# Self-esteem, social comparison, and interpersonal communication competence as predictors of students' psychological well-being

Aruzhan Ismailova[1], Khapiza Naubayeva[1], Raigul Zheldibayeva[1]* and Simona Kontrimienė[2]

[1]Department of Pedagogy and Psychology, Zhetysu University, Taldykorgan, Kazakhstan, [2]Institute of Foreign Languages, Vilnius University, Vilnius, Lithuania

**Background:** The extent to which students' psychological well-being is determined by their communication in society and self-appraisal, including comparisons to other individuals, has not been previously examined within a single model. Motivated by this literature gap, the present study sought to test a hypothetical model embodying self-esteem and perceived interpersonal communication competence as direct regressors of self-reported psychological well-being, with social comparison inclination reciprocally linked to the criterion.

**Methods:** A cross-sectional, quantitative correlational design was implemented. Four well-recognized questionnaires were administered via an anonymous online survey to students across various undergraduate programs at a public university. The survey responses from 348 students aged 18.8 years on average (55.2% females) were subjected to a multiple linear regression analysis.

**Results:** The results supported the proposed conceptual framework: both perceived communication competence and self-esteem positively predicted students' mental well-being. Conversely, higher self-reported social comparison intensity was associated with reduced psychological well-being. All paths were statistically discernible.

**Conclusion:** This investigation represents the first attempt to assess the relationship between one's subjective communication competence and mental well-being per se, rather than its sub-components. The findings highlight that contemporary students, navigating a world of constant digital and face-to-face interactions, risk harming their mental well-being when their personal standards are strongly influenced by peers.

KEYWORDS

linear regression, mental well-being, resilience, self-evaluation, undergraduate students

# 1 Introduction

In an era where academic rigor escalates, students across diverse backgrounds are confronted with a unique array of developmental tasks and pressures—from surviving through social expectations and subject-specific bottlenecks (Schmitz et al., 2024) to assimilating rapidly evolving educational technologies, such as generative artificial intelligence—all of

which can elevate stress levels and compromise psychological well-being (Ansari et al., 2024; Kohnke and Moorhouse, 2025; Xu et al., 2024), interchangeably referred to as mental well-being (Morowatisharifabad et al., 2024). This challenge is particularly acute if post-secondary education years coincide with early adulthood, a pivotal phase marked by rapid psychological growth and the transition from individual cognition to socially embedded reasoning (Wu et al., 2025). Within this critical period, psychological well-being emerges not merely as a desirable outcome but as a foundational pillar for holistic development, enabling youngsters to thrive amid adversity and forge meaningful life trajectories (Freire and Ferreira, 2019; Fu, 2025; Kassis et al., 2022). Yet the pathways to fostering such well-being are multifaceted, shaped by an interplay of personal attributes and social dynamics.

Among the constellation of influencing factors, three constructs stand out for their theoretical and practical relevance: self-esteem, social comparison tendencies, and interpersonal communication competence. Self-esteem, a core psychological resource, functions as both a buffer against adversity and a catalyst for positive affect (Albarracin et al., 2024; Zhang and Halgunseth, 2025). Rooted in evolutionary psychology, self-esteem operates as a responsive mechanism to social threats, mobilizing behaviors needed to protect or restore social status when threatened (Zilioli et al., 2016). In parallel, the pervasive human impulse for social comparison—now amplified by social media's omnipresence—carries dual-edged consequences, either inspiring or exacerbating feelings of inadequacy (Chen et al., 2024; Diel et al., 2025; Fang et al., 2024). Finally, the ability to communicate effectively is vital for establishing and maintaining supportive relationships conducive to both psychological and physical welfare (Pietromonaco and Collins, 2017).

While existing research has illuminated the individual roles of these constructs in mental health outcomes, there remains a lacuna in understanding of their concurrent predictive power on students' psychological well-being. This study endeavors to address this evidence gap and extend previous research by investigating the extent to which self-esteem, social comparison, and interpersonal communication competence, acting as explanatory variables, contribute to psychological well-being within the university student demographic. To this end, the following hypotheses were drawn up:

H1: Self-esteem is a significant positive predictor of psychological well-being in students.

H2: Social comparison is a significant negative predictor of psychological well-being in students.

H3: Interpersonal communication competence is a significant positive predictor of psychological well-being in students.

Unraveling this potential set of regressors within the same sample is of scientific interest as it promises to offer a more comprehensive understanding of the factors that conduce to students' psychological well-being. Such knowledge is not only theoretically enriching but also possesses practical implications for designing targeted interventions and support systems aimed at fostering positive mental health outcomes in educational settings.

The paper will proceed by reviewing the literature on each construct, detailing their links to psychological well-being, providing the theoretical underpinnings for the proposed hypotheses. Following the literature review, the methodology, results, and discussion sections will present and analyze the findings of the current study.

# 2 Literature review

## 2.1 Self-esteem and psychological well-being

Self-esteem occupies a pivotal position in the landscape of psychological well-being. Indeed, a momentous factor in youth well-being is self-esteem, a construct demonstrably shaped by one's social milieu and childhood experiences and amplified by positive social interactions (Charmaraman et al., 2025; Kocatürk and Çiçek, 2023). Self-esteem can be defined as an affective evaluation of one's self-worth; this evaluation emerges from an externally influenced, cumulative self-perception and is grounded in an individual's belief in being valued and accepted by others (Muñoz et al., 2023; Ozer, 2024). The sheer volume of research dedicated to self-esteem across psychology and allied disciplines underscores its importance as a critical psychological variable (Yildirim et al., 2024; Çiçek, 2021).

