Is helping always the preferred decision? Preschool- and elementary school-aged children's helping decisions in complex social situations

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Helping is usually perceived as a positive behavior, but it can also have negative side effects. Moreover, helping decisions are often embedded in complex social situations that can create social dilemmas for children and adults, such as the decision whether or not to help a friend steal. However, based on previous research, it remains unclear how young children decide in such complex social situations and how their decisions differ between preschool- and elementary school age. Therefore, in the present study, we investigated the moral decisions of 4- to 8-year-old children in complex social situations ($N = 152$ children; 69 girls; all European, urban and middle-class). In a 2×2 design, each child was asked whether a story protagonist should help or not help in four different conditions, namely helping a friend or a stranger to get their own object (i.e., moral conditions), or helping a friend or a stranger to take someone else's object (i.e., immoral conditions). We found that children clearly approve of helping in moral conditions and generally disapprove of helping in immoral conditions. We also found that older children were more likely to disapprove of helping in immoral conditions. Furthermore, children preferred helping friends to helping strangers only in moral but not in immoral conditions. Taken together, these findings suggest that children's decisions to help undergo significant changes from preschool to elementary school, as they are further qualified by criteria such as respecting the rights of others and avoiding harmful consequences of helping for third parties.

1 Introduction

Helping is generally perceived as a positive behavior in childhood. Thus, parents frequently foster helping behavior and positively evaluate socialization goals associated with the development of prosocial behaviors in children (Hastings et al., 2007; Coppens et al., 2016; Giner Torréns and Kärtner, 2017; Dahl and Brownell, 2019). Furthermore, it is seen as an important educational goal that children become moral beings, including taking care of and helping others (Nucci, 2009; Bergin, 2014; Lapsley and Stey, 2014). Children between 3 and 10 years old already positively evaluate prosocial acts such as sharing and helping, and they expect others to be helpful in various situations (Miller et al., 1990; Weller and Lagattuta, 2014; Dahl et al., 2020; Marshall et al., 2020). In addition, preschool- and school-aged children increasingly state that helping behavior is obligatory in many different situations; that is, they increasingly see helping behavior as a moral duty (Miller et al., 1990; Kahn, 1992; Dahl et al., 2020; Marshall et al., 2022).

However, these studies have primarily focused on the positive aspects of helping behavior; in particular, previous studies have primarily examined helping actions that solely follow positive intentions or are intended to benefit others (for reviews see also Eisenberg et al., 2006, 2015). However, as with many things in life, helping behavior can have both positive and harmful effects or intentions and it is often embedded in complex social situations. For example, judges are frequently confronted with cases of aiding and abetting to criminal acts, such as someone who keeps watch when another shoplifts. In our daily lives, we may also face situations in which a best friend asks us to do a favor that may conflict with our personal moral values and beliefs. In these complex social situations, adolescents and adults typically experience a socio-moral conflict or dilemma between loyalty to friends or their general willingness to help others and following moral rules, such as avoiding causing potential harm to others (Smetana et al., 1991; Miller and Bersoff, 1992). For example, Smetana et al. (1991) found that 11- and 14-year-olds considered both interpersonal and fairness issues in arriving at their choices of helping or not helping a friend in stealing, generally giving priority to not helping in this context.

However, to date it is rather unclear how younger children deal with corresponding conflicted and complex social situations. As detailed below, only some exceptions have explored children's responses to helping actions with negative outcomes. For example, Martin et al. (2016) found that 5-year-olds refused to help when it would harm the recipient. On the other hand, Dahl et al. (2020) reported that most preschool-aged children approved helping others even when it had clearly harmful and immoral consequences. Similarly, Nucci et al. (2017) found that a majority of 8-year-olds felt it was right to help in complex social situations, even with negative consequences. This paucity and inconsistency of findings raises questions about whether young children have a bias toward helping that overlooks potential harm and whether and when they start to consider harmful (side)effects of helping actions in complex social situations.

In the present study we therefore aim to answer the question of how 4- to 8-year-old children solve potential socio-moral conflicts in different helping contexts. In particular, children are asked to decide whether or not a protagonist should help a best friend or a stranger in different situations that ultimately have positive or negative consequences, such as helping a best friend to retrieve his or her own belongings or stealing another child's belongings. Thus, in the current study, we aim to investigate different circumstances in which preschool- and school-aged children generally approve or disapprove of helping actions, systematically varying factors such as the consequences of the action (i.e., negative vs. positive) and the social relationship between the actors (i.e., friend vs. stranger).

In this respect, we follow the recommendation of leading scholars in the field, who openly acknowledge the need for further studies on (young) children's moral decision-making in complex and multifaceted social situations that go beyond the study of negative actions such as hitting, but also include helping behavior, and that systematically vary relevant factors such as the actor's intentions and the social relations between actors (Smetana, 2006; Nucci et al., 2017). By addressing this gap, we aim to explore how 4- to 8-year-olds navigate socio-moral conflicts in different helping contexts. The findings of the study have significant implications for practical and theoretical considerations, and contribute to the ongoing discourse on developmental changes in children's socio-moral competencies during this crucial age range.

1.1 Harmful helping: state of the art and scientific caveats

As mentioned earlier, many previous studies have focused on children's helping decisions or their attitudes toward helping behaviors in simple helping situations, i.e., when helping actions have no negative (side) effects. However, there are some notable exceptions in the literature. For example, Martin et al. (2016) found that 5-year-olds refused to help a recipient (i.e., handing over chocolate), if the helping action had negative consequences for the recipient (i.e., eating the chocolate would make the recipient sick). In another study, Dworazik et al. (2019) developed child-friendly versions of the trolley problem, involving stylized ethical dilemmas of whether to sacrifice one person to save a larger number. Authors found that ~50% of 3- to 6-year-olds refused to "help" in at least two versions of the trolley dilemma situations (i.e., the Footbridge and the Drop Man scenario); in these situations, children must intentionally harm another child to protect the physical integrity of five other persons. However, most children agreed to help in the Bystander scenario, i.e., a situation in which children do not have to intentionally harm another person but there is a harmful side effect of the helping action. These studies generally propose that preschoolers consider and weigh several factors when deciding to help. Furthermore, they show that preschoolers can recognize potentially harmful consequences of helping actions and thus intentionally refuse to help others in corresponding situations.

In contrast to these findings, Dahl et al. (2020) found that preschool-aged children state that one should always help others, even if the recipient's goal is obviously immoral and harmful. In particular, 64% of 3- to 5-year-olds in their study said that one should help another child to reach a hat even if the hat actually belongs to another child, suggesting that a majority of preschool-aged children in this study approved of instrumental assistance in stealing situations; in comparison, almost no participants from an adult sample in their study judged that helping in such a context would be correct. The authors tentatively proposed that preschoolers still have a helping bias; that is, they generally prefer to help others, irrespective of potential harmful or negative consequences of their helping decisions. In addition, the authors concluded that this might be due to some socio-cognitive deficits in young children's developing morality; that is, young children struggle to balance competing considerations, in that they might, for example, focus on one principle, such as the recipient's welfare, and disregard others, such as property rights.

Furthermore, Nucci et al. (2017) investigated 8- to 17-year-olds' socio-moral considerations in multifaceted contexts and reported that 87% of 8-year-olds (vs. 70% of 14-year-olds) judged that it is right (or even obligatory) to help in complex social situations, even if there are negative consequences of the helping action. For example, most 8-year-olds judged that it is right for a protagonist to stop and help another child that has hurt his knee, even if this will ultimately lead to the exclusion of the helper's brother from a football team, since he will be too late for training. These results support the notion that children of elementary school age

(still) have a certain tendency to help, which is more pronounced compared to older children.

In summary, previous research on preschool and school-aged children's helping decisions in complex social situations involving potentially harmful (side) effects is limited and partly inconclusive: Whereas the studies by Martin et al. and Dworazik et al. suggest that preschool children can consider competing aspects in their helping decisions, such as harmful consequences of giving "dangerous" food to people, the studies by Dahl et al. and Nucci et al. suggest that there may be a robust helping bias in 4- to 8-year-olds in complex social situations that ignores potentially harmful side effects of helping actions.

