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RESEARCH

Friendship Quality, Loneliness, and Subjective Well-Being among Roma Primary School Children in Türkiye

Mustafa Erol[1] · **Ahmet Erol**[2]

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Abstract
This study examines the relationships between friendship quality, loneliness, and subjective well-being among Roma primary school children in Türkiye, who face socio-cultural disadvantages and structural barriers in educational processes. Additionally, the study examines whether loneliness serves as a mediator in the relationship between friendship quality and subjective well-being. A total of 279 Roma children participated, and data were collected using the Friendship Quality Questionnaire (FQQ), the Children's Loneliness Scale (CLS), and the Subjective Well-Being Scale (ESSWBS). The data were analyzed using a general linear mediation (GLM) analysis. The study's findings revealed a positive correlation between subjective well-being and friendship, and a negative correlation between friendship and loneliness. Additionally, a negative relationship between subjective well-being and loneliness was found, and loneliness mediated the relationship between subjective well-being and the quality of friendships. These results highlight the role of friendship as a protective factor for children with novels.

Keywords Friendship quality · Loneliness · Subjective well-being · Roma children

1 Introduction

Children's overall well-being develops not only through cognitive growth but also through the quality of their social experiences at school (Aldi & Khairanis, 2025; Palikara et al., 2021). For children growing up in socioeconomically disadvantaged

✉ Mustafa Erol
merol@yildiz.edu.tr

Ahmet Erol
ahmete@pau.edu.tr

[1] Yıldız Technical University, Istanbul, Turkey

[2] Pamukkale University, Denizli, Turkey

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contexts, however, this developmental process may be considerably more complex. Poverty, migration, forced displacement, social exclusion, anti-Roma racism, family conflict, and heightened parental stress constitute multilayered ecological risks that constrain access to stable peer networks and reinforce perceived marginality within the school microsystem, thereby attenuating children's psychological and social adjustment to school (Alexiadou, 2023; Andrei et al., 2014; Sime et al., 2018; Van Laer et al., 2024; Vrăbiescu, 2017). Such adverse experiences can attenuate children's sense of belonging and hinder their capacity to engage positively in peer relationships (Filakovska Bobakova et al., 2022; Obrovská et al., 2023). Within the European context, Roma communities are widely recognized as among the most socioeconomically disadvantaged populations (European Union Agency for Fundamental Rights, 2022; Maestri et al., 2025), and these structural conditions shape children's school experiences in profound ways.

Empirical evidence indicates that Roma children frequently encounter prejudice, discrimination, and exclusionary practices within school environments, which may limit their participation in peer networks and increase social isolation (Gheorghiev et al., 2024; Kavasakalis et al., 2023; Kawabata & Crick, 2015; Kisfalusi et al., 2020). Experiences of peer rejection, bullying, and teacher neglect not only threaten the stability and quality of friendships but also heighten feelings of loneliness and attenuate students' sense of school belonging (Genç et al., 2015; Searle, 2017; Survutaitė, 2023). Over time, diminished social ties may adversely affect both subjective well-being and academic motivation, reinforcing patterns of disengagement (Goswami, 2012). Beyond school-level exclusion, family-level socio-economic stressors may further shape children's relational expectations.

At the same time, high-quality friendships represent a critical protective factor. Emotionally secure and supportive peer relationships enhance children's sense of belonging, reduce loneliness, facilitate social adjustment, and contribute positively to overall well-being (Güroğlu 2022; Graber et al. 2016; Erol and Köksal 2025; Geukens et al. 2023; Schwartz-Mette et al. 2020a, b). Nevertheless, the socio-economic challenges faced by many Roma families—such as limited educational resources, unstable employment, and elevated parental stress—may indirectly shape children's peer experiences by influencing parenting practices, school expectations, and psychosocial adjustment (Van Laer et al., 2024; Obrovská et al., 2023). These dynamics may be conceptualized within a risk–protective framework in which structural disadvantage constitutes distal ecological risk, whereas high-quality peer relationships function as proximal protective processes. Therefore, this study focuses on Friendship Quality, Loneliness, and Subjective Well-Being among Roma children in Türkiye.

2 Literature Review

2.1 Roma in Türkiye

At international levels, the term Roma is widely recognized as an inclusive identity category (Galletti, 2023; Villano et al., 2017), and the International Roma Union similarly recommends its use. Nevertheless, in rural regions of Türkiye, local labels

such as Köçer, Poşa/Boşa, Kıpti, Karaçi, Mutrib, Elekçi, Arabacı, and Abdal continue to be used (Yıldız, 2007). Historically, European contexts have employed additional designations, including Bohemian, Copt, Çigan, and Zigeuner (Asséo, 2004). These terminological variations reflect the complex socio-historical positioning of Roma communities across contexts.

In Türkiye, the social position of Roma communities has long been shaped by structural inequalities and socio-economic disadvantage. Persistent challenges include poverty, low educational attainment, inadequate housing, and limited access to healthcare services (Anthonj et al., 2020; Ullah et al., 2024). Within education, Roma children frequently encounter exclusion, discrimination, and low teacher expectations, which may lead to disengagement from schooling and contribute to the intergenerational reproduction of social exclusion (Searle, 2017; Survutaitė, 2023). Although schooling has the potential to promote socio-cultural participation, traditional livelihoods and community-based occupational pathways (e.g., musicianship) may influence educational aspirations. The widely cited statement of a Roma resident from Sulukule—"while the likelihood of my child becoming a doctor is low, the likelihood of becoming a musician is much higher"—illustrates how structural constraints and cultural expectations intersect in shaping educational trajectories (Alpman, 2003).