Furthermore, self-esteem is not merely a static trait; it acts as a dynamic psychological resource instrumental in bringing about useful emotions (Wang et al., 2024). Empirical evidence corroborates this. For instance, a 10-year-long study (Joshanloo, 2022) concluded that self-esteem predicted future positive affect. Individuals with high positive affect and low negative affect, a state considered self-fulfilling, tend to have a stronger sense of self-worth (Di Fabio and Bucci, 2015). In a study on 627 students (Nartova-Bochaver et al., 2019), researchers found compelling interrelations: self-esteem was positively linked to positive affect and psychological well-being, while concurrently demonstrating a negative association with depressive symptoms and negative affect. This pattern is further reinforced by research involving 689 college students (Cui et al., 2024), which similarly reported greater self-esteem as a precursor of better psychological well-being. A cross-sectional study among 340 university students (Çiçek, 2022) also documented surveyees' self-esteem significantly and positively related to psychological well-being. Echoing these findings, a web survey conducted with 236 participants, predominantly university students, revealed that self-esteem exerted a positive influence on the psychological well-being of the respondents (Lee, 2022).

However, it is pertinent to acknowledge nuances within the literature. For example, a self-report study conducted with 272 undergraduate and postgraduate students (Pandey et al., 2019) identified only weak correlations between self-esteem and several dimensions of well-being, including psychological well-being. Despite these isolated instances of weaker associations, the overwhelming body of evidence robustly supports the notion that self-esteem generally plays a beneficial role in building psychological well-being.

## 2.2 Social comparison and psychological well-being

In contrast to the internally focused evaluation inherent in self-esteem, social comparison introduces an inherently relational dimension to self-evaluation processes. Social comparison describes

the process of self-evaluation that unfolds in relation to others, a process that often occurs automatically upon encountering information about others' status, abilities, or opinions (König et al., 2025). Rooted in the fundamentally social nature of human beings, this drive to compare oneself to others stems from a persistent need to ascertain one's own standing on a given attribute (Vartanian et al., 2025). Indeed, one primary motivation underpinning social comparisons is the scale-down of uncertainty, providing individuals with a framework for understanding their own capabilities and position within a social hierarchy (Jantsch et al., 2024). Furthermore, social comparison can serve a functional purpose, offering valuable insights that may be helpful to assess and even raise one's status or to proactively avoid potentially undesirable outcomes (Aarons et al., 2021).

It is also theorized that social comparison can generate "upward pressure," a motivational impetus that arises when persons actively strive to outstrip others, fueled by aspirations for self-evaluation and self-enhancement (Bonfanti et al., 2025; Framorando and Perozzo, 2025). However, the existing literature frequently highlights the potential detrimental effects of social comparison on psychological well-being. A systematic review and meta-analysis of 14 studies focusing on clinical and subclinical populations (McCarthy and Morina, 2020) suggests that social comparison has a significant association with both depression and anxiety. Notably, upward comparisons—the act of comparing oneself to individuals perceived as superior—were identified as exerting the most detrimental effects on psychological well-being. Recent investigations concentrating on adolescent populations further corroborate the untoward role of social comparison in determining subjective well-being (Liu et al., 2024; Ruan et al., 2023).

The literature shows that the relationship between social comparison and well-being is not invariably unidirectional. For instance, a study encompassing 1,348 adolescents (Li et al., 2021) illuminated a reciprocal link between social comparison and depression. Nonetheless, the prevailing evidence suggests that social comparison often carries hazardous implications for psychological well-being.

## 2.3 Interpersonal communication competence and psychological well-being

Interpersonal communication competence emerges as another crucial facet in the mixture of factors influencing psychological well-being. Interpersonal communication competence represents a human's capacity "to manage interpersonal relationships in communication settings" (van Tonder et al., 2023). A more refined and nuanced definition frames this competence as the extent to which a communicator or the process of communication is seen as both suitable for the context and successful in achieving desired goals (Koponen et al., 2025). The reach of interpersonal communication competence extends across a wide spectrum of social spheres, encompassing everything from the cultivation and enjoyment of high-quality relationships to the enrichment of educational experiences (Petrocchi et al., 2020).

Empirical investigations underscore the positive association between interpersonal communication competence and various indicators of well-being. In a cross-sectional study among 135

occupational therapy students (Brown et al., 2021), participants' interpersonal communication was found to be a significant predecessor of their resilience, which is a well-being-related variable (Sayed et al., 2024). Further solidifying this connection, an exploration on 307 university students (Hodis et al., 2023) revealed that those who reported high levels of communication self-efficacy also had the highest levels of needs satisfaction. Similarly, a recent non-experimental study involving 428 university students (Çıkrıkçı, 2024) showed significant positive correlations between interpersonal communication competence and need satisfaction. Furthermore, there were significant negative correlations between interpersonal communication competence and anxiety, stress, and depression, which the author considered measures of mental health. Adding to the evidence base, another investigation (Chen et al., 2023a), although focused on a younger sample of third- and fourth-grade students, concluded a reciprocal relationship between interpersonal communication capacity and depressive symptoms. Collectively, these studies suggest that individuals with stronger communication skills tend to experience better psychological well-being.

While the present study examines the direct predictive capacity of these three constructs, its conceptual framework is informed by several established theoretical models. For instance, Sociometer Theory (Leary, 2012) posits that self-esteem functions as an internal gage of one's social belongingness and relational value, suggesting that positive self-regard is intrinsically linked to the quality of interpersonal bonds (Xing and Ge, 2025). The variable of social comparison is rooted in the Social Comparison Theory (reviewed in Caliskan et al., 2024), which describes a fundamental human drive to evaluate one's own opinions and abilities by comparing them to others, a process that can either enhance or diminish self-concept. Finally, interpersonal communication competence is often understood through models like that coined by Spitzberg and Cupach in 1984 (explained in Çıkrıkçı, 2024), which define competence as the ability to interact both effectively and appropriately, thereby achieving goals while meeting the situational standards. Our research builds upon these foundational ideas by proposing and testing an integrated model to determine the concurrent statistical contribution of these distinct, yet interconnected, variables to students' overall psychological well-being.

# 3 Methodology

## 3.1 Design

This study utilized a quantitative cross-sectional approach, involving an anonymous, self-filled, voluntary online survey. Such a research design explores potential significant interactions among pre-defined measurable variables. The target population were undergraduate students across all years of study at a single tertiary institution.

