

RESEARCH

Open Access



Cyber victimization and subjective well-being: protective roles of self-esteem and social support among Turkish gifted youths

Ergün Kara¹ and Halil Aslan^{2*}

Abstract

Background Cyber victimization has emerged as a significant issue among adolescents, particularly gifted youths. This study examines the serial mediating roles of self-esteem and social support in the relationship between cyber victimization and subjective well-being.

Methods A cross-sectional study design was utilized. Participants included 250 gifted Turkish adolescents who completed measures of cyber victimization, self-esteem, social support, and subjective well-being. Structural Equation Modeling (SEM) was used to test the proposed relationships.

Results Findings revealed significant indirect effects of cyber victimization on subjective well-being through self-esteem and social support. Higher levels of self-esteem predicted greater perceived social support, which subsequently contributed to improved subjective well-being.

Conclusions Self-esteem and social support are critical protective factors mitigating the negative effects of cyber victimization on the subjective well-being of gifted youth. The study underscores the importance of interventions targeting these factors to enhance the well-being of cyberbullying victims.

Keywords Cyber victimization, Subjective well-being, Self-esteem, Social support, Gifted youth

Introduction

Over the past two decades, researchers have conducted a substantial amount of research on the phenomenon of cyberbullying. Cyberbullying is characterized as a deliberate, repetitive act targeting a victim who is unable to adequately defend themselves [1]. This act is carried out continuously through electronic communication tools by an individual or group [1, 2]. Another definition describes it as the repetitive use of information and

communication technologies (such as email, text messages, instant messaging, and online survey sites) by an individual or group with hostile intent to harm others [3]. Cyber bullying involves the deliberate infliction of harm through electronic means such as text messaging, email, chatrooms, instant messaging, and webpages, making it challenging for victims to defend themselves [4]. It can involve provocation (deliberately inciting or goading someone into an emotional response) through aggressive and rude messages, harassment through threatening messages, defamation, pretending to be someone else, disclosing personal information, and excluding individuals in an online environment. Cyberbullying has several distinct features that set it apart from traditional bullying. Various forms of cyber victimization include flaming

*Correspondence:

Halil Aslan
halil.aslan@siirt.edu.tr

¹Department of Educational Sciences, Alanya Alaaddin Keykubat University, Antalya, Türkiye

²Department of Educational Sciences, Siirt University, Siirt, Türkiye



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

(which is the act of posting hostile, inflammatory, or aggressive messages online with the intent to provoke, insult, or emotionally harm another person, harassment), outing (which involves the non-consensual sharing of someone's private, sensitive, or embarrassing information online) and trickery (which is deceptive tactics used to persuade or coerce someone into revealing personal details or secrets), exclusion (which is the deliberate act of isolating or ostracizing an individual from an online community or social group), impersonation (which is pretending to be someone else online by using their identity, personal information, or photos without permission), cyber-stalking (which is characterized by the persistent and unwanted monitoring, harassment, or threatening of an individual through digital channels), and sexting (which is the exchange of sexually explicit messages, images, or videos via digital devices) [5, 6]. Cyberbullying can be direct (e.g., insulting via email) or indirect (e.g., excluding someone from online social networking sites or impersonating someone else) [7]. Cyberbullying offers increased invisibility and anonymity compared to traditional bullying. The absence of immediate social feedback may lead perpetrators to exhibit more aggression online as they feel less personally accountable [8, 9].

In the era of Information Technology, cyberbullying has emerged as a serious issue. The ability of perpetrators to remain anonymous online allows them to hide their true identities, making it easier for them to avoid accountability. This anonymity often encourages adolescents to engage in harmful behaviors, such as posting inappropriate comments or provoking arguments with others, without fear of immediate consequences [10]. It also creates psychological distance, making it easier for bullies to act aggressively without experiencing guilt or remorse. Additionally, victims often feel more vulnerable and powerless when they cannot identify the bully, amplifying the emotional impact of the harassment. This perceived power emboldens cyberbullies, enabling them to manipulate interactions and exploit anonymity to intimidate or harm others more freely. This power motivates bullying behaviors, involving various psychological and social processes. Individuals can become targets due to jealousy, intolerance, or organizing against someone [11]. Psychologically, the anonymity of online interactions reduces feelings of accountability, leading to disinhibition—a state where individuals feel freer to act aggressively without concern for consequences. This is often paired with projection, where bullies displace their insecurities or frustrations onto others. Socially, cyberbullying can stem from peer dynamics, such as the desire to gain social status, fit into a group, or exert dominance over perceived rivals [8, 12]. The use of social networking sites further detaches psychological and emotional aspects, and when combined with a lack of accountability, the likelihood of

making hurtful and harassing comments towards peers increases. On social networking sites, users often experience emotional detachment because they are not interacting face-to-face, which diminishes empathy and the ability to see the immediate consequences of their actions [13]. The absence of direct contact between the bully and the victim reduces the emotional involvement of cyberbullies, lessening their remorse [14, 15].

Recent studies indicate that cyberbullying is a serious issue for youth. Research by Tokunaga and Aune [4] indicates that approximately 20–40% of teenagers worldwide have experienced cyberbullying. Dilmac [16] found that approximately 55.3% of university students had been bullied via electronic devices. Hinduja et al. [1] examined the findings of 35 studies and found that the prevalence of cyber victimization ranged from 5.5 to 72%, with an average rate of 24.4%. Kowalski et al. [17] found that the prevalence of cyber victimization ranged from 10 to 40%. The prevalence of cyberbullying worldwide ranges from 2 to 56%, as documented by Wright [18]. Differences in sampling methods and measurement tools lead to varying results regarding cyberbullying prevalence [19]. Factors such as digital media usage patterns and technological accessibility influence the wide range of rates. With the increasing pervasiveness of information technology and the Internet, there has been a notable rise in the rate of cyber victimization across the globe. Electronic technologies allow rapid communication, enabling many cyberbullies to target their victims more quickly [9, 20].

Individuals who experience cyberbullying develop various psychological, behavioral, and physical consequences, including an increased likelihood of depression, headaches, and suicidal behaviors [21]. Researchers are concerned about mitigating the negative effects of cyberbullying, particularly victimization, perpetration, and witnessing, as well as their association with depression. Using electronic devices to share harmful images or offensive language to insult others leads to mental and psychological trauma [22]. Additionally, feelings of vulnerability and powerlessness emerge in victims of cyberbullying. Aggressive behaviors, sadness, fear for safety, various antisocial problems, and personality-related issues have been observed [23–25]. Negative thoughts about the recurrence of bullying among students create problems in attending school and staying motivated, negatively affecting academic performance [26, 27]. It has been uncovered that cyber bullying results in negative consequences for its victims such as internalizing problems [28], posttraumatic stress disorders [29] psychosomatic symptoms such as eating disorders [30], depression and suicide tendency [31].

Researchers currently concentrate on protective factors that might decrease the negative impacts of cyberbullying. Previous research consistently links cyberbullying

with negative psychological and social well-being outcomes among youth [24, 32–36]. Few investigations have focused on subjective well-being (global and school-related happiness). It is essential to reveal whether the relationship between subjective well-being and cyberbullying changes based on the serial mediation role of self-esteem and social support. Additionally, the role of age and gender might change when considering subjective well-being, often linked with mental health problems among youths. Therefore, the current research aims to investigate the serial mediation role of self-esteem and social support in the negative relationship between cyberbullying and subjective well-being (subjective happiness and school-related happiness as indicators). The study also examines gender differences and the effect of age on these relationships.

Cyberbullying and subjective well-being

Individual's self-determined happiness explained by subjective happiness theory [37]. Subjective happiness theory emphasizes the importance of subjective processes in increasing happiness levels. Subjective happiness is the level of well-being that emerges when individuals subjectively evaluate their lives. In this context, "subjective" means that an individual's assessment of happiness is based on their personal feelings, perceptions, and internal experiences rather than on objective or externally measurable criteria. Subjective well-being is often used interchangeably with happiness [38] and encompasses a general positive mood or an emotion that can vary depending on the circumstances [39]. Subjective happiness can be considered as a comprehensive and broad indicator of subjective well-being defined from an individual's perspective [37]. Comparing happy individuals to unhappy individuals, it has been found that happier individuals tend to be more optimistic, have a higher sense of personal control, exhibit a greater tendency towards positivity, perceive and interpret the same events more positively, and are more inclined to evaluate experiences positively [40]. Previous studies have consistently demonstrated a significant relationship between cyberbullying and happiness. Victims of cyberbullying experience increased depression symptoms and reduced levels of happiness [41]. Padir et al. [42] identified a significant negative correlation between happiness and cyberbullying victimization. Navarro et al. [43] observed a decrease in subjective well-being among both perpetrators and victims. Studies exploring the link between happiness as a general mood or emotion and school experiences have shown that children who are victimized or engage in disruptive behavior incline to exhibit lower levels of subjective happiness and reduced satisfaction at school [44].

Subjective happiness and school-related happiness are both vital components of subjective well-being. While

subjective happiness captures an individual's overall emotional and psychological state, school-related happiness reflects their experiences and satisfaction within the school environment—a significant context for adolescents [45]. Existing literature highlights the negative impact of cyber victimization on school satisfaction, academic engagement, and peer relationships, which are key determinants of school-related happiness. For instance, studies demonstrate that students who face cyberbullying tend to report reduced school satisfaction and lower levels of happiness in their school experiences [43]. By integrating school-related happiness as an indicator, the present study provides a more nuanced understanding of how cyber victimization affects different aspects of adolescents' well-being. This dual focus allows us to explore both the broader emotional implications (subjective happiness) and the specific contextual impact (school-related happiness) of cyber victimization.

