







The Relationship Between Parent-Child Relationship and Maternal Mental Health in Predicting Social Intelligence Among Students Applying for Gifted Exam

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Abstract

Background: Understanding the dynamics of parent-child interactions is essential, as they significantly influence various developmental outcomes in students, including social intelligence. Social intelligence is a key factor in students' success in both educational and social environments.

Objectives: This study aimed to investigate the predictive relationship between the parent-child relationship, maternal mental health, and social intelligence among students applying for the gifted exam.

Methods: This cross-sectional, descriptive-correlational study examined the relationships between parent-child relationships, maternal mental health, and social intelligence among 9th-grade female students in Tehran who applied for gifted programs in 2023. A convenience sample of 301 dyads was selected to participate. Data were collected before the administration of the gifted exam using self-report questionnaires assessing social intelligence, parent-child relationships, and maternal mental health. Pearson correlation analysis and stepwise regression were employed to examine the relationships among the variables.

Results: The study found a significant positive correlation between parent-child relationship quality and students' social intelligence ($P < 0.001$). Additionally, maternal mental health showed a significant positive association with students' social intelligence ($P < 0.001$). The results suggest that the parent-child relationship plays a role in predicting the social intelligence of students applying for the gifted exam.

Conclusions: This study highlights the critical role of positive parent-child relationships in fostering social intelligence, suggesting the potential benefits of interventions that promote effective communication and nurturing family relationships. The contribution of maternal mental health to children's social development also warrants further investigation.

Keywords: Parenting, Intelligence, Mental health, Students

1. Background

Adolescence represents a crucial developmental period, marking the transition into adulthood and significantly shaping future life trajectories (1). For students identified as gifted, this period takes on added significance. The perceived guarantee of success associated with giftedness, particularly within the context of middle school – the final stage of adolescence – creates immense pressure to cultivate intellectual abilities and secure a place in gifted programs (2). Success in gifted exams, therefore, becomes a pivotal goal, especially for parents invested in

their children's future (3). This emphasis on achievement within the gifted context highlights the broader importance of understanding intelligence. The concept of intelligence has long been a subject of inquiry in psychology (4). Researchers have explored its theoretical and operational definitions, normative limits, influencing factors (both genetic and environmental), and its impact on various aspects of human experience (5). While various classifications of intelligence exist, this study focuses specifically on social intelligence (6). Social intelligence, the ability to effectively navigate social interactions and relationships, has garnered considerable attention.

Individuals with high social intelligence demonstrate enhanced interpersonal skills, including the ability to perceive and respond to others' emotions, collaborate effectively, lead communication, and resolve conflicts (7). Thorndike first introduced the concept, defining social intelligence as the capacity to understand and respond effectively to social events (8). This ability is crucial for maintaining close relationships, particularly within the parent-child context (9). In essence, social intelligence represents the capacity to perform interpersonal tasks and behave wisely in relationships (10, 11). During adolescence, the family, particularly parents, exerts a powerful influence on development, even as adolescents strive for independence (12, 13). Parental behaviors, including their words, actions, and the support they provide, play a key role in shaping adolescents' psychological characteristics (14). The parent-child relationship, as the child's first experience of interpersonal connection, forms the foundation for feelings of love, intimacy, and security. The quality of this relationship significantly influences children's development, affecting their physical and cognitive processes (15). Research highlights the importance of the emotional bond between parent and child, particularly the mother-child relationship, for cognitive development (16, 17). This influence is often indirect, mediated through various cognitive, emotional, and social constructs within the family environment (18, 19). The nature of parent-child interactions can have profound effects on children's social and emotional well-being, with many behavioral and emotional problems stemming from these interactions (20).

Maternal mental health represents another crucial factor influencing child development. Mental health is a multifaceted construct encompassing emotional, psychological, and social well-being. It involves the ability to cope with life stressors, build and maintain positive relationships, and function effectively in various life domains, including work, family, and social life. This definition emphasizes a broader perspective than simply "the ability to interact effectively with the environment" (21). Research has consistently shown that maternal mental health, encompassing aspects such as emotional stability, resilience, and overall well-being, can significantly impact children's cognitive, emotional, and social development (22, 23). A mother's mental health can indirectly affect the parent-child relationship and, consequently, the child's social intelligence. While previous research has explored the relationship between parent-child relationships and child

development, and the impact of maternal mental health on various child outcomes (23), limited research has examined the combined influence of these factors on the social intelligence of gifted adolescents. Given the pressure placed on adolescents, particularly those identified as gifted, to achieve academic success, and the emphasis on intelligence as a primary determinant of future outcomes, mothers may experience heightened responsibility for fostering their children's intellectual development. This heightened responsibility, coupled with the established links between parent-child relationships, maternal mental health, and social intelligence, underscores the need for further investigation.

2. Objectives

Therefore, this study aimed to examine the relationship between parent-child relationships and maternal mental health in predicting the social intelligence of students applying for gifted programs.