Research in Türkiye further indicates that these structural conditions are reflected in children's school experiences and peer relations. Quantitative findings show that 5–6-year-old Roma children demonstrate lower levels of social adjustment and social skills compared to their non-Roma peers, largely due to socio-ecological risk factors such as low parental education, unemployment, large family size, and single-parent households (Orçan et al., 2011). Qualitative evidence similarly documents experiences of micro-aggressions and low expectations directed toward Roma families, with mothers reportedly perceived as "unwanted" in school contexts, thereby increasing children's risk of exclusion and loneliness (Ateş & Ünal, 2022). Broader field research across different regions of Türkiye confirms that access to, continuation in, and success within education are constrained by stigma, poverty, unstable employment conditions, and teacher bias (Açıkalın & Sever, 2023; Rizzi, 2021). Moreover, a content analysis of postgraduate research in Türkiye highlights that Roma students face intersecting disadvantages—including poverty, low academic achievement, and social exclusion—while noting that empirical research remains limited in scope and quantity (Gürhan, 2024).

Similar structural patterns are observed in the broader European context. For instance, pre-school participation rates in Bosnia-Herzegovina are reported at only 6%, with primary school attendance around 45%, and the continued referral of Roma students to segregated or special education settings reflects persistent systemic inequality (Rushaj, 2015). Research on multilingual practices shows that Roma children naturally navigate between Romani and majority languages; however, educational systems often fail to recognize and support these linguistic resources (López Gándara & Pahl, 2024; Kyuchukov et al., 2025). At the same time, evidence suggests that academic adjustment improves significantly in supportive learning environments and that educational success is strongly associated with positive peer relationships, community ties, and constructive role models (Gkofa, 2022).

2.2 Quality of Friendship

Because they have a favorable impact on children's social, emotional, and value development, friendships are essential to their lives (Bagwell & Bukowski, 2018; Bagwell & Schmidt, 2011; Rose et al., 2022). Furthermore, friendships are considered an important indicator of child development that enhances psychological resilience, quality of life, and general well-being (Erol, 2025; Erol & Köksal, 2025; Larivière-Bastien et al., 2022). According to Schwartz-Mette et al. (2020a, b), strong friendships with positive attributes are associated with lower levels of depression and loneliness. Furthermore, it has been found that having a supportive friendship protects those experiencing problems in their relationships with parents or classmates (Rubin et al., 2015).

Friendship quality encompasses many dimensions, including trust, sincerity, honesty, cooperation, closeness, and conflict management. It refers not only to the benefits that relationships provide but also to the processes and interactions among friends (Asher & Weeks, 2018). While poor friendships might impede children's cognitive and emotional development, strong connections can promote it (Alsarrani et al., 2022). According to previous research, the quality of peer relationships is among the most important outcomes of social context (Wang et al., 2023). In particular, high-quality friendships are closely associated with social competence, mental health, and life satisfaction across childhood and adolescence (Larivière-Bastien et al., 2022). Research further suggests that children with high-quality friendships exhibit lower levels of loneliness, depression, and social anxiety, and higher levels of self-esteem, academic achievement, social skills, learning engagement, and social adjustment (Schwartz-Mette et al. 2020a, b; Krampač-Grljušić and Kolak 2018).

Friendship quality is not limited to behavioral outcomes but also exerts potent effects on individuals' subjective well-being. According to Chu et al. (2010), perceived social support is closely related to subjective well-being. Similarly, Son and Padilla-Walker (2019) found that perceived emotional support from friends was associated with healthier friendship outcomes and lower psychological distress, particularly among female adolescents. In other words, establishing healthy relationships within the social context is essential for maintaining mental health (Van Harmelen et al., 2016; Zhang et al., 2018). Furthermore, findings by Antonopoulou et al. (2019) indicated that peer acceptance, friendship security, and peer support enhanced individuals' self-esteem, reduced loneliness, and weakened tendencies toward school avoidance.

2.3 Loneliness

Human beings are inherently social, and social interaction is regarded as a fundamental need (Heinrich & Gullone, 2006). Nevertheless, individuals may experience feelings of loneliness at different stages of their lives. Loneliness is closely associated with having poor-quality or insufficient social relationships (Weeks & Asher, 2012) and may have serious consequences for both physical and psychological health. It has been particularly linked to cardiovascular problems, depression, and social anxiety (Heinrich & Gullone, 2006). Childhood is a critical period for the development

of loneliness. This stage is characterized by rapid cognitive, social, emotional, and physical developmental processes. For healthy development, children need to establish strong social bonds with their families and peers (Erol & Köksal, 2025). The weakening or disruption of these bonds may negatively affect children's developmental trajectories, leading to experiences of loneliness (Erden & Bulut, 2023).

A typical definition of loneliness is an emotional reaction to the perceived gap between what one desires and genuine social relationships (Ciolfi & Jimenez, 2017). Unlike social isolation, loneliness is a subjective experience; individuals may feel lonely even when they are not physically alone. This condition is often accompanied by boredom, aimlessness, guilt, and dissatisfaction. Research conducted across various countries has demonstrated the prevalence of loneliness during childhood. For instance, a study in Hong Kong reported that 14% of primary school children experienced loneliness, which was associated with lower levels of happiness, weaker independence skills, and dissatisfaction in parent–child relationships (Wang et al., 2024). Similarly, research in the United Kingdom found that 80% of children aged 8–10 experienced loneliness at school, which manifested in symptoms such as boredom, bullying, physical inactivity, daydreaming, and passive social behaviors (Berguno et al., 2004). Among children, loneliness may lead to self-pity, a lack of motivation, and behavioral problems. Moreover, loneliness is associated with academic procrastination, diminished sense of achievement, poor social skills, increased anxiety, and depression (Luan, 2022). In the long term, loneliness may adversely affect individuals' health, educational outcomes, and employment opportunities (Jefferson et al., 2023).

2.4 Subjective Well-Being

People's general evaluations of their lives and their thoughts on specific aspects, such as friendships, family, and education, are referred to as subjective well-being (Casas & González-Carrasco, 2019; Lee & Yoo, 2015; Liu et al., 2015). Students' self-evaluations of their educational experiences constitute subjective well-being in school settings. It includes both emotional experiences (such as positive or negative sentiments at school) and cognitive elements (such as school satisfaction) (Tian, 2008). Noddings (2003) argued that education should contribute not only to academic achievement but also to individual and collective happiness. Similarly, the OECD (2017) report revealed that successful students are not only academically accomplished but also highly satisfied with their school lives. The primary school years provide a foundation for students' future school participation, achievement, and sense of belonging; hence, supporting subjective well-being during this period is of considerable importance (Lawler et al., 2017; Tian et al., 2016). According to earlier research, friendships are essential to children's and teenagers' healthy development (Fernandes et al., 2020). According to Goswami (2012), the best indicators of children's and adolescents' subjective well-being are positive interactions with peers and family.