In our opinion, this incongruency can only be partially explained by the fact that in the studies by Martin et al. (2016) and Dworazik et al. (2019), which found substantially lower levels of harmful helping, the harmful consequences of helping were more severe (i.e., resulted in physical harm) than in the studies by Dahl et al. (2020) or Nucci et al. (2017). In particular, we assume that the rates of harmful helping (i.e., assistance in stealing) may have been overestimated in the study by Dahl et al. (2020) for the following reasons: First, in contrast to their findings, previous research on moral development has repeatedly found that most preschool-aged children clearly evaluate stealing as morally wrong—albeit this was only tested in basic (i.e., non-complex) contexts (Smetana, 1981, 1985; Smetana and Braeges, 1990; Eisenberg and Fabes, 1998; Malti et al., 2009). Second, we think that preschoolers' helping bias in harmful situations may be partly explained by some methodological issues. In particular, the vignettes presented may have been ambiguous for preschool children: The vignettes depicted a protagonist who could either help or not help another child (i.e., recipient) by retrieving a hat for them from a shelf in the kindergarten. In the stealing condition, the hat belonged to a third child (i.e., the victim), and in the no-stealing condition, the hat belonged to the recipient. However, in the stealing condition, the recipient's intention to steal was not made explicit and therefore likely remained unclear. In particular, the story in the stealing condition was that "Chris is trying to take a hat that is not his". However, this phrase primarily implies that the actor intends to take someone else's hat—for whatever reason. Without further specification or context in the story, the actor's intention to steal remains somewhat vague—and this can be particularly the case with young children. For example, some children may have assumed that the recipient had asked the other child beforehand if it was OK to borrow the hat, or they may have assumed that the recipient had even been asked by the third child (i.e., the victim) to get the hat. Furthermore, as the story took place in a kindergarten context, it is also reasonable to assume that the children thought that there was a social relationship between the protagonist and the recipient; for example, the protagonist and the recipient might have been friends. These reasonable alternative interpretations of the vignettes may have influenced children's helping decisions, and previous research has repeatedly highlighted that, for example, children increasingly consider social relationships in their prosocial decision-making processes as they progress from their preschool years to middle childhood (Miller et al., 1990; Markovits et al., 2003; Olson and Spelke, 2008; Moore, 2009; Weller and Lagattuta, 2014; Paulus, 2016; Marshall et al., 2020). In summary, some methodological issues may have biased

previous findings on children's helping decisions in contexts with harmful (side) effects. Thus, more research is needed to further elucidate young children's helping decisions in complex social contexts including (im)moral outcomes of helping actions.

1.2 Study goals and hypotheses

The main goal of the present study is to complement preliminary findings on young children's helping decisions in (im)moral contexts. Specifically, based on previous research, it remains unclear (1) whether and how young children consider different sources of information in complex socio-moral decisions/scenarios, and (2) how these competences differ between different age groups, such as preschool and elementary school children. The present study aims to address this gap by conducting an experimental online study that systematically varies important sources of information for children's helping decisions. More specifically, we will test under which conditions preschool- and elementary school-aged children approve or disapprove of helping actions. In particular, we aim to investigate the extent to which 4- to 8-year-olds' helping decisions are affected by three potentially relevant factors: (a) the ultimate outcome of helping behavior, which can be moral or immoral (i.e., helping without vs. helping with harmful consequences, e.g., helping someone to steal), (b) the status of the social relationship (i.e., friend vs. stranger), and (c) the children's age group (i.e., preschool vs. elementary school). Furthermore, we are interested in exploring potential interaction effects between these factors. Overall, this study will provide important information on how children coordinate the different—and potentially conflicting—information that influences their helping decisions. This will generally improve our understanding of how 4- to 8-year-olds deal with multifaceted social situations and how children's socio-moral competencies develop from preschool to elementary school age.

1.2.1 Helping decisions in contexts with moral vs. immoral outcome (hypotheses 1a and 1b)

In accordance with the findings presented above, we expect to find a significant main effect of the factor *immoral outcome* (*hypothesis 1a*); that is, we assume that children are less likely to approve of helping behavior if there is an immoral outcome, such as helping another child that wants to steal a desired object. This means that although 4- to 8-year-olds usually see helping behavior as a moral obligation (Miller et al., 1990; Kahn, 1992; Dahl et al., 2020), we assume that children will consider information on harmful or immoral consequences of the helping act (Martin et al., 2016; Dworazik et al., 2019). In particular, we assume that when children receive conflicting information on different moral norms in the immoral outcome conditions (i.e., "helping others" vs. "not harming others") children will generally give priority to the "not harming others" norm. This assumption follows philosophical definitions on different types of moral norms: In particular, prosocial norms ("helping others") can be conceptualized as imperfect duties. In comparison to perfect duties ("not harming others"), they are formulated less strictly and leave more space for individual decisions, in that they leave open

how exactly to help others and how much effort one must invest (Kant, 1785 as cited in Rose, 2021). Regarding this concept, Kahn (1992) was able to show empirically that 8-year-olds consider it more important not to harm others than to help others. Thus, we generally assume that 4- to 8-year-old children will be less likely to approve of helping if there are harmful consequences of the helping act.

However, in contrast to existing findings, we expect this main effect to be much stronger than reported previously (Dahl et al., 2020); that is, we assume that only a minority of children (i.e., <50%) will approve of immoral helping (*hypothesis 1b*). In particular, we think that previous findings were potentially biased due to different methodological artifacts as outlined above, such that they likely overestimated preschoolers' helping bias in immoral contexts. Moreover, this assumption is consistent with findings by Martin et al. (2016) regarding children's understanding of harmful consequences (or side effects) of their helping actions.

Furthermore, we aim to systematically explore potential interaction effects between different factors (i.e., *immoral outcome*, *social relationship*) and children's age, which has been hardly investigated in previous studies (see also Nucci et al., 2017, for a similar criticism). To our knowledge, only one study has investigated different independent variables (e.g., negative outcomes of helping, social relationship) simultaneously, but only in older children, namely 8- to 16-year-olds (Nucci et al., 2017). Thus, it remains difficult and partly speculative to make specific predictions about potential interaction effects in 4- to 8-year-olds' helping decisions in complex situations. However, we will delineate some tentative expectations in the following sections.

1.2.2 The role of social relationships in complex social situations (hypotheses 2a and 2b)

In accordance with previous findings on preschoolers' prosociality bias toward friends in straightforward helping contexts (Birch and Billman, 1986; Olson and Spelke, 2008; Moore, 2009; Paulus and Moore, 2014; Weller and Lagattuta, 2014; Paulus, 2016), we expect to find a significant effect of the factor *social relationship* in the moral conditions (*hypothesis 2a*). That means children should more frequently advocate for "helping" if the recipient is a friend vs. stranger in the moral outcome conditions. For example, it was found that 4- to 6-year-olds more likely share with friends than strangers, even in situations when the friend is comparably rich (i.e., he or she already possess a lot of resources, such as stickers) and the stranger is not (Paulus, 2016).

Following findings on older children and adolescents (Miller et al., 1990; Killen and Turiel, 1998; Smetana et al., 2009), we furthermore expect to find that children's preference for helping friends vs. strangers should be less pronounced in immoral outcome conditions compared to moral conditions (*hypothesis 2b*), as indicated by a significant interaction effect *social-relationship × immoral outcome*. In particular, we assume that in the harmful outcome situations, children's moral considerations (i.e., "not stealing") should (at least partly) outweigh the conflicting contextual information regarding

the status of the social relationships between the helper and recipient. For example, Miller et al. (1990) reported that most adolescents and adults in a U.S. sample did not prefer to help friends rather than strangers in situations that had harmful consequences to others' property (e.g., helping a friend or a stranger destroy a garden); in situations without such consequences, however, participants more frequently stated that it was more obligatory to help friends than to help strangers. Notwithstanding, our assumption that children's friendship bias should be less pronounced in immoral vs. moral outcome conditions remains explorative, since it remains an open question whether 4- to 8-year-olds potentially super- or subordinate specific moral concepts (e.g., property and justice issues) to other concerns (e.g., loyalty toward friends) in more complex social situations.

Finally, we do not have strong predictions regarding further interaction effects including age, so we aim to examine them in a fully exploratory manner (i.e., immoral outcome × age, social relationship × age, and social relationship × immoral outcome × age).