The serial mediating roles of self-esteem and perceived social support

When considering adolescent characteristics, perceived social support and self-esteem have important roles in preventing adolescents' mental health problems [46]. Social support and self-esteem remain crucial for protecting adolescents from possible negative effects of cyberbullying [24, 47–49]. First, it is vital to explain the directional relationship between social support and self-esteem. Most cross-sectional studies indicate that both the quality of social relationships and perceived social support are linked to increased self-esteem [50]. Some researchers have also explored a reciprocal relationship, where each variable influences the other.

Marshall et al. [51] conducted a four-year longitudinal study comprising five waves with the objective of determining the directional relationships between adolescents' self-esteem and their perceptions regarding social support. The findings of the study demonstrated that self-esteem is linked with increased levels of social support quality and social support network size. This effect remained consistent throughout the five periods of study, showing the robustness of the data analysis. Authors also reported that this finding was the most reliable for the link between self-esteem and perceived quality of support, in comparison to individuals' perceptions of the size of their support network [51]. Self-esteem as the stronger predictor of social support quality might illustrate the enhanced significance of emotional closeness during this developmental period [52]. The presence of a positive self-concept in adolescence encourages the individual to proactively establish and sustain positive social networks. Adolescents with elevated self-esteem perceive to have social value so that they engage in behaviors that will establish social support. However, people who possess

low self-esteem may avoid social relationships to evade rejection and therefore unable to establish or sustain social support systems [51]. These results corroborated by previous longitudinal study of Kinnuen et al. [53]. They confirmed the assumption that which is also stated by Dekovic & Meeus [54]; feelings of self-worth impact the capacity to form social relationships throughout the lifespan, including during childhood, adolescence, and early to middle adulthood [53].

Self-esteem, defined as the respect and love individuals feel for themselves [55, 56], is not only a personal resource but also plays a critical role in social interactions. Individuals with higher self-esteem are more likely to engage in behaviors that foster positive relationships and perceive greater social support. This positive association suggests that self-esteem acts as a catalyst for building and maintaining supportive networks. However, experiences of cyber victimization can erode self-esteem, and in turn, diminish an individual's ability to perceive or attract social support. Thus, while self-esteem inherently promotes social support, cyber victimization can indirectly reduce social support by first lowering self-esteem [47, 56].

Based on previous research, our study hypothesizes that self-esteem is positively related to perceived social support. In other words, gifted students with higher levels of self-esteem are expected to report higher levels of social support. Furthermore, we posit that cyber victimization undermines self-esteem, which subsequently reduces perceived social support. This sequential process implies that while self-esteem and social support are positively linked, the negative impact of cyber victimization on self-esteem can lead to a corresponding decrease in social support.

Self-esteem refers to the respect and love individuals feel for themselves. Rosenberg defines these feelings as general self-esteem, reflecting a person's overall positive and negative attitudes toward oneself [55]. Other authors similarly describe self-esteem as an individual's sense of being good enough or worthy [56]. Research indicates that experiences of bullying can significantly undermine self-esteem. Victims who are subjected to repeated threats, teasing, and exclusion often experience a decline in their self-worth. For instance, the experience of being bullied may lead to increased feelings of insecurity and passivity, as the victim internalizes negative messages about their value [57, 58]. The persistent fear of being disliked, excluded, or rejected by peers, often exacerbated by bullying experiences, further contributes to diminished self-esteem [59]. Overall, these findings suggest that bullying not only inflicts immediate emotional distress but also has a lasting impact on an individual's self-perception and well-being.

Self-esteem develops and rises if a person feels important and valuable in their own life and in their relationships with others. Various adversities that damage this perception can harm self-esteem. Additionally, children and adolescents with low self-esteem are more likely to become victims of cyberbullying even before experiencing cyberbullying. Research indicates that low self-esteem is both a strong determinant for cyberbullying victimization and a negative outcome of cyberbullying victimization [60]. Brighi [61] state that cyberbullying victims report lower self-esteem scores and feeling more isolated compared to traditional bullying victims. In line with this finding, Cénat et al. [62] have indicated that young people exposed to bullying through the internet commonly report psychological problems and lower self-esteem compared to those exposed to other forms of bullying. Excessive exposure to harassment and humiliation is shown as the reason for this prevalence. Excessive exposure brings with it subjective happiness and adjustment disorders [63]. In fact, victimized young people, even in places where they would normally feel safe and away from bullies, can still be targeted by individuals through virtual networks. In this case, compared to traditional bullying, victims are likely to be further away from their peers who would support them in the online environment. Therefore, informing peers about cyberbullying and raising awareness among parents about their children's online behavior can reduce loneliness, decrease the frequency of bullying behaviors, and lead to an increase in self-esteem due to the perceived support for the victims." [64]. Self-esteem is influenced by family life, peer interactions, and significant life events [65]. It has been observed that adolescents who perceive their relationships with their parents as warm and secure tend to have higher self-esteem [66, 67].

This study hypothesizes that the experience of cyber victimization lowers an individual's self-esteem, which, in turn, reduces their perceived social support. While previous research suggests that children with low self-esteem are more vulnerable to becoming victims of cyberbullying, the focus of this study is on the post-victimization effects, specifically how cyberbullying incidents influence an individual's self-esteem and subsequent social interactions. This distinction is critical: rather than examining how pre-existing low self-esteem contributes to cyber victimization, we investigate the impact of cyber victimization on self-esteem as a dynamic, situational outcome. By clarifying this directionality, our hypothesis aligns with the assumption that cyber victimization acts as the initiating event, triggering a cascade of psychological and social consequences, including diminished self-esteem and reduced perceived social support.

Age and gender

In examining the roles of age and gender in the relationship between cybervictimization, self-esteem, perceived social support, and subjective well-being, it is crucial to consider the distinct influences these variables exert.

Previous research suggests that age is a significant factor in understanding the impacts of cybervictimization, as developmental differences influence emotional regulation, coping strategies, and access to online platforms [68]. For instance, younger adolescents may be more vulnerable to the psychological consequences of cyberbullying due to their limited coping mechanisms and heightened sensitivity to peer approval. Older adolescents, on the other hand, may exhibit more resilience, though they remain susceptible to negative outcomes in severe cases [69–72].

In contrast, the role of gender in the context of cyber victimization and its associated outcomes has been less explicitly explored in this study, yet existing literature highlights its importance. Research indicates that girls are more likely to experience relational forms of cyberbullying, such as exclusion and rumor-spreading, while boys are more often subjected to direct forms, such as threats or insults [43]. These differing experiences may influence how self-esteem and perceived social support are affected. For example, studies suggest that girls may experience a stronger decline in self-esteem and well-being due to the emotional nature of relational aggression, whereas boys may be more likely to externalize their distress through aggression or withdrawal [58].

By including both age and gender in this study, we aim to provide a more nuanced understanding of how demographic factors shape the psychological and social impacts of cyber victimization. This approach allows for the identification of gender-specific patterns in self-esteem and social support dynamics, which can inform targeted interventions to mitigate the adverse effects of cyberbullying.

Gifted students and cyber bullying

Over the past two decades, a significant amount of literature has been accumulated about cyber bullying among general education students. The phenomenon of cyber bullying among gifted students remains largely unknown. Despite the complex nature of giftedness, scholars have agreed upon several basic criteria for giftedness. Gifted students according to McClain and Pfeiffer [73] are individuals who possess exceptional intellectual abilities and can achieve outstanding performance and accomplishments. Gifted students may demonstrate excellent memory and outstanding accomplishments on tests in comparison with non-gifted counterparts [32]. Previous studies have shown that many gifted children tend to conceal their talents to conform to their peers, often

resulting in deliberate underachievement in academic settings [74–76]. Bullying and cyberbullying can exacerbate this situation, leading to peer pressure and academic underperformance [70, 77–79]. Research indicates a rising prevalence of cyberbullying victimization among gifted children and adolescents [80]. Moreover, high-achieving students are more susceptible to verbal and relational bullying compared to their mainstream counterparts [81, 82]. Additionally, gifted students are more likely to be excluded by their peers than students who have average academic abilities [83].

Existent research findings revealed that a great number of gifted students experienced traditional and cyber bullying [80, 84]. For instance, Peterson and Ray [85] examined the prevalence of bullying among a sample of 432 gifted students in U.S.A. They found that 67% of the selected sample reported being bullied at least one type of bullying throughout their education lives. Similarly, Laffan et al. [86] reported that 31.3% of the surveyed 195 gifted students were a victim of cyberbullying. It is evident that bullying is detrimental to the social, emotional, and psychological development of gifted students. Moreover, similar to above mentioned studies, Martínez-Monteagudo et al. [87] drew attention to the importance of bullying as an important research topic for the gifted student population, based on their meta-analysis that included research conducted between 2000 and 2020 on bullying among gifted students. Exploring cyber bullying among gifted students is vital to uncover the risk and protective factors gifted students possess.