The subjective well-being of children is associated with a variety of social factors. For instance, Tian et al. (2015) discovered that among Chinese students, the association between gratitude and school satisfaction was mediated by social conduct.

Numerous studies have shown that positive peer interactions improve subjective well-being (Alsarrani et al., 2022; Varela et al., 2019; Varela et al., 2022; Zou et al., 2025). Therefore, taking children's self-assessments into account is crucial for developing effective early interventions and establishing robust social support mechanisms (Fernandes et al., 2020). In this regard, friendships serve as an important protective factor, reducing the risk of peer victimization and social exclusion (dos Santos et al., 2019). Sarriera et al. (2018) highlighted that school satisfaction strongly predicts overall life satisfaction. Additionally, children's subjective well-being is influenced by positive peer relationships and favorable perceptions of their living surroundings (Gómez et al., 2017; Cao, 2016; Goswami, 2012; Slee & Skrzypiec, 2016; Haanpää et al., 2019). Furthermore, Alcantara et al. (2019) discovered that when students were not the targets of peer bullying, their subjective well-being increased.

2.5 Theoretical Framework

This study explores how friendship quality, loneliness, and subjective well-being are interconnected among Roma primary school children, using Bronfenbrenner's bioecological systems theory (PPCT). This theory highlights the dynamic interaction between individuals and the layered environments that influence their development. Bronfenbrenner's PPCT offers a core framework for understanding these relationships. According to the model, child development is influenced by proximal processes—regular, reciprocal interactions, especially with close others (Bronfenbrenner & Morris, 1998). For Roma children, these processes are driven mainly by peer relationships rather than family or school ties, which are often weakened by socioeconomic hardship, discrimination, and limited school support. Research indicates that both Roma and non-Roma children see close friendships rooted in trust, sharing, and everyday experiences as protective bonds (Michalopoulou & Vouyoukas, 2024). Thus, micro-level friendships serve as vital proximal processes that fulfill children's needs for belonging, emotional security, and social support amidst challenging educational conditions such as low teacher expectations, exclusionary practices, and scarce resources (Ateş & Ünal, 2022; Açıkalın & Sever, 2023).

The impact of these close relationships is also connected to the broader ecological systems described by Bronfenbrenner. The mesosystem serves as a setting in which weak links among family, school, and living environment make it hard for Roma children to adjust, but supportive peer relationships can partly offset these disconnections; Adams and Ryan's (1999) model of family-school relationships supports this. At the exosystem and macrosystem levels, factors such as poverty, unstable working conditions, adverse neighborhood conditions (Orçan et al., 2011; Fehérvári, 2023), and social anti-Ziganism (Rizzi, 2021) heighten the risk of loneliness for Roma children and weaken their subjective well-being both directly and indirectly. In this layered socio-cultural setting, high-quality friendships serve as a key protective factor, reducing loneliness and boosting children's subjective well-being, in line with Newland's (2015, 2016) relationship-based "theory of change" approach. Therefore, the bioecological model provides a comprehensive theoretical basis for understanding how the quality of companionship influences the subjective well-being of Roma children, through both direct effects and those mediated by loneliness.

Although loneliness and subjective well-being could theoretically be modeled as parallel outcomes of friendship quality, we conceptualized loneliness as a mediator based on the logic of the PPCT framework. In Bronfenbrenner's model, proximal processes constitute the primary engines of development. High-quality friendships represent recurrent, emotionally meaningful proximal processes within the microsystem (Dryburgh et al., 2022). Loneliness, by contrast, reflects children's subjective appraisal of the adequacy and emotional quality of these proximal interactions (Zhang et al., 2020). In this sense, loneliness is not merely another outcome but a psychological mechanism through which variations in proximal processes are translated into broader developmental indicators such as subjective well-being. Thus, within the PPCT perspective, friendship quality (proximal process) is expected to influence subjective well-being (developmental outcome) partly through children's internalized relational experience—loneliness.

2.6 Research Hypotheses and Questions

Friendship quality is widely recognized as a central factor in children's social and emotional development. High-quality friendships characterized by trust, intimacy, mutual support, and self-disclosure are consistently associated with greater subjective well-being, life satisfaction, and self-esteem (Bagwell & Bukowski, 2018; Larivière-Bastien et al., 2022; Michalopoulou & Vouyoukas, 2024). Systematic reviews further demonstrate that friendship quality is positively related to multiple indicators of well-being and negatively associated with internalizing problems (Alsarrani et al. 2022; Schwartz-Mette et al. 2020a, b; Wang et al. 2023). Conversely, low-quality or conflictual friendships are more frequently linked to loneliness, depression, and maladjustment (Chen 2023; Lodder et al. 2017; Schwartz-Mette et al. 2020a, b).

Loneliness emerges when children perceive their social relationships as quantitatively insufficient or qualitatively unsatisfactory and has been shown to diminish subjective well-being (Heinrich & Gullone, 2006; Weeks & Asher, 2012). Empirical studies indicate that higher loneliness in primary school children is associated with anxiety, depression, academic procrastination, and lower school satisfaction (Krause-Parello, 2008; Luan, 2022; Sette et al., 2023). Importantly, loneliness has been identified as a mechanism through which relational experiences influence subjective well-being (Goswami, 2012; Jefferson et al., 2023). Supportive school-based relationships—including close friendships, a sense of belonging, and positive teacher–child interactions—serve as protective buffers, reducing loneliness and fostering positive academic and self-perceptions (Palikara et al., 2021; Sette et al., 2023; Wang et al., 2023). Consistent with this line of research, several studies suggest that friendship quality may enhance children's subjective well-being partly by reducing loneliness, indicating a potential mediating role for loneliness (dos Santos et al., 2019; Varela et al., 2019; Chen, 2023). This conceptualization is also aligned with self-determination theory, which posits that the fulfillment of relatedness needs is fundamental to psychological well-being (Ryan & Deci, 2017, 2020). From this perspective, high-quality friendships are expected to reduce feelings of loneliness by satisfying relatedness needs, thereby contributing to greater subjective well-being.