2 Materials and methods

2.1 Sample

The sample consisted of $N = 152$ children between 4 and 8 years of age ($M = 6.54$, $SD = 1.43$; 69 girls). Recruitment took place in two ways: The largest part of the sample ($n = 120$ children) was obtained in July and August 2020 with the help of the subject database of the Developmental Psychology Unit at the University of Münster, Germany. This database consists predominantly of Western, urban, middle-class families who have declared their willingness to participate in studies conducted by the Developmental Psychology Lab. For this purpose, parents with children of the appropriate age were contacted by e-mail and asked to participate in the study. The remaining part of the sample ($n = 32$ children) was recruited from November 2020 to April 2021 via the platform kinderschaffenwissen.eva.mpg.de (which is similar to the Children Helping Science platform). This platform is an association of research groups at universities and other scientific institutions in Germany, Switzerland, and Austria and offers online studies for and with children. The children from the subject database received a voucher of 5€ as reimbursement for participation. Children from the online platform received no reimbursement. Children from these different recruitment sources were comparable in terms of age and gender distribution, and did not differ in their responses (see also Supplementary material on OSF for further details).

Of the 152 children surveyed, $n = 5$ children were excluded from the data analysis because they were not within the specified age range of 4–8 years old ($n = 2$) or age data was missing ($n = 3$). Therefore, the final sample for further data analyses consisted of $N = 147$ children. Age groups were distributed as follows: 21 4-year-olds, 45 5-year-olds, 18 6-year-olds, 32 7-year-olds, and 31 8-year-olds. Seventy-eight children attended kindergarten, 69 children were already in elementary school, and none of the children were cared for exclusively at home.

2.2 Study design

The present study was a 2 × 2 repeated-measure design with the factors *immoral outcome* (yes vs. no) and *social relationship* between helper and recipient (friend vs. stranger), resulting in four experimental conditions: *helping friend & moral outcome*, *helping friend & immoral outcome*, *helping stranger & moral outcome*, *helping stranger & immoral outcome* condition. Each child was tested in all conditions. In each condition, children were presented with a gender-matched vignette. The order of presentation and condition in which the vignettes were presented was counterbalanced based on a Greco-Latin Square and randomly assigned to each child (see below for details).

2.3 Materials: online study

We implemented this study as an online study in LabVanced (Finger et al., 2017). Participation in the study lasted ∼20 to 25 min. Since the sample consisted of 4- to 8-year-olds who mainly could not yet read at all or fluently enough, all experimental materials were presented as picture-based stories and instructions, and test questions were presented as voice recordings.

To facilitate children's participation, each page featured an animated dog named Luna who acted as the digital experimenter and guided the children through the study. On each new page and after each response, a voice recording was automatically played in which Luna, voiced by a real-life experimenter, explained what to do next or where children should click next to hear the stories or answer the questions. To prevent children from clicking on answer options or moving to the next page without having fully heard the stories and questions, clicking on the options was only possible after the relevant voice recordings had ended, and the "continue" button only appeared after clicking on one of the answer options. All materials described here can be viewed in the sample run of the study on OSF (https://doi.org/10.17605/OSF.IO/V2R7Y).

2.4 General procedure

The general procedure consisted of four parts: (a) Introduction for parents and demographics, (b) introduction for children and exercise vignettes, (c) four experimental vignettes, and (d) farewell. Each part is explained in more detail below.

2.4.1 Introduction for parents and demographics

On the start page, parents received detailed information about the study (e.g., research question and duration). Furthermore, they were informed about technical requirements and were asked to provide technical support to children if necessary. Except for technical support, parents were asked not to influence children' answers during the study. Furthermore, parents were informed about data protection, compensation, and that study participation is voluntary. Finally, they were asked for consent in their children's participation. The next page asked parents for basic demographic data of the child (i.e., gender, age, type of institutional care).

2.4.2 Introduction for children and exercise vignettes

On the next page, the digital experimenter (i.e., the dog Luna) introduced herself to the child and informed the child in an age-appropriate way about the content of the study. She finally asked the child for consent in a child-friendly way and children were given the choice to proceed or stop the study. If they decided to proceed, the following exercise vignettes were presented.

Children were guided through two exercise vignettes to familiarize themselves with the general format of the vignettes and questions as well as how to select answers by clicking on response images. Exercise vignettes were structurally similar to subsequent experimental vignettes but had unrelated content (see OSF for detailed descriptions of the exercise vignettes). After the second exercise vignette, the main part with the four experimental vignettes began.

2.4.3 Four experimental vignettes

In the main part, each child was presented with four vignettes. Each vignette consisted of three parts, namely the story presentation, control questions, and test question.

2.4.3.1 Story presentation

In the first part, children saw a picture to which the story was read aloud. The picture showed two children, one of whom was the helper and one of whom was the recipient. The recipient could not physically reach an object that they would like to take home (e.g., a hat on a cupboard in kindergarten). The helper was closer to the desired object or larger and could generally reach it.
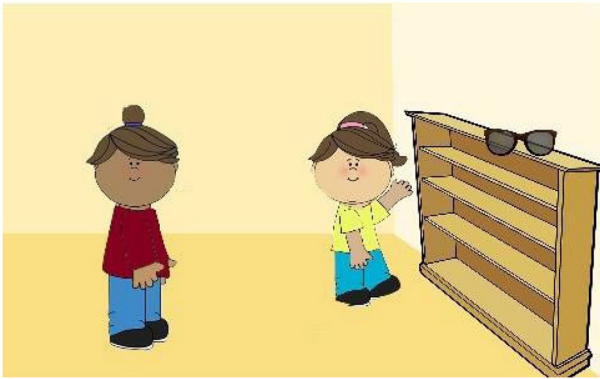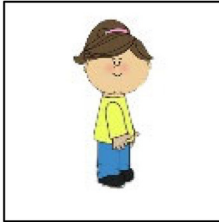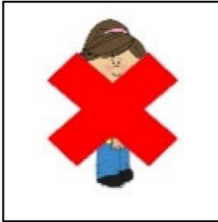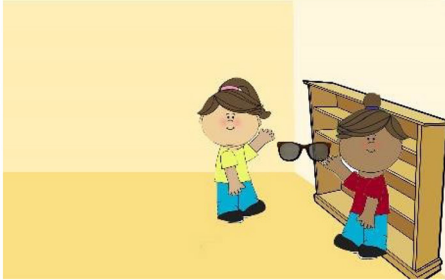
Depending on condition, the story content varied as follows: In the *helping friend & moral outcome* condition, the helping recipient was the owner of the desired object, and the helper and recipient were friends; in the *helping friend & immoral outcome* condition, the desired object did not belong to the recipient but instead belonged to another child, and the helper and recipient were friends; in the *helping stranger & moral outcome* condition, the recipient was the owner of the desired object, and the helper and recipient did not know each other; in the *helping stranger & immoral outcome* condition, the desired object did not belong to the recipient but instead belonged to another child, and the helper and recipient did not know each other.

2.4.3.2 Control questions

In the second part, three different control questions were asked to make sure that the children understood the content of the story (see also Table 1). If children responded correctly, their answer was confirmed verbally by Luna. If children's responses were wrong, Luna remained neutral and corrected the answer, that is, Luna provided children with correct information. Control questions were not repeated, that is, we assumed that a single correction prompt was sufficient.

Most children answered all the control questions correctly (i.e., 3 questions × 4 vignettes = 12 control questions in total; 62%) or almost all the control questions (i.e., ten or more; 31%). However, n = 10 children (i.e., 7%) answered more than two control questions incorrectly, suggesting that these children may have had problems following the vignettes. These were mainly younger children (i.e.,

TABLE 1 Example vignette: helping friend and immoral outcome condition.

Story: version immoral - best friend - cupboard/shelf - sunglasses (I-B-C-S)

"This is Lisa. This is Lisa's best friend, Nina. They're both in kindergarten and it's time to go home. The sun is shining outside. Lisa's friend Nina wants to put on the sunglasses that are on the shelf. But Nina is too small to get the sunglasses. Lisa is a little taller and can reach the sunglasses. The sunglasses actually belong to another child who is still playing. Nina does not care that the sunglasses belong to another child, she still wants to take them home with her."

