0.44 (0.35)
8. Conflict	0.01	−14	0.25**	0.15	0.10	0.20	0.01	1	0.3			

*$p < 0.05$, **$p < 0.01$.

together, you get along well" (wellbeing) and when "things are not going well, you don't [*sic*] feel fine together, you don't [*sic*] get along" (distress). No time limits were assigned, but children completed the drawing in 20' as a maximum.

Three of the scales that make up the abovementioned PAIR instrument (Bombi et al., 2007) were used to score the drawings, namely, cohesion, distancing, and conflict. The scales of cohesion and distancing separately measure two constitutive elements of the relationship, i.e., the number of indices of relatedness on the one hand and the number of indices of individuality on the other hand. Each scale includes six subscales, to be scored dichotomously (0 = absence; 1 = presence of one or more pictorial indices), pertaining to various aspects of the represented interactions (such as looking to each other or looking away) and the spatial distribution of the figures (such as inclusion in the same area or separate areas of the depicted scene). Cohesion and distancing are not the poles of a continuum, as their indices can coexist in the same drawing (e.g., figures can look at each other, while being in separate spaces).

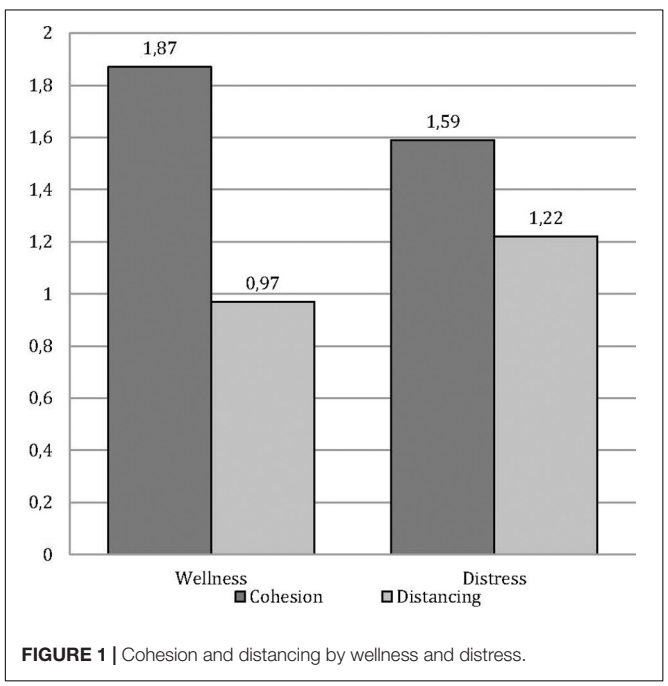

FIGURE 1 | Cohesion and distancing by wellness and distress.

It is important to note that the indices of cohesion can be employed to represent interactions with different meanings: caressing or hitting as it often happens between siblings (Lecce et al., 2002), praising or reproaching as we can see in educational relationships (Bombi et al., 2020), and so on. In fact, aggression and discord are ways to interact that in long term can destroy a relationship but are not immediate instances of bond dissolution.

The third PAIR scale employed in this study, conflict, is precisely a classification of negative interactions that can occur in a relational history and compacts in three categories the instances described by Murphy and Eisenberg (2002): (1) Opposition (i.e., disputes arising from objects property or discrepant wills); (2) aggression (i.e., physical or verbal offenses); (3) interactions break (i.e., ignoring the partner or showing a desire of interrupting the interactions). Drawings in which none of these negative behaviors appears are considered 0) no conflict, even if signs of distress can appear (such as indices of negative emotions, which are examined in another PAIR scale, emotions).

Each drawing was rated by two independent judges, who had not participated in the data collection and were blind to the aims of the study. The two judges reached a significant level of interreliability for the three scales (correlation coefficients: 0.86; 0.91; and 0.87 with $p < 0.001$). For the final score assignment, they discussed each score on which they disagreed until a full agreement had been reached.

Physical and Verbal Aggression

Children were asked to complete a scale of physical and verbal aggression (Caprara and Pastorelli, 1993); younger children who encountered difficulties in reading and/or writing were helped by a research assistant. The questionnaire included 20 items describing aggressive behaviors (e.g., I happen to quarrel with other children; sometimes I tell lies), with a 3-point response scale as follows: 0 = never or almost never; 1 = sometimes; and 2 = often. The total score was calculated as a mean of the single score item. The alpha reliability index in this sample was 0.82.

Data Analyses

Data analyses were performed using the statistical program SPSS version 25.0. Descriptive statistics and bivariate Pearson's and Kendall Tau-b correlations were computed on the study variables. Two repeated-measures analyses of variance (ANOVAs) were

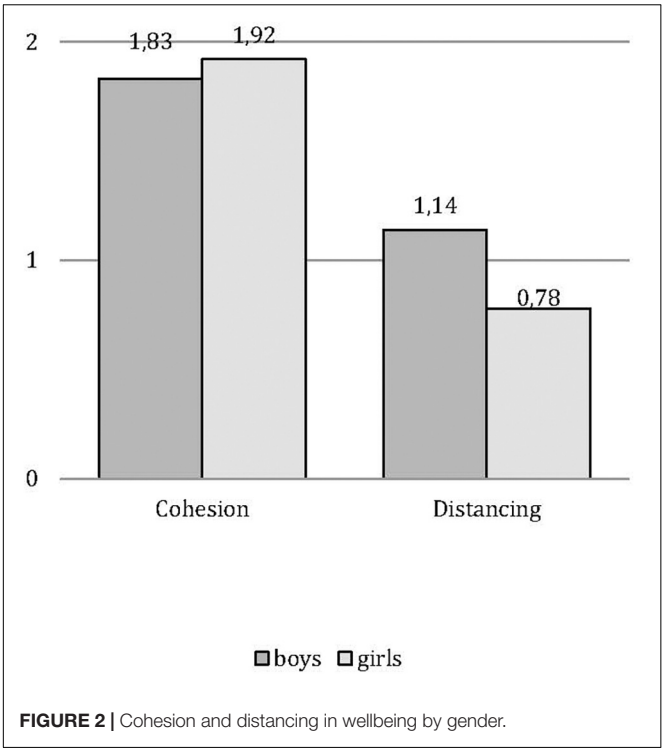

FIGURE 2 | Cohesion and distancing in wellbeing by gender.

performed, namely, the first on cohesion and distancing in each drawing (wellbeing and distress) as within-subjects factors and gender as the between-subjects factor; the second, on drawing of distress only, on cohesion and distancing as within-subjects factors, and conflict categories as the between-subjects factor. *Post hoc* analyses were carried out, when necessary, with Tukey's test or with a *t*-test for repeated measures. Frequencies of categories in the conflict scale were compared by gender through the chi-square test. Finally, a hierarchical regression analysis was conducted, to investigate the predictors of physical and verbal aggression among the variables measured through children's drawings. In the first step, sex and age were entered; in the second step, cohesion and distancing in wellbeing drawings were added; in the third step, cohesion and distancing in distress drawings were added to the regression equation.