For Roma children, however, friendship development unfolds within structurally unequal contexts. Research in Türkiye and across Europe indicates that Roma children frequently experience socioeconomic disadvantage, limited access to early education, and lower social adaptation opportunities compared to their non-Roma peers (Orçan et al., 2011; Rushaj, 2015). Studies also document systemic discrimination, exclusionary school practices, and low teacher expectations that may undermine Roma children's sense of belonging (Ateş & Ünal, 2022; Açıkalın & Sever, 2023; Rizzi, 2021). Although supportive friendships and community resources can promote educational resilience (Fehérvári, 2023; Gkofa, 2022), and Roma and non-Roma children describe close friendships in similarly positive terms (Michalopoulou & Vouyoukas, 2024), empirical evidence regarding the interplay of friendship quality, loneliness, and subjective well-being among Roma children in Türkiye remains limited (Gürhan, 2024). Thus, it is not yet sufficiently clear whether relational mechanisms consistently observed in majority samples operate similarly within contexts of structural marginalization.

The present study is theoretically grounded in Bronfenbrenner's bioecological PPCT framework. Within this model, friendship quality represents a proximal process occurring in the microsystem. The path from friendship quality to loneliness reflects the immediate impact of peer processes on children's internal relational experiences. The path from loneliness to subjective well-being captures how these internalized experiences shape broader developmental outcomes over time. The direct path from friendship quality to subjective well-being reflects the possibility that proximal processes may exert both immediate and cumulative influences on well-being (Bronfenbrenner & Morris, 1998). Conceptually, positioning loneliness as a mediator aligns with the PPCT logic of process → internal experience → developmental outcome, rather than treating loneliness as a parallel outcome.

Bringing together developmental, motivational, and ecological perspectives, this study proposes that friendship quality will be positively associated with subjective well-being and negatively associated with loneliness, whereas loneliness will be negatively related to subjective well-being (**H1.** Friendship quality is positively associated with children's subjective well-being, **H2.** Friendship quality is negatively associated with children's levels of loneliness, **H3.** Loneliness is negatively associated with children's subjective well-being). Moreover, friendship quality is expected to exert both a direct effect on subjective well-being and an indirect effect through reduced loneliness. In light of the documented structural disadvantages faced by Roma children, the study examines whether these theoretically grounded relational pathways operate within this specific sociocultural context. Based on these hypotheses, this study seeks to address the following research questions. Figure 1 presents the conceptually proposed model.

- ***RQ1***: What is the relationship between friendship quality and subjective well-being, with loneliness as a factor, among Roma primary school children?
- ***RQ2***: To what extent does loneliness mediate the relationship between friendship quality and subjective well-being among Roma primary school children?

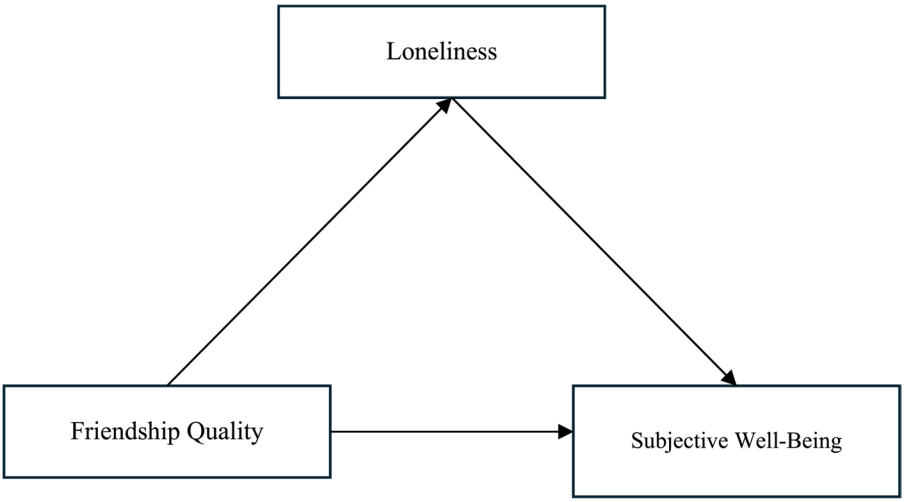

Fig. 1 Conceptual model

3 Method

3.1 Research Design

This research was conducted as part of a relational screening study examining the connections between friendship quality, subjective well-being, and loneliness among Roma primary school children. Relational screening studies aim to identify relationships among two or more variables (Fraenkel & Wallen, 2011).

3.2 Participants

The participants in this study were 279 Roma children aged 8–11 years enrolled in various public primary schools in Istanbul, Türkiye. Students were recruited from different districts and neighborhoods of Istanbul with a high Roma population (Balat, Esenyurt, Üsküdar, Gaziosmanpaşa, Beyoğlu, Silivri, and Büyükçekmece). A total of 38 classrooms from 11 schools were included in the study. A criterion sampling strategy, a type of purposive sampling, was employed to select participants. Two main inclusion criteria were considered in the selection process. First, to ensure the validity of children's interactions in the educational setting and their responses to the measurement instruments, participants were required to have a basic level of proficiency in Turkish. Second, the children needed to be enrolled in the same grade level as their Turkish peers within a primary school. This criterion was intended to enhance data comparability by ensuring that children had similar educational experiences. An examination of the sample's demographic characteristics revealed that 46.9% of the children were boys ($n = 131$) and 53.1% were girls ($n = 148$). Regarding grade level distribution, 38.2% of participants were in third grade, while 61.8% were in fourth grade. Regarding parental education levels, all parents were primary school

graduates, and most were employed in occupations such as musicianship, service-sector jobs, and minimum-wage labor.