The present study

With the advancement of technology, the phenomenon of cyberbullying has become an urgent research subject for scholars with adverse impacts on mental health and well-being of individuals involved in it. However, the influence of cyber victimization on the subjective well-being of gifted students has received only limited attention in recent research. Identifying mechanisms linking cyber victimization and subjective well-being among gifted youth is of paramount importance for the development of school based and family related effective intervention programs. The present study we tested a serial mediation model that specifies a pathway between cyber victimization and subjective well-being among gifted youth via self-esteem and social support. Additionally, we seek to examine gender differences and effect of age in these relationships. The hypotheses were:

- Cyber victimization will be negatively associated with self-esteem, social support, school-related happiness, and subjective happiness.
- Self-esteem will be positively associated with social support.

- Social support will be positively associated with school-related happiness and subjective happiness.
- Self-esteem will be positively associated with school-related happiness and subjective happiness.
- The relationship between cyber victimization and school-related happiness will be mediated by self-esteem and social support.
- The relationship between cyber victimization and subjective happiness will be mediated by self-esteem and social support,
- Cyber victimization, self-esteem and social support predict subjective well-being when controlling age.
- The model of cyber victimization, subjective well-being, self-esteem, and social support do not vary by gender.

Materials and methods

Study design

To test the relationships between cyberbullying self-esteem, social support, and subjective well-being of gifted youth a cross-sectional study was used. Ethical Approval from the University Institutional Review Board was obtained, subsequently the data collection process commenced during the 2023–2024 academic year. The purpose of the research was described to students. Informed consent form, demographic form, and scales of study completed with a paper-pen method. Scales were administered during school hours, a total of 250 students who obtained signed parental consent forms, along with their signed consent forms, were included in the present study.

Participants

A power analysis was performed using Soper's [88] Sample Size Calculator. Moderate effect size ($R=0.3$) was considered. Results of analysis showed that at least 117 participants are needed with a significance level of $\alpha=0.05$ and a 95% confidence level [89]. The aim of the research was to reach maximum diversity and the experiences of students in different fields. Gifted students studying between the 6th and 12th grades were reached. The study was carried out in "Science and Arts Education Centers (BİLSEM)" which have been established by the Turkish Ministry of National Education. The aim of Science and Art Centers is to enable gifted students to uncover their talents, develop this potential and use it at the highest possible level, from pre-school to secondary education. The students nominated by the elementary school teachers and principals, following nomination the students passed through to assessment of academic achievement, cognition, and creativity through a battery of tests. They are then subjected to group screening and individual review processes. In line with the evaluation

results, students who will enter BİLSEM are determined [90].

250 participants enrolled in this research from Antalya BİLSEM and Elazığ BİLSEM in Türkiye. Gifted youth who were able to bring consent forms (individual and parental) participated in the research. The sample of gifted youth consisted of 121 (47.8%) females and 129 males (52.2%). The mean age was 13.89 ($SD=1.8$) ranging between 11 and 17. Of these participants, 131 were middle school students in the 5th grade (9 total), 6th (14 total), 7th (83 total), or 8th [25] grade; 119 were high school students in the 9th (53 total), 10th (20 total), 11th (28 total), and 12th (17 total) grades.

Measures

Subjective Well-Being Indicators: Subjective Happiness and School Happiness.

Subjective happiness

The Subjective Happiness Scale assessed global happiness [37]. Subjective Well-Being was evaluated using the Subjective Happiness Scale (SHS) which is a self-report scale consisting of four items [91]. Participants were asked to rate the extent to which each item describes them on a scale from 1 (not at all) to 7 (a great deal). The total score on the SHS ranges from 4 to 28, with lower scores indicating lower subjective happiness levels. The SHS was adapted into Turkish by Dogan & Totan [92] who reported that it exhibits excellent internal consistency reliability ($\alpha=0.86$) and good structural validity. In this study, the coefficients were satisfactory, with Cronbach's α coefficient of 0.74 and McDonald's ω 0.77.

School happiness

In this study, we utilized the School Children's Happiness Inventory (SCHI) developed by Ivens [93] to assess subjective well-being among school children. The inventory comprises 15 positive and 15 negative items related to thoughts and feelings experienced during the previous week at school. Participants were required to rate each item on a scale ranging from 1 to 4, with a higher score indicating a greater level of happiness. Turkish adaptation of the inventory was conducted by Telef [94]. The reliability of the inventory's Turkish adaptation was calculated by employing Cronbach's alpha coefficient. Obtained value for the entire inventory was 0.92, indicating high internal consistency and reliability. In terms of internal consistency, the scale score for the current study were Cronbach's α 0.88 and McDonald's ω 0.86.

Cyber victimization

The Revised Cyber Bullying Inventory (RCBI) was used to evaluate the occurrence of cyber victimization and cyber bullying among adolescents [95]. The RCBI consisted

of two versions, one for assessing cyber bullying and another for measuring cyber victimization. Participants were instructed to rate the frequency of their experiences with each of the items over the past year using a 5-point scale, ranging from 1 (never) to 5 (more than ten times). The average score across all items was calculated, with higher scores indicating a greater extent of being a victim of cyberbullying. Topçu and Erdur-Baker [95] reported that the internal consistency of cyber victimization in their study as 0.75. In this study, Cronbach's α was 0.80 and McDonald's ω was 0.82. The focus of this study was solely on the participants' experiences as victims of cyberbullying, aligning with the primary research objective of understanding the psychological and social impacts of cyber victimization.

Perceived social support

The Perceived Social Support Scale [96] adapted for the Turkish culture by Eker et al. [97] was employed to evaluate adolescents' perception of social support. This scale comprised 12 items grouped into three support domains: family, teacher, and friend. These domains were averaged to generate a composite score representing the overall perceived social support [98]. Participants used a 7-point scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree), to indicate their level of agreement with each of the 12 statements. A summary score was calculated, with higher scores indicating greater levels of perceived social support. Cronbach's alpha coefficient was reported as 0.89 by Eker et al. [97]. The validity of the MSPSS (Multidimensional Scale of Perceived Social Support) has been established for use with adolescents [97], and in our data, both the family, peer and teacher support scale demonstrated good reliability, with Cronbach's α 0.88, 0.91, 0.90 and McDonald's ω 0.86, 0.89, 0.88.

Self-esteem

The Self-Liking/Self-Competence Scale, originally developed by Tafarodi and Swann [99] and later adapted for the Turkish population by Doğan [100], was utilized in this study. The scale consists of 16 items that participants rate on a 5-point Likert scale, ranging from "absolutely disagree" to "absolutely agree." It encompasses two dimensions, namely self-liking and self-competence. However, for the purposes of this study, only the self-liking dimension was utilized. Examples of items self-liking subscale are: I feel that I am an equally worthwhile person as others. I like myself just the way I am. The self-liking subscale has shown strong correlations (0.78 and 0.75) with measures of global self-esteem, such as the Self-Esteem Scale and Rosenberg Self-Esteem Scale [100]. Previous research has found Cronbach's α coefficient as a 0.83 which demonstrates the scale's satisfactory reliability

[100]. In this study, the scale exhibited Cronbach's α coefficient of 0.84 and McDonald's ω 0.83.

Analytic plan

In this study, we employed structural equation modeling (SEM) to examine latent variables such as cyber victimization, self-esteem, social support, and subjective well-being, with subjective happiness and school-related happiness serving as indicators of subjective well-being. Before conducting the analysis, we performed checks on the assumptions of multivariate statistics. The normality of the variables was confirmed as the absolute values of skewness and kurtosis did not exceed ± 2 [100]. To address multicollinearity, we examined variance inflated factors (VIF), tolerance. The results showed that all VIFs were below 10, and tolerance values were above 0.10, suggesting no issues with multiple linearity. None of the Mahalanobis values exceeded cut off point, indicating the absence of outliers' values. We assessed Common Method Bias using Harman's single factor score, and the result indicated that one factor explained less than the cut-off score of 50% [101], confirming the absence of a Common Method Bias problem. To ensure acceptable internal consistency, all reliability coefficients above 0.70 were considered.

Prior to investigating the causal paths in the structural model, it is essential to establish a well-fitting measurement model [102, 103]. Age was controlled in the analysis by allowing it to predict all forms of cyberbullying. Consequently, we assessed the measurement model to examine the impact of cyberbullying on subjective well-being through the mediation of self esteem and social support. The measurement model in this study included six latent constructs—cyber victimization, self-esteem, social support, subjective happiness, school-related happiness, and subjective well-being—with eighteen observed variables serving as indicators. To enhance the reliability and parsimony of the measurement model, item parceling was implemented, a widely used technique in Structural Equation Modeling (SEM). Specifically, items within each scale were grouped into parcels based on the strength of their correlations, ensuring that each parcel represented a balanced subset of the original items. This approach reduced the complexity of the model while maintaining its conceptual integrity [104].