RESULTS

Descriptive statistics and bivariate Pearson's correlations are reported in **Table 1**.

The first repeated-measures ANOVA examined cohesion and distancing in each drawing (i.e., wellbeing and distress) by gender. Findings showed a significant main effect of cohesion (1.73) over distancing (1.09) [$F_{(1,\ 129)} = 31.78$; $p < 0.000$; $\eta^2_{partial} = 0.20$] and two significant interactions, namely, cohesion and distancing by drawings of wellbeing and distress [$F_{(1,\ 129)} = 7.24$; $p = 0.008$; $\eta^2_{partial} = 0.05$], as shown in **Figure 1**, and cohesion and distancing in drawings of wellbeing vs. distress by gender [$F_{(1,\ 129)} = 8.12$, $p = 0.005$; $\eta^2_{partial} = 0.06$], as shown (separately for clarity) in **Figures 2**, **3**. Specifically, the *post hoc* comparisons on the first interaction showed that cohesion scores were higher than distancing in both drawings of wellbeing ($p < 0.001$) and distress ($p = 0.024$); if compared across drawings, cohesion decreased significantly from wellbeing to distress ($p = 0.026$) while distancing increased ($p = 0.049$). The *post hoc* comparison on the second interaction showed that in the drawings of wellbeing, cohesion is higher than distancing for boys ($p = 0.001$) and girls alike ($p < 0.001$), while in the drawings

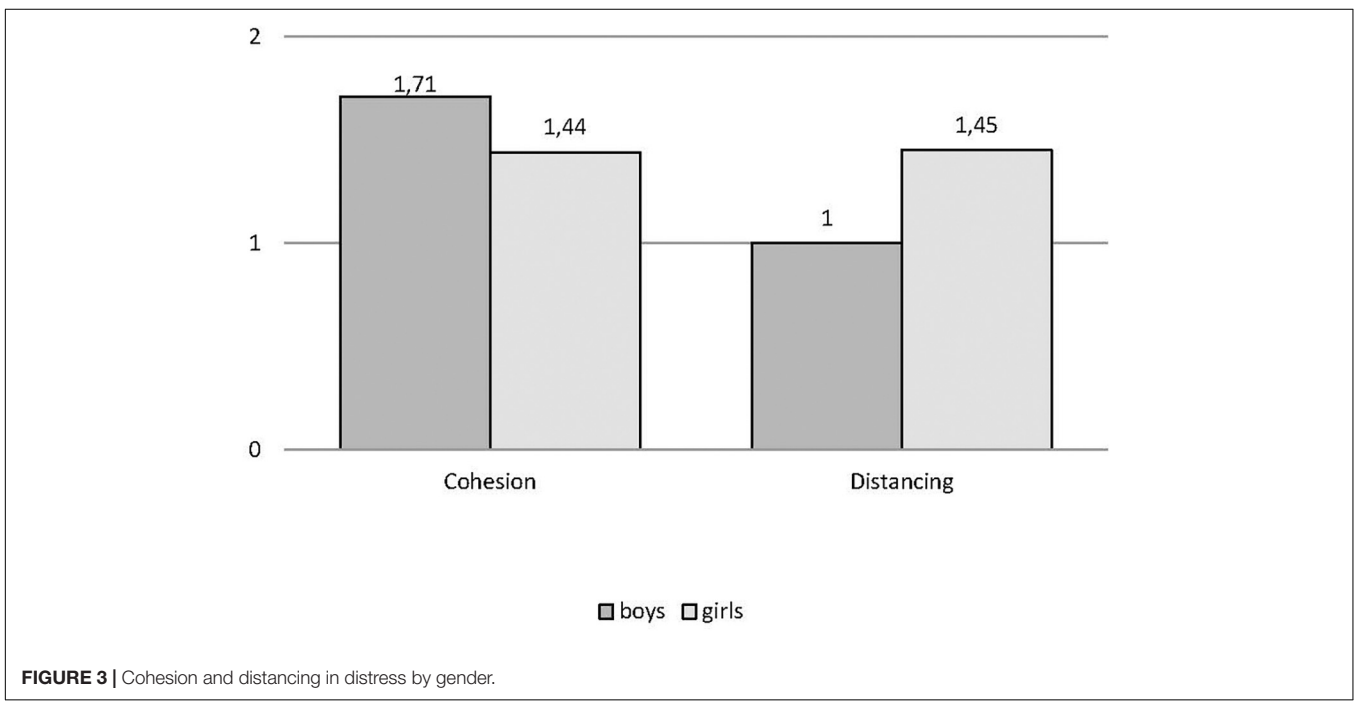

FIGURE 3 | Cohesion and distancing in distress by gender.

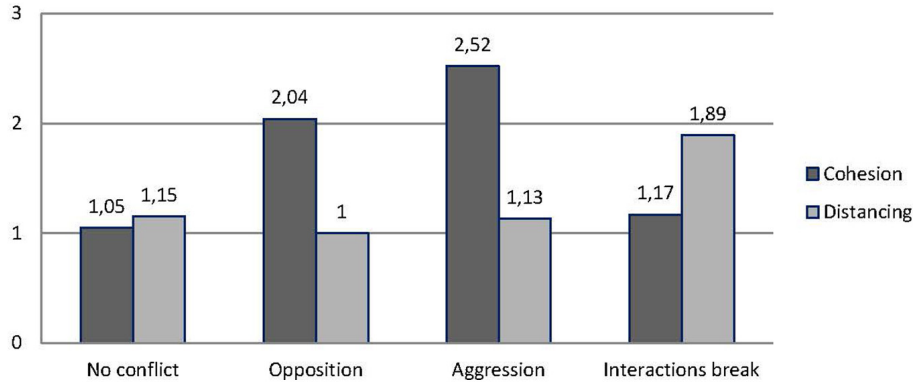

FIGURE 4 | Cohesion and distancing by conflict categories.

TABLE 2 | Summary of hierarchical regressions predicting physical and verbal aggression from drawing variables.