## 3.2 Sample

The minimum required sample size ($n = 118$) was calculated based on an effect size (Cohen's $f2 = 0.15$), power (0.95), significance level (0.05), and number of predictors (3). After the study was approved by the institutional ethics board, the researchers contacted

the administration of the non-government university in the authors' country of affiliation, requesting that they disseminate the survey link to their registered undergraduate students majoring in various fields through the deans' offices. Being enrolled in an undergraduate program was the sole inclusion criterion in this study. Graduate students were not invited to participate in order to avoid additional data nesting. It was the disseminators' duty to explain to potential respondents the aim of the study, as well as the anonymity and safety of collected data. Ultimately, 354 complete survey forms were submitted from early February to mid-May 2025. Of these, six were excluded due to single response patterns, totaling 348 eligible survey returns from participants aged an average of 18.8 years. Their baseline characteristics are listed in Table 1.

## 3.3 Instrumentation

Three of the four scales required translation into Russian, the primary language of the participants. A certified translator performed the forward translation, which was then back-translated by a native English-speaking faculty member to ensure accuracy. The fourth scale, for which a published Russian version already existed, was incorporated into the item set. An expert panel in educational psychology confirmed the content validity of the tool. The survey was piloted with 15 undergraduates outside the final sample to check for clarity and comprehension of instructions and items. No issues were identified, and the pilot version was subsequently approved for use.

The survey was implemented via Checkbox cloud hosting (checkbox.com) and took approximately 15 min to fill out. Completion of the survey implied participant consent. The web form comprised: (a) an introduction outlining the research purpose, (b) a demographics section, and (c) the four scales listed below.

The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant et al., 2007) is a 14-item measure of psychological well-being, including positive affect, psychological functioning, and positive

TABLE 1  Participants' demographics.

| Characteristics | n | % |
|---|---|---|
| Age | | |
| 17–19 | 250 | 71.8 |
| 20–22 | 84 | 24.2 |
| 23–24 | 14 | 4.0 |
| Gender | | |
| Female | 192 | 55.2 |
| Male | 156 | 44.8 |
| Year of study | | |
| 1st | 91 | 26.1 |
| 2nd | 129 | 37.1 |
| 3rd | 97 | 27.9 |
| 4th | 31 | 8.9 |
| Major | | |
| Technical | 217 | 62.4 |
| Non-technical | 131 | 37.6 |

interpersonal relationships (Peitz et al., 2024). Respondents need to express the extent to which items (such as "I've been interested in new things") apply to the last 2 weeks. Five response options are available, from 1 (none of the time) to 5 (all of the time). A higher score means a greater level of psychological well-being. The WEMWBS demonstrated strong psychometric properties, including internal consistency and content validity, across various countries and populations (Mack et al., 2024; Petrogiannis et al., 2024; Wang et al., 2025). The Cronbach's $\alpha$ was 0.75 in the present study.

To assess self-esteem, the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was employed. This scale gages an individual's overall sense of self-worth by examining both positive and negative feelings about oneself. Participants rate items like "I certainly feel useless at times" on a four-point Likert scale from strongly disagree (1) to strongly agree (4), with higher scores reflecting greater self-esteem. The RSES is a widely recognized instrument, demonstrating solid psychometric properties in research involving university students (van Tonder et al., 2023). In this study, Cronbach's $\alpha$ for the RSES was 0.81.

Social comparison was measured with the 11-item Iowa-Netherlands Comparison Orientation Measure (INCOM; Schneider and Schupp, 2013), where participants express their agreement (1 = strongly disagree, 5 = strongly agree) with statements reflecting the tendency to compare oneself to others. A sample item is, "If I want to learn more about something, I try to find out what others think about it." A higher score on the INCOM suggests a stronger predisposition to gather information about others and compare it to one's own situation. The Russian version (Garanjan, 2016; reported Cronbach's $\alpha$ = 0.75–0.86) was used, and achieved a Cronbach's $\alpha$ of 0.73.

The Interpersonal Communication Competence Scale (ICCS; Rubin and Martin, 1994) was harnessed to gage the corresponding criterion. This 30-item questionnaire employs a 6-point Likert format (0 = almost never, 5 = almost always), where a higher score corresponds to a greater perceived capacity to communicate with others. An exemplary statement is, "I have trouble standing up for myself." In this study, the ICCS demonstrated good internal consistency, with Cronbach's alpha = 0.89.

Separate confirmatory factor analyses for the three translated scales yielded adequate fit statistics: the ratio of chi-squared to the degree of freedom ($\chi^2$/df, <5.0, $p$ > 0.05); comparative fit index (CFI, >0.9); Tucker-Lewis index (TLI, >0.9); root mean square error of approximation (RMSEA, <0.1); standardized root mean square residual (SRMR, <0.1).

## 3.4 Data analysis

Means, standard deviations (SDs), and a matrix of Pearson correlation coefficients were computed for the measured characteristics. After confirming the appropriateness of the data, hypotheses were tested using multiple linear regression. The analytic strategy was implemented using relevant libraries in R software. The threshold for statistical significance was set at $p$ < 0.05.

## 4 Results

The assumption assessments for the regression model indicated satisfactory compliance with the necessary statistical prerequisites. As

shown in Table 2, for all predictors, inflation factor (VIF) values were below 2 and tolerance statistics (1/VIF) values were above 0.7, implying the lack of multicollinearity in the data. The Durbin-Watson test yielded a *p*-value of 0.598, suggesting no autocorrelation in the residuals. The Breusch-Pagan test returned a p-value of 0.133, confirming the homoscedasticity assumption. Lastly, the Lilliefors test with a p-value of 0.707 indicated that the residuals were normally distributed. These results suggest that the regression analysis could be conducted without concerns regarding major assumption violations.

Descriptive statistics for the study variables are presented in Table 2. The mean scores ranged from 2.11 (social comparison) to 3.25 (psychological well-being), with SDs indicating moderate variability across the variables. Skewness and kurtosis values were within acceptable ranges, suggesting that the data were approximately normally distributed.

Bivariate correlation analysis (Table 3) revealed significant relationships among explanatory variables and the criterion. However, no extreme intercorrelations were found. This justifies their simultaneous inclusion in a single regression model.

