

Predicting Social Rejection Based on Perceived Stress and Loneliness with the Mediation of Social Skills in Generation Z Adolescents

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ABSTRACT

Objective: The objective of this study was to model social rejection in Generation Z adolescents based on perceived stress and loneliness, with the mediating role of social skills.

Methods and Materials: This descriptive-correlational study using structural equation modeling (SEM) was conducted on 251 high school students from districts 8, 9, and 10 in Tehran during the 2024–2025 academic year. Participants were selected through multi-stage cluster sampling. Data were collected using the Social Isolation Questionnaire, the Perceived Stress Scale (PSS), the short form of the Social and Emotional Loneliness Scale for Adults (SELSA-S), and the Teenage Inventory of Social Skills (TISS). Descriptive statistics, Pearson correlation coefficients, and SEM analysis were conducted using SPSS-24 and AMOS-24 software. Model fit indices and bootstrapping procedures were used to assess the significance of direct and indirect paths and the mediating role of social skills.

Findings: The results showed that perceived stress ($\beta = -0.34$, $p < .001$) and social skills ($\beta = -0.29$, $p < .001$) had significant negative direct effects on social rejection, while loneliness ($\beta = 0.36$, $p < .001$) had a significant positive direct effect. Perceived stress ($\beta = -0.34$, $p < .001$) and loneliness ($\beta = -0.29$, $p < .001$) also had significant negative effects on social skills. Bootstrapping analysis revealed that social skills significantly mediated the effects of both perceived stress and loneliness on social rejection (indirect $\beta = -0.28$ and -0.29 , respectively, $p < .01$). The model showed good fit based on RMSEA = 0.046 and other indices (NFI, IFI, CFI, GFI ≥ 0.90).

Conclusion: Perceived stress and loneliness significantly predict social rejection in Generation Z adolescents, while social skills reduce its impact both directly and indirectly. Enhancing adolescents' social skills may serve as a protective factor against social rejection and improve their psychological well-being.

Keywords: loneliness, perceived stress, social rejection, social skills, Generation Z adolescents

1. Introduction

Adolescence is a critical and transformative stage in human life. During this period, significant physical, emotional, and cognitive changes occur, guiding the individual toward maturity. Adolescents actively seek identity and independence, forming increasingly complex social and emotional relationships (Ghanbari Baghestan et al., 2023). This stage involves numerous challenges and opportunities that ultimately contribute to the formation of an individual's personality (Oerther & Oerther, 2021). Contemporary adolescents are often referred to as Generation Z, those born during the 1990s and 2000s. This generation has grown up immersed in a digital and technological environment, which naturally equips them with specialized digital skills (Runcan et al., 2023). They can rapidly process information and multitask, as multitasking is considered routine in today's world (Kiefner-Burmeister et al., 2023). Compared to previous generations, Generation Z exhibits a stronger tendency toward individualism and independence and is typically goal-oriented with a drive to form a unique identity. This generation is also notably concerned with social and environmental issues such as climate change, racism, and economic inequality, and actively engages in these areas (Hermawan & Darwis, 2023). Overall, Generation Z is considered creative and aware, seeking to address new challenges with fresh perspectives and innovative approaches (Pavlikova et al., 2023). Among Generation Z adolescents, attention to the phenomenon of social rejection is particularly significant.

Adolescents often encounter various social and psychological challenges. One of these challenges is the experience of social rejection. Social rejection, or social exclusion, occurs when an individual is consciously excluded from a social relationship or interaction (Fakoya et al., 2020). In such cases, the individual is pushed away by one or more people or groups. Experiencing rejection can lead to adverse psychological consequences such as loneliness, low self-esteem, aggression, and depression. Furthermore, social rejection can give rise to feelings of insecurity and heightened sensitivity to future rejection (Dehghan Ghahfarokhi & Rashidlamir, 2017). In Generation Z adolescents, social rejection may lead to feelings of isolation, anxiety, and diminished self-confidence. These negative experiences can affect mental health and may contribute to behavioral issues and depressive symptoms (Musliffah et al., 2024). In other words, social rejection can foster feelings of inferiority, shame, and worthlessness

among adolescents (Kaggwa et al., 2024). Several psychological variables are involved in social rejection, including perceived stress (Brandt et al., 2022; Campagne, 2019; Meese et al., 2024) and loneliness (I. L. D. L. Almeida et al., 2021; T. S. Almeida et al., 2021; Hards et al., 2022).