Control questions	
CQ1:	**"Who is Lisa? Click on Lisa in the picture!"** [Clicked correctly]: " Precisely: Lisa is taller and can reach the sunglasses." [Clicked incorrectly]: "This is Lisa, she is taller and can reach the sunglasses."
CQ 2:	**"Who is Nina? Now click on Nina in the picture!"** [Clicked correctly]: " Precisely: Nina is smaller and cannot reach the sunglasses. - Now click on the blue arrow to continue." [Clicked incorrectly]: "This is Nina, she is smaller and cannot reach the sunglasses. - Now click on the blue arrow to continue."
CQ 3:	**"Who do the sunglasses belong to? Do they belong to Nina or do they not belong to Nina but to another child? - Click on the picture that shows whether the sunglasses belong to Nina or not."** [Clicked correctly]: "Exactly, the sunglasses do not belong to Nina, but to another child. - Now click on the blue arrow to get to the next page." [Clicked incorrectly]: "The sunglasses do not belong to Nina, but to another child. - Now click on the blue arrow to get to the next page."

Test question

Response options: Children have to click on one of the two presented pictures to indicate their helping decisions (left picture = helping, right picture = no helping).
"What should Lisa do now? Should Lisa hand her friend Nina the sunglasses, which actually belong to another child, or should Lisa leave the sunglasses and walk away? - Click on the picture that shows what Lisa should do."
[After response]: "All right! Now click on the blue arrow to continue."

Underlined texts indicate that during the online presentation, an arrow pointed to each person or response option in the vignettes.

4- and 5-year-olds). They were excluded from further analyses. We decided to include children who only occasionally answered incorrectly (i.e., only one or two out of twelve control questions), as all children were corrected after giving an incorrect answer to a control question. Furthermore, almost none of these children repeatedly answered incorrectly in the same vignette, suggesting that they had no systematic difficulties in following the stories and the procedure.

2.4.3.3 Test question

After the control questions, children were presented the test question, namely whether the protagonist should or should not help the recipient in the story, e.g., "What should *name of the helper* do now? Should he/she hand over the hat, which belongs to another child, to her friend, or should she leave the hat on the shelf and go?" (i.e., *helping friend* & *immoral outcome* condition). In particular, the test question reemphasized whether the object belonged to the recipient or to another child.

To record children's responses, two images were presented side by side that represented the two different ends of the story (see also Table 1). In one of the pictures, the helper was handing the desired object to the help recipient (= helping response). In the other picture, the helper walked away, and the object remained out of reach for the recipient (= not helping response). Children had to click on one of these response pictures. The order of the response pictures was counterbalanced across conditions.

This procedure was repeated for each of the four vignettes; that is, each child ran through all experimental conditions.

2.4.4 Farewell

After the fourth experimental vignette, children came to the farewell page. They were thanked for their participation and parents were asked to leave contact information to receive the voucher for study participation before the study was ended.

2.5 Vignette versions and counterbalancing

To avoid carry-over effects, children were presented with four different story contexts: In two vignettes, the protagonists stood at a shelf in the kindergarten and the object was either a pair of sunglasses or a hat; in the other two vignettes, the protagonists met at a fence in the park and the object was either a ball or a frisbee. In each of the four vignettes, children saw a new pair of protagonists (helper and recipient) who looked different and had different names. We counterbalanced story contexts and conditions based on a Greco-Latin square resulting in 16 different experimental vignettes per gender (i.e., 32 different experimental vignettes overall). All 32 experimental vignettes and their counterbalancing can be viewed in the study's vignette book (see OSF).

2.6 Example vignette: helping friend and immoral outcome condition

In Table 1, we present one of the vignettes for illustrative purposes. All texts in quotation marks are the speech recordings that the participating children heard from Luna. Underlined texts indicate that during the online presentation, an arrow pointed to each person or response option in the vignettes. In this example, the recipient needed assistance in getting to an object that belonged to another child (i.e., *helping friend* & *immoral outcome* condition). In the story, it is made clear that the recipient wants to take the object home (i.e., steal it). The helper and recipient are best friends.

2.7 Scores and analyses

For further analyses, we coded children's *helping decision score* with a 1 if they had responded that the protagonist in the story should help the other child (i.e., friend or stranger), and a 0 if children had chosen the not-helping response picture. For preliminary and main analyses, we used the *lme4* package in R (Bates et al., 2015; R Core Team, 2020) to conduct generalized linear mixed models (see Section 3 for details). Please note that all analyses and raw data can be retrieved from OSF (https://doi.org/10.17605/OSF.IO/V2R7Y).

3 Results

3.1 Preliminary analyses: effects of task order, position, task materials, and gender

There was no order (four alternative orders), position, vignette context/scene (i.e., park vs. kindergarten), or gender effect on children's helping responses, all χ^2s (1) < 2.23, ps > 0.10. Thus, we excluded corresponding variables from further analyses.

3.2 Descriptive data

For descriptive purposes, we split children into two age groups in Table 2 (i.e., younger children attending preschool, i.e., 4–6 years, $M = 4.93$ years, $SD = 0.65$; older children attending elementary school, i.e., 6–8 years, $M = 7.36$, $SD = 0.64$). However, we used exact age data (i.e., age in months) for regression analyses reported below; for GLMMs we used grand-mean-centered age in months. Table 2 indicates that over 90% of children in the *moral outcome conditions* (i.e., moral friend, moral stranger) decided that the protagonist should help. In contrast, only about 20% of children approved of helping behavior in the *immoral outcome conditions* (i.e., immoral friend, immoral stranger); that is, most children clearly disapproved of helping if there were harmful outcomes. Furthermore, Table 2 indicates that (descriptively) there are differences in children's helping decisions depending on age: Whereas ~25% of younger children (i.e., preschoolers) approved of helping in the immoral outcome conditions, only

TABLE 2 Percentage of children who decided that the protagonist should help by condition.

Condition	Younger children (preschool)	Older children (elementary)	Overall
	n = 68	n = 69	N = 147
No immoral outcome & friend	95.38%	98.53%	96.99%
No immoral outcome & stranger	89.39%	92.65%	91.04%
Immoral outcome & friend	25.00%	13.04%	18.98%
Immoral outcome & stranger	25.76%	7.35%	16.42%

Percentage of children who decided that the protagonist should help in the stories by condition and age group.

7–13% of older children (i.e., elementary schoolers) did so in these conditions.

3.3 Main analyses

For further analyses, we calculated generalized linear mixed models (GLMMs) with children's helping decisions as the dependent variable and *immoral outcome*, *social relationship*, *age (in months)*, and interaction terms between these variables as independent variables. We used the *glmer* function in the R package *lme4* (Bates et al., 2015; see OSF for R Code). Following the standard procedure of mixed modeling (e.g., Heck et al., 2013), we defined—in our case four—successive models: A null model with no fixed effects (i.e., except for the intercept), a main effect model including *immoral outcome, social relationship,* and *age* as fixed effects, an interaction model that additionally included all 2-way interaction terms between predictors as fixed effects, and finally a full model that also included the 3-way interaction term *immoral outcome × social relationship × age* as a fixed effect. In each model, we inserted *subject* as a random effect to account for the by-subject variation due to repeated measures.

Model comparisons indicated that the main effect model had a significantly improved model fit compared to the null model, $\chi^2(2) = 411.30$, $p < 0.001$. Furthermore, the interaction effect model had a significantly improved model fit compared to the main effect model, $\chi^2(3) = 22.09$, $p < 0.001$. The full model did not converge, which prevented further model comparisons. However, we used a Bayesian regression model as an alternative modeling technique (*brms* package in R; Bürkner, 2021). This model yielded no significant 3-way interaction of *immoral outcome × social relationship × age*. Thus, we took the 2-way interaction model as the basis for further analyses.

Further results from GLMMs confirmed that there was a significant main effect of the factor *immoral outcome* and the factor *social relationship* (see Table 3). Furthermore, there was a significant interaction effect of *immoral outcome × age,* a significant interaction effect of *social relationship × age*, and a marginally significant interaction effect *social relationship × immoral outcome* (see Table 3). According to likelihood-ratio tests (LRTs) no further effects became significant (see Table 3).