3.3 Instruments

3.3.1 Children's Loneliness Scale (CLS)

Asher et al. (1985) initially created the measure to gauge how satisfied elementary school students were with their friendships and how they felt about being excluded from society. Later, Duyan et al. (2015) translated it into Turkish. A five-point Likert scale (1 being always true and 5 being not true at all) is used to rate the instrument's twenty-four items. It gauges perceived social acceptance and loneliness simultaneously. Some items on the scale are reverse-scored, and others are positively or negatively worded. Examples of statements include: "I feel lonely," "It is hard for me to make friends," "I can find a friend when I need one," "I think other children do not include me," and "I have many friends." Test-retest reliability and Cronbach's alpha were both 0.82. The range of item-total correlations was 0.33 −0.52. The scale's factor structure demonstrated an overall satisfactory degree of model fit, as indicated by confirmatory factor analysis (CFA). In particular, $\chi^2/df = 3.07$, GFI =0.90, AGFI =0.90, CFI =0.90, NFI =0.90, NNFI =0.91, RMR =0.046, and RMSEA =0.049 were the fit indices that were computed.

3.3.2 Primary School Students' Subjective Well-Being in School Scale (ESSWBS)

Liu et al. (2015) developed the ESSWBS to assess elementary school pupils' subjective well-being in the classroom. Bozgün and Akın Köstereliođlu (2020) translated it into Turkish. The scale has 33 items altogether and is divided into three subscales: School Satisfaction, Positive Affect at School, and Negative Affect at School. Academic learning (5 items), teacher-student connections (4 items), achievement (4 items), peer relationships (3 items), and instruction (3 items) are the six areas into which the School Satisfaction subscale is further subdivided. There are five items on the positive affect at school subscale and five items on the negative affect at school subscale. With appropriate fit indices and factor loadings ranging from 0.50 to 0.85, the CFA results validated the Turkish version of the scale's three-factor structure. There were notable criterion-related associations with the Comprehensive School Satisfaction Scale for Children. Cronbach's alpha coefficients for the school satisfaction, positive affect at school, and negative affect at school subscales were 0.91, 0.86, and 0.87, respectively, according to the reliability assessments. With sub-dimensions ranging from 0.68 to 0.74, the scale's total Cronbach's alpha was 0.87.

Two response styles are used to score the scale: a six-point Likert scale (1 =Never, 6 =Always) for the positive and negative affect subscales, and a five-point Likert scale (1 =Strongly disagree, 5 =Strongly agree) for the school satisfaction subscale. The possible overall score ranges from 33 to 165. The negative affect subscale uses reverse scoring for its items. Higher scores indicate a greater degree of subjective well-being at school. ESSWBS was calculated by summing all 33 items after reverse-

coding those in the Negative Affect subscale. Since the scale has two different response formats—a six-point Likert scale for affect items and a five-point Likert scale for school satisfaction items—each item directly contributes to the overall measure of subjective well-being, as recommended by the scale's creators (Liu et al., 2015) and the Turkish adaptation study (Bozgün & Akın Kösterelioğlu, 2020). A higher total score indicates a more positive subjective well-being profile across emotional and school-related areas.

3.3.3 Friendship Quality Questionnaire (FQQ)

The FQQ was created by Parker and Asher (1993) to evaluate the level of friendship among students in grades three through six. Öztürk and Kutlu (2017) translated it into Turkish. Across six dimensions—validation and care, conflict resolution, conflict and betrayal, assistance and direction, companionship and recreation, and intimate exchange—the scale comprises 33 items. The subscales include the following factor loadings: help and guidance (0.82–0.56), companionship and recreation (0.80–0.57), intimate interaction (0.75–0.65), conflict resolution (0.88–0.57), conflict and betrayal (0.84–0.63), and validation and caring (0.78–0.54). The subscales' Cronbach's alpha scores varied from 0.73 to 0.90. A five-point rating system is used to grade the responses: (0) "Not at all true," (1) "A little true," (2) "True," "Pretty true," "Really true," and (3) "Just about true." The scores for items 8, 19, 26, and 36 are inverted. Better scores indicate better levels of friendship quality, with a maximum possible score of 160.

3.3.4 Data Collection Procedure and Ethical Considerations

The Ministry of National Education approved the use of the research tools, and the university ethics committee, where the responsible researcher worked, also approved the data collection before the study. All permission documents were shown to teachers, administrators, and parents during school visits. After these interviews, classes appropriate for the research were selected based on administrators' and teachers' evaluations. No ethnic labeling was used to identify students of Roma origin; in areas with a high Roma population, potential families were reached through teachers' and administrators' knowledge of the communities. Then, individual interviews were held with parents, the purpose of the research was explained, and children were included in the study only if the parents confirmed their Roma identity. Families who did not declare their identity were omitted. During this process, no student was asked questions about their ethnic identity, and no environment was created that would force children to reveal their identities.

Data was collected in quiet rooms designated by the school administrator, separate from the classroom environment. To keep the children's attention, the application was limited to a 20-minute lesson period each time; data was not collected during breaks. The data collection process lasted five weeks, and the data were entered into the system by an undergraduate research assistant, with all entries double-checked

for accuracy. Ethical principles were strictly followed throughout all stages of the research. The purpose, scope, confidentiality policies, and voluntary nature of participation were clearly explained to parents and teachers in understandable language; written consent was obtained. Parents were assured they would not face negative consequences if their children did not participate or later withdrew their data. The students' well-being was prioritized throughout the application process, and a guidance counselor provided support. When reporting the findings, participants' identities were kept fully anonymous, and no personally identifiable information was recorded.

An important ethical issue in this study is collecting data only from Roma children. The risk is that participants might feel singled out or stigmatized or wonder why similar data were not gathered from their non-Roma peers. These concerns are significant given the broader social context where Roma children often face discrimination and exclusion. To reduce these risks, all procedures were carefully designed to ensure children's comfort and dignity. Participation was voluntary, assent was obtained individually, and the study was explained as a way to understand children's school experiences rather than as an evaluation of any particular group. No comparisons with non-Roma peers were mentioned during data collection, and no identifying information was recorded.