Stress in adolescents is one of the contributing factors to emotional and maladaptive behaviors (Suhendro et al., 2024). When perceived stress exceeds the individual's ability to manage or control it, they may adopt various coping mechanisms. Some of these coping methods may be ineffective and increase vulnerability to psychological disorders (Algren et al., 2018). Perceived stress in adolescents refers to the sense of pressure and worry experienced in the face of various challenges and expectations. This stress intensifies when adolescents feel socially rejected, as feelings of loneliness, non-acceptance, and an inability to establish meaningful relationships elevate their stress levels (Suhendro et al., 2024). Consequently, adolescents who experience social rejection are more exposed to perceived stress due to their sense of exclusion and unmet social needs, which negatively impacts their mental health and capabilities (Bourduge et al., 2022).

Another variable examined in this study is loneliness. Loneliness is an unpleasant personal experience, characterized by a sense of distinction from others, and is often accompanied by observable behavioral problems such as sadness, anger, and depression. It reflects a mismatch between one's expectations and actual social relationships. One of the prominent symptoms of loneliness includes behaviors such as avoiding contact with others (Utz et al., 2014). Loneliness refers to a state in which the individual perceives or experiences a lack of connection with others. Loneliness is characterized by two key dimensions: social isolation and emotional isolation (Hsieh & Hawkey, 2018). Emotional isolation and loneliness refer to the absence of close attachments or friendships, whereas social isolation denotes a lack of accessible social networks or relationships. Loneliness involves central components such as an unpleasant sense of lacking companionship, the negative aspects of lost or deteriorated relationships, and the deterioration in the quality of relational engagement (Paque et al., 2018).

Given that social skills are a pivotal factor in social rejection, it is expected that this variable can influence other psychological constructs (I. L. D. L. Almeida et al., 2021; T. S. Almeida et al., 2021) and play a crucial role in adolescents' social functioning. Effective social skills help adolescents build positive relationships, resolve conflicts,

enhance self-confidence, and foster a sense of belonging. As a result, levels of anxiety and perceived stress decrease, and mental well-being improves (Preston & Rew, 2022). A lack of social skills can lead to communication difficulties and increase the risk of social rejection, as adolescents may struggle in social interactions and thus experience heightened isolation and loneliness (Christiansen et al., 2021).

The importance of addressing Generation Z adolescents lies in identifying the factors that influence social rejection in this specific group. Due to their distinct digital and psychological context, these adolescents are more susceptible to loneliness and stress, which can threaten their mental health and social development. Investigating the relationships among these variables, alongside the mediating role of social skills, can enhance our understanding of psychological processes and support the development of effective interventions. However, a shortage of comprehensive and applied studies in this field, especially concerning the mediating role of social skills, underscores the need for further research. Addressing this gap is crucial for formulating practical strategies to reduce social rejection and promote mental well-being in adolescents. Therefore, the present study seeks to answer the following question: “Can social rejection be predicted based on perceived stress and loneliness with the mediation of social skills in Generation Z adolescents?”

2. Methods and Materials

2.1. Study Design and Participants

The present study, in terms of its aim, is categorized as fundamental research, and in terms of data collection method, it is descriptive-correlational in nature (structural equation modeling). The statistical population consisted of high school students in the upper secondary level in Tehran during the 2024–2025 academic year. A multi-stage cluster sampling method was used, whereby districts 8, 9, and 10 of Tehran were selected first. Then, 11 schools were randomly chosen from these districts. After obtaining permission from the school principals and relevant authorities, the research questionnaires were distributed electronically among the students. After collecting the statistical data and accounting for sample attrition, a total of 251 completed questionnaires were included in the final analysis.

2.2. Measures

2.2.1. Social Isolation

This questionnaire was developed by Chalabi and Amirkaafi (2004) and consists of 19 items. It includes subscales assessing types of support within the social network (cognitive support), emotional support, financial support, service-related support, and the scope of the social network (network size and type of interaction). Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores between 19 and 38 indicate a low level of the variable, scores between 38 and 76 indicate a moderate level, and scores above 76 indicate a high level (Chalabi & Amirkaafi, 2004). In a study by Mohammadi Joo (2013), the reliability of this questionnaire was calculated using Cronbach’s alpha and reported as 0.78. Jalali (2012) also reported reliability above 0.70 (I. L. D. L. Almeida et al., 2021). In the present study, the reliability coefficient using Cronbach’s alpha was 0.72.