	Physical and verbal aggression											
	Step 1				Step 2				Step 3			
Predictors	**B**	**SE B**	**β**	**R2**	**B**	**SE B**	**β**	**R2**	**B**	**SE B**	**β**	***R2***
				0.08**				0.09				0.17**
Sex (*M* = 1; *F* = 2)	−0.16	0.06	−0.24*		−0.15	0.07	−0.22*		−0.15	0.07	−0.22*	
Age	0.05	0.03	0.17		0.05	0.03	0.17		0.05	0.03	0.18	
Wellness cohesion					−0.01	0.03	−0.03		0.03	0.03	0.11	
Wellness distancing					0.03	0.03	0.10		0.05	0.03	0.15	
Distress cohesion									−0.09	0.03	−0.33**	
Distress distancing									−0.04	0.03	−0.12	

$^{**}p \leq 0.01$; $^{*}p < 0.05$.

of distress, this difference in favor of cohesion remains only for boys ($p < 0.001$), while girls introduce an equal amount of indices of cohesion and distancing (0.953); comparing cohesion and distancing by gender in each drawing, no significant difference appears, except for distress drawings, in which the amount of distancing is significantly higher for girls ($p = 0.02$).

The analysis of conflict, carried out on the distress drawings, showed that the frequencies of the four categories were significantly different ($\chi^2_3 = 31.24$; $p < 0.001$): About half of the participants ($N = 60$; 32 boys, and 28 girls) represented the distressing situation without indices of conflict; indices of aggression were represented in 31 drawings (i.e., 21 boys and 10 girls) followed by the opposition ($N = 24$; 9 boys and 15 girls) and finally by interactions break ($N = 18$; 7 boys, 11 girls). The difference of frequencies for boys and girls does not reach statistical significance ($\chi^2 p = 0.09$).

The second repeated-measures ANOVA, performed only on the distress drawings, compared cohesion and distancing by categories of conflict. Findings showed main effects of the repeated measures [cohesion = 1,59 vs. distancing = 1,22; $F_{(1, 129)} = 6{,}01$; $p = 0.016$; $\eta^2_{partial} = 0.04$] and of conflict categories (more indices of cohesion + distancing in aggression (3,6) than in no conflict (2,2) with intermediate scores (3,04 each) for opposition and interactions break; $F_{(3, 129)} = 8.49$; $p < 0.001$; $\eta^2_{partial} = 0.16$] and an interaction between repeated measures and the conflict categories, shown in **Figure 4** [$F_{(3, 129} = 8.8$; $p < 0.001$; $\eta^2_{partial} = 0.17$].

The hierarchical regression analysis conducted to investigate the predictors of physical and verbal aggression among the variables measured through children's drawings showed the following findings. Step 1 was significant and explained the 0.8% of the variance in physical and verbal aggression, with female sex predicting significantly lesser aggression; step 2 did not add a significant increase to the explained variance; step 3 was significant explaining the 0.17% of the variance with a significant R^2 increasing ($p = 0.01$): both sex ($\beta = -0.22$; $p < 0.05$) and cohesion in distress situations ($\beta = -0.33$; $p = 0.01$) were significant negative predictors (refer to **Table 2**).

DISCUSSION

This research contributed to our knowledge of the characteristics of friendship in middle childhood as an interpersonal bond that coexists with individual autonomy. In particular, our data (1) enhance our understanding of friendship representation in middle childhood, having reached students of all grades of primary school; (2) provide a fresh perspective on difficulties

in the interactions between friends, due to the choice of an open-ended task such as drawing oneself with a friend in two different situations, namely, wellness and distress; and (3) demonstrate that the ability to maintain a bond with the friend, even if connoted with opposition or even aggression, is crucial as a protective factor for a widespread enactment of aggressive behavior with peers.

The dimensions of relatedness and individuality, as measured by indices of cohesion and distancing, appear (as in previous studies with drawing in which positive and negative situations were compared; Lecce et al., 2002; Bombi et al., 2020; Guidotti et al., 2020) very revealing of the relational quality, since wellbeing and distress with one's own friend are reflected in the relative amounts of each dimension. In friendship, a relationship not prescribed by kinship or role, creating a sense of relatedness is a necessary condition of existence; interpersonal difficulties can diminish this sense of relatedness and increase the need for individual autonomy, but these alterations should not bring to the disruption of the relationship as it would happen if cohesion indices would be minimized. Boys and girls do not differ in the maintenance of sufficient cohesion, but girls appear to perceive difficulties in terms of an increased affirmation of independence more than boys. These results speak for different ways of managing difficulties, more than a superior social competence of girls (MacEvoy and Asher, 2012).

The data about conflict categories confirm that the types of distressing situations depicted by children are similar to those described verbally (Murphy and Eisenberg, 2002); however, the difference by gender that appeared from the analysis of cohesion and distancing does not reach significance in terms of content analysis with the conflict scale. It was also quite surprising to find that almost half of the participants did not conceive the distressing situation in terms of conflict. A qualitative exam of these drawings shows that in the large majority of cases, children did introduce signs of distress, based on the depiction of facial emotions or verbalizations making reference to external causes of worry or sadness, such as not being able to play together because of an illness or punishment: All these aspects could be the object of further studies. These considerations permit us to consider the absence of conflict in children's drawings as a conceptual choice and not as a simple consequence of pictorial limitations: In fact, representing sad or angry faces is not easier than showing indices of proximity or distance between the figures, and it requires a similar capacity to write in a balloon or "We cannot play today" instead of "Give me your play station!" or "I'm really offended."

The concentration of drawings in the category of no conflict, and the small number of boys in the categories of opposition and interactions break, has prevented gender from being included as an independent variable alongside conflict categories. However, this analysis provided important information about the possible impact of children's representation of opposition, aggression, and interactions break on the friendship maintenance. In this study, it is important to remember that children were not asked to report the frequency of conflict but to present (pictorially) what they consider a situation that causes wellbeing or distress with their friends. So it is not surprising that quarrels, aggressive acts, or momentary withdrawal from interactions are presented as detrimental for interactional wellbeing. But why does cohesion remain high in the two cases of opposition and aggression? Cohesion, as we have said above, includes any act that maintains proximity, independently from its valence. It may be that an open confrontation affects the relationship less than a silent withdrawal (no conflict, where distancing equals cohesion) or an explicit suspension of being together (interactions break): In the first case, distancing equalizes cohesion and in the second case, exceeds it.

The final analysis shows precisely this: It is not the capacity of recognizing and depicting the core dimensions of friendship in ordinary times, as much as the capacity of recognizing high cohesion in difficult moments that protect from physical and verbal aggressiveness. This implies the awareness of being friends in spite of the risk of falling into quarrels or fights; the inability to recognize these risks and/or accept their occasional occurrence that deprives children of the social competence required to control aggressiveness in their social life.