For instance, the Subjective Happiness Scale, with four items, was used as individual indicators without parceling due to the limited number of items. In contrast, scales like the Revised Cyber Bullying Inventory (RCBI), Perceived Social Support Scale, and the Self-Liking/Self-Competence Scale contained more items, allowing for the creation of parcels to serve as indicators of their respective latent constructs. Each parcel was created to reflect the theoretical dimensions and empirical

Table 1 Descriptive statistics and correlation analyses ($n=250$)

Variable	1	2	3	4	5
1. Subjective Happiness	—				
2. School-related Happiness	0.24***	—			
3. Cyber victimization	-0.21**	-0.21***	—		
4. Self esteem	0.28***	0.51***	-0.23***	—	
5. Social Support	0.38***	0.35***	-0.15*	0.32***	—
Mean	17.30	44.17	12.41	30.25	62.03
Std. Deviation	5.15	9.10	3.69	6.56	15.32
Skewness	0.37	-0.16	1.82	-0.27	-0.36
Kurtosis	-0.36	-0.57	2.85	-0.77	-0.65
Minimum	4	20	10	13	20
Maximum	28	60	27	40	84

* $p<.05$, ** $p<.01$, *** $p<.001$

correlations within the scales, ensuring robust measurement properties. This method enabled the inclusion of all eighteen observed variables in a way that supported both the statistical fit and the theoretical underpinnings of the study. Finally, to evaluate the goodness-of-fit, we employed indices such as Tucker Lewis's Index (TLI) and Comparative Fit Index (CFI) with a threshold of ≥ 0.90 , Standardized Root Mean Square Residual (SRMR) with a threshold of ≤ 0.08 [104], and Root Mean Square Error of Approximation (RMSEA) with a threshold of ≤ 0.08 [105, 106].

To measure the generalizability of the results, multiple-group structural equation modeling (SEM) tests for invariance were employed. This involved examining separate covariance matrices for males and females. Measurement invariance across gender pertains to the extent to which a test measures the same construct across diverse groups. Gender was initially considered as a predictor for cyber victimization, self-esteem, social support, and subjective well-being. However, it was found to be non-significant and was consequently excluded from further analyses. IBM SPSS Statistics 26, IBM AMOS and 24 JASP 0.18.3. were used for the analysis.

Results

Descriptive statistics and preliminary analysis

The relationships between cyber victimization, subjective happiness, school-related happiness, social support and

self-esteem and means, skewness and kurtosis of these variables given in Table 1.

Cyber victimization is negatively correlated with subjective happiness ($r = -.21$, $p < .01$), school-related happiness ($r = -.21$, $p < .001$), self-esteem ($r = -.23$, $p < .001$) and with social support ($r = -.15$, $p < .05$). The self-esteem is positively related to social support ($r = .32$, $p < .001$). The social support is positively associated with subjective happiness ($r = .38$, $p < .001$) and school-related happiness ($r = .35$, $p < .001$). Finally, self-esteem is positively correlated with both subjective happiness ($r = .28$, $p < .001$) and school-related happiness ($r = .51$, $p < .001$).

The t -test results indicate that female had significantly higher mean scores on social support $t(248) = -2.66$, $p = .008$, than male and effect size for gender differences in social support was big ($d = -0.34$). There was no significant effect for gender in cyber victimization, $t(248) = 0.33$, $p = .736$, $d = 0.04$, subjective happiness $t(248) = 0.15$, $p = .887$, $d = 0.02$, school-related happiness $t(248) = 0.85$, $p = .395$, $d = 0.10$. and self-esteem $t(248) = -1.17$, $p = .241$, $d = -0.029$.

Measurement model

There were six latent constructs (cyber victimization, subjective well-being (subjective happiness and school-related happiness as second order variables), social support and self-esteem) and eighteen observed variables in the measurement model. Model goodness-of-fit indices were showed good fit ($\chi^2/df = 1.89$; SRMR = 0.06, RMSEA = 0.06, CFI = 0.93, TLI = 0.91). The regression weights of constructs were between 0.65 and 0.87 and composite reliability (CR) were between 0.69 and 0.84. Heterotrait-Monotrait Ratio (HTMT) showed that there is no problem in discriminant validity. Details of information given in Table 2.

Structural model

Effects of cyber victimization on subjective well-being via self-esteem and social support were tested. Age was used as control variable. The model produced an acceptable fit and hence we allowed correlated errors between items 1 and 2 in self-esteem. This created a good model fit ($\chi^2/df = 1.9$, CFI = 0.93, TLI = 0.93, SRMR = 0.04,

Table 2 Composite reliability and HTMT

	CR	MSV	MaxR(H)	1	2	3	4	5
1. Cyber victimization	.81	0.10	0.84					
2. Social Support	.69	0.44	0.67	0.19				
3. Self esteem	.84	0.36	0.91	0.32	0.46			
4. Subjective Happiness	.83	0.36	0.8	0.26	0.47	0.62		
5. School-related Happiness	.70	0.44	0.81	0.29	0.6	0.43	0.36	

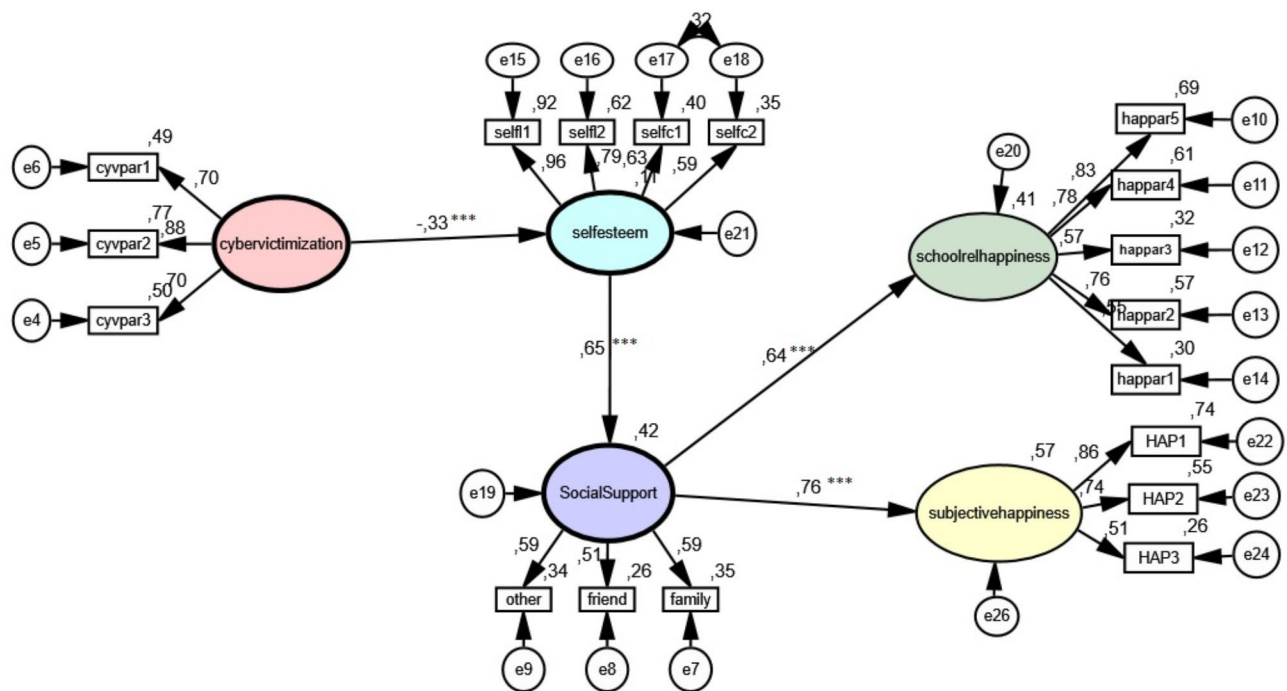


Fig. 1 Path diagram of subjective well-being model. *** $p < .001$

Table 3 Bootstrap results for direct, total, and indirect effects of the structural model

Bootstrap results for Variable	Value	SE	LL 95% CI	UL 95% CI	<i>p</i>
Direct effects					
Cyber victimization → Self esteem	-0.32	0.07	-0.44	-0.20	0.001
Self-esteem→ Social Support	0.64	0.06	0.52	0.75	0.001
Social Support → Subjective Happiness	0.75	0.06	0.65	0.85	0.001
Social Support → School-related Happiness	0.63	0.06	0.50	0.76	0.001
Total effects					
Cyber victimization → Subjective Happiness	-0.68	0.02	-1.12	-0.34	0.001
Cyber victimization →School-related Happiness	-0.27	0.03	-0.49	-0.13	0.001
Indirect effects					
Cyber victimization → Self esteem → Social Support →Subjective Happiness	-0.16	0.04	-0.24	-0.09	0.001
Cyber victimization → Self esteem →Social Support →School-related Happiness	-0.13	0.04	-0.23	-0.07	0.001

LL, lower limit; UL, upper limit; CI, confidence interval, Bootstrap sample size = 5000

RMSEA = 0.06). Standardized factor loadings are given in Fig. 1. As shown in Fig. 1, cyber victimization is significantly negatively associated with self-esteem ($\beta = -0.33, p < .001$). Moreover, self-esteem shows a significant positive

association with social support ($\beta = 0.65, p < .001$). Social support demonstrates significant positive associations with both subjective happiness ($\beta = 0.76, p < .001$) and school-related happiness ($\beta = 0.64, p < .001$).

Bootstrapping results of the mediation pathways to subjective happiness and school-related happiness
As shown in Table 3, the indirect effects (IEs) of cyber victimization on school-related happiness via self-esteem and social support were significant. More specifically, self-esteem and social support path (IE self-esteem → social support = -0.13, SE = 0.04, 95% CI = [LL = -0.23, UL = -0.07]), significantly mediate the relationship between cyber victimization and school-related happiness. This means that those victims of cyberbullying are likely to report significantly lower levels of school-related happiness. On the other hand, an increased level of self-esteem and social support increase school-related happiness. The indirect effect of cyber victimization on subjective happiness was significant via self-esteem and social support (IE self-esteem → social support = -0.16, SE = 0.04, 95% CI = [LL = -0.24, UL = -0.09]). This means that those victims of cyberbullying are likely to report significantly lower levels of subjective happiness. On the other hand, an increased level of self-esteem and social support increase subjective happiness. Moreover, the total effects of cyber victimization on subjective happiness (-0.68, SE = 0.02, 95% CI = [LL = -1.12, UL = -0.34]) and school-related happiness (-0.27, SE = 0.03, 95% CI = [LL = -0.49, UL = -0.13]) were significant.