2.2.2. Perceived Stress

This scale was developed by Cohen et al. (1983) and consists of 16 items. Items are scored on a 5-point Likert scale ranging from 0 (never) to 4 (very often). The scale measures two subscales: (a) negative perception of stress, which includes items 1, 2, 3, 4, 11, 12, and 14; and (b) positive perception of stress, which includes items 5, 6, 7, 8, 9, 10, and 13 (reverse-scored). Internal consistency reliability coefficients using Cronbach’s alpha range from 0.84 to 0.86. In a study by Ahmadian (2012), the reliability coefficients for the subscales were 0.71 for positive perception and 0.75 for negative perception. The overall reliability of the scale was 0.84. Additionally, item-total correlations for the positive perception subscale ranged from 0.49 to 0.70, for the negative perception subscale from 0.52 to 0.77, and for the total scale from 0.51 to 0.78. In the present study, Cronbach’s alpha for the scale was calculated as 0.74.

2.2.3. Loneliness

This scale was developed by DiTommaso et al. (2004) and includes 15 items. Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). All items except items 14 and 15 are reverse-scored. Higher scores on each dimension indicate greater loneliness. DiTommaso et al. (2004) reported Cronbach’s alpha values between 0.87 and 0.90. Jokar and Salimi (2011) reported

reliability coefficients of 0.92, 0.84, and 0.78 for the romantic, social, and family dimensions, respectively. In the present study, Cronbach's alpha for the entire scale was calculated as 0.71.

2.2.4. Social Skills

This questionnaire was developed by Inderbitzen and Foster (1992) and consists of 39 items across two subscales: prosocial behaviors and antisocial behaviors. Items are scored on a 6-point scale from 1 (not at all true) to 5 (always true). The total possible score ranges from 0 to 195. A score below 49 indicates low social skills, scores between 49 and 98 indicate moderate skills, and scores above 98 indicate high social skills. The original reliability of the scale was reported as 0.90 by Inderbitzen and Foster (1992). In Tehran, Amini (1999) reported reliability coefficients of 0.71 and 0.68 for the positive and negative subscales, respectively. Cronbach's alpha for the positive subscale was reported as 0.80 and for the negative subscale as 0.80. Arjomandi (2004) reported a reliability coefficient of 0.84 using Cronbach's alpha. For the negative subscale, reliability was 0.72 and internal consistency was reported as 0.88. In the present study, Cronbach's alpha for the full scale was 0.73.

2.3. Data Analysis

Data analysis in this study was conducted using both descriptive and inferential statistical methods. Initially, descriptive statistics such as mean, standard deviation, skewness, and kurtosis were calculated to assess the distribution and normality of the variables. Pearson correlation coefficients were then used to examine the bivariate relationships among perceived stress, loneliness, social skills, and social rejection. To test the hypothesized structural relationships and mediating effects, Structural Equation Modeling (SEM) was employed using AMOS version 24. Model fit was evaluated using indices including Chi-square/df, RMSEA, NFI, IFI, CFI, and GFI. In addition, multicollinearity was assessed through Tolerance and VIF statistics, and the Durbin-Watson statistic was used to verify the independence of residuals. The significance of indirect effects was tested through bootstrapping procedures to confirm the mediating role of social skills in the relationship between perceived stress, loneliness, and social rejection.

3. Findings and Results

The mean age of participants in the study was 17.68 years, with a standard deviation of 3.53. Among the participants, 131 were girls (52.2%) and 120 were boys (47.8%).

Table 1

Correlation Matrix, Descriptive Statistics, Skewness, and Kurtosis of Research Variables

Variable	1	2	3	4	5	6	M	SD	Skewness	Kurtosis
1. Social Rejection	1						61.81	16.15	0.23	-0.41
2. Positive Perceived Stress	-0.24**	1					17.07	6.01	-0.25	-0.46
3. Negative Perceived Stress	0.31**	-0.34**	1				17.68	3.52	-0.24	-0.63
4. Total Perceived Stress Score	0.36**	0.14**	0.34**	1			34.75	4.39	-0.28	-0.53
5. Loneliness	0.41**	-0.18**	0.31**	0.39**	1		41.56	4.82	0.28	-0.47
6. Social Skills	-0.33**	0.34**	-0.21**	-0.28**	-0.29**	1	62.45	25.17		

The correlation matrix results in Table 1 indicate that there is a significant negative correlation between social rejection and both positive perceived stress ($r = -0.24$, $p < .01$) and social skills ($r = -0.33$, $p < .01$), while there is a significant positive correlation between social rejection and negative perceived stress ($r = 0.31$, $p < .01$), total perceived stress ($r = 0.36$, $p < .01$), and loneliness ($r = 0.41$, $p < .01$).