The multiple regression analysis produced a statistically significant model, $F(3, 347) = 134.39$, $p = 0.001$, with an R-squared value of 0.540. This indicates that approximately 54% of the variance in psychological well-being is explained by the input variables. Table 4 summarizes the regression coefficients.

In terms of individual contributions, self-esteem ($\beta = 0.417$, $p = 0.001$) and communication competence ($\beta = 0.466$, $p = 0.001$) were significant positive predictors of the outcome, with communication competence having the strongest effect. In turn, higher levels of social comparison were associated with lower psychological well-being ($\beta = -0.174$, $p = 0.001$). The confidence intervals for the unstandardized regression coefficients further confirmed the robustness of these findings, as none of the intervals included zero.

# 5 Discussion

This investigation aimed to determine how self-esteem, social comparison, and interpersonal communication competence collectively influence and predict university students' psychological well-being. More specifically, the research tested a model in which heightened self-esteem and communication aptitude would contribute positively to mental wellness, whereas social comparison inclination would exert a detrimental effect. The study addressed a knowledge gap by examining these three predictors in unison rather than exploring them in isolation. Drawing on quantitative evidence from a local sample of undergraduates, the analysis confirmed this conceptual scheme. Consequently, the study not only reinforced existing theorizations

of self-esteem and communication benefits but also underscored the hazards of an entrenched propensity to compare oneself with others.

The significant positive coefficient for self-esteem ($\beta = 0.417$) provides robust empirical support for its role as a "psychological buffer," as suggested earlier (Albarracin et al., 2024; Zhang and Halgunseth, 2025), allegedly enabling students to better navigate adversity. Similarly, the negative association found between social comparison and well-being ($\beta = -0.174$) accords the meta-analytic evidence (McCarthy and Morina, 2020), which asserted the detrimental effects of social comparison on mental health. The good predictive power of interpersonal communication competence ($\beta = 0.466$) reinforces the literature (Pietromonaco and Collins, 2017), moving beyond mere relationship maintenance to position communication as a foundational skill that actively promotes psychological welfare, likely through the mobilization of social support and emotional co-regulation.

Several plausible mechanisms could explain why students' psychological well-being is affected by variations in self-esteem, social comparison, and communication competence. First, self-esteem may function as a protective factor: those with a stronger sense of self-worth are more likely to process academic and interpersonal stressors in constructive ways, thereby safeguarding their mental health (Chen et al., 2023b; Li et al., 2023; Mouatsou and Koutra, 2023; Tang et al., 2024). In contrast, individuals who habitually engage in social comparison might experience mounting pressure to outperform others, escalating levels of stress and, according to one cross-sectional examination, leading to heightened feelings of exclusion (Huynh et al., 2024). Many students, however, tend to shy away from seeking professional assistance when psychological concerns arise, often due to deleterious stereotypes about psychiatric treatment or counseling (Kang and Hong, 2025). This reluctance to pursue help can compound the negative consequences of social comparison, since unaddressed stress and self-doubt can accumulate over time. Lastly, communication competence can foster a sense of emotional security and supportive social networks, as adept communicators can more readily convey their personal challenges and receive feedback or aid, which is supposed to positively influence their psychological well-being (Geçer and Yildirim, 2023).

The findings from this investigation illuminate the combined significance of self-esteem, social comparison tendencies, and communication competence in shaping students' psychic health. When self-esteem is elevated, learners tend to maintain a more stable psychological state, illustrating that a positive self-concept often correlates with resilience. Conversely, the discovery that frequent social comparisons predispose students to diminished mental well-being corroborates theories linking comparative thought patterns to increased anxiety and depressive symptoms. The positive coefficient for communication competence further clarifies how proficient communication can help individuals secure social support and convey their feelings effectively, thus acting as a mental health asset.

TABLE 2  Descriptive statistics of research variables.

| Variable | Mean | SD | Skew | Kurtosis | VIF | Tolerance |
|---|---|---|---|---|---|---|
| Psychological well-being | 3.25 | 0.77 | 0.01 | −0.82 | – | – |
| Self-esteem | 2.71 | 0.81 | −0.33 | −1.03 | 1.12 | 0.89 |
| Social comparison | 2.11 | 0.79 | 0.55 | −0.76 | 1.27 | 0.79 |
| Communication competence | 2.93 | 0.98 | −0.02 | −1.03 | 1.14 | 0.88 |

TABLE 3  Intercorrelations between research variables.

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Psychological well-being | – | 0.491* | −0.467* | 0.543* |
| 2. Self-esteem | 0.491* | – | −0.318 | 0.041 |
| 3. Social comparison | −0.467* | −0.318 | – | −0.346 |
| 4. Communication competence | 0.543* | 0.041 | −0.346 | – |

*correlation is significant at $p < 0.05$.

TABLE 4  Multiple regression on psychological well-being.

| Predictor | B | 95% CI (lower) | 95% CI (upper) | Standard error | β | t | p |
|---|---|---|---|---|---|---|---|
| (Intercept) | 1.467 | 1.083 | 1.850 | 0.195 | – | 7.527 | 0.001 |
| Self-esteem | 0.394 | 0.322 | 0.466 | 0.037 | 0.417 | 10.777 | 0.001 |
| Social comparison | −0.170 | −0.249 | −0.091 | 0.040 | −0.174 | −4.221 | 0.001 |
| Communication competence | 0.365 | 0.305 | 0.426 | 0.031 | 0.466 | 11.922 | 0.001 |

Remarkably, the regression model explained over half of the variance in psychological well-being, suggesting that these three factors—while not exclusively responsible—are crucial pieces of the mental wellness puzzle among undergraduates. The study's support for these claims adds depth to the extant literature, confirming that personal, relational, and comparative constructs are inextricably linked to student wellness.