Discussion

The purpose of this study was to ascertain whether the two distinct constructs of self-esteem and social support act as mediators in the potential relationship between cyber victimization and the subjective well-being of gifted students. The findings not only identify self-esteem, and social support as a potential contributor to higher levels of subjective well-being in gifted students but also showed how the impact of cyberbullying on mental health can vary depending on whether gifted students' level of self-esteem, and their perceived social support. The results demonstrated that gifted students who experience higher levels of cyberbullying are likely to exhibit significantly lower subjective well-being. When we enter serial mediation effect of self-esteem and social support into equation these relationships changed for subjective well-being. Higher self-esteem increases social support and that relationships have protective role for subjective well-being against cyberbullying. The results of the present study corroborated the relevancy of cyberbullying on the well-being of gifted students. In other words, the subjective well-being of gifted students who have experienced cyber bullying is negatively affected. It was evident that cyberbullying plays a prominent role in the development of an increased risk of mental health problems for students who are involved in it, which has a direct impact on the subjective well-being of students.

Previous studies reported that cyber bullying is associated with depression [35], decline in school performance [81], anger [107]. Similarly, a study by Coelho & Romao [108] showed that students who were bullied online were more likely to exhibit anxiety and withdrawal than non-involved students. Scientific inquiries investigating the subjective well-being of gifted students in the context of cyber bullying are rare. As an example, Gonzalez-Cabrera et al. [80] indicated that gifted students involved in cyberbullying have lower subjective well-being scores than uninvolved gifted students. This is an important finding given the lack of research on this student population and especially regarding the well-being of gifted students.

Our findings reveal that experiences of cyber bullying are significantly associated with lower self-esteem among gifted students, indicating that bullying plays a direct role in undermining self-worth. This result aligns with previous studies showing that students who are victims of cyber bullying tend to report diminished self-esteem compared to non-victims [109, 110]. For instance, Brighi et al. [61] found that cyber bullying victims experienced notable declines in self-esteem, while Lei et al. [111], in their meta-analysis of 37 studies, highlighted the crucial impact of bullying on reducing self-esteem. Collectively, these findings emphasize that cyber bullying can have a profound negative effect on an individual's

self-perception, underscoring the need for effective prevention and intervention strategies to safeguard the self-esteem of vulnerable student populations.

Our findings reveal a clear, positive relationship between self-esteem and social support. Specifically, students with higher self-esteem reported greater perceived social support, underscoring self-esteem's role as a protective factor. This result aligns with our hypothesis and previous studies (e.g., Marshall et al., 2014; Kinnunen et al., 2008), confirming that robust self-esteem enhances the perception and availability of social support. Importantly, our data also indicates that cyber victimization significantly diminishes self-esteem. This reduction in self-esteem, in turn, leads to lower levels of perceived social support, highlighting a sequential pathway in which cyber victimization indirectly undermines social support by eroding self-esteem [51, 53, 112]. By clarifying this directionality, we reconcile earlier discrepancies and affirm that the intrinsic relationship between self-esteem and social support is positive, with cyber victimization acting as a detrimental force through its negative impact on self-esteem.

Social support was also found to have a protective role in buffering the detrimental effects of cyberbullying on subjective well-being of gifted students. Previous studies have consistently indicated crucial role of social support in mitigating the impact of cyber bullying and promoting the subjective well-being across various student populations [113]. Wright [25] also highlights the importance of social support not only benefits the general population but also holds promise for different student populations experiencing cyber bullying. Although the clear association social support with cyber bullying and its mediating role across different variables is well documented, to the best of our knowledge, there is no study that is directly concerned with the examination of the relationship between social support through self-esteem and cyberbullying among gifted students and the mediation role of social support in the link of cyber bullying with subjective well-being of gifted students.

The serial mediation effect: self-esteem and social support

The serial mediation analysis revealed that self-esteem and social support are associated with the relationship between cyber victimization and subjective well-being. Specifically, the results showed that cyber victimization is negatively associated with self-esteem, which in turn shows a negative relationship with perceived social support. Lower levels of social support are further associated with lower levels of subjective well-being, including both subjective happiness and school-related happiness. These associations are consistent with previous research that highlights the bidirectional relationship between self-esteem and social support [51, 53]. However, the unique

contribution of this study lies in its focus on gifted youths, who may experience these relationships differently due to their heightened sensitivity and emotional intensity.

For example, gifted students with higher self-esteem are more likely to seek out and perceive social support, which can help them cope with the negative effects of cyber victimization. In contrast, those with lower self-esteem may struggle to build and maintain supportive relationships, further isolating them from potential sources of help [51]. This suggests that interventions aimed at boosting self-esteem and fostering social support networks may be particularly effective for gifted youths, as these factors can help mitigate the negative psychological impacts of cyber victimization. This study fills an important gap in the research on cyberbullying among gifted students by identifying gifted students as an at-risk group and elucidating the impact of cyberbullying on their well-being [114]. Gifted adolescents frequently encounter cyberbullying. The focus on gifted students is both timely and important considering the increased risks that may be exacerbated by their unique personality characteristics, such as hypersensitivity and emotional intensity [115] and asynchronous development [116].

Implications for gifted youths

The findings of this study underscore the urgent need to develop targeted interventions and prevention programs for gifted youths experiencing cyber victimization. Gifted students face unique challenges, including peer exclusion, social isolation, and a propensity for relational forms of cyberbullying [75, 80, 85]. These factors heighten their vulnerability and necessitate tailored support strategies that address the role of self-esteem and social support in mitigating negative effects of cyberbullying.

School-based interventions

Design and implement school programs that focus on building self-esteem and fostering robust social support networks among gifted students. Introduce peer support initiatives that encourage gifted youths to connect with one another, thereby reducing feelings of isolation and promoting a sense of belonging. Train educators to recognize the specific signs of cyber victimization in gifted students and to respond with empathy and targeted support. Incorporate cyberbullying awareness into the curriculum to educate students on responsible online behavior and the consequences of cyber aggression. Create safe spaces for open discussions in classrooms to normalize seeking help and support.

Parental and educator roles

Encourage open communication between parents, teachers, and students to ensure that gifted youths feel

supported when facing online bullying. Advise parents and educators on the importance of providing consistent emotional support to help these students navigate the challenges posed by cyber victimization [24, 27]. Promote awareness of the unique social dynamics affecting gifted students so that interventions can be adapted to their specific needs. Support parents in responsibly monitoring online activities while respecting privacy, to identify potential risks without eroding trust. Help parents create supportive home environments that model healthy emotional responses and celebrate achievements that build confidence and resilience.

Addressing unique challenges of gifted youths

Recognize that gifted students may be more susceptible to relational forms of cyber victimization, such as exclusion and rumor-spreading, due to their advanced intellectual abilities and complex social dynamics [80, 85]. Understand that the mediating role of self-esteem and social support is particularly critical in this population, as their heightened sensitivity and emotional intensity [117] can exacerbate the negative psychological impacts of cyberbullying, including depression and anxiety [115, 116].

Policy implications

Policymakers should mandate school programs that address cyberbullying, with special focus on vulnerable groups like gifted students. Allocate resources for educator training and digital literacy initiatives for parents and students. Develop policies to incorporate cyberbullying prevention in school curricula. Support community programs promoting online safety and resilience.

Conclusions

This study highlights the detrimental impact of cyber victimization on the subjective well-being of gifted adolescents and underscores the protective roles of self-esteem and social support. Our findings indicate that cyber victimization is associated with lower self-esteem, which, in turn, relates to reduced perceived social support, compounding its negative relationship with subjective happiness and school-related happiness.

The results of this study suggest several key insights:

Self-esteem and perceived social support of gifted adolescents may be critical factors in the development of prevention and intervention programs designed to cope with cyber victimization. Higher self-esteem is associated with seeking social support, which serves as a protective factor for subjective well-being against cyber victimization. Gifted students experiencing higher levels of cyber victimization tend to report significantly lower subjective well-being. By integrating school-based, familial, and targeted support strategies that boost self-esteem and

reinforce social support networks, stakeholders can better safeguard the mental health and well-being of gifted youths.

These findings emphasize the importance of a coordinated approach involving educators, parents, and policymakers to create environments where gifted students feel safe, valued, and supported both online and offline. Tailored interventions that address the unique challenges faced by gifted youth offer a promising path to mitigating the adverse effects of cyber victimization among this vulnerable group.

Limitations and future directions

It is important to consider the several limitations of this study when interpreting the findings. Since the study was cross-sectional, it is unclear whether the identified correlates are antecedents or consequences of cyberbullying victimization. Therefore, while the study indicates an association between cyberbullying victimization and subjective well-being, the direction of this influence requires further investigation. Cross-sectional estimates of mediation might be biased when mediation occurs over time [118]. However, methodologists have noted that if cross-sectional relationships are informative about the temporal process or are well grounded in theories and supported by empirical research, they can still provide valuable insights [119].