As the interaction effects *social relationship × immoral outcome, immoral outcome × age,* and *social relationship × age* became significant, the main effects of *immoral outcome* and *social relationship* should be interpreted with caution. For example, although the significant main effect of *immoral outcome* may already support hypothesis 1a, it should only be interpreted after conducting appropriate *post-hoc* analyses (see below).

To confirm hypothesis 1b, we tested whether children's helping decisions in immoral contexts were below chance level (i.e., $p = 0.50$) based on binomial tests, and we found that both children's helping toward friends and strangers (i.e., 18.98 and 16.42%) were significantly below chance level, $ps < 0.001$, two-sided. This was also the case when we split up children into younger and older age groups and calculated separate binomial tests for each age group, $ps < 0.01$, two-sided (see Table 2 for helping percentages by age group). This means that both younger and older children showed below chance level of helpfulness in immoral conditions, confirming hypothesis 1b.

3.4 *Post-hoc* analyses

To further substantiate significant main and interaction effects in the interaction model, we ran a series of *post-hoc* analyses. First, we were interested in explaining the marginally significant interaction effect *immoral outcome × social relationship* (see Table 3). In this case, we used *post-hoc* tests for pairwise comparisons with the "emmeans" package in R (Lenth et al., 2023). Following the recommendations for conducting *post-hoc* tests based on marginally significant interaction effects, we used a modified Bonferroni correction (Jaccard and Turrisi, 2003). We found that, overall, children significantly preferred friends to strangers in the moral conditions, 96.99% friend vs. 91.04% stranger, $p = 0.044$, Cohen's g = 0.29 (i.e., large effect; see Cohen, 1988), but not in the immoral conditions, 18.98% friend vs. 16.42% stranger, $p = 0.616$, Cohen's g = 0.12 (i.e., small effect), which generally confirms hypothesis 2b (i.e., friendship bias is more pronounced in moral conditions), but not hypothesis 2a (i.e., there is a general friendship bias in moral and immoral conditions). Furthermore, data indicate an ordinal interaction effect (i.e., no cross over interaction; see also Figure 1), so we can also interpret the main effect of the factor *immoral outcome* (Widaman et al., 2012) and thus confirm hypothesis 1a. In particular, children are more likely to decide for helping in the moral than in the immoral conditions, regardless of whether the recipient is a stranger, 91.04% moral vs. 16.42% immoral, $p < 0.001$, Cohen's g = 0.49 (i.e., large effect), or a friend, 96.99% moral vs. 18.98% immoral, $p < 0.001$, Cohen's g = 0.50 (i.e., large effect).
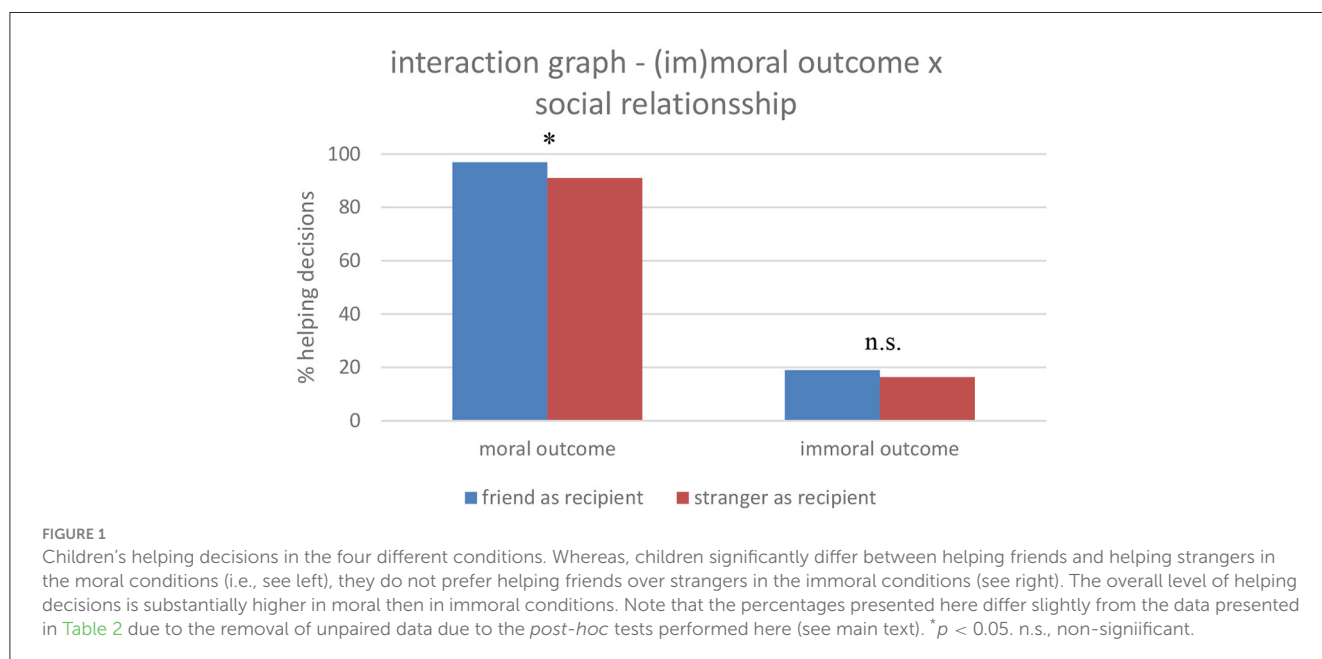
To further explore the remaining interaction effects (including age in months as a metric variable), we had to take a different approach and ran a series of logistic regression models for *post-hoc* analyses. In order to explain the significant interaction effect *immoral outcome × age*, we ran two separate logistic regressions: one for moral conditions and one for immoral conditions. These

TABLE 3 GLMM with helping decisions as DV.

Interaction model	Estimate B	SE	Odds ratio	Wald		LRTs	p-value
Fixed effects				95% CI		χ² (1)	
Intercept	7.78	1.43	238.04	4.97	10.58		
Immoral outcome	−11.82	2.09	0.00	−15.91	−7.72	410.55	<0.001***
Social relationship	−2.67	1.01	0.07	−4.65	−0.69	5.43	0.02*
Age (in months)	0.11	0.04	1.11	0.02	0.19	1.75	0.18
Immoral o. x social relationship	1.72	1.02	5.60	−0.29	3.74	3.14	0.076+
Immoral outcome x age	−0.17	0.05	0.84	−0.26	−0.08	17.579	<0.001***
Social relationship x age	−0.07	0.03	0.93	−0.14	−0.01	5.88	0.015*

We ran likelihood-ratio tests (LRTs) based on AICs using the *drop1* function from *lme4* package in R to determine the significance of parameters in the model. These analyses confirmed that there was a significant main effect of *immoral outcome* and *social relationship* as well as a significant interact effect *immoral outcome × age* and *social relationship × age*; please note that since interaction effects became significant, main effects in the interaction model should be interpreted with caution (see main text for *post-hoc* analyses that further explain significant interaction effects). Log odd = Estimate B. Odds ratio = exp^B. Marginal R^2/Conditional R^2 = 0.604/0.943. We will refrain from explaining GLMM procedures in more detail here, but refer readers to the relevant statistical literature (Heck et al., 2013; Field, 2018; Fox and Weisberg, 2019). In addition, we provide more detailed information on the interpretation of main and interaction effects in GLMMs in the Supplementary material on OSF.
***$p < 0.001$; *$p < 0.05$; +$p < 0.10$.

FIGURE 1
Children's helping decisions in the four different conditions. Whereas, children significantly differ between helping friends and helping strangers in the moral conditions (i.e., see left), they do not prefer helping friends over strangers in the immoral conditions (see right). The overall level of helping decisions is substantially higher in moral then in immoral conditions. Note that the percentages presented here differ slightly from the data presented in Table 2 due to the removal of unpaired data due to the *post-hoc* tests performed here (see main text). *$p < 0.05$. n.s., non-signiificant.

post-hoc models included *age (in months)* as predictor. Analyses confirmed that there was a significant positive effect of age in the moral conditions, $b = 0.034$, $SE = 0.016$, 95%-CI = (0.002; 0.069), odds ratio = 1.034, $p = 0.040$, but a significant negative effect of age in the immoral conditions, $b = −0.043$ $SE = 0.011$, 95%-CI = (−0.065; −0.023), odds ratio = 0.958, $p < 0.001$. These findings were further substantiated by plotting the logistic regression curves for children's helping probabilities in the moral and immoral conditions: Figure 2 shows that there is a decrease in children's helping decision probability from 40 to 5% with age in the immoral conditions (i.e., left) and an increase from

80 to 100% in the moral conditions (i.e., right). In summary, these *post-hoc* analyses help to explain the significant interaction effect *immoral outcome × age* in the interaction model from the main analyses above: There is a significant decrease in children's helping decisions with age in the immoral outcome conditions but a significant increase in children's helping decisions with age in the moral conditions.