## 5.1 Contributions to research and practice

A salient contribution of this research lies in its status as the first (to our knowledge) study to examine directly how communication competence as a comprehensive construct influences overall mental well-being, contrasted with previous inquiries that focused narrowly on specific symptoms such as depression. This broader perspective strengthens our grasp of how robust interpersonal communication can buttress a student's outlook on life and build resilience. Specifically, it positions communication competence not merely as a tool for relationship maintenance but as a foundational skill that actively contributes to psychological health by facilitating social support and emotional regulation. In addition, by highlighting the detrimental role of social comparison, the results spotlight how modern-day students—amidst pervasive digital and in-person interactions—are at risk of compromising their psychological state when personal benchmarks are heavily peer-based. These findings advance the broader dialog on psychosocial interventions, corroborating the idea that educational institutions and practitioners should include communication competence in the suite of factors to address (Reith-Hall and Montgomery, 2023). Such an approach can enrich existing self-esteem-oriented strategies to more fully encompass the interplay of relational skills, personal beliefs, and social comparisons.

## 5.2 Recommendations

Drawing from the results, several practical recommendations arise for undergraduates, faculty, and administrators. The robustness

of the regression model, which met all statistical assumptions and explained a considerable portion of variance, lends support for targeting these specific factors in interventions. First, recent contributions to the literature support engaging students in psychoeducational interventions and programs integrating physical activities (Huang et al., 2025), gaming (Kiltz et al., 2024), positive psychology practices (Laakso et al., 2025), and mindfulness training (Alrashdi et al., 2024). In designing or refining such programs, promoters should integrate explicit training to strengthen communication capabilities, thereby maximizing their potential to shore up students' social networks and coping skills. Second, efforts to bolster self-esteem through reflective exercises, constructive feedback, and skill-building endeavors can help offset adverse social comparison processes. Emphasizing these two modifiable constructs—self-esteem and interpersonal communication competence—may be instrumental in reducing the negative impact of students' tendency to measure themselves against others. For a more systemic approach, mental health resources could highlight these aspects in orientation sessions and structured workshops, thus encouraging a comprehensive approach to student well-being. Lastly, structured collaboration among professionals, educators, and academic leaders can ensure that such interventions weave seamlessly into the academic environment, providing ongoing support rather than one-off programs.

## 5.3 Limitations and further research

Despite yielding promising results, the study has a key limitation that calls for caution in interpretation. While the cross-sectional design was appropriate for establishing initial relationships among the variables, it precludes causal inferences. As is true for the majority of research adopting the correlational and cross-sectional design, this paper relies on participants' subjective reports, which might introduce potential biases such as social desirability and recall inaccuracies. Increasingly, researchers are identifying avenues to supplement self-reported information through physiological measures. For instance, Schliebener et al. (2023) developed an electromyography (EMG) measure of implicit

self-esteem that captures spontaneous, subtle positive affects when individuals view their own images. Such physiology-based instruments could mitigate bias and provide additional layers of validity in assessing aspects like self-esteem. Likewise, Du et al. (2024) employed event-related potential (ERP) techniques to scrutinize the temporal trajectory of social comparison in individuals with subthreshold depression, opening further prospects for objective evaluation of how the brain processes comparative stimuli.

Given these innovations, future inquiry in this domain might benefit from combining respondents' perceptions with physiological protocols. Incorporating novel measures such as EMG or ERP may afford a more dynamic view of individuals' affective reactions and neural processes, bridging self-reports with biological indices.

One more prospective line of inquiry as flows from the results documented here is that further research be conducted on the relationship between communication abilities and mental well-being. The scant empirical evidence accumulated thus far favors predominantly moderate relationships between social communication skills and some mental health outcomes (Dall et al., 2022). However, additional scrutiny of the mechanisms by which communication competence mitigates mental distress is warranted.

# 6 Conclusion

To summarize, the exploration described herein revealed compelling evidence that self-esteem, social comparison, and interpersonal communication competence collectively shape undergraduates' psychological well-being. Notably, this research breaks new ground by examining directly the influence of communication competence on overall mental welfare, as opposed to circumscribed outcomes such as anxiety or sadness. In doing so, the findings suggest that personal resilience and socio-communicative abilities need to be cultivated concurrently to counteract the stress imposed by pervasive social comparison. This integrated perspective provides a coherent understanding of how individual attributes, relational aptitudes, and environmental pressures converge to influence student mental health.

# 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 humans were approved by Ethics Review Board of Zhetysu University. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

# Author contributions

AI: Conceptualization, Supervision, Writing – original draft. KN: Investigation, Writing – review & editing. RZ: Data curation, Writing – original draft. SK: Formal analysis, Writing – review & editing.

# 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.

# Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

# Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

# References

Aarons, G. A., Conover, K. L., Ehrhart, M. G., Torres, E. M., and Reeder, K. (2021). Leader–member exchange and organizational climate effects on clinician turnover intentions. *J. Health Organ. Manag.* 35, 68–87. doi: 10.1108/jhom-10-2019-0311

Albarracin, M., Bouchard-Joly, G., Sheikhbahaee, Z., Miller, M., Pitliya, R. J., and Poirier, P. (2024). Feeling our place in the world: an active inference account of self-esteem. *Neurosci. Conscious* 2024:niae007. doi: 10.1093/nc/niae007

Alrashdi, D. H., Chen, K. K., Meyer, C., and Gould, R. L. (2024). A systematic review and meta-analysis of online mindfulness-based interventions for university students: an examination of psychological distress and well-being, and attrition rates. *J. Technol. Behav. Sci.* 9, 211–223. doi: 10.1007/s41347-023-00321-6

Ansari, S., Khan, I., and Iqbal, N. (2024). Association of stress and emotional well-being in non-medical college students: a systematic review and meta-analysis. *J. Affect. Disord.* 368, 200–223. doi: 10.1016/j.jad.2024.09.029

Bonfanti, R. C., Melchiori, F., Teti, A., Albano, G., Raffard, S., Rodgers, R., et al. (2025). The association between social comparison in social media, body image concerns and eating disorder symptoms: a systematic review and meta-analysis. *Body Image* 52:101841. doi: 10.1016/j.bodyim.2024.101841