Future research should continue to explore the unique experiences of gifted youths in the context of cyber victimization, with a particular focus on the role of self-esteem and social support. Longitudinal studies could provide further insights into the causal relationships between these variables, helping to clarify whether self-esteem and social support act as protective factors or whether they are themselves influenced by cyber victimization. Additionally, future research could explore the effectiveness of targeted interventions aimed at boosting self-esteem and fostering social support networks among gifted youths, providing valuable insights for educators, parents and policymakers. Future studies may enhance validity and reduce bias by utilizing a multi-method, multi-informant approach (e.g., child self-report, parent report).

Acknowledgements

The authors would like to thank all the gifted youth who voluntarily participated in this study.

Author contributions

H.A collected data, screen the data, wrote the discussion and literature review parts of the study. E.K. conducted main analysis, prepared tables and figures, plan the research and check the whole research process.

Funding

This research received no external funding.

Data availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to [restrictions e.g. their containing information that could compromise the privacy of research participants].

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of SIIRT University on 02.07.2024 (Protocol No: 2024/876). Informed consent was obtained from all participants and their parents who took part in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 30 September 2024 / Accepted: 21 March 2025

Published online: 05 April 2025

References

1. Hinduja S, Patchin JW. Cyberbullying: neither an epidemic nor a rarity. *Eur J Dev Psychol.* 2012;9(5):539–43. <https://doi.org/10.1080/17405629.2012.706448>.
2. Olweus D. (2001, March). Bullying at school: tackling the problem. *OECD Observer*, 24. <https://link.gale.com/apps/doc/A75022135/AONE?u=anon~40eb05e5%26sid=bookmark-AONE%26xid=a6407016>
3. Slonje R, Smith PK. Cyberbullying: another main type of bullying? *Scand J Psychol.* 2008;49(2):147–54. <https://doi.org/10.1111/j.1467-9450.2007.00611.x>.
4. Tokunaga RS, Aune KS. Cyber-Defense: A taxonomy of tactics for managing cyberstalking. *J Interpers Violence.* 2017;32(10):1451–75. <https://doi.org/10.1177/0886260515589564>.
5. Akbulut Y, Eristi B. Cyberbullying and victimisation among Turkish university students. *Australasian J Educational Technol.* 2011;27(7). <https://doi.org/10.14742/ajet.910>.
6. Cowie H. Cyberbullying and its impact on young People's emotional health and well-being. *Psychiatrist.* 2013;37(5):167–70. <https://doi.org/10.1192/pb.b.p.112.040840>.
7. Riebel J, Jäger RS, Fischer UC. Cyberbullying in Germany - an exploration of prevalence, overlapping with real life bullying and coping strategies. *Psychol Sci.* 2009;51:298–314.
8. Slonje R, Smith PK, Frisén A. The nature of cyberbullying, and strategies for prevention. *Comput Hum Behav.* 2013;29(1):26–32. <https://doi.org/10.1016/j.chb.2012.05.024>.
9. Wright MF. (2022). The Nature of Cyberbullying Among Youths. *Research Anthology on Combating Cyber-Aggression and Online Negativity*, 35–55.
10. O'Reilly M, Dogra N, Hughes J, Reilly P, George R, Whiteman N. Potential of social media in promoting mental health in adolescents. *Health Promot Int.* 2019;34(5):981–91. <https://doi.org/10.1093/heapro/day056>.
11. Kumar A, Sachdeva N. Cyberbullying detection on social multimedia using soft computing techniques: a meta-analysis. *Multimedia Tools Appl.* 2019;78:23973–4010. <https://doi.org/10.1007/s11042-019-7234-z>.
12. Wright MF. The relationship between young adults' beliefs about anonymity and subsequent cyber aggression. *Cyberpsychology Behav Social Netw.* 2013;16(12):858–62. <https://doi.org/10.1089/cyber.2013.0009>.
13. LaRoe H, Corrales A. Silencing social media on suicidal matters at a school setting. *J Cases Educational Leadersh.* 2019;22(1):43–54. <https://doi.org/10.1177/1555458918785659>.
14. Wright MF, Cross. T.L. (2015). C.
15. Perren S, Gutzwiller-Helfenfinger E. Cyberbullying and traditional bullying in adolescence: differential roles of moral disengagement, moral emotions, and moral values. *Eur J Dev Psychol.* 2012;9(2):195–209. <https://doi.org/10.1080/17405629.2011.643168>.
16. Dilmac B. Psychological needs as a predictor of cyber bullying: A preliminary report on college students. *Kuram Ve Uygulamada Egitim Bilimleri (Educational Sciences: Theory Practice).* 2009;9:1307–25.