We also aimed to substantiate the significant interaction effect *social relationship × age* from the main analyses above by calculating separate logistic regressions for friends and strangers. These *post-hoc* models included *age (in months)* as predictor.
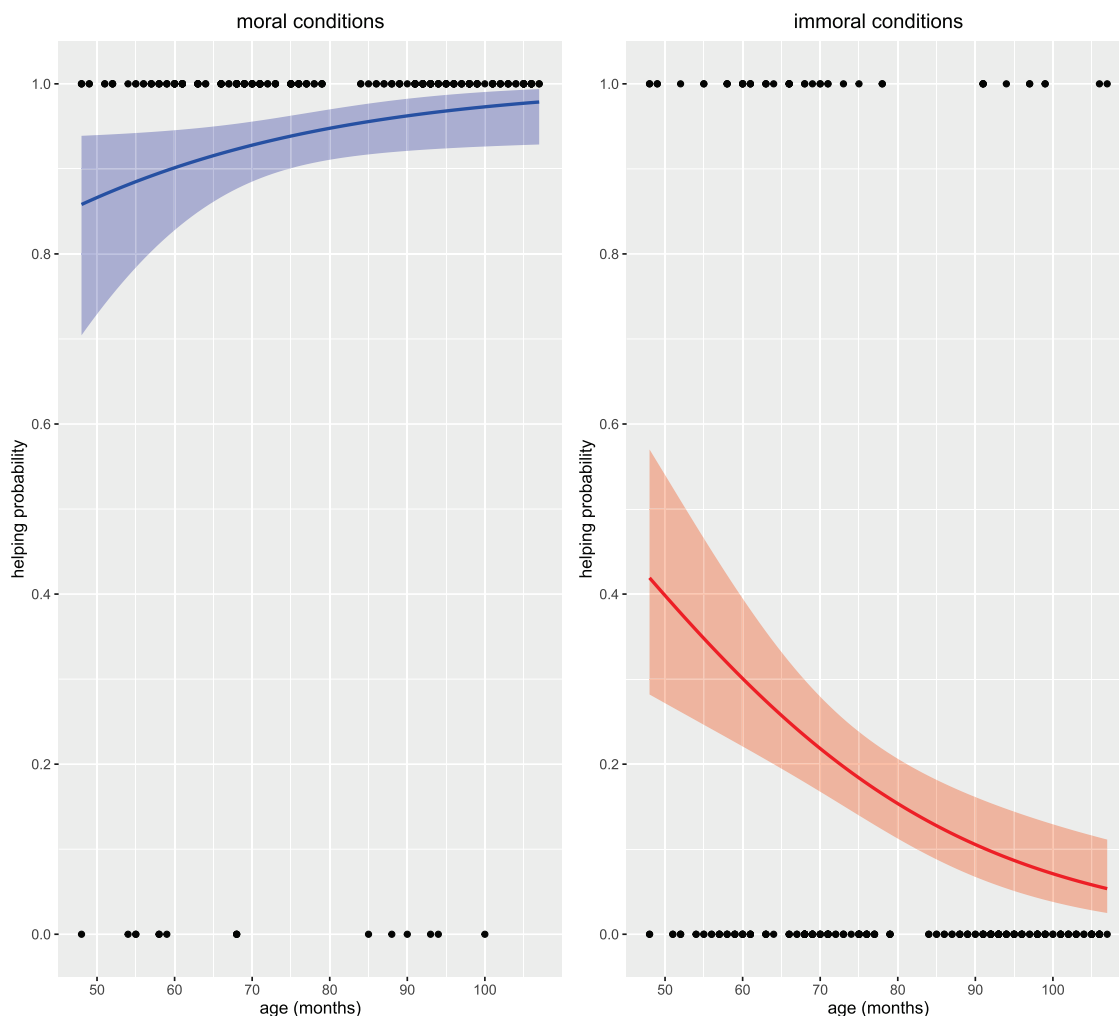
FIGURE 2
Children's decisions to help increase with age in moral conditions, but decrease with age in immoral conditions. Logistic regression curves for children's helping decisions in moral and immoral conditions. This figure depicts fitted data for children's helping probabilities separated for helping decision in moral conditions (i.e., blue curve left) and immoral conditions (i.e., red curve right). Dots indicate raw data points, i.e., children's helping decisions (0 = no helping, 1 = helping). It helps to explain the significant interaction effect of immoral outcome × age in the GLMM (see main text), as it indicates that children's decisions to help become more likely with age in the moral conditions, but decrease with age in the immoral conditions.

We found a slightly negative, but non-significant, age estimate for the friend conditions, $b = -0.005$, $SE = 0.007$, 95%-CI $= (-0.020; 0.009)$, odds ratio $= 0.995$, $p = 0.476$, and a more pronounced negative age estimate for the stranger conditions, $b = -0.011$, $SE = 0.007$, 95%-CI $= (-0.025; 0.003)$, odds ratio $= 0.989$, $p = 0.147$. These findings were further substantiated by plotting the logistic regression curves for children's helping probabilities in the friend and stranger conditions: Figure 3 shows that children's helping decision probability stays around 60% in the friend conditions (i.e., left) and slightly decreases with age in the stranger conditions, namely from 65 to 45% (i.e., right). Thus, the interaction effect can be potentially explained by a stronger decrease in children's helping probability with age for helping strangers than helping friends. To explore this interaction effect further, we also calculated a series of Wilcoxon tests and found that, particularly in the oldest age group, i.e., 8-year-olds, children made more helping decisions in the friend than in the stranger conditions, 57% friends vs. 52% strangers, $p = 0.083$, all $ps >$

0.10 for the age groups 4–7 years (see Supplementary material for details).

4 Discussion

This study provides a systematic analysis on the role of different factors, namely immoral (side) effects of helping and social relationships between actors, and how these change with age in children's helping decisions between 4 and 8 years old. Overall, the evidence presented provides new insights into children's early socio-moral competencies in complex social situations. Our main findings can be subsumed and discussed as follows.