Brown, T., Yu, M., and Etherington, J. (2021). Listening and interpersonal communication skills as predictors of resilience in occupational therapy students: a cross-sectional study. *Br. J. Occup. Ther.* 84, 42–53. doi: 10.1177/0308022620908503

Caliskan, F., Idug, Y., Uvet, H., Gligor, N., and Kayaalp, A. (2024). Social comparison theory: a review and future directions. *Psychol. Mark.* 41, 2823–2840. doi: 10.1002/mar.22087

Charmaraman, L., Hojman, H., Auqui, J. Q., and Bilyalova, Z. (2025). Understanding adolescent self-esteem and self-image through social media behaviors. *Pediatr. Clin. N. Am.* 72, 189–201. doi: 10.1016/j.pcl.2024.07.034

Chen, C., Chen, Y., and Song, Y. (2023a). Reciprocal relationship between interpersonal communication and depressive symptoms and the mediating role of resilience across two years: three-wave cross-lagged panel model. *J. Affect. Disord.* 334, 358–369. doi: 10.1016/j.jad.2023.04.121

Chen, C., Shen, Y., Zhu, Y., Xiao, F., Zhang, J., and Ni, J. (2023b). The effect of academic adaptability on learning burnout among college students: the mediating effect of self-esteem and the moderating effect of self-efficacy. *Psychol. Res. Behav. Manag.* 16, 1615–1629. doi: 10.2147/PRBM.S408591

Chen, L., Xu, Y., and He, Y. (2024). Social media use in the workplace: the role of social comparison in negative behaviors. *Acta Psychol.* 243:104144. doi: 10.1016/j.actpsy.2024.104144

Çiçek, İ. (2021). Psychological well-being and separation-individuation in university students. *Kastamonu Ed. J.* 29, 124–133. doi: 10.24106/kefdergi.780535

Çiçek, İ. (2022). Mediating role of self-esteem in the association between loneliness and psychological and subjective well-being in university students. *Int. J. Contemp. Educ. Res.* 8, 83–97. doi: 10.33200/ijcer.817660

Çıkrıkçı, N. (2024). Explaining association between interpersonal communication competence and depression through need satisfaction, anxiety, and stress. *Curr. Psychol.* 43, 25468–25480. doi: 10.1007/s12144-024-06250-8

Cui, Z., Lin, Z., Ren, J., Cao, Y., and Tian, X. (2024). Exploring self-esteem and personality traits as predictors of mental wellbeing among Chinese university students: the mediating and moderating role of resilience. *Front. Psychol.* 15:1308863. doi: 10.3389/fpsyg.2024.1308863

Dall, M., Fellinger, J., and Holzinger, D. (2022). The link between social communication and mental health from childhood to young adulthood: a systematic review. *Front. Psychol.* 13:944815. doi: 10.3389/fpsyt.2022.944815

Di Fabio, A., and Bucci, O. (2015). Affective profiles in Italian high school students: life satisfaction, psychological well-being, self-esteem, and optimism. *Front. Psychol.* 6:1310. doi: 10.3389/fpsyg.2015.01310

Diel, K., Hofmann, W., Grelle, S., Boecker, L., and Friese, M. (2025). Prepare to compare: effects of an intervention involving upward and downward social comparisons on goal pursuit in daily life. *Personal. Soc. Psychol. Bull.* 51, 1523–1537. doi: 10.1177/01461672231219378

Du, X., Yao, L., Sun, L., Chen, X., and Jiang, J. (2024). Neural mechanisms of social comparison in subthreshold depression. *Cereb. Cortex* 34:bhae222. doi: 10.1093/cercor/bhae222

Fang, Z., Wen, H., Zhou, Y., and Gao, X. (2024). Comparisons are odious? The neural basis of in-group and out-group social comparison among game players: an fMRI study. *Behav. Brain Res.* 458:114735. doi: 10.1016/j.bbr.2023.114735

Framorando, D., and Perozzo, D. (2025). When social comparison works as a demotivator: stronger peers mitigate effort levels. *Int. J. Psychophysiol.* 208:112493. doi: 10.1016/j.ijpsycho.2024.112493

Freire, T., and Ferreira, G. (2019). Do i need to be positive to be happy? Considering the role of self-esteem, life satisfaction, and psychological distress in Portuguese adolescents' subjective happiness. *Psychol. Rep.* 123, 1064–1082. doi: 10.1177/0033294119846064

Fu, L. (2025). The role of STEM teachers' emotional intelligence and psychological well-being in predicting their artificial intelligence literacy. *Acta Psychol.* 253:104708. doi: 10.1016/j.actpsy.2025.104708

Garanjan, N. G. (2016). Adaptacija shkaly orientacii na social'nye sravnenija (INCOM) na rossijskoj molodezhnoj vyborke [adaptation of the social comparison orientation scale (INCOM) for a Russian youth sample]. Neolit. Available online at: https://psyjournals.ru/nonserialpublications/soccomparisions2016/contents (Accessed October 19, 2025).

Geçer, E., and Yildirim, M. (2023). Family communication and psychological distress in the era of COVID-19 pandemic: mediating role of coping. *J. Fam. Issues* 44, 203–219. doi: 10.1177/0192513X211044489

Hodis, G. M., Hodis, F. A., and Bardhan, N. R. (2023). University students' communication in learning settings and basic psychological needs: a latent profile analysis of their interrelationships. *Commun. Res. Pract.* 9, 309–324. doi: 10.1080/22041451.2023.2225900

Huang, K., Beckman, E. M., Ng, N., Dingle, G. A., and Gomersall, S. R. (2025). Protocol for Fit4Study: a non-randomised controlled trial of a physical activity intervention for university students' mental health and wellbeing. *Ment. Health Prev.* 37:200390. doi: 10.1016/j.mhp.2024.200390

Huynh, H. P., Thomas, J., Castellanos, I., Weatherford, D. R., and Lilley, M. K. (2024). Social comparison, belongingness, self-doubt, and stress: the case of Hispanic students at Hispanic majority institutions. *Hisp. J. Behav. Sci.* 46, 99–121. doi: 10.1177/07399863241292243