We recognized that this study has several limitations. The unexpectedly high number of children conceiving distress as a non-conflictual situation prevented us from verifying how cohesion and distancing vary by gender within the various types of conflict categories. The reasons for choosing each specific representation have been derived conceptually *post hoc*, and in the absence of children's explanations, they remain hypothetical. The representation of distress in the no-conflict drawings would have required a quantitative analysis of other indices, which were not the focus of this study. All these aspects could be addressed by further research, but we felt that the correlation between cohesion indices in distress drawings and the reduced aggressiveness is a result of a certain theoretical and practical meaning. In fact, it is an indication that the capacity of friendship maintenance represents a protective factor, easy to assess in young children with the pictorial task, and it shows how important it is, at the educational level, helping children to become aware of their way of acting with friends in times of difficulty. It seems that the awareness of what can upset the friendship, more than the individual negative actions which everyone can incur, is one of the factors that help to reduce aggressive behavior with peers.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethics committee of Department of Developmental and Socialization Psychology, Sapienza University of Roma.

Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

AD selected the appropriate statistical approach and performed the statistical analysis. AB wrote the first draft of the manuscript. All authors contributed to the conception, design of the study and contributed to manuscript revision, and read and approved the submitted version.

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BRIEF RESEARCH REPORT
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Social Status and Emotional Competence in Bullying: A Longitudinal Study of the Transition From Kindergarten to Primary School

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Moving on to a higher level of schooling represents a crucial developmental challenge for children: studies have shown that transitioning to a new school context can increase the perceived importance of peer acceptance, popularity, and adaptation to the new social environment. The aim of this study was to investigate simultaneously the influence of interpersonal variables (social status indices) and personal variables (empathy and understanding of emotions) on role-taking in bullying episodes (hostile, prosocial, victim, and outsider roles) from a longitudinal perspective. These variables were assessed on 41 children in their last year of kindergarten (t1) and in their 1st year of primary school (t2). The main longitudinal results showed that prosocial behaviors are more stable than hostile, victim, and outsider behaviors. Moreover, social preference—together with affective empathy—at t1 had a clear negative predictive effect on hostile roles at t2, while social preference had a positive effect on prosocial roles at t2. Social impact at t1 negatively predicted being a victim at t2. On the other hand, social preference at t2 was negatively predicted only by the victim role at t1. Social impact at t1 had a significant and negative effect on being victimized at t2 while was negatively predicted at t2 by the outsider at t1. Our study—even if exploratory—seems to highlight the existence of a specific, differentiate effect of two distinct social status indices on the participant role-taking in bullying episodes in the transitional period from kindergarten to primary school.

Keywords: bullying, emotional competence, social status, kindergarten, primary school, longitudinal approach

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BULLYING IN PRE-SCHOOLERS

Bullying is usually defined as a type of aggressive behavior that involves repeated physical and/or verbal attacks on a powerless individual (Salmivalli, 2010). Literature underlines the systemic nature of this phenomenon and the importance of the different figures who play a role in such situation. Participants to a bullying episode may react by adopting prosocial, hostile, or avoidant stances. The literature reports a number of attempts to model the full set of roles that may be played by bystanders (Salmivalli et al., 1996; Belacchi, 2008). Belacchi, following the seminal work of Salmivalli and colleagues (Salmivalli et al., 1996), assumed the

existence of eight distinct roles in bullying episodes (Belacchi, 2008; Belacchi and Farina, 2010): *bully, victim, assistant* (provides direct assistance to the ringleader), *reinforcer* (indirectly supports the bully), *defender* (actively takes the part of the victim), *consoler* (comforts the victim), *mediator* (acts to reconcile bully and victim), and *outsider* (stands apart). These eight roles may be grouped into a four-factor structure: Prosocial macro-role (defender, consoler, and mediator), Hostile macro-role (bully, assistant, and reinforcer), Victim, and Outsider (Belacchi and Farina, 2010).

Over the past 30 years, an increasing volume of research has explored the features of the behaviors typical for each role and their individual and/or social correlates in school-age children, but only recently has the phenomenon been investigated in pre-schoolers (Monks et al., 2003, 2005; Belacchi and Farina, 2010, 2012; Vlachou et al., 2011, 2013; Farina and Belacchi, 2014). The tendency to assume certain roles in bullying episodes emerges at this early stage of development, but it tends to become stable only at later ages: for this reason, the study of young children's roles in bullying is crucial. The few studies with pre-schoolers have identified psycho-social correlates like those reported for middle childhood and adolescence. For example, bullies are more likely to display insecure attachment and poor socio-emotional competence (Ortega Ruiz and Monks, 2005; Belacchi and Farina, 2012; Camodeca et al., 2015), poor inhibition skills (O'Toole et al., 2017), and are more prone to peer rejection (Wood et al., 2002), even if Perren and Alsaker (2006) found preschool bullies to be well embedded in their peer groups, with extensive friendship networks. Furthermore, preschool bullies tend to choose other aggressive peers as their friends (Dishion et al., 1994), which may—in turn—encourage aggressive behavior as a form of reciprocal adaptation. Studies focusing on victimized children describe them as physically weak, anxious, and sensitive, with poorer self-esteem and few friends (Olweus, 1993; Boulton and Smith, 1994; Perren and Alsaker, 2006). Camodeca et al. (2015) also found that victims displayed poor social competence but concluded that they did not suffer significant peer rejection. Finally, Belacchi and Farina (2012), using teacher reports, identified a negative correlation between being a victim and social desirability, which may be taken as indirect confirmation of victimized children's poorer social adaptation skills.

Other studies that investigated the prosocial behavior of children in these situations (e.g., those who defend the victim or those who try to console him/her, Belacchi, 2008) have found that these children display more advanced socio-emotional skills. On the other hand, those who keep themselves out of situations have characteristics similar to those who enact hostile behaviors, showing poor social skills, and low levels of emotion comprehension and empathy (Monks et al., 2005; Belacchi and Farina, 2010, 2012; Camodeca et al., 2015).

A key to building up a full account of possible behaviors in bullying is investigating on their stability over time and their links with social status indices—besides with personal psychological dispositions—from early childhood. A recent cross-sectional study with Italian pre-schoolers highlighted significant associations among prosocial behavior, emotional competence, and social preference; on the other hand, hostile behaviors were directly linked with social impact and negatively with social preference; outsiders had low social impact among peers and poor emotional skills; and finally, children who experienced victimization more frequently were markedly the least preferred in the peer group (Farina and Belacchi, 2021).

BULLYING AND PEER SOCIAL STATUS OVER TIME

The link between assumed roles in bullying episodes and peer social status goes through the investigation of roles' stability over time. From studies on middle and late childhood, the role of victim is characterized by a less stable behavioral pattern than that of the bully (Kochenderfer-Ladd and Wardrop, 2001; Monks et al., 2003, 2021). Scholars have also suggested that the high number of young children who experience—but not stably—the role of victim may be more a function of social context than of individual characteristics: the low stability of dominance hierarchies in pre-schoolers' social groups makes it easier for younger targets to avoid repeated aggression (Schäfer et al., 2005). In contrast, the general greater stability of the hostile behavior supports a view of it as mainly underpinned by personality and early socialization, in conjunction with social context. Regarding the stability of prosocial conducts in bullying episodes among pre-schoolers, Monks et al. (2003) found that the defending behavior was moderately stable.