17. Kowalski RM, Giumetti GW, Schroeder AN, Lattanner MR. Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol Bull.* 2014;140(4):1073–137. <https://doi.org/10.1037/a0035618>.
18. Wright MF. (2018). Youths and cyberbullying: Description, theories, and recommendations. In V. C. Bryan, A. T. Musgrove, & J. R. Powers, editors, *Handbook of research on human development in the digital age* (pp. 364–384). IGI Publishing/IGI Global. <https://doi.org/10.4018/978-1-5225-2838-8.ch016>
19. Sabella RA, Patchin JW, Hinduja S. Cyberbullying Myths and realities. *Comput Hum Behav.* 2013;29(6):2703–11. <https://doi.org/10.1016/j.chb.2013.06.040>.
20. Wright, M. F., & Pendergrass, W. S. (2014). Cyberbullying: Bullying gone digital. In *Handbook on Bullying: Prevalence, Psychological Impacts and Intervention Strategies* (pp. 69–89). Nova Science Publishers, Inc#8230.
21. Copeland WE, Wolke D, Angold A, Costello EJ. Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry.* 2013;70(4):419–26.
22. Hinduja S, Patchin JW. Bullying, cyberbullying, and suicide. *Archives Suicide Research: Official J Int Acad Suicide Res.* 2010;14(3):206–21. <https://doi.org/10.1080/13811118.2010.4941331>.
23. Spears B, Slee P, Owens L, Johnson B. Behind the scenes and screens: insights into the human dimension of Covert and cyberbullying. *Z Für Psychologie/ Journal Psychol.* 2009;217(4):189–96. <https://doi.org/10.1027/0044-3409.217.4.189>.
24. Wright MF. The buffering effect of parental mediation in the relationship between adolescents' cyberbullying victimisation and adjustment difficulties. *Child Abuse Rev.* 2016;25:345–58.
25. Wright MF. Cyberstalking victimization, depression, and academic performance: the role of perceived social support from parents. *Cyberpsychology Behav Social Netw.* 2018;21(2):110–6. <https://doi.org/10.1089/cyber.2016.074.2>.
26. Wong-Lo M, Bullock LM, Gable RA. Cyber bullying: practices to face digital aggression. *Emotional Behav Difficulties.* 2011;16(3):317–25. <https://doi.org/10.1080/13632752.2011.595098>.
27. Wright MF, Wachs S. The buffering effect of parent social support in the longitudinal associations between cyber polyvictimization and academic outcomes. *Soc Psychol Educ.* 2021;24(5):1145–61. <https://doi.org/10.1007/s11218-021-09647-6>.
28. Holfeld B, Mishna F. Internalizing symptoms and externalizing problems: risk factors for or consequences of cyber victimization?? *J Youth Adolesc.* 2019;48(3):567–80. <https://doi.org/10.1007/s10964-018-0974-7>.
29. Mateu A, Pascual-Sánchez A, Martínez-Hervas M, Hickey N, Nicholls D, Kramer T. Cyberbullying and post-traumatic stress symptoms in UK adolescents. *Arch Dis Child.* 2020;105(10):951–6. <https://doi.org/10.1136/archdischild-2019-31871>.
30. Marco JH, Tormo-Irun MP. Cyber victimization is associated with eating disorder *Psychopathology in adolescents.* *Front Psychol.* 2018;9:987. <https://doi.org/10.3389/fpsyg.2018.00987>.
31. Kingsbury M, Arim R. Cybervictimization and mental health among Canadian youth. *Health Rep.* 2023;34(9):3–13. <https://doi.org/10.25318/82-003-x202300900001-eng>.
32. Fahy AE, Stansfeld SA, Smuk M, Smith NR, Cummins S, Clark C. Longitudinal associations between cyberbullying involvement and adolescent mental health. *J Adolesc Health: Official Publication Soc Adolesc Med.* 2016;59(5):502–9. <https://doi.org/10.1016/j.jadohealth.2016.06.006>.
33. Foody M, McGuire L, Kaldas S, O'Higgins Norman J. Friendship quality and gender differences in association with cyberbullying involvement and psychological Well-Being. *Front Psychol.* 2019;10:1723. <https://doi.org/10.3389/fpsyg.2019.01723>.
34. Li Y, Li D, Li X, Zhou Y, Sun W, Wang Y, Li J. Cyber victimization and adolescent depression: the mediating role of psychological insecurity and the moderating role of perceived social support. *Child Youth Serv Rev.* 2018;94:10–9.
35. Rose CA, Tynes BM. Longitudinal associations between cybervictimization and mental health among U.S. Adolescents. *J Adolesc Health.* 2015;57(3):305–12. <https://doi.org/10.1016/j.jadohealth.2015.05.002>.
36. Wright MF, Wachs S. Cyberbullying involvement and depression among elementary school, middle school, high school, and university students: the role of social support and gender. *Int J Environ Res Public Health.* 2023;20(4):2835. <https://doi.org/10.3390/ijerph20042835>.
37. Lyubomirsky S, Lepper HS. A measure of subjective happiness: preliminary reliability and construct validation. *Soc Indic Res.* 1999;46(2):137–55. <https://doi.org/10.1023/A:1006824100041>.
38. Diener E. Guidelines for National indicators of subjective Well-Being and Ill-Being. *Appl Res Qual Life.* 2006;1:151–7. <https://doi.org/10.1007/s11482-006-9007-x>.
39. Diener E. Subjective well-being. The science of happiness and a proposal for a National index. *Am Psychol.* 2000;55(1):34–43.
40. Lyubomirsky S, Tucker KL. Implications of individual differences in subjective happiness for perceiving, interpreting, and thinking about life events. *Motivation Emot.* 1998;22(2):155–86. <https://doi.org/10.1023/A:1021396422190>.
41. Uusitalo-Malmivaara L, Lehto J. Social factors explaining children's subjective happiness and depressive symptoms. *Soc Indic Res.* 2013;111:603–15.
42. Padir MA, Eroğlu Y, Çalışkan M. Ergenlerde Öznel Mutluluk İle siber Zorbalık ve Mağduriyet Arasındaki İlişkinin incelenmesi. *Online J Technol Addict Cyberbullying.* 2015;2(1):32–51.
43. Navarro R, Ruiz-Oliva R, Larrañaga E, Yubero S. The impact of cyberbullying and social bullying on optimism, global and school-related happiness and life satisfaction among 10-12-year-old school children. *Appl Res Qual Life.* 2015;10(1):15–36. <https://doi.org/10.1007/s11482-013-9292-0>.
44. Jankauskiene R, Kardelis K, Sukys S, Kardeliene L. Associations between school bullying and psychosocial factors. *Social Behav Personality.* 2008;36(2):145–62. <https://doi.org/10.2224/sbp.2008.36.2.145>.
45. Tian L, Chen H, Huebner ES. The longitudinal relationships between basic psychological needs satisfaction at school and school-related subjective well-being in adolescents. *Soc Indic Res.* 2014;119:353–72. <https://doi.org/10.1007/s11205-013-0495-4>.
46. Dumont M, Provost MA. Resilience in adolescents: protective role of social support, coping strategies, self-esteem, and social activities on experience of stress and depression. *J Youth Adolesc.* 1999;28(3):343–63. <https://doi.org/10.1023/A:1021637011732>.
47. Brewer G, Kerslake J. Cyberbullying, self-esteem, empathy and loneliness. *Comput Hum Behav.* 2015;48:255–60. <https://doi.org/10.1016/j.chb.2015.01.073>.
48. Kowalski RM, Limber SP. Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *J Adolesc Health.* 2013;53(1):13–20. <https://doi.org/10.1016/j.jadohealth.2012.09.018>.
49. Patchin JW, Hinduja S. Cyberbullying and self-esteem. *J Sch Health.* 2010;80(12):614–24. <https://doi.org/10.1111/j.1746-1561.2010.00548.x>.
50. Goodwin R, Costa P, Adonu J. Social support and its consequences: 'positive' and 'deficiency' values and their implications for support and self-esteem. *Br J Social Psychol.* 2004;43(3):465–74. <https://doi.org/10.1348/0144666042038006>.
51. Marshall SL, Parker PD, Ciarrochi J, Heaven PCL. Is self-esteem a cause or consequence of social support? A 4-year longitudinal study. *Child Dev.* 2014;85(3):1275–91. <https://doi.org/10.1111/cdev.12176>.
52. Buhrmester D. Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Dev.* 1990;61(4):1101–11.
53. Kinnunen M, Feldt T, Kinnunen U, Pulkkinen L. Self-esteem: an antecedent or a consequence of social support and psychosomatic symptoms? Cross-lagged associations in adulthood. *J Res Pers.* 2008;42:333–47. <https://doi.org/10.1016/j.jrp.2007.06.004>.
54. Deković M, Meeus W. Peer relations in adolescents: effects of parenting and adolescents' self-concept. *J Adolesc.* 1997;20(2):163–76. <https://doi.org/10.1016/j.jado.1996.007>.
55. Brown JD, Dutton KA, Cook KE. From the top down: Self-esteem and self-evaluation. *Cogn Emot.* 2001;15(5):615–31. <https://doi.org/10.1080/02699930143000004>.
56. Alessandri G, Vecchione M, Eisenberg N, Laguna M. On the factor structure of the Rosenberg (1965) general Self-Esteem scale. *Psychol Assess.* 2015;27(2):621–35. <https://doi.org/10.1037/pas0000073>.
57. Card NA, Hodges EVE. Peer victimization among schoolchildren: correlations, causes, consequences, and considerations in assessment and intervention. *School Psychol Q.* 2008;23(4):451–61. <https://doi.org/10.1037/a0012769>.
58. Olweus D. Bullying or peer abuse at school: facts and interventions. *Current Dir Psychol Sci.* 1995;4(6):196–200. <https://doi.org/10.1111/1467-8721.ep10772640>.
59. Gilbert P, Allan S. Assertiveness, submissive behaviour and social comparison. *Br J Clin Psychol.* 1994;33(3):295–306. <https://doi.org/10.1111/j.2044-8260.1994.tb01125.x>.
60. Extremera N, Quintana-Orts C, Mérida-López S, Rey L. Cyberbullying victimization, Self-Esteem and suicidal ideation in adolescence: does emotional intelligence play a buffering role?? *Front Psychol.* 2018;9:367. <https://doi.org/10.3389/fpsyg.2018.00367>.