Jantsch, A., Buchenrieder, G., Dufhues, T., and Möllers, J. (2024). Social comparisons under pandemic stress: income reference groups, comparison patterns, and the

subjective well-being of German students. *J. Happiness Stud.* 25:83. doi: 10.1007/s10902-024-00790-3

Joshanloo, M. (2022). Self-esteem predicts positive affect directly and self-efficacy indirectly: a 10-year longitudinal study. *Cognit. Emot.* 36, 1211–1217. doi: 10.1080/02699931.2022.2095984

Kang, B., and Hong, M. (2025). Development and evaluation of a mental health chatbot using ChatGPT 4.0: mixed methods user experience study with Korean users. *JMIR Med. Inform.* 13:e63538. doi: 10.2196/63538

Kassis, W., Janousch, C., Sidler, P., Aksoy, D., Favre, C., and Ertanir, B. (2022). Patterns of students' well-being in early adolescence: a latent class and two-wave latent transition analysis. *PLoS One* 17:e0276794. doi: 10.1371/journal.pone.0276794

Kiltz, L., Fokkens-Bruinsma, M., and Jansen, E. P. W. A. (2024). Promoting university students' well-being and resilience by means of a game-approach basic psychological need intervention: case study. *Int. J. Appl. Posit. Psychol.* 9, 1721–1744. doi: 10.1007/s41042-024-00189-8

Kocatürk, M., and Çiçek, İ. (2023). Relationship between positive childhood experiences and psychological resilience in university students: the mediating role of self-esteem. *J. Psychol. Couns.* 33, 78–89. doi: 10.1017/jgc.2021.16

Kohnke, L., and Moorhouse, B. L. (2025). Enhancing the emotional aspects of language education through generative artificial intelligence (GenAI): a qualitative investigation. *Comput. Hum. Behav.* 167:108600. doi: 10.1016/j.chb.2025.108600

König, L. M., Kanning, M., Hauptmann, H., Feuchtner, T., and Arigo, D. (2025). Who is willing to play skill-adapted exergames? Influences of sociodemographic factors and social comparison processes. *Comput. Hum. Behav.* 167:108562. doi: 10.1016/j.chb.2025.108562

Koponen, J., Julkunen, S., Laajalahti, A., Turunen, M., and Spitzberg, B. (2025). Sales managers' perceptions of interpersonal communication competence in leading AI-integrated sales teams. *Ind. Mark. Manag.* 124, 57–72. doi: 10.1016/j.indmarman.2024.11.012

Laakso, M., Fagerlund, A., and Lagerström, M. (2025). Increasing student well-being through a positive psychology intervention: changes in salivary cortisol, depression, psychological well-being, and hope. *Appl. Psychol. Health Well Being* 17:e12616. doi: 10.1111/aphw.12616

Leary, M. R. (2012). "Sociometer theory" in handbook of theories of social psychology. eds. LangeP. A. M. Van, A. W. Kruglanski and E. T Higgins. London: Sage Publications Ltd, 151–159.

Lee, J. K. (2022). The effects of social comparison orientation on psychological well-being in social networking sites: serial mediation of perceived social support and self-esteem. *Curr. Psychol.* 41, 6247–6259. doi: 10.1007/s12144-020-01114-3

Li, W., Guo, Y., Lai, W., Wang, W., Li, X., Zhu, L., et al. (2023). Reciprocal relationships between self-esteem, coping styles and anxiety symptoms among adolescents: between-person and within-person effects. *Child Adolesc. Psychiatry Ment. Health* 17:21. doi: 10.1186/s13034-023-00564-4

Li, J., Zhang, N., Yao, M., Xing, H., and Liu, H. (2021). Academic social comparison and depression in Chinese adolescents: the mediating role of basic psychological needs satisfaction. *Sch. Ment. Heal.* 13, 719–729. doi: 10.1007/s12310-021-09436-8

Liu, H., Liu, Y., and Yao, M. (2024). The role of social comparison in academic development and subjective well-being among Chinese adolescents: from variable- and person-centered perspectives. *Sch. Ment. Heal.* 16, 983–993. doi: 10.1007/s12310-024-09675-5

Mack, D. E., Vo, K. T., and Wilson, P. M. (2024). The long and short-form Warwick-Edinburgh mental well-being scale: a reliability generalization meta-analysis. *J. Happiness Stud.* 25:12. doi: 10.1007/s10902-024-00715-0

McCarthy, P. A., and Morina, N. (2020). Exploring the association of social comparison with depression and anxiety: a systematic review and meta-analysis. *Clin. Psychol. Psychother.* 27, 640–671. doi: 10.1002/cpp.2452

Morowatisharifabad, M. A., Iranpour, A., and Rajabalipour, M. (2024). Psychometric properties of the Persian version of the Warwick-Edinburgh mental wellbeing scale (PR-WEMWBS). *Health Scope* 13:e145770. doi: 10.5812/healthscope-145770

Mouatsou, C., and Koutra, K. (2023). Emotion regulation in relation with resilience in emerging adults: the mediating role of self-esteem. *Curr. Psychol.* 42, 734–747. doi: 10.1007/s12144-021-01427-x

Muñoz, P., Barton, M., Braun, S., Chowdhury, F., Jayne-Little, N., Rowland, J., et al. (2023). The deterioration of self-worth in entrepreneurship. *J. Bus. Ventur. Insights* 20:e00430. doi: 10.1016/j.jbvi.2023.e00430

Nartova-Bochaver, S., Donat, M., and Rüprich, C. (2019). Subjective well-being from a just-world perspective: a multi-dimensional approach in a student sample. *Front. Psychol.* 10:1739. doi: 10.3389/fpsyg.2019.01739

Ozer, S. (2024). Social support, self-efficacy, self-esteem, and well-being during COVID-19 lockdown: a two-wave study of Danish students. *Scand. J. Psychol.* 65, 42–52. doi: 10.1111/sjop.12952

Pandey, R., Tiwari, G. K., Parihar, P., and Rai, P. K. (2019). Positive, not negative, self-compassion mediates the relationship between self-esteem and well-being. *Psychol. Psychother.* 94, 1–15. doi: 10.1111/papt.12259