The mean and standard deviation values support the assumption of univariate normality, as skewness and

kurtosis values fall within the acceptable ± 1.95 range, indicating a normal distribution of variables. Additionally, tolerance statistics for the predictors were all above 0.40, and VIF values were all below 10, indicating no multicollinearity concerns. The Durbin-Watson statistic was 1.94, which falls within the acceptable range of 1.5 to 2.5, confirming the assumption of independence of residuals.

Figure 1 displays the structural model of social rejection based on perceived stress and loneliness, mediated by social

skills, along with path coefficients as analyzed using AMOS. In this model, perceived stress and loneliness are exogenous (independent) variables, while social rejection is the

endogenous (dependent) variable. Social skills are defined as a latent variable. Table 2 presents the results of the direct effects in the structural model.

Table 2

Direct Path Coefficients in the Structural Model

Path	B	SE	Beta	t	p
Perceived Stress → Social Rejection	-1.52	0.09	-0.34	-3.24	.001
Loneliness → Social Rejection	1.13	0.17	0.36	4.32	.001
Social Skills → Social Rejection	-2.57	0.08	-0.29	-3.39	.001
Perceived Stress → Social Skills	-2.31	0.26	-0.34	-4.43	.002
Loneliness → Social Skills	-1.21	0.11	-0.29	-3.64	.014

Table 2 shows that perceived stress ($\beta = -0.34$, $p < .001$) and social skills ($\beta = -0.29$, $p < .001$) have significant and negative direct effects on social rejection. Conversely, loneliness has a significant and positive direct effect on

social rejection ($\beta = 0.36$, $p < .001$). Both perceived stress ($\beta = -0.34$, $p < .001$) and loneliness ($\beta = -0.29$, $p < .001$) have significant and negative effects on social skills.

Table 3

Mediating Effect Analysis Using Bootstrapping

Path	B	Beta	p-value
Perceived Stress → Social Skills → Social Rejection	2.41	-0.28	.010
Loneliness → Social Skills → Social Rejection	3.35	-0.29	.010

According to Table 3, social skills significantly mediate the effects of perceived stress and loneliness on social rejection.

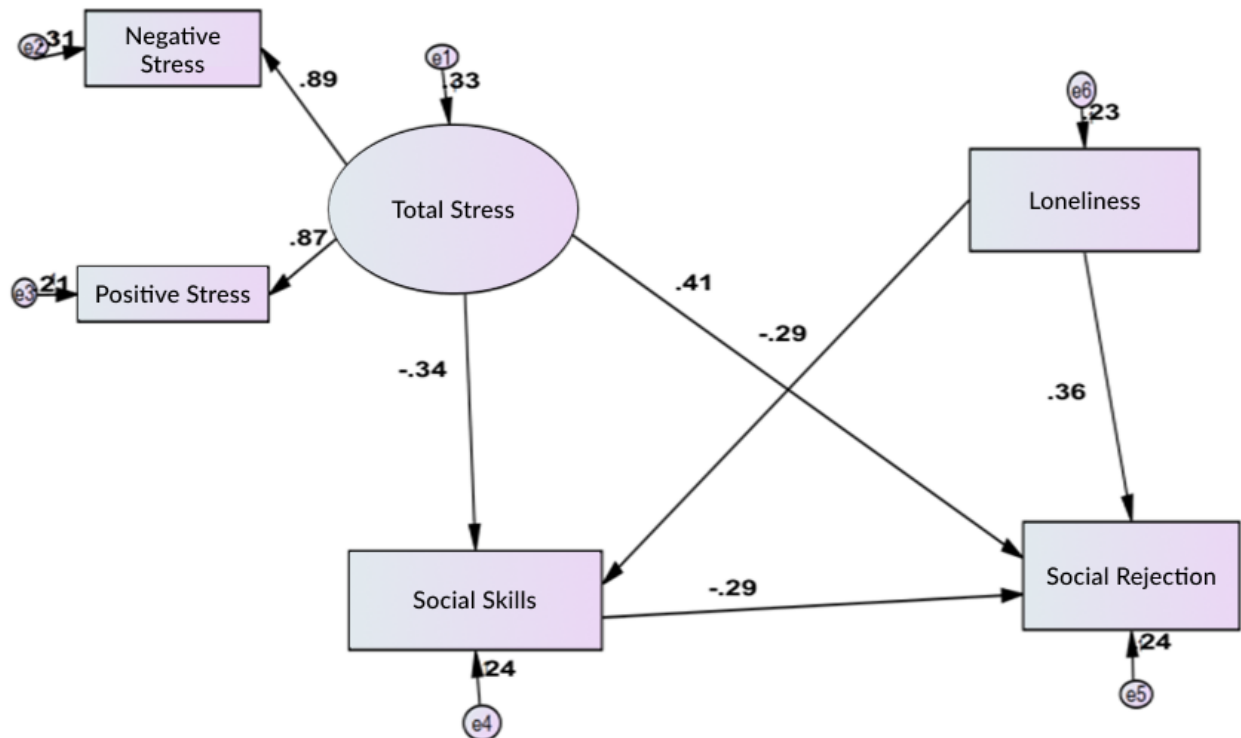
Table 4

Model Fit Indices for the Modified Structural Model

Fit Index	χ^2/df	RMSEA	NFI	IFI	CFI	GFI
Threshold	< 5	< .08	> .90	> .90	> .90	> .90
Value	1.95	0.046	0.91	0.91	0.91	0.92