61. Brighi A, Melotti G, Guarini A, Genta ML, Ortega R, Mora-Merchán JA, Smith P, Thompson FT. Self-Esteem and loneliness in relation to cyberbullying in three European countries. *Cyberbullying Global Playground: Res Int Perspect*. 2012;32–56. <https://doi.org/10.1002/9781119954484.ch3>.
62. Cénat JM, Hébert M, Blais M, Lavoie F, Guerrier M, Derivois D. Cyberbullying, psychological distress and self-esteem among youth in Quebec schools. *J Affect Disord*. 2014;169:7–9. <https://doi.org/10.1016/j.jad.2014.07.019>.
63. Grieser ER, Buhs ES. Prosocial behavior as a protective factor for children's peer victimization. *J Youth Adolesc*. 2014;43(7):1052–65. <https://doi.org/10.1007/s10964-013-0046-y>.
64. Sümengen AA, Akyuz A. Lise öğrencilerinin siber Zorbalığa Maruz Kalma Durumlarını Etkileyen faktörler. *J Educ Res Nurs*. 2020;17:214–21. <https://doi.org/10.5222/HEAD.2020.40222>.
65. Juhasz AM. Significant others and self-esteem: methods for determining who and why. *Adolescence*. 1989;24(95):581–94.
66. Bayraktar F, Sayıl M, Kumru A. Liseli ergenler ve Üniversiteli Gençlerde Benlik Saygısı: Ebeveyn ve Akranla Bağlanma, empati ve Psikolojik Uyum değişkenlerinin Rolü [Self-esteem among high-school adolescents and college students: the role of parental and peer attachment, empathy and psychological adjustment variables]. *Türk Psikoloji Dergisi*. 2009;24(63):48–63.
67. Price M, Dalgleish J. Cyberbullying: experiences, impacts and coping strategies as described by Australian young people. *Youth Stud Australia*. 2010;29:51–9.
68. Lozano-Blasco R, Barreiro-Collazo A, Romero-Gonzalez B, Soto-Sanchez A. The family context in cybervictimization: A systematic review and Meta-Analysis. *Trauma Violence Abuse*. 2024;25(3):2143–57. <https://doi.org/10.1177/15248380231207894>.
69. Shapka JD, Onditi HZ, Collie RJ, Lapidot-Lefler N. Cyberbullying and cybervictimization within a Cross-Cultural context: A study of Canadian and Tanzanian adolescents. *Child Dev*. 2018;89(1):89–99. <https://doi.org/10.1111/cdev.12829>.
70. Chen JK, Chen LM. Cyberbullying among adolescents in Taiwan, Hong Kong, and Mainland China: a cross-national study in Chinese societies. *Asia Pac J Social Work Dev*. 2020;30(3):227–41. <https://doi.org/10.1080/02185385.2020.1788978>.
71. Choi K, Cho S, Lee JR. Impacts of online risky behaviors and cybersecurity management on cyberbullying and traditional bullying victimization among Korean youth: application of cyber-routine activities theory with latent class analysis. *Comput Hum Behav*. 2019;100:1–10. <https://doi.org/10.1016/j.chb.2019.06.007>.
72. Wade A, Beran T. Cyberbullying: the new era of bullying. *Can J School Psychol*. 2011;26(1):44–61. <https://doi.org/10.1177/0829573510396318>.
73. McClain M-C, Pfeiffer S. Identification of gifted students in the United States today: A look at state definitions, policies, and practices. *J Appl School Psychol*. 2012;28(1):59–88. <https://doi.org/10.1080/15377903.2012.643757>.
74. Coleman LJ, Cross TL. Is being gifted a social handicap?? *J Educ Gifted*. 1988;11(4):41–56. <https://doi.org/10.1177/016235328801100406>.
75. Cross JR, Vaughn CT, Mammadov S, Cross TL, Kim M, O'Reilly C, Spielhagen FR, Da Costa P, M., Hymer B. A cross-cultural study of the social experience of giftedness. *Roeper Review: J Gifted Educ*. 2019;41(4):224–42. <https://doi.org/10.1080/02783193.2019.1661052>.
76. Cross TL, Cross JR. A School-Based conception of giftedness: clarifying roles and responsibilities in the development of talent in our public schools. In: Sternberg RJ, Ambrose D, editors. *Conceptions of giftedness and talent*. Cham: Palgrave Macmillan; 2021. https://doi.org/10.1007/978-3-030-56869-6_6.
77. Chen X, Fan X, Cheung HY, Wu J. The subjective well-being of academically gifted students in the Chinese cultural context. *School Psychol Int*. 2018;39(3):291–311. <https://doi.org/10.1177/0143034318773788>.
78. Kara E, Çimşir E, Alçay A. The roles of Self-Compassion and Self-Coldness in the relationships between inferiority and stress and anxiety among gifted adolescents. *Mindfulness*. 2023;15(1):217–29. <https://doi.org/10.1007/s12671-023-02266-6>.
79. Livazović G, Ham E. Cyberbullying and emotional distress in adolescents: the importance of family, peers and school. *Heliyon*. 2019;5(6):e01992. <https://doi.org/10.1016/j.heliyon.2019.e01992>.
80. González-Cabrera J, Tourón J, Machimbarrena JM, Gutiérrez-Ortega M, Álvarez-Bardón A, Garaigordobil M. Cyberbullying in gifted students: prevalence and psychological well-being in a Spanish sample. *Int J Environ Res Public Health*. 2019;16(12):2173. <https://doi.org/10.3390/ijerph16122173>.
81. Richard JF, Schneider BH, Mallet P. Revisiting the whole-school approach to bullying: really looking at the whole school. *School Psychol Int*. 2012;33(3):263–84. <https://doi.org/10.1177/0143034311415906>.
82. Thomson P, Gunter H. From 'consulting pupils' to 'pupils as researchers': a situated case narrative. *Br Edu Res J*. 2006;32(6):839–56. <https://doi.org/10.1080/1411920600989487>.
83. Woods S, Wolke D. Direct and relational bullying among primary school children and academic achievement. *J Sch Psychol*. 2004;42(2):135–55. <https://doi.org/10.1016/j.jsp.2003.12.002>.
84. Aslan H. (2016). Traditional and cyber bullying among the students with special education needs [Master's Thesis]. Middle East Technical University. Available from: <https://open.metu.edu.tr/handle/11511/26050>
85. Peterson JS, Ray K. Bullying among the gifted: the subjective experience. *Gifted Child Q*. 2006b;50:252–68. <https://doi.org/10.1177/001698620605000305>.
86. Laffan DA, Slonje R, Ledwith C, et al. Scoping bullying and cyberbullying victimization among a sample of gifted adolescents in Ireland. *Int J Bullying Prev*. 2024;6:13–27. <https://doi.org/10.1007/s42380-022-00134-w>.
87. Martínez-Monteagudo Á, Martínez-Monteagudo MC, Delgado B. School bullying and cyberbullying in academically gifted students: A systematic review. *Aggress Violent Beh*. 2023;71(4). <https://doi.org/10.1016/j.avb.2023.101842>.
88. Soper DS. (2020). A-priori sample size calculator for structural equation models [Software].
89. Westland JC. Lower bounds on sample size in structural equation modeling. *Electron. Commer Res Appl*. 2010;9:476–87.
90. Çelikten Y. (2017). Üstün Yetenekli Çocuklar ve BİLSEM. *Turkish J Educational Stud*, 4(3). <https://dergipark.org.tr/en/pub/turkjes/issue/34172/377838>
91. Damásio BF, Zanon C, Koller SH. Validation and psychometric properties of the Brazilian version of the subjective happiness scale. *Universitas Physiol*. 2014;13:17–24.
92. Doğan T, Totan T. Psychometric properties of Turkish version of the subjective happiness scale. *J Happiness Well-Being*. 2013;1(1):21–8.
93. Ivens J. The development of a happiness measure for schoolchildren. *Educational Psychol Pract*. 2007;23(3):221–39. <https://doi.org/10.1080/02667360701507301>.
94. Telef BB. Okul Çocuklarının Mutluluk Envanteri: Geçerlik ve Güvenilirlik Çalışması. *Int Online J Educational Sci*. 2014;6(1):130–43.
95. Topcu Ç, Erdur-Baker Ö. The revised cyber bullying inventory (RCBI): validity and reliability studies. *Procedia-Soc Behav Sci*. 2010;5:660–4.
96. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. *J Pers Assess*. 1988;52(1):30–41. https://doi.org/10.1207/s15327752jpa5201_2.
97. Eker D, Arkar H, Yıldız H. Factorial structure, validity, and reliability of revised form of the multidimensional scale of perceived social support. *Turk J Psychiatry*. 2001;12(1):17–25.
98. Canty-Mitchell J, Zimet GD. Psychometric properties of the multidimensional scale of perceived social support in urban adolescents. *Am J Community Psychol*. 2000;28(3):391–400. <https://doi.org/10.1023/A:100510952245>.
99. Tafariodi RW, Swann WB. Two-dimensional self-esteem: theory and measurement. *Pers Indiv Differ*. 2001;31(5):653–73. [https://doi.org/10.1016/S0191-8869\(00\)00169-0](https://doi.org/10.1016/S0191-8869(00)00169-0).
100. Doğan T. Two-Dimensional Self-Esteem: adaptation of the Self-Liking / Self-Competence scale into Turkish: A validity and reliability study. *Education*. 2015;36(162):1–29.
101. George D, Mallery P. IBM SPSS statistics 26 step by step: A simple guide and reference. Routledge; 2019.
102. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J Appl Psychol*. 2003;88(5):879–903. <https://doi.org/10.1037/0021-9010.88.5.879>.
103. Kenny DA. (2015). Measuring model fit. Available from: <https://davidakenny.net/cm/fit.htm>
104. Little TD. Longitudinal structural equation modeling. Guilford Press; 2013.
105. Hu L-t, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Model*. 1999;6(1):1–55. <https://doi.org/10.1080/10705519909540118>.
106. MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. *Psychol Methods*. 1996;1(2):130–49. <https://doi.org/10.1037/1082-989X.1.2.130>.
107. Beran TN, Mishna F, McInroy LB, Shariff S. Children's experiences of cyberbullying: A Canadian National study. *Child Schools*. 2015;37:207–14. <https://doi.org/10.1093/cs/cdv024>.

108. Coelho VA, Romão AM. The relation between social anxiety, social withdrawal and (cyber) bullying roles: A multilevel analysis. *Comput Hum Behav*. 2018;86:218–26. <https://doi.org/10.1016/j.chb.2018.04.048>.
109. Cénat JM, Darius WP, Dalexis RD, Kogan CS, Guerrier M, Ndengeyingoma A. Perceived Racial discrimination, internalized racism, social support, and self-esteem among black individuals in Canada: A moderated mediation model. *Cult Divers Ethn Minor Psychol*. 2024;30(1):118–29. <https://doi.org/10.1037/cdp0000542>.
110. Rebisz S, Jasińska-Maciążek A, Grygiel P, Dolata R. Psycho-Social correlates of cyberbullying among Polish adolescents. *Int J Environ Res Public Health*. 2023;20(8):5521. <https://doi.org/10.3390/ijerph20085521>.
111. Lei H, Mao W, Cheong CM, Wen Y, Cui Y, Cai Z. The relationship between self-esteem and cyberbullying: A meta-analysis of children and youth students. *Curr Psychol*. 2020;39(3):830–42. <https://doi.org/10.1007/s12144-019-00407-6>.
112. Ooi HX, Hamzah A, Thien LM. The influence of social support on postgraduate students' psychological Well-being: Self-Esteem as a mediator. *Participatory Educational Res*. 2023;10(3):150–66. <https://doi.org/10.17275/per.23.49.10.3>.
113. Hellfeldt K, López-Romero L, Andershed H. Cyberbullying and psychological Well-being in young adolescence: the potential protective mediation effects of social support from family, friends, and teachers. *Int J Environ Res Public Health*. 2019;17(1):45. <https://doi.org/10.3390/ijerph17010045>.
114. Connolly JP. Exploring the factors influencing gifted adolescents' resistance to report experiences of cyberbullying behavior: toward an improved Understanding. *J Educ Gifted*. 2018;41(2):136–59. <https://doi.org/10.1177/0162353218763869>.
115. Mendaglio S, Peterson JS, editors. *Models of counseling gifted children, adolescents, and young adults*. Waco, TX: Prufrock; 2007.
116. Rimm SB, Siegle D, Davis GA. (2018). *Education of the gifted and talented*. Pearson Boston, MA.
117. Cross JR, Cross TL. Clinical and mental health issues in counseling the gifted individual. *J Couns Dev*. 2015;93:163–72. <https://doi.org/10.1002/j.1556-6676.2015.00192.x>.
118. Maxwell SE, Cole DA. Bias in cross-sectional analyses of longitudinal mediation. *Psychol Methods*. 2007;12(1):23–44. <https://doi.org/10.1037/1082-989X.12.1.230>.
119. Hayes AF. Partial, conditional, and moderated moderated mediation: quantification, inference, and interpretation. *Communication Monogr*. 2018;85(1):4–40. <https://doi.org/10.1080/03637751.2017.1352100>.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.