4.1 Helping in immoral contexts

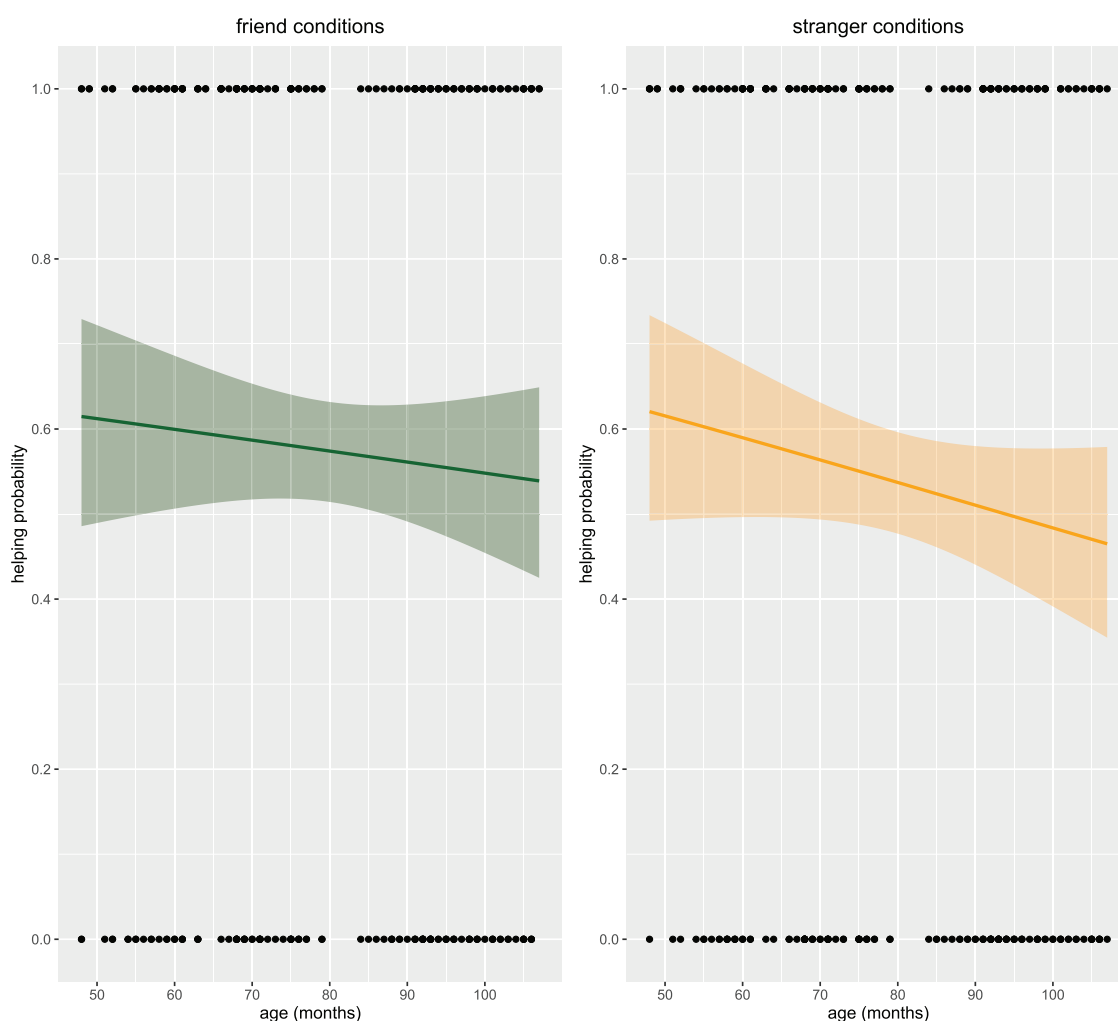First, and as expected, we found that 4-to 8-year-olds significantly disapproved of helping if there was an immoral

FIGURE 3
Children's tendency for decreased helping behavior with age is accentuated when helping strangers (vs. friends). Logistic regression curves for children's helping decisions in friend and stranger conditions. This figure depicts fitted data on children's helping probabilities separated for helping decision in friend conditions (green curve left) and stranger conditions (yellow curve right). Dots indicate raw data points, i.e., children's helping decisions (0 = no helping, 1 = helping). It helps to explain the significant interaction effect of social relationship × age in the GLMM (see main text), as it indicates that children's tendency to decrease helping behavior with age is accentuated when helping strangers (vs. friends).

outcome; that is, we found a significant main effect of the factor *immoral outcome*. This effect was substantial, since, on average, only 20% of children approved of helping in immoral contexts, whereas over 90% of children approved of helping in moral contexts. Second, preschoolers still indicated some helping bias in immoral contexts (i.e., ∼30%). However, this helping bias was significantly lower than chance level and substantially lower than reported in a previous study (i.e., 64% in 4-to 5-year-olds in Dahl et al., 2020). We think that this can be explained by the methodological adaptations in our study: In particular, we developed a conclusive format to assess helping decisions in complex social situations in young children. This gave us results that are also consistent with previous studies showing that preschoolers can recognize potentially harmful consequences of helping actions and, therefore, deliberately refuse to help in corresponding situations (Martin et al., 2016; Dworazik et al., 2019). Furthermore, our findings are in line

with findings by Miller et al. (1990) in older children and adolescents: They reported that only 0–5% of participants in older age groups (i.e., grade 2 students = 8-year-olds, grade 6 students = 12-year-olds) approved of assisting stealing in low need situations, regardless of whether the recipients were family members, friends or strangers. However, our findings add to the existing literature, as previous studies focused either on older children and adolescents (Miller et al., 1990; Smetana et al., 1991) or on preschoolers' decisions in helping situations with highly harmful (side) effects such as severe physical injuries (e.g., Martin et al., 2016; Dworazik et al., 2019).

Overall, these findings highlight that preschoolers' helping inclination in immoral contexts is substantially lower than indicated by previous research (e.g., Dahl et al., 2020) and suggest that 4- to 6-year-old preschoolers are already discriminate helpers who consider and potentially prioritize others' rights and property over others' (simple) instrumental neediness.

4.2 Age effect: further decrease in helping decisions in immoral contexts

Moreover, we found a significant decrease in children's helping decisions in the immoral conditions (from 30 to 50% with 4 years to 0–5% with 8 years) suggesting that the transition from preschool to elementary school is a critical developmental period in which children's helping decisions get further qualified by criteria such as respecting others' rights and avoiding harmful consequences of helping acts for third persons.

There are at least two possible explanations for this developmental trend: First, children might weigh socio-moral information differently as they age, i.e., with age, children increasingly prioritize property issues over prosocial duties, such as helping persons in minor need situations. This interpretation is also in line with studies showing that children increasingly acknowledge justice issues (e.g., respecting property) over and beyond welfare issues (e.g., helping others) in their socio-moral reasoning during preschool years and middle childhood (Smetana, 1981; Kahn, 1992; Nucci et al., 2017).

Second, it might also reflect children's socio-cognitive advancements in this period: Children get increasingly better at decentering from salient contextual information, which might be "recipient's neediness" for some children or "property issues/potential harm to victim" for some other children. This means that 4- to 5-year-olds might focus on only one salient aspect in complex social (dilemma) situations. In contrast, 6- to 8-year-olds may increasingly consider and integrate different information on welfare and justice issues and, thus, experience a social dilemma, resolving this dilemma preferentially by giving priority to property issues (and avoiding harm to others) as indicated by their predominant not-helping decisions in the stealing conditions. Consistent with this interpretation, Nobes et al. (2017) found that 6- to 8-year-olds increasingly distinguish between actors' intentions (e.g., comforting a pet) and the outcomes of actions (e.g., accidentally harming the pet) when making moral judgments about corresponding actions and they simultaneously considered both types of information in their moral judgements.

However, these findings do not tell us whether 6- to 8-year-olds actually experience a social dilemma or whether, in principle, they switch priorities without experiencing a socio-moral conflict between fulfilling prosocial duties (i.e., helping others) and respecting property (i.e., not harming others by stealing). In order to further substantiate these initial interpretations, more comprehensive studies would be needed that explicitly assess and analyze children's reasons for their actions and thus provide further information on whether and how young children experience social dilemmas in these complex social situations (see also limitations below).

4.3 Considering friendship in helping decisions

Moreover, we found a marginally significant interaction effect *immoral outcome × social relationship. Post-hoc* tests were used to further clarify this effect, which indicated that the

children significantly preferred friends to strangers in the moral conditions, but not in the immoral conditions. That is, children impartially disapproved of helping behavior if there were negative consequences of the helping act, such as others' property being stolen, but they more frequently approved of helping toward friends than strangers if there were no negative side effects (i.e., in moral contexts).

These findings generally confirm hypothesis 2b (i.e., friendship bias is more pronounced in moral than in immoral conditions), but not hypothesis 2a (i.e., there is a general friendship bias in moral and immoral conditions). Nevertheless, they propose that children weigh information on social relationships between agents differently depending on the (im)moral consequences of the helping action.

Our finding of a friendship bias in the moral conditions is generally in line with findings on older children and adolescents, who consider prosocial behaviors toward friends and family members to be obligatory (Miller et al., 1990; Killen and Turiel, 1998), whereas helping strangers is deemed supererogatory (Miller et al., 1990; Smetana et al., 2009).

Our finding that children equally disapprove of helping in immoral contexts, regardless of whether the recipient is a friend or a stranger, is generally consistent with Social Domain Theory and previous findings that have highlighted preschoolers' moral impartiality, such as preschoolers' judging acts of harm as wrong across contexts (Turiel, 2006; Nucci, 2009; Smetana et al., 2018). Furthermore, this finding suggests that property issues potentially outweigh friendship issues in 4- to 8-year-olds' helping decisions, that is, property issues may be a dominant moral rule at this age, whereas friendship issues become more relevant in middle childhood and adolescence (Rubin et al., 2006).