Assuming that bullying is a group phenomenon, the maintenance of certain roles in such episodes is intertwined with relationships among peers in the same social context, like the classroom. The wide literature on peer social status offers different constructs to investigate on children's relationships in the class. An important index refers to children *social preference* (calculated as the number of "likes" minus the number of "dislikes" assigned to a child by their peers; Coie et al., 1982), which can be seen as a sort of "positive popularity." Anyway, the concept of popularity—including dimensions of power and prestige—is also close to individual visibility in the group (Cillessen and Marks, 2017), namely, children *social impact* (calculated as the sum of "likes" and "dislikes" received by one's peers).

The literature suggests that, in late childhood, aggressive children are generally visible in the group, using this behavior to gain power, and therefore often perceived as popular, even if they are not liked (Cillessen and Mayeux, 2004; Cillessen and Rose, 2005). In contrast, socially preferred children often engage in prosocial interaction (Wentzel, 2003) during both childhood and adolescence (Hastings et al., 2007), while in the context of bullying episodes, they typically defend the victim (Monks et al., 2011).

Pellegrini and Long (2002) also underlined that the link between bullying and social relationships in school context can assume different characteristics in particular periods or events. The authors suggest that aggressive children make a higher use of bullying when they enter new social groups, for example, in the transition from primary to middle school, to achieve social dominance. This would lead to an establishment

of a new hierarchy, followed by a decrease in bullying episodes and a stabilization of roles. Caravita and colleagues (Caravita et al., 2009) investigated on both individual characteristics—i.e., affective and cognitive empathy—and interpersonal variables—i.e., social preference and perceived popularity—influencing children's bullying and defending behaviors. They collected data from primary and secondary school students, finding that bullying was negatively linked with social preference (calculated subtracting the like-least from the like-most nomination score) but, at the same time, positively associated with perceived popularity (score of nominations as popular) among boys and girls and in both age groups. Bullying was also negatively associated with affective empathy in the whole group and positively with cognitive empathy only among the older group. On the other hand, defending behavior resulted as positively associated with social preference but also with perceived popularity in the younger group. Defending was also positively associated with affective empathy, especially among children with high levels of social preference. The authors themselves admitted that the relationships between bullying/defending behavior and social status could be bi-directional rather than unidirectional and call for further investigations.

Studies at earlier ages are scarce, but some interesting findings can be helpful in clarifying certain patterns. To our knowledge, there is only one investigation by Lemerise et al. (1998) regarding peer social status in the transition from kindergarten to primary school: authors highlighted a general stability of acceptance and rejection in this period. Camodeca et al. (2015) identified a positive association between the defender role and general social competence, which in turn was both negatively associated with the other roles assessed (bully, supporter of the bully, outsider, and victim) and a negative predictor of social preference for preschool children who took the role of bully. This partially confirmed results from studies with older children, but important information on other positions in the peer group (e.g., visible—but not necessarily liked—children) is missing. To our knowledge, only a recent study explored the relationships of different roles in bullying with both social status and socio-emotional competence in kindergarteners (Farina and Belacchi, 2021): results highlighted a positive association of prosocial roles with social preference, emotion comprehension, and empathy; on the other hand, hostile behavior resulted negatively linked with social preference but positively with social impact; children who tend to avoid any involvement in a bullying episode showed low visibility (i.e., social impact) and emotional competences; and finally, frequently victimized children were the least preferred by peers. For these reasons, both social preference and social impact were included in the present study as interpersonal variables of interest.

Moving on to a higher level of schooling represents a crucial developmental challenge for children: studies have shown that transitioning to a new school context can increase the perceived importance of peer acceptance, popularity, and adaptation to the new social environment (Pellegrini, 2002; Juvonen and Ho, 2008). Longitudinal studies on the relationship between bullying roles and peer status have generally been conducted with older children, with a focus on the transition from primary to middle school or middle to high school. For example, Pouwels and colleagues studied how trajectory clusters of social status (social preference and perceived popularity) and behavior (direct aggression and prosocial behavior) from age 9 to age 14 predicted adolescents' participant roles in bullying at age 16 and 17 (Pouwels et al., 2017). The main results highlighted that in adolescent bullies and followers, the "stable popular" trajectory cluster was the most present, whereas among the adolescent defenders the most important cluster was the "stable/average liked"; adolescent victims were mostly represented by the "unpopular/disliked" trajectory cluster, whereas no prevalent clusters were found for adolescent outsiders. These findings seem to confirm a predictive power of social status, in its dimension of popularity and preference, on the assumption of different roles in bullying episodes. To our knowledge, only a couple of studies have examined together bullying and social status during the transition from kindergarten to primary school. Ladd and Troop-Gordon (2003) found that aggression in last year of kindergarten predicted peer rejection in Grades 1 to 3, which in turn predicted loneliness and broader internalizing problems at age ten. Gooren et al. (2011), in a longitudinal study with a group of children in their last year of kindergarten and first year of primary school, found that peer rejection mediated the relationship between conduct issues and depressive symptoms. These links were similar for boys and girls and can be represented by a sort of "cascade effect" where conduct problems lead to poor peer experiences, which in their turn predict depression. These evidence highlight the possible bi-directional relationships between prosocial/hostile behaviors and peer social status: behaving aggressively make it less probable to be chosen by peers, which in its turn could reinforce an aggressive or withdrawal attitude. We therefore set out to assess the stability of bullying roles at an earlier passage, as children progress from kindergarten to primary school, as well as developments in the relationships between role-taking patterns, socio-emotional variables (i.e., emotion understanding and empathy), and social status. Given that the association between behavioral problems and peer rejection emerges at a very early age, we believe that it is crucial to study this links in greater depth and focus.

AIMS AND HYPOTHESES

The aim of this study was to explore the influence of interpersonal variables (social status indices) and personal variables (empathy and emotion understanding) on children's role-taking in bullying episodes, during the transition from kindergarten to primary school.

According to Salmivalli (2010), we could expect to find an increase in the frequency of hostile behaviors, as a means to acquire popularity in a new context. In addition, considering that social status influence looks wider and higher in hostile roles (Farina and Belacchi, 2021), we suppose these roles could be more sensitive to contextual conditions and—as a consequence—less stable in the transition to another school grade. Considering the scarcity of studies on possible social status changes during the transition between kindergarten and primary school, it is not possible to formulate precise hypotheses on social preference and social impact stability.

