

Mediating Role of Social Health in the Relationship of Parenting Stress and Child-parent Interaction with Health-related Quality of Life in Parents of Children with Specific Learning Disorder

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Abstract

Background: Health-related quality of life (HRQOL) can predict the amount and impact of the disease, damages, and inabilities; moreover, it can assess an individual's psychological health.

Objectives: The present study aimed to assess the mediating role of social health in the relationship of parenting stress and child-parent interaction with HRQOL in parents of children with a specific learning disorder (SLD).

Methods: This descriptive-correlational study was conducted using path analysis. The study population comprised all parents of children with SLD in Andimeshk in 2020-21, among whom 174 parents were selected via convenience sampling. The research instruments included the SF-36 Questionnaire (Weber, 1992), Parenting Stress Index (Abidin, 1992), Child-Parent Relationship Scale (Pianta, 1994), and Keyes's Social Health Questionnaire (Keyes, 1998). The proposed model was evaluated using path analysis with AMOS software (version 25).

Results: The results pointed to a significant relationship between child-parent interaction and HRQOL ($\beta=0.204$, $P=0.004$), social health and HRQOL ($\beta=0.383$, $P<0.001$), parenting stress and social health ($\beta=-0.561$, $P<0.001$), as well as child-parent interaction and social life ($\beta=0.152$, $P=0.016$). Furthermore, the indirect paths of parenting stress and HRQOL mediated by social health ($P<0.001$), as well as the relationship between child-parent interaction and the HRQOL mediated by social health ($P=0.021$), were all significant.

Conclusion: The final model achieved a desirable good fit; therefore, this model could be considered an important step in understanding effective factors in the HRQOL in parents of children with SLD.

Keywords: Parenting, Parent-child relations, Quality of life, Specific learning disorder, Stress

1. Background

In the specific learning disorder (SLD), the academic performance of students is lower than expected with regard to their age and intelligence quotient (IQ) based on the reading, writing, and calculating reference tests (1). Approximately 5%-15% of children suffer from an SLD, which is more prevalent in boys than girls (2). The main characteristic of children with an SLD is their consistent problems in learning basic academic skills, which include correct and fluent word reading, reading comprehension, correct word writing, correct spelling, correct calculation of mathematical operations, and mathematical reasoning (3, 4).

These children can exert a significant impact on family functioning and relationships; moreover, they can change the routine tasks of family members. Given that, SLD usually leads to irreversible damage to parents and families. Parents are sometimes so vulnerable to this problem that their health-related quality of life (HRQOL) is seriously hampered (5). The HRQOL can be affected by a variety of factors, such as physical health, mental status, independence, social relationships, and personal beliefs, as well as the relationship of these factors

with the environment where the person lives (6, 7). The HRQOL can predict the amount and impact of the disease, damages, and inabilities; moreover, it can assess an individual's psychological health (8). The World Health Organization (WHO) defined HRQOL as an individual's perception of their position in life in the context of the culture and value systems in which they live. This position is related to the goals, dreams, criteria, and priorities of that individual. This definition of quality of life (QOL) comprises three components (i.e., welfare and satisfaction subjective, functional status, and contextual factors), among which the QOL overlaps with the psychological health in the first two components (9).

The HRQOL of parents of children with an SLD is affected by a wide array of factors, one of which is parenting stress. Raising these children is a stressful experience, and one type of stress experienced by their mothers is parenting stress (parenting) (10). Taking into account the increasing prevalence rate of children with special needs, particularly children with an SLD, in recent decades, parents have faced such challenges as raising children suffering from a disability, and their parenting is associated with unique challenges (11). Parenting stress has a correlation with mothers' low psychological health

and affective disorder (12). Parenting stress is caused due to the perceived discrepancy between parenting requests and personal interests. This type of stress can be experienced in several parenting-related areas of life (13). Various studies approved the relationship between parenting stress and HRQOL (14-19).

Another factor affecting the HRQOL in parents of children with an SLD is the child-parent interaction. Studies have suggested that the child-parent relationship can have a profound effect on various aspects of the child-parent relationship, such as an increase in parents' perception and acceptance concerning their child (20). A disabled child, especially a child with an SLD, has numerous impacts on all aspects of family life, including affective, social, and economic issues. In this situation, parents display such reactions as denial of reality, failure to accept the child's problem, rage, aggression, depression, and feelings of guilt (21). Therefore, their internal adjustment is disrupted, and they feel responsible for their child, and at the same time, they lack the required awareness concerning their responsibility, the cause of the disability of their child, child-mother interaction, and the characteristics of their child; moreover, they face extra roles that are associated with the birth of such a child (22).

Accordingly, two factors of parenting stress and child-parent interaction affect parents' social health and their HRQOL (23). Health is a multi-dimensional concept, and the definition by the WHO suggests its three physical, psychological, and social dimensions. Physical or biological health refers to the health of body functions and the optimal function of each cell or limb in the body in total consistency with other body limbs (24). Social health is the state of successful function of mental processes, efficient activities, effective and fruitful relationships with people, the ability to adjust to changes, and adapting to desirable conditions. It includes the ability to perform social roles effectively and efficiently without hurting others. Given that, social health is an assessment of an individual's condition and work in society (25). Various studies have confirmed the relationship between social health and HRQOL (26, 27).

In general, parents of children with an SLD reported numerous negative consequences of psychological welfare problems from the moment of realizing their child's disorder. The majority of parents feel great sadness and relapsing grief, as well as despair and hopelessness. Moreover, the parents of these children experience extreme confusion, loss, and hardship (28). Taking into account the fundamental role and importance of parents in maintaining the sociopsychological balance of the family, as well as various problems presented to the parents of children with an SLD face, it is essential to plan to resolve future challenges.

2. Objectives

The present study aimed to investigate the mediating role of social health in the relationship of parenting stress and child-parent interaction with HRQOL in parents of children with SLD. The theoretical model of the research is presented in Figure 1.

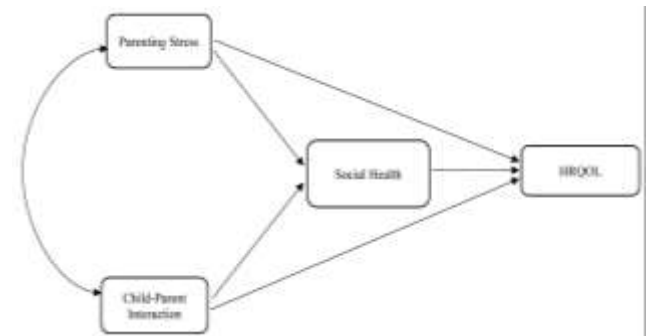