However, it is also possible that 4- to 8-year-olds do consider information about social relationships in immoral contexts and thus experience a socio-moral conflict between loyalty to friends and property issues, which they resolve in favor of property issues when confronted with conflicting information, as in the immoral friend condition. Again, this interpretation remains speculative and needs to be further substantiated by future studies.

Finally, we found a significant interaction effect *social relationship × age*. This effect can be explained by the fact that children's probability of helping strangers decreased slightly more with age than their probability of helping friends. These differences in age slopes may also indicate (at least in tendency) that children increasingly prefer to help friends rather than strangers as they get older, and thus potentially represent the emergence of a general friendship bias that may become more pronounced during middle childhood and adolescence (see Rubin et al., 2006).

In the overall view of our results, we can conclude that young children generally consider harmful consequences of helping actions; that is, helping is *not* always the preferred decision in preschool- and elementary school-aged children. Moreover, they increasingly integrate different information on welfare and justice issues as well as social relationships in their socio-moral decision-making process and weigh them against each other in a context-specific way. In summary, these findings help show a clearer picture of young children's socio-moral competencies.

4.4 Strengths and limitations

A clear strength of our study is the application of age-appropriate vignettes that we used to systematically address children's helping decisions. While generally following the standard procedure of presenting young children with picture-based stories, we also addressed some critical limitations of previous research by (a) making actors' intentions and potentially harmful side effects explicit to children and (b) providing explicit information on social relationship status between actors in the stories. Furthermore, since we used an innovative online approach, our study improves procedural objectivity and potentially eases replicability (Kominsky et al., 2021). In particular, children's responses in automated online studies remain unaffected by experimenters (e.g., procedural errors or subliminal impacts), and the general procedure was identical for all children, helping to reduce measurement error in our data. In addition, the online format was positively evaluated by many of the parents and children in our study as being motivating, very easy to understand and easy to use for the target age group.

However, the online format also comes with some limitations. First, we could not ask for children's supporting justifications and focused on basic and age-appropriate response formats instead, namely closed-ended questions about children's helping decisions. Asking children to justify their helping decisions would certainly provide further insights into 4- to 8-year-olds' socio-moral thinking in complex social situations and would thus be a promising perspective for future studies. But there were several reasons why we decided against that option in the present study: In particular, many 4- to 5-year-olds have difficulty answering open-ended questions to justify their decisions or moral judgements. For example, in a comparable study, Mammen et al. (2021) coded 4-year-olds' justifications of their decisions to help and found that 50% of their answers were basically insufficient because they were not related to the content of the stories. These findings were also consistent with our experience: in another study using a different topic but a structurally similar online format, we had the impression that 4- to 5-year-olds had problems (both technical and linguistic) in supporting adequate responses to open-ended questions about explaining their moral judgements. In addition, we were unable to conduct face-to-face interviews with children in our lab due to nationwide curfew regulations and restrictions in 2020, and home video calls came with other limitations—technical, legal, as well as procedural (see also Kominsky et al., 2021). Nevertheless, our findings help to inform future research that can more thoroughly investigate children's justifications for helping or not helping others.

Second, we cannot be sure whether parents influenced children's responses at home, although we explicitly instructed parents not to intervene except for when children had technical problems. Furthermore, skin and hair color of the protagonists might have affected children's responses. In particular, we slightly varied the skin and hair color of the protagonists to cover the typical spectrum of European children. That is, the vignettes were meant to represent a typical interaction between peers that children experience in their everyday lives. However, some children might have assigned different "races" to the protagonists. Since we did not fully vary skin- and hair color across conditions, we cannot rule out this possibility: Thus, some responses may have been affected by a racial in-group effect (Cohen et al., 2021). However, additional analyses—presented in the supplements—speak against this possibility, that is, we have no indication that children in this study exhibited a racial in-group effect.

Thirdly, in terms of generalizability, it should be noted that, first, the present sample is representative of a Western, urban, middle-class population and, second, this research was conducted during the COVID-19 pandemic. As a consequence, one should be careful when generalizing our findings to other contexts and periods and, ideally, should provide further empirical evidence for doing so.

Finally, since we collected cross-sectional data, we cannot draw firm conclusions on individual changes in children's helping with age. Nevertheless, we believe that our (cross-sectional) results make an important contribution by providing first empirical evidence on a potential transition in children's socio-moral helping decisions from preschool to elementary school age that likely refers to socio-cognitive advancements during this developmental period.

4.5 Outlook

As already mentioned above, we did not explicitly ask children to justify their moral decisions in the present study. In future research, it might thus be promising to additionally address young children's socio-moral reasoning in complex situations, that is, asking children to provide explicit justifications for their helping decisions. This may help to further substantiate some of the partly speculative interpretations detailed above, as it would provide further information to answer more clearly the questions of (a) whether 4- to 8-year-olds clearly experience a social dilemma between property issues and prosocial duties, and between property issues and loyalty, and (b) whether and when they view information about social relationships in terms of a clearly moral (e.g., morality of loyalty, care, or community ethics), conventional (e.g., helping friends as a societal rule), or private domain (e.g., keeping up a positive relationship to fulfill personal desires). Moreover, to further improve the ecological validity of our findings it is necessary to investigate children's socio-moral reasoning and decisions in cross-cultural studies.

Second, it might be promising to combine our findings with a recent theoretical and empirical account on children's socio-moral development, namely Social Reasoning Developmental Models (SRD; Killen and Malti, 2015): SRD generally assumes that aspects of group functioning in complex social scenarios become an increasingly important issue in children's moral considerations during middle childhood and adolescence. For example, Killen et al. (2013) found that 9- to 13-year-olds increasingly approved of immoral behavior when that behavior benefited group functioning (e.g., when an in-group member distributed resources unequally, thereby benefiting the in-group). Although SRD is generally better suited to describe and explain the role of group aspects (e.g., group norms and loyalty toward group members) in older children's socio-moral considerations than it is to describe and explain the role of friendship aspects (e.g., loyalty in dyadic relationships, trust in friends, etc.) in younger children, it might be a promising prospect for future research to further investigate (a) how the

development of group and friendship issues are interrelated and (b) when and why children start to consider information on social relationships with friends *and* groups differentially in harmful helping contexts and complex social situations in general.

Finally, it might be promising to further investigate variables that help to explain interindividual differences in 4- and 5-year-olds' helping decisions in immoral contexts and to test further helping contexts that vary the severity of harmful effects. For example, in addition to a classical stealing context (i.e., psychological harm) it might also be interesting to investigate children's helping decisions in situations with more severe effects, such as physical harm to others (see Dworazik et al., 2019; or Miller et al., 1990).

5 Conclusion

This study complements existing research on children's socio-moral development by focusing on younger age groups and their judgments of helping behavior in both classical and harmful outcome contexts. In summary, our findings suggest that 4- to 8-year-olds from a Western, urban, middle-class population prioritize moral concepts of property and avoiding harm to others over other concerns, such as helpfulness or loyalty to friends, in their helping decisions in social dilemma situations such as those presented here. That is, helping is not always the preferred choice for younger children, as 4- to 8-year-olds increasingly consider the negative consequences of helping in harmful outcome contexts. Moreover, our findings suggest that 4- to 8-year-olds generally consider social relationships, but do so in a flexible and context-specific manner: In particular, they do not prioritize helping friends over strangers in the immoral conditions, which speaks to their moral impartiality in the stealing contexts.

Overall, these findings reveal children's socio-moral development concerning the evaluation of complex social situations during the transition from preschool to elementary school. Future studies may help to further elucidate the mechanisms and changes in their socio-moral decision-making processes.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: https://doi.org/10.17605/OSF.IO/V2R7Y.

Ethics statement

This research was conducted in accordance with the Declaration of Helsinki and the Ethical Principles of the German Psychological Society (DGPs), the Association of German Professional Psychologists (BDP), and the American Psychological Association (APA). It involved no invasive or otherwise ethically problematic techniques and no deception {and therefore, according to National jurisdiction, did not require a separate vote by a local Institutional Review Board; see the regulations on freedom of research in the German Constitution [§ 5 (3)], and the German University Law (§ 22)}. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

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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Supplementary material

Supplementary materials are available in OSF at https://doi.org/10.17605/OSF.IO/V2R7Y

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