Regarding possible factors intervening on the stability of bullying roles over time, we expected that the tendency to assume certain roles in kindergarten would act as either risk or protective factors with respect to the tendency to behave aggressively at the later time. Following Schäfer et al. (2005), we hypothesized that children's hostile and prosocial behaviors at t1 (kindergarten) would predict the frequency they enact the same behaviors at t2 (primary school). In contrast, considering the ambiguous features and low stability of victim and outsider role-taking in pre-schoolers (Belacchi and Farina, 2010, 2012), we did not expect to find any predictive power of these roles. According to literature (Camodeca et al., 2015; Farina and Belacchi, 2021), we hypothesized that social preference and social impact at t1 would predict hostile role-taking at t2, in negative and positive directions, respectively. Furthermore, based on the assumption that emotional competence fosters the development of positive relationships and prosocial behavior, we expected that personal factors (i.e., empathy) at t1 would predict a tendency to assume prosocial roles at t2. Following the hypothesized bi-directionality of such relationships (Caravita et al., 2009), the longitudinal design of the present study allows us to test the possibility that peer social status could be predicted by children roles in bullying together with their personal socio-emotional competences: even if in literature there are some valid results examining an association among these variables, the direction of such relationships is still unclear (Camodeca et al., 2015; Farina and Belacchi, 2021). Starting from these studies, we hypothesize that social impact could be predicted by hostile roles at t1, whereas personal socio-emotional competence would positively predict social preference at t2.

MATERIALS AND METHODS

Participants

A sample of 41 children was tested at the end of their last year in kindergarten and then re-tested one year later, after entering primary school. An *a priori* power analysis has been used to estimate the sample size (using GPower 3.1; Faul et al., 2007). With an alpha = 0.05 and power = 0.85, the projected sample size needed to detect a medium effect size ($f = 0.50$) is approximately of at least $N = 38$ for each group (differences between two dependent means. Matched pairs); therefore, the study meets these power requirements. This group was composed of 17 boys and 24 girls (Mean age at t1 = 64.73 months, $SD = 3.17$; Mean age at t2 = 80.56 months, $SD = 3.18$) from seven kindergarten classes (along with their kindergarten class teachers) at t1. These children at t2 were distributed among four different first grade classes. Both in kindergarten and in primary school, one teacher per class completed the teacher-report instruments. Therefore, different informants were included in the design, in order to study the main variables. Written informed parental consent, as well as oral informed child consent, was obtained for all children. The study was conducted in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki, and fulfilled the ethical standard procedures recommended by the Italian Association of Psychology.

Instruments and Scoring

Participant role questionnaire—PRQ (teacher version) was used to measure the four macro-roles in bullying episodes (Belacchi and Farina, 2010). It is composed of 24 items and requires the teachers to indicate how frequently they observed specific prosocial and hostile behaviors in their children, using a 5-point Likert scale (never =1; always = 5). The validation of PRQ (Belacchi, 2008; Belacchi and Farina, 2010) highlighted that the eight roles are articulated in four macro-roles: hostile (bully, assistant, and reinforcer), prosocial (defender, consoler, and mediator), plus victim, and outsider. Children received an average score for each of these macro-roles. Preliminary reliability analyses were conducted for the items measuring: prosocial roles ($N = 9$), hostile roles ($N = 9$), victim, and outsider ($N = 3$ each). Cronbach's α values were highly satisfactory for the prosocial roles ($\alpha = 0.88$), hostile roles ($\alpha = 0.91$), satisfactory for victim ($\alpha = 0.73$), and almost satisfactory for outsider ($\alpha = 0.52$). This last result is in line with previous findings (Belacchi and Farina, 2010).

Empathic Responsiveness Scale—ERS is a modified and abridged version of the Interpersonal Reactivity Index (Davis, 1980; Belacchi and Farina, 2012) and was used to assess cognitive and affective empathy. It comprised eight items, four per 2 sub-scales: perspective taking and empathic concern. Teachers were asked to rate the frequency with which they had observed empathic behavior in each of their students on a 5-point Likert scale (never =1 and always = 5). For each child empathic concern, perspective taking and global empathy scores were calculated. Reliability analyses were carried out for the global empathy scale ($N = 8$) and each of the two sub-scales: empathic concern ($N = 4$) and perspective taking ($N = 4$). The Cronbach's α values obtained confirmed excellent reliability for the global scale ($\alpha = 0.82$) and satisfactory reliability for both empathic concern ($\alpha = 0.75$) and perspective taking ($\alpha = 0.77$).

Test of Emotion Comprehension—TEC (Pons and Harris, 2000), in its Italian standardized version (Albanese and Molina, 2008), was used to evaluate emotion comprehension. This instrument consists of a set of 23 cartoon scenarios, testing nine different aspects of emotion understanding. For each scenario, the child is asked to attribute an emotion to the main character by pointing to one of the four depicted options. 1 point was given to each correct answer and 0 for each wrong answer, yielding an overall Emotion Understanding score (range 0–9) and three partial scores (0–3), for external, mental, and reflective sub-dimensions.

Peer nominations were used to assess social status, in its dimensions of social preference and social impact. Following McCandless and Marshall's (1957) method of assessing social status among pre-schoolers, children were shown pictures of their schoolmates and asked to select three children they liked to play with and three children they did not like to play with. For each child, the frequencies of "likes" and "dislikes" received were calculated separately (min 0; max = n-1, where n is the number of children for each class). We followed the scoring procedure recommended by Coie et al. (1982): each participant's (class-standardized) "liked" (zL) and "disliked" (zD) values were summed (zL + zD) to obtain a social impact index, and the difference between them calculated (zL – zD) to obtain a social preference index. Social impact and social preference were again class-standardized.

Procedure and Statistical Analyses

Children were individually administered the TEC and social status interview in a quiet room in their school. Each session lasted a maximum of 30 min. The teachers were given two weeks to complete and return the PRQ and ERS for each of their children, after they had received detailed instructions and any necessary clarification from the researcher. Notably, they were all briefed on the conventional definition of bullying among peers (Genta et al., 1996). *T*-test, correlational, and hierarchical regression analyses (stepwise method) were conducted in order to explore the longitudinal relationships among the variables. The regressions were conducted testing two possible directions of predictability: the first with bullying roles and the second with social status indices as dependent variables.

RESULTS

Correlations Among Variables at t1 and t2

We preliminarily performed correlational analyses among all variables at t1 and t2. The descriptive correlational pattern showed in **Table 1** guided our following inferential analyses, mainly focused on longitudinal relationships between personal and interpersonal variables and role-taking.

Stability of Participant Roles and Social Status

A paired *t*-test analysis was conducted to evaluate change or stability of roles over time. T-indices were significant for hostile role, victim, and outsider. Observation of the mean scores suggests that there was a significant decrease in adoption of all the abovementioned roles. Nevertheless, non-significant paired sample correlations indicated a different subject ranking from t1 to t2. The *T*-test was not significant for the prosocial role. Regarding social status, we can observe a general increase of both indices, but the *T*-test did not indicate a statistical significance. Paired sample correlation highlighted a similar subject ranking for social preference from t1 to t2 (see **Table 2**).