3. Methods

This cross-sectional study employed a descriptive-correlational design to examine the relationship between parent-child relationship, maternal mental health, and social intelligence among 9th-grade female students in Tehran who applied for gifted programs in 2023. A convenience sample of 301 student-mother dyads was recruited from students attending preparatory courses for gifted exams. Ethical considerations were meticulously addressed throughout this study. Prior to data collection, ethical approval was obtained from the Ethics Committee of the University. Informed consent was obtained from all participants (mothers and students), who were fully informed of the study's purpose, procedures, their right to withdraw without penalty, and the confidentiality of their responses. Data privacy and anonymity were ensured through data coding, secure storage, and the removal of all identifying information from individual responses. Mothers completed the General Health Questionnaire-28 (GHQ-28), and students completed the Tromsø Social Intelligence Scale (TSIS) and Parent-Child Relationship Questionnaire (PCRQ) prior to the administration of the gifted exam. To ensure adequate statistical power, a target sample size of 320 was set, surpassing the recommended sample size of 270 based on Loehlin and Beaujean (24) for the proposed model and hypotheses. After data cleaning, which included the

exclusion of cases with missing data, a final sample of 301 complete questionnaires was analyzed.

3.1. Instruments

3.1.1. The General Health Questionnaire-28

The GHQ-28 is a widely used self-report measure developed by Goldberg and Hillier (25) to assess general mental health. The 28-item questionnaire comprises four subscales: Somatic Symptoms, Anxiety, Social Dysfunction, and Depression. Participants rate each item on a 4-point Likert scale, with higher scores indicating poorer mental health. The GHQ-28 has demonstrated good reliability, with a reported Cronbach's alpha of 0.91 (26). In the current study, the GHQ-28 exhibited a reliability coefficient of 0.86, indicating good internal consistency.

3.1.2. The Tromsø Social Intelligence Scale

The TSIS, developed by Silvera et al. (27), is a 21-item self-report measure assessing social intelligence and its subscales: Social information processing, social awareness, and social skills. Participants rate each item on a 7-point Likert scale. The scale has demonstrated acceptable psychometric properties, with reported Cronbach's alpha coefficients ranging from 0.75 to 0.91 in previous studies (28). In the current study, the TSIS exhibited a Cronbach's alpha of 0.84, indicating good internal consistency.

3.1.3. The Parent-Child Relationship Questionnaire

The PCRQ is a 24-item self-report measure developed by Fine et al. (29) to assess the quality of parent-child relationships. Participants rate items on a 7-point Likert scale, with higher scores indicating stronger relationships. The PCRQ has demonstrated good reliability, with a reported Cronbach's alpha of 0.92 in previous studies (30). In the current study, the PCRQ exhibited a Cronbach's alpha of 0.89, indicating good internal consistency.

3.1.4. Statistical Analyses

Data analysis was conducted using SPSS version 27. Descriptive statistics, including means and standard deviations, were calculated to summarize the data. Pearson correlation analysis was employed to examine the bivariate relationships between parent-child relationship, maternal mental health, and social

intelligence. Stepwise regression analysis was utilized to investigate the predictive power of parent-child relationship and maternal mental health on social intelligence, allowing for the identification of the most significant predictors in a sequential manner.

4. Results

The average age of the students was 14.50 years (SD = 0.31), while the average age of their mothers was 39.75 years (SD = 4.30). Table 1 presents the descriptive statistics (means, standard deviations, skewness, and kurtosis) and Pearson correlation coefficients for all study variables. As shown in Table 1, a positive correlation was found between the parent-child relationship and social intelligence ($r = 0.45$). Additionally, a positive correlation was observed between maternal mental health and social intelligence ($r = 0.39$).

To determine which variable had a more significant impact on predicting social intelligence, a stepwise regression analysis was conducted. The parent-child relationship and maternal mental health were entered as predictor variables, and social intelligence was entered as the criterion variable. The results are presented in Table 2. In the initial model, the parent-child relationship emerged as the primary predictor of students' social intelligence, exhibiting a correlation coefficient of 0.46. This variable explained 20.0% of the variance in social intelligence ($R^2 = 0.20$). When maternal mental health was added to the model, the multiple correlation coefficient (R) reached 0.51. The resulting two-predictor model accounted for 26.0% of the variance in social intelligence ($R^2 = 0.26$), a 6.0% increase in explained variance ($\Delta R^2 = 0.06$) over the first model. Given the order of entry of the variables, the parent-child relationship, with a standardized beta of 0.46, had the greatest contribution to predicting changes in social intelligence, followed by the maternal mental health variable with a standardized beta of 0.27, which played a significant role in predicting social intelligence among students applying for the gifted exam.

5. Discussion

This study aimed to examine the extent to which parent-child relationships and maternal mental health predict social intelligence in students applying for gifted programs. The primary finding of this study indicated a significant positive correlation between the

Table 1. Means, Standard Deviations, Skewness, Kurtosis, and Pearson Correlation Coefficients for the Study Variables

Variables	Mean ± SD	Skewness	Kurtosis	Pearson Correlation Coefficients
Social intelligence	72.29 ± 11.78	-0.03	1.37	1
Parent-child relationship	98.61 ± 25.64	-0.02	1.01	0.45 ^a
Maternal mental health	40.65 ± 11.39	-0.08	1.27	0.39 ^a

^a P < 0.01.