3.3.5 Data Analysis

Several statistical hypotheses were examined to determine whether the data were suitable for analysis. Using skewness and kurtosis values, univariate normality was first assessed; all variables were within ± 1.5 of 0 (Tabachnick & Fidell, 2015), suggesting that the data were roughly normally distributed. Mardia's coefficients of skewness and kurtosis were used to assess multivariate normality (George & Mallery, 2010). Significant results (p <.001) from the Mardia test indicated that multivariate normality was violated. As a result, confirmatory factor analyses (CFA) used the Robust Maximum Likelihood (MLR) estimation approach. Variance Inflation Factor (VIF) values and Pearson correlation coefficients were used to analyze the probability of multicollinearity. The fact that all VIF values remained below 10 (Field, 2013) and that no variables correlated above 0.80 (Finney & DiStefano, 2006) indicated that multicollinearity was not an issue. Cronbach's alpha coefficients were used to evaluate the scales' internal consistency, and each exceeded the 0.70 cutoff. ^{2}/df < 5, CFI ≥ 0.90.95, TLI (or NNFI) ≥ 0.90–0.95, RMSEA ≤ 0.08–0.05, SRMR < 0.08, and NFI, IFI, and RFI ≥ 0.90 were the criteria used to assess model fit (Anderson & Gerbing, 1984; Byrne, 2010; Marsh et al., 2004).

3.4 Preliminary analysis

3.4.1 Main analysis

Version 2.3.38 of the statistical program JAMOVI was used for all data analysis. The primary descriptive statistics, such as Pearson correlations, means, standard deviations, and frequencies, were presented. Skewness and kurtosis values between − 1.96

and +1.96 were considered to investigate the assumption of normality (George & Mallery, 2010). For every variable, means and standard deviations were computed. We used bias-corrected bootstrapping techniques with 2000 bootstrap samples to examine the model's direct and indirect effects (Hayes, 2017). Unidirectional arrows were used to depict direct impacts. The association between loneliness and friendship quality was then examined see whether subjective well-being acted as a mediating factor. The proposed mediational structure was tested using a general linear mediation (GLM) model. We looked at how loneliness and friendship quality affected subjective well-being directly, indirectly, and overall. We employed the jAMM module, which uses maximum likelihood estimation, an acknowledged optimal method, for parameter estimation. The Delta method, which expands on techniques based on the central limit theorem, was used to compute confidence intervals (Deng et al., 2018).

4 Findings

4.1 Descriptive Statistics and Correlation Analysis

Table 1 shows that the participants' mean friendship quality scores were 112.0 (SD = 22.45), their loneliness scores were 24.1 (SD = 3.38), and their subjective well-being scores were 57.3 (SD = 8.04). Correlation results show a significant negative relationship ($r = –.155$, $p < .01$) between friendship quality and loneliness. This finding reveals that loneliness decreases as friendship quality increases. A strong and positive relationship ($r = .628$, $p < .001$) was found between friendship quality and subjective well-being. This result indicates that children with higher friendship quality have higher levels of subjective well-being. A significant negative relationship ($r = –.270$, $p < .001$) was obtained between loneliness and happiness, indicating that as loneliness increases, subjective well-being decreases.

4.2 Measurement Model

Cronbach's alpha (α) and composite reliability (CR) coefficients of the scales used in the study were found to be above the 0.80 threshold, indicating high internal consistency. The average variance explained (AVE) for each construct was also above 0.50,

Table 1 Descriptive statistics and correlation matrix ($N = 279$)

Variables	X	SS	Min	Max	1	2	3
1. Quality of Friendship	112.0	22.45	45	149	—		
2. Loneliness	24.1	3.38	18	36	–0.155** 95% CI [–0.268, –0.039]	—	
3. Subjective Well-Being	57.3	8.04	31	72	0.628*** 95% CI [0.551, 0.694]	–0.270*** 95% CI [–0.375, –0.157]	—

**$p < .01$, ** $p < .001$; Correlations are Pearson r values

Table 2 Fit indices of the measurement models

Variables	Dimensions	χ^2/df	RMSEA	SRMR	CFI	TLI	Interpretation
1. Quality of Friendship	6	1.70	0.04 [0.04, 0.05]	0.05	0.91	0.90	Good fit
2. Loneliness	1	1.99	0.05 [0.03, 0.08]	0.05	0.94	0.91	Good fit
3. Subjective Well-Being	3	2.80	0.04 [0.03, 0.06]	0.06	0.92	0.91	Good fit

supporting the scales' convergent validity. According to the criterion suggested by Fornell and Larcker (1981), the square root of the AVE for each construct was found to be greater than its correlations with other constructs. This result is consistent with the standards stated by Hair et al. (2019), indicating that the scales have discriminant validity. SRMR values for all scales were found to be below 0.08, and CFI/TLI values were above 0.90, and these values met the thresholds suggested by Hu and Bentler (1999) and Bentler and Bonett (1980). While the subjective well-being scale showed excellent fit with its three-dimensional structure, the other two scales showed good to acceptable fit. The fit indices for the CFA are presented in Table 2.

4.3 Mediating Effect Model

Table 3 shows that the total effect of friendship quality on subjective well-being was statistically significant (β = 0.628, p <.001, 95%CI [0.192, 0.258]). When the indirect effects were examined, the effect of friendship quality on happiness was also significant through loneliness (β = 0.027, p =.030, 95%CI [0.044, 0.019]). When the mediating variable components were examined, it was found that friendship quality had a significant, adverse effect on loneliness (β = –0.155, p =.009, 95%CI [−0.041, −0.006]). Furthermore, the effect of loneliness on subjective well-being was also negative and significant (β = –0.176, p <.001, 95%CI [−0.635, −0.206]). These findings suggest that loneliness partially mediates the relationship between friendship quality and subjective well-being. In terms of direct effects, friendship quality was also found to be strongly and significantly associated with subjective well-being (β = 0.601, p <.001, 95%CI [0.183, 0.248]).