Predictors of Participant Roles at t2

Hierarchical regressions were conducted to test the predictive power of both individual and interpersonal variables in the last year of kindergarten on the tendency to assume different roles at the beginning of primary school. Specifically, regression on roles at t2 tested the predictive power of the roles themselves at t1 (first step) and social preference, social impact, empathic concern, perspective taking, external, mental, and reflective dimensions of emotion understanding at t1 (second step). The prosocial role was positively predicted by social preference only ($R^2 = 0.128$; $\beta = 0.358$; $t = 2.397$; $p < 0.05$), whereas the hostile

TABLE 1 | Correlational pattern among variables at t1 and t2 (Pearson's *r*).

	Tec external t2	Tec mental t2	Tec reflective t2	Empathic concern t2	Perspective taking t2	Prosocial t2	Hostile t2	Victim t2	Outsider t2	Social preference t2	Social impact t2
Tec external t1	0.328*	0.024	0.034	0.248	0.235	0.240	–0.003	–0.047	–0.113	0.192	–0.050
Tec mental t1	0.055	–0.107	0.247	0.296	0.118	0.205	0.011	0.011	–0.139	–0.114	0.060
Tec reflective t1	0.128	–0.039	0.364*	–0.052	0.102	0.031	0.016	–0.069	0.055	–0.011	–0.093
Empatic concern t1	0.139	0.106	–0.194	–0.006	0.215	–0.130	–0.470**	–0.345*	0.173	0.157	–0.366*
Perspective taking t1	0.156	0.220	–0.195	–0.044	0.232	–0.055	–0.331*	–0.236	–0.279	0.164	–0.343*
Prosocial t1	0.098	0.229	–0.297	0.045	0.054	0.084	–0.273	–0.256	0.182	0.133	–0.027
Hostile t1	–0.053	–0.237	0.056	–0.060	–0.105	–0.215	0.268	0.279	–0.216	–0.217	0.247
Victim t1	–0.324*	–0.279	–0.174	–0.317*	–0.165	–0.406**	0.128	0.225	0.101	–0.494***	–0.155
Outsider t1	–0.050	–0.146	–0.073	0.155	0.008	0.003	0.141	0.284	–0.252	–0.185	–0.071
Social Preference t1	0.269	0.118	0.159	0.476**	0.376*	0.358*	–0.389*	–0.305	–0.097	0.461**	0.049
Social Impact t1	0.118	0.119	0.108	–0.026	0.002	0.074	0.048	–0.213	–0.099	0.018	0.265

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

TABLE 2 | Mean scores (and standard deviations) on participant roles and social status measures at t1 and t2, *T*-test, and paired correlations.

		T1	T2	T	*p Value*	Cohen's *d*	Pearson's *r*
Participant roles	*Prosocial*	2.25 (0.50)	2.11 (0.85)	0.953	0.346	0.40	0.084
	Hostile	2.09 (0.93)	1.35 (0.48)	5.091	0.001	1.13	0.268
	Victim	2.15 (0.84)	1.13 (0.32)	7.841	0.001	1.71	0.225
	Outsider	2.79 (0.57)	1.71 (0.82)	6.195	0.001	2.68	-0.252
Social status	*Social Preference*	0.01 (1.01)	0.12 (1.13)	-0.700	0.488	1.12	0.461***
	Social Impact	-0.01 (0.99)	0.20 (0.94)	-1.116	0.271	1.18	0.265

***$p < 0.001$.

role was negatively predicted by both empathic concern ($R^2 = 0.221$; $\beta = -0.403$; $t = -2.903$; $p < 0.01$) and social preference ($R^2 = 0.305$; $\Delta R^2 = 0.098$; $\beta = -0.298$; $t = -2.147$; $p < 0.05$). The victim too was negatively predicted by empathic concern ($R^2 = 0.119$; $\beta = -0.460$; $t = -3.074$; $p = 0.004$) and social impact ($R^2 = 0.236$; $\Delta R^2 = 0.117$; $\beta = -0.360$; $t = -2.405$; $p < 0.05$). No significant predictors were found for the outsider.

Predictors of Social Preference and Social Impact at t2

In order to explore both personal and interpersonal variables during the last year of kindergarten as possible predictors of social status indices at the beginning of primary school, we conducted hierarchical multiple regressions on social preference and social impact at t2, with social preference and social impact at t1 (first step), participant roles, emotion understanding, empathic concern, and perspective taking at t1 (second step), as independent variables. Social preference at t2 was predicted by social preference at t1 ($R^2 = 0.224$; $\beta = 0.473$; $t = 3.353$; $p = 0.002$), but this relationship lost its significance after the role-taking patterns were entered at the second step, with variance now only negatively predicted by the role of victim at t1 ($R^2 = 0.302$; $\beta = -0.341$; $t = -2.070$; $p < 0.05$). The negative predictors of social impact at t2 were empathic concern ($R^2 = 0.120$; $\beta = -0.511$; $t = -3.098$; $p = 0.004$) and outsider role ($R^2 = 0.208$; $\Delta R^2 = 0.088$; $\beta = -0.339$; $t = -2.055$; $p < 0.05$).

A graphical summary of the regression analyses is shown in **Figures 1**, **2**, in which the significant predictors (variables measured at t1) of roles (**Figure 1**) and social status at t2 (**Figure 2**) are shown.

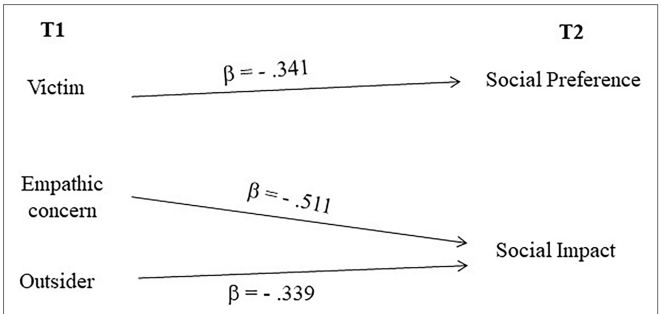

FIGURE 1 | Significant predictors at t1 of participant roles at t2 (regression analyses).

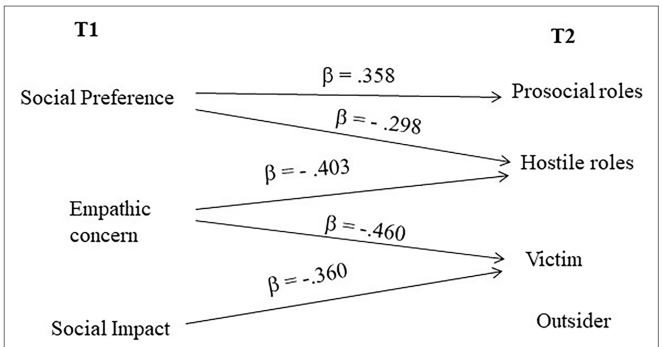

FIGURE 2 | Significant predictors at t1 of social status indices at t2 (regression analyses).