For a model to be considered well-fitted, the χ^2/df ratio should be less than 5. The obtained value of 1.95 in the present study indicates a good model fit. Furthermore, values closer to 1 for indices such as NFI, IFI, CFI, and GFI suggest

a good fit. As all these indices are at or above 0.90, the model demonstrates adequate fit. The RMSEA value of 0.046, being below 0.08, also supports the model's acceptable fit (Table 4).

Figure 1*Final Model of the Study*

4. Discussion and Conclusion

The aim of the present study was to model social rejection based on perceived stress and loneliness, mediated by social skills, among Generation Z adolescents. The results indicated a significant positive relationship between perceived stress and loneliness with social rejection, and a significant negative relationship between social skills and social rejection. Moreover, social skills were found to mediate the relationship between perceived stress and loneliness with social rejection.

These findings can be interpreted in light of the psychological impact of stress and loneliness, which are closely associated with feelings of isolation and reduced coping capacity, both of which significantly contribute to social rejection. Perceived stress, due to its association with constant pressure and anxiety, can undermine an individual's self-confidence and social competence—two critical elements in the quality of interpersonal interactions. Adolescents experiencing high levels of stress in social situations may exhibit anxious behaviors, fail to establish positive relationships, and be unable to express themselves effectively, all of which increase their vulnerability to social

rejection (Campagne, 2019). On the other hand, loneliness, which often results from a lack of meaningful social interaction and feelings of non-belonging, may exacerbate or perpetuate social rejection, as individuals perceive that others are unwilling to accept or engage with them (Brandt et al., 2022). This sense of social abandonment can heighten stress and anxiety levels, reinforcing negative behavioral patterns, isolation, and ultimately, rejection (Hards et al., 2022).

Conversely, social skills play a vital role in reducing the risk of social rejection among Generation Z adolescents, as these competencies enable the development of positive relationships, effective conflict resolution, and increased social acceptance. Adolescents with strong social skills tend to demonstrate greater self-confidence in interactions, a stronger sense of belonging, and resilience against negative behaviors that might lead to rejection (I. L. D. L. Almeida et al., 2021; T. S. Almeida et al., 2021). In contrast, deficits in social skills can result in failed relationships and feelings of isolation, as these adolescents may struggle to express emotions and needs, leaving them more susceptible to exclusion.

Moreover, social skills act as a mediating variable in the relationship between perceived stress, loneliness, and social rejection. These skills enhance the individual's capacity to manage stress and build stronger social relationships. On one hand, perceived stress and loneliness can negatively impact social skills, reducing the individual's ability to communicate effectively, resolve conflicts, and express emotions—factors that collectively elevate the likelihood of social rejection (Christiansen et al., 2021). On the other hand, adolescents with higher social skills can transform stressful and lonely experiences into opportunities for positive engagement, thereby preventing the development of behavioral patterns that lead to rejection. Thus, social skills not only mediate the negative impact of stress and loneliness on social rejection but also serve as direct predictors of social rejection. Adolescents with greater social competence are more likely to access social opportunities, feel less isolated, and experience stronger belongingness (Preston & Rew, 2022). In this framework, the development and reinforcement of social skills can serve as an effective intervention to mitigate the adverse outcomes of stress and loneliness and to regulate and predict the level of social rejection in Generation Z adolescents.

5. Limitations & Suggestions

This study, however, has several limitations that should be considered when interpreting and generalizing the results to other populations. The research was conducted on Generation Z adolescents from select districts and schools in Tehran, and it is recommended that future studies be extended to include other vulnerable or affected groups. Additionally, data in this study were collected using self-report questionnaires, which limited the ability to control for external variables such as parental education, family income, history of risky behaviors, and relational problems in other family members. Future research should consider using interviews to gain deeper insights into the factors contributing to social rejection in adolescents. Overall, in light of the present findings and a review of previous studies, further extensive research in this area is necessary to significantly reduce the anticipated psychological and social harms.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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