Table 2. Results of Stepwise Regression Analysis

Models	Predictor Variables	F	R	R ²	B	SE	β	t	P-Value
1	Parent-child relationship	74.02	0.46	0.20	0.20	0.02	0.46	8.60	0.001
2	Maternal mental health	53.33	0.51	0.26	0.28	0.06	0.27	5.13	0.001

parent-child relationship and social intelligence among students applying for the gifted exam. This finding is consistent with the results of previous studies by Tang et al. (17) and Cao and Liu (31). To explain this finding, it can be argued that gifted and talented students typically exhibit above-average social intelligence. They often possess a high ability to recognize and manage their emotions and are able to cope well with daily stress and pressures. Additionally, they usually have a strong potential for interpersonal relationships and are often seen as social leaders and role models (17). These points are supported by scientific research demonstrating that children with high social intelligence tend to have better academic performance, more appropriate behavior, and higher life satisfaction. Gifted students may possess unique social intelligence compared to their peers. These students often demonstrate a higher ability to understand and analyze social relationships and interactions. They are typically adept at communicating with others, collaborating, and functioning effectively in group work and academic settings (3). Moreover, gifted students tend to be more sensitive to the opinions and feelings of others, and they are usually able to adapt well to changes in the behaviors and beliefs of those around them. Additionally, they are often capable of understanding different perspectives and are receptive to solving social problems in a logical and creative manner. In this regard, the parent-child relationship plays a crucial role in children's social intelligence and significantly impacts their ability to form social connections. Parents, through their interactions and communication with their children, can significantly influence their

children's social intelligence (17). For instance, parents, especially mothers, who respect their children, encourage them, and express their emotions to them, create a supportive environment for the development of their children's social intelligence. Furthermore, mothers who actively listen to their children's opinions and feelings and are willing to assist them in resolving issues and addressing their concerns are likely to see significant improvements in their children's social intelligence.

Another finding of this study was a significant positive correlation between maternal mental health and social intelligence among students applying for the gifted exam. This finding is consistent with the results of previous studies by Sanchez-Nunez et al. (32) and Hasanli (33). To explain this finding, it can be argued that while the capacity for social intelligence may have a genetic or temperamental component, social intelligence itself is not solely an innate ability but rather develops over time through individual experiences and learning. This acquired aspect of intelligence tends to mature as individuals grow and reach social maturity. Children's social intelligence is influenced by various environmental factors, including their mothers' mental health, which can shape their social learning experiences. Research has shown that adults with high levels of social intelligence are at a lower risk of developing mental health conditions such as depression and anxiety disorders (34). It is possible that gifted students, due to their advanced cognitive abilities and unique learning experiences, develop specific social skills and perspectives, leading to distinct manifestations of social intelligence. This does not

imply an innate form of social intelligence, but rather a unique developmental trajectory shaped by their specific context. A mother's or parent's mental health significantly influences a child's behavior and mental health during their developmental years. Mothers experiencing certain mental health disorders may have a reduced capacity to respond and react appropriately to their child's needs in terms of upbringing, growth, and development (32). Neglecting these issues can be detrimental and have a negative impact on the child. Maternal mental health directly affects a child's social intelligence. Studies have shown that parents with good mental health provide the best conditions for the development of their children's social intelligence. Mentally healthy parents are able to provide the best emotional support for their children (33). Additionally, mothers with good mental health are generally able to express love and emotions appropriately, which fosters a sense of security and stability within the family environment. This positive aspect is highly effective in enhancing children's social intelligence.

This study has several limitations. Firstly, the sample was restricted to female students applying for the ninth-grade gifted exam in Tehran, limiting the generalizability of the findings to male students, students in other grades, and students in other regions. Secondly, the reliance on self-report measures for all variables may have introduced potential biases due to social desirability or recall bias. Thirdly, the cross-sectional design of the study precludes drawing causal inferences about the relationships between the variables. Finally, the study did not account for potential confounding variables such as socioeconomic status, family structure, and academic pressure, which may have influenced the results.

5.1. Conclusions

This study underscores the significant role of positive parent-child relationships in fostering social intelligence among students applying for gifted programs. A positive correlation was found between parent-child relationship quality and student social intelligence. While maternal mental health also positively contributed to social intelligence, the parent-child relationship demonstrated a stronger predictive influence. These findings highlight the importance of nurturing positive family dynamics and supporting parents in developing effective communication and nurturing relationships with their children. Future

research should focus on elucidating the specific mechanisms through which parent-child relationship quality and maternal mental health influence social intelligence in gifted adolescents. For example, studies could investigate the role of parental emotional availability, communication styles, and conflict resolution strategies in shaping children's social skills. Longitudinal studies are needed to examine the long-term trajectories of social intelligence in relation to these factors.

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Footnotes

Authors' Contribution: M. G.: Study concept and design, acquisition of data, analysis and interpretation of data, and statistical analysis; R. J. F: Administrative, technical, and material support, study supervision; P. E. and R. H.: Critical revision of the manuscript for important intellectual content.

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Data Availability: The dataset used in the present study will be provided by the corresponding author upon reasonable request.

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