DISCUSSION

The aim of this study was to investigate simultaneously the influence of interpersonal variables (social status indices) and personal variables (empathy and understanding of emotions) on role-taking in bullying episodes, from a longitudinal perspective. Such research design aimed also at clarifying and corroborating some recent cross-sectional findings highlighting a pattern of inter-relationships among such variables. In particular, literature showed an association between being liked by peers, behaving prosocially, and showing good emotional competence on one hand, and being visible, behaving aggressively, and being less emotionally competent, on the other hand. Furthermore, poor social preference was associated with higher victimization and poor social impact along with poor emotional skills with the tendency to be detached from the bullying situation (Farina and Belacchi, 2021). The novel contribution of the present work is its focus on preschool children, studying longitudinally the abovementioned associations during the crucial transition from kindergarten to primary school. Differently from the results of Salmivalli et al. (1998) who found a substantial stability in all roles in a longitudinal study with preadolescents, our results showed instability over time, above all for hostile roles, but also—and with a larger effect size (see Cohen's *d* in **Table 2**)—for victim and outsider. Scores for all these three roles changed significantly from t1 to t2, registering a decrease and revealing a possible deep influence by a changed context. Furthermore, during this particular transition, children may perceive complying with the rules as the best way to earn acceptance: they may not feel the need to rebel against the social norms, represented by the adult, as a means to enhance their power in the peer group (Schäfer et al., 2005). Thus, it is possible that in the new context of primary school, children tend to inhibit hostile behavior in order to be accepted. Prosocial behavior maintains a certain stability, even if the non-significant paired correlations revealed a different subject ranking over time. This evidence suggests the opportunity to study specific profiles among prosocial roles (this could be possible using the PRQ, which distinguishes between defending, consoling, and mediating behaviors, but in this study, the small number of participants did not support analyses at this level of detail). Furthermore, such correlational indices—non-significant for the other roles, too—could be also interpreted as a confirmation of general low stability of participants' roles at a very young age (Monks et al., 2003): an important and favorable characteristic for preventive interventions.

Observing the stability of peer social status, our results confirmed a general tendency to maintain levels of social acceptance and rejection during this transition, but paired correlations highlighted an individual preservation of social preference levels: children with high social preference at kindergarten seemed to be highly preferred at primary school, too.

Regarding the aim of clarifying the predictive role of interpersonal and personal variables in prosocial and hostile role-taking, our results overall confirm our hypotheses, supporting the

abovementioned evidence of a cross-sectional study on children of the same ages (Farina and Belacchi, 2021). We found that earlier social preference positively predicted the adoption of prosocial roles in the new social context, confirming that, in our sample, being previously liked acted as a protective factor against engaging in aggressive behaviors, as reported for older children and adolescents (Caravita et al., 2009; Pouwels et al., 2017). On the other hand, the negative predictive power of social preference on hostile roles is in keeping with the findings of Caravita et al. (2009): perceived low social preference could therefore be a threat to personal social status, leading children to enact aggressive behaviors as a form of self-defense. Furthermore, hostile roles at t2 were predicted by low levels of empathic concern, showing the interdependence between internal and contextual dimensions in hostile role assumption. Interestingly, adopting the role of victim is most strongly predicted by low visibility among peers and poor empathic skills: this is in line with studies describing victimized children as poor in socio-emotional competence and friends (Vlachou et al., 2011; Belacchi and Farina, 2012; Farina and Belacchi, 2021). Such a framework is also compatible with the results of our regressions on social status indices: being victimized may represent a longitudinal risk factor for not being chosen by peers (social preference at t2). On the other hand, those who have a history of staying away from conflict (outsider role) or of displaying low levels of empathic concern appear to go unnoticed by their peers (low social impact). As argued above, in the primary school context, the adult's authority still holds considerable sway and children may not need to reinforce their hostile or aggressive behaviors to gain popularity; therefore, the decrease in hostile role-taking may be to some degree a function of the new context (Schäfer et al., 2005). The fact that social preference at t1 predicted positively prosocial roles and negatively hostile ones at t2 confirms high social preference as a protective factor with respect to hostile role-taking and a stimulus to behave prosocially. Furthermore, considering the stability of social preference detected in this study, it is possible to suppose a sort of virtuous circle supported by the intertwining relationships between being liked and being prosocial. In any case, although some studies reported in the literature suggest that, up to adolescence, being popular (in terms of visibility), and being chosen often coincides (see Pouwels et al., 2017), the present research shows that in early childhood, these two variables are clearly distinct and wield different influences on role-taking during bullying.

Taken together, the results seem to suggest that prosocial role-taking stabilizes earlier than hostile role-taking. This may be due to the fact that personal positive dispositions are more strongly involved in prosocial behaviors than are social status indices (Farina and Belacchi, 2021). In turn, our longitudinal results showed that probably, already at an early age, a virtuous circle is established between prosocial behavior and preference by peers. Conversely, the relationships among hostile roles and social status variables could create—in perspective—a vicious circle. The establishment and evolution over time of these possible circular relationships should be investigated in greater depth.

In conclusion, we underline that the current results are still exploratory and call for further confirmation, for a number of reasons. Firstly, participants' cognitive and verbal abilities were not assessed, although at this age such factors can be implicated in children's social behavior. Neither did we control for other variables, such as family socio-economic status, which is often included in the design of studies in this area. Again, this variable should be considered in future research. Furthermore, a longitudinal survey should ideally be conducted with a higher number of participants and over a longer time. In this study, the subjects were re-tested after only one year, albeit during a very important step of their socio-relational development. Finally, it must be taken into account that the detected change in roles and social status may partly depend on the fact that the informants (teachers and peers) changed from t1 to t2.

Despite these limitations, we think it is clear that early identification of the personal and interpersonal variables associated with bullying dynamics can help prevent them from worsening and from negatively impacting on children's development (e.g., Vlachou et al., 2011). Furthermore, the differential contributions of personal and interpersonal factors to prosocial versus hostile role-taking can inform intervention programs designed to address and promote both personal attitudes and group dynamics (Caravita et al., 2009). Such programs should focus, on the one hand, on the development of personal socio-emotional competences as protective factors, and on the other, on the observation and modulation of interpersonal relationships in the classroom.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

EF contributed to design the study, collected, interpreted, discussed the data, and wrote and revised the manuscript. CB contributed to design the study, interpreted and discussed the data, and wrote and revised the manuscript. All authors contributed to the article and approved the submitted version.

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