Table 3 Indirect and total effects

				95% C.I. (a)				
Type	Effect	Estimate	SE	Lower	Upper	β	z	p
Indirect	Quality of Friendship ⇒ Loneliness ⇒ Subjective Well-Being	0.0098	0.0045	0.044	0.019	0.027	2.17	0.030
Component	Quality of Friendship ⇒ Loneliness	−0.0234	0.0089	−0.041	−0.006	−0.155	−2.63	0.009
	Loneliness ⇒ Subjective Well-Being	−0.4202	0.1095	−0.635	−0.206	−0.176	−3.84	<0.001
Direct	Quality of Friendship ⇒ Subjective Well-Being	0.2153	0.0165	0.183	0.248	0.601	13.07	<0.001
Total	Quality of Friendship ⇒ Subjective Well-Being	0.2251	0.0167	0.192	0.258	0.628	13.46	<0.001

5 Discussion

Beyond reiterating well-established links in mainstream developmental research, the present study contributes by documenting these associations in a historically and socioeconomically marginalised group in Türkiye. In the case of Roma children, peer relations unfold within a school ecology shaped by stigma, low expectations, and fragile school belonging (Ateş & Ünal, 2022; Açıkalın & Sever, 2023; Rizzi, 2021). Indeed, qualitative evidence from Türkiye indicates that Roma children are frequently perceived as "unwanted short-term guests" in schools, which undermines their sense of belonging and increases their risk of exclusion and loneliness (Ateş & Ünal, 2022). Furthermore, structural disadvantages such as poverty, low parental education, and insecure employment conditions exacerbate their vulnerability within educational settings (Orçan et al., 2011; Rushaj, 2015). Therefore, confirming that friendship quality is strongly tied to well-being—and partly through loneliness—offers context-specific evidence on how everyday peer processes may operate as a protective resource under structural disadvantage. This Roma-focused evidence extends majority-sample findings by showing that the same "classic" mechanisms are present but potentially carry greater developmental significance when institutional supports are limited and school climates are marked by exclusionary practices (Gürhan, 2024; Survutaitė, 2023).

5.1 Friendship Quality, Loneliness, and Subjective Well-being

The results showed a negative, significant association between friendship quality and loneliness among Roma children in Türkiye. This finding is in line with previous work on majority populations showing that high-quality friendships reduce social isolation and foster better adjustment (dos Santos et al., 2019; Schwartz-Mette et al. 2020a, b) and with meta-analytic evidence documenting a robust negative link between friendship quality and loneliness in primary school children (Chen, 2023). Our results also echo recent qualitative research from Greece, indicating that both Roma and non-Roma children describe their close friendships in terms of similarity, shared experiences, and mutual support, and that such high-quality ties operate as important protective factors for disadvantaged children (Michalopoulou & Vouyoukas, 2024). In a context where Roma children in Türkiye often experience social marginalisation and are positioned as "unwanted short-term guests" in schools (Açıkalın & Sever, 2023), the present findings show that when Roma children do have warm, trusting friendships, these relationships are associated with appreciably lower loneliness. Importantly, in a context where Roma children may have fewer alternative sources of social affirmation (e.g., limited teacher support or reduced school belonging), the emotional security provided by even one high-quality friendship may represent a disproportionately salient buffer against loneliness.

The strong positive correlation we observed between friendship quality and subjective well-being further suggests that, for Roma children, friendships play a role that extends beyond social companionship to emotional and cognitive functioning. This pattern is consistent with evidence that peer relationships can enhance children's subjective well-being by reducing loneliness and promoting feelings of security and

competence (Hartup & Stevens, 1999; Varela et al., 2019; Wang et al., 2023). Studies on school belonging and teacher–child relationships similarly show that supportive social ties at school buffer loneliness and predict more positive academic and self-perceptions (Palikara et al., 2021; Sette et al., 2023). Findings indicate that, for Roma children facing disadvantages, high-quality friendships function as an important proximal relational resource that can partially offset limited institutional and community support (Orçan et al., 2011; Rushaj, 2015). For Roma children, subjective well-being at school is likely intertwined with experiences of recognition and inclusion in peer spaces, especially when institutional messages (implicit or explicit) signal low expectations. Thus, the strong association observed here may reflect not only companionship but also a pathway to feeling 'legitimate' and emotionally safe within the school microsystem.

Another key result of the study was the negative association between loneliness and subjective well-being. This is consistent with research showing that children who experience loneliness report lower levels of subjective well-being and school satisfaction and are at heightened risk for internalising problems (Jefferson et al., 2023; Krause-Parello, 2008; Luan, 2022). However, our findings extend this literature by documenting these associations among Roma children in Türkiye—an under-researched group for whom loneliness may be fuelled not only by individual peer difficulties but also by wider experiences of discrimination, microaggressions, and low teacher expectations (Ateş & Ünal, 2022; Fehérvári, 2023; Rizzi, 2021). In such a context, loneliness is likely to reflect both everyday peer exclusion and the cumulative effects of antiziganism within and beyond the school system, which may help explain its strong negative association with Roma children's subjective well-being. This suggests that loneliness in this group may be qualitatively different from "ordinary" peer-related loneliness in majority samples, as it can be compounded by chronic social devaluation and exclusionary school climates—making loneliness a plausible marker of structural vulnerability, not merely individual social difficulty.

From a broader perspective, Roma-focused research in Türkiye and Europe has predominantly examined access to education, language and literacy practices, or structural barriers such as poverty and segregation (Gürhan, 2024; Kyuchukov et al., 2025; López Gándara & Pahl, 2024). Much less is known about the intra-individual processes through which these macro-level inequalities are translated into Roma children's socio-emotional functioning. By quantitatively demonstrating, in a sample of young Roma children in Türkiye, that friendship quality is positively related to subjective well-being and negatively associated with loneliness—and that loneliness, in turn, is inversely related to subjective well-being—this study bridges that gap. It shows that the "classic" links among friendship quality, loneliness, and well-being, repeatedly documented in majority samples, also hold in a group exposed to intersecting risks such as socioeconomic hardship, limited access to early childhood education, and institutional discrimination (Açıkalın & Sever, 2023; Orçan et al., 2011; Rushaj, 2015). In doing so, the study complements structural analyses of Roma children's educational exclusion by highlighting the central role of everyday peer relationships as a site of both vulnerability and resilience.