Peitz, D., Thom, J., Walther, L., Hoelling, H., and Cohrdes, C. (2024). Validation of the Warwick-Edinburgh mental well-being scale for the mental health surveillance (MHS) of German adults. *Health Qual. Life Outcomes* 22:92. doi: 10.1186/s12955-024-02304-4

Petrocchi, S., Filipponi, C., Antonietti, C., Levante, A., and Lecciso, F. (2020). Theory of mind as a mediator between emotional trust beliefs and interpersonal communication competence in a group of young adults. *Psychol. Rep.* 124, 555–576. doi: 10.1177/0033294120913489

Petrogiannis, K., Sangeorzan, I., and Andriopoulou, P. (2024). Validation of the Greek Warwick-Edinburgh mental well-being scale (WEMWBS) in a mature student community-based sample. *Advers. Resil. Sci.* 5, 351–368. doi: 10.1007/s42844-024-00134-3

Pietromonaco, P. R., and Collins, N. L. (2017). Interpersonal mechanisms linking close relationships to health. *Am. Psychol.* 72, 531–542. doi: 10.1037/amp0000129

Reith-Hall, E., and Montgomery, P. (2023). Communication skills training for improving the communicative abilities of student social workers. *Campbell Syst. Rev.* 19:e1309. doi: 10.1002/cl2.1309

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton: Princeton University Press.

Ruan, Q.-N., Shen, G.-H., Yang, J.-S., and Yan, W.-J. (2023). The interplay of self-acceptance, social comparison and attributional style in adolescent mental health: cross-sectional study. *BJPsych Open* 9:e202. doi: 10.1192/bjo.2023.594

Rubin, R. B., and Martin, M. M. (1994). Development of a measure of interpersonal communication competence. *Commun. Res. Rep.* 11, 33–44.

Sayed, T., Malan, H., and Fourie, E. (2024). Exploring the associations between resilience and psychological well-being among south Africans during COVID-19. *Front. Psychol.* 15:1323466. doi: 10.3389/fpsyg.2024.1323466

Schliebener, M., Kraft, L., and Dufner, M. (2023). An EMG-based approach toward the assessment of implicit self-esteem. *Acta Psychol.* 234:103868. doi: 10.1016/j.actpsy.2023.103868

Schmitz, D., Ortloff, J., and Rinas-Bahl, J. (2024). Decoding the disciplines: creating mutual understanding in multiprofessional education. *Humanit. Soc. Sci. Commun.* 11:1014. doi: 10.1057/s41599-024-03454-y

Schneider, S. M., and Schupp, J. (2013). Individual differences in social comparison and its consequences for life satisfaction: introducing a short scale of the Iowa–Netherlands comparison orientation measure. *Soc. Indic. Res.* 115, 767–789. doi: 10.1007/s11205-012-0227-1

Tang, X., Hu, W., Zhao, X., Liu, Y., Ren, Y., Tang, Z., et al. (2024). The role of personal, relational, and collective self-esteem in predicting acute salivary cortisol response and perceived stress. *Appl. Psychol. Health Well Being* 16, 1386–1402. doi: 10.1111/aphw.12534

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., et al. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health Qual. Life Outcomes* 5:63. doi: 10.1186/1477-7525-5-63

van Tonder, J. I., Jordaan, J., and Esterhuyse, K. (2023). Self-esteem, interpersonal communication competence, and media and technology usage as predictors of loneliness among university students. *SAGE Open* 13. doi: 10.1177/21582440221148379

Vartanian, L. R., Pinkus, R. T., and Fardouly, J. (2025). Self-concept clarity and appearance comparisons in everyday life. *Body Image* 52:101820. doi: 10.1016/j.bodyim.2024.101820

Wang, Y., Yan, X., Liu, L., Lu, X., Luo, L., and Ding, X. (2024). The influence of vulnerable narcissism on social anxiety among adolescents: the mediating role of self-concept clarity and self-esteem. *Int. J. Ment. Health Promot.* 26, 429–438. doi: 10.32604/ijmhp.2024.050445

Wang, Y., Zhao, J., Ones, D. S., He, L., and Xu, X. (2025). Evaluating the ability of large language models to emulate personality. *Sci. Rep.* 15:519. doi: 10.1038/s41598-024-84109-5

Wu, Y., Hwang, Y., and Wei, B. (2025). The impact of art and design competencies on positive psychological qualities among college students in Hainan Province: the chain mediating roles of teacher support and learning adaptability. *Acta Psychol.* 253:104709. doi: 10.1016/j.actpsy.2025.104709

Xing, Z., and Ge, C. (2025). The relationship between physical exercise and social adjustment in Chinese university students: the sequential mediating effect of peer attachment and self-esteem. *Front. Psychol.* 16:1525811. doi: 10.3389/fpsyg.2025.1525811

Xu, Z., Zhong, Y., Han, L., Shang, Z., and Xu, F. (2024). Catalyzing college students' well-being and creativity with campus outdoor spaces: a field study in China. *Think. Skills Creat.* 56:101744. doi: 10.1016/j.tsc.2024.101744

Yildirim, M., Çağış, Z. G., Aziz, I. A., Rizzo, A., Turan, M. E., Nucera, G., et al. (2024). The mediating role of self-esteem in the relationship between social support and affective experiences among undergraduate students in Turkey. *Acta Psychol.* 250:104540. doi: 10.1016/j.actpsy.2024.104540

Zhang, Y., and Halgunseth, L. C. (2025). Physical activity as a buffer in the association between perceived ethnic-racial discrimination and Latinx adolescent mental health. *Ment. Health Sci.* 3:e98. doi: 10.1002/mhs2.98

Zilioli, S., Slatcher, R. B., Chi, P., Li, X., Zhao, J., and Zhao, G. (2016). Childhood adversity, self-esteem, and diurnal cortisol profiles across the life span. *Psychol. Sci.* 27, 1249–1265. doi: 10.1177/0956797616658287