5.2 Mediation Model

The results showed that loneliness partially mediated the association between friendship quality and subjective well-being, with friendship quality exerting a substantial overall effect. In other words, high-quality friendships directly enhanced children's subjective well-being and school satisfaction, while also indirectly improving well-being by reducing feelings of loneliness. Interpreted through Bronfenbrenner's bioecological lens, these findings reflect the central function of proximal processes—the repeated, meaningful interactions with significant others in the microsystem. For Roma children, who often contend with strained home–school relationships, limited institutional support, and discriminatory school climates, supportive peer interactions may represent one of the few stable and accessible developmental processes available within their immediate environments. The fact that high-quality friendships reduce loneliness and bolster subjective well-being demonstrates how microsystem-level processes can compensate for risk factors embedded within the mesosystem, exosystem, and macrosystem. For Roma children, identifying loneliness as a partial mechanism is practically meaningful because it points to a modifiable socio-emotional target within schools. Rather than treating low well-being as an inevitable outcome of structural disadvantage, the model highlights a relational pathway—strengthening friendship quality and reducing loneliness—that schools may realistically influence through inclusive peer practices.

The literature has extensively documented the detrimental impact of loneliness on subjective well-being (Krause-Parello, 2008; Luan, 2022), and our findings build on this work by positioning loneliness as a key mechanism that explains how friendship quality contributes to children's emotional adjustment. Studies across diverse cultural contexts similarly show that loneliness undermines well-being and school functioning (Jefferson et al., 2023; Goswami, 2012), reinforcing the notion that reducing loneliness is central to children's psychosocial health. Within the ecological framework, this suggests that strong friendships help buffer the negative influences arising from broader ecological layers—such as community-level disadvantage (exosystem) or societal-level antiziganism (macrosystem)—by fostering a sense of belonging and emotional security within the immediate microsystem. Thus, for Roma children navigating environments marked by structural inequalities, the capacity of high-quality friendships to diminish loneliness operates as a critical protective mechanism that promotes resilience and enhances subjective well-being.

This study's demonstration of loneliness as a partial mediator is consistent with earlier findings; however, the present results extend the literature by confirming this mechanism within a socioculturally marginalized group. The finding that Roma children's subjective well-being is enhanced both directly and indirectly through high-quality friendships—via reductions in loneliness—underscores the multifaceted role of peer relationships and the central mediating function of loneliness in children's emotional adjustment (Varela et al., 2022; Alsarrani et al., 2022). Importantly, our results provide empirical evidence that strong, trusting friendships operate as a protective factor in Roma children's everyday social worlds, a population often exposed to interpersonal exclusion, structural disadvantage, and limited access to supportive school environments. This highlights the potential value of school-based

interventions to strengthen peer connectedness and reduce loneliness, particularly for groups facing entrenched social and educational inequalities (Oberle et al., 2011; Newland et al., 2015, 2019; Wang et al., 2023). These findings in contexts such as Türkiye, where Roma children experience persistent structural marginalization and limited institutional support, relational processes may carry heightened developmental significance. Thus, the mediating role of loneliness may not merely replicate majority-sample findings but may indicate amplified relational sensitivity under conditions of social vulnerability.

5.3 Limitations and Future Research

This study has limitations, despite making significant contributions. First, a cross-sectional design was used in the study. As a result, definitive inferences regarding causal links between the variables are impossible. The direction of the relationships among loneliness, subjective well-being, and friendship quality, as well as how these relationships vary across developmental stages, would be better supported by future research using longitudinal or experimental designs. Second, only children's self-report scales were used to collect the data. Because of potential social desirability bias and variations in subjective perception, this reliance on self-reports may reduce the reliability of the findings. Future research could enhance the robustness of the results by incorporating teacher, parent, and peer evaluations or by complementing quantitative data with qualitative approaches such as semi-structured interviews and observations, thereby enabling a more comprehensive and in-depth analysis. Another limitation concerns the sample, which consisted solely of Roma children from a specific region. Therefore, the generalizability of the findings to all Roma communities or to other disadvantaged groups in different cultural contexts is limited. Future studies should include children from diverse regions and socio-cultural backgrounds, allowing for cross-cultural comparisons.

Contextual variables such as socioeconomic status, parental education, family structure, or school environment were not included in the present model. Subsequent research could examine these variables to determine the extent to which they influence the effects of friendship quality and loneliness on subjective well-being. Furthermore, this study focused solely on the mediating role of loneliness within a structural equation modeling framework. Future investigations could extend this line of inquiry by testing additional mediating or moderating variables—such as peer bullying, school belonging, or emotional literacy—which may contribute to a more comprehensive understanding of the mechanisms that shape children's subjective well-being.

At the policy level, authorities should develop programs that support social inclusion and emotional well-being among marginalized children, especially by strengthening school-based mental health services and integrating social-emotional learning into the curriculum. Community initiatives that reduce stigma and foster positive peer relationships in Roma communities are also crucial. In practice, teachers can implement structured peer support activities, collaborative learning tasks, and classroom routines that promote social connection. Providing professional development in culturally sensitive practices and strategies for recognizing and addressing loneliness

will offer additional support to practitioners. Enhancing school-family collaboration through regular communication and parent-focused activities can also improve children's social and emotional adjustment.

6 Conclusion

By exposing the connections between Roma children's subjective well-being, loneliness, and friendship quality, this study sheds light on the subjective well-being of marginalized populations. The findings indicate that quality friendships directly strengthen subjective well-being and have indirect effects through loneliness. This suggests that peer relationships are a protective factor for children vulnerable to social exclusion. It concludes that interventions promoting peer support and inclusive friendships in educational settings can contribute not only to academic success but also to overall psychosocial well-being. School-based support programs are expected to strengthen inclusiveness, foster a sense of belonging, and support children's long-term life satisfaction and social integration, particularly among socio-culturally disadvantaged groups, such as Roma children.

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Data Availability No datasets were generated or analysed during the current study.

Declarations

Competing interests The authors declare no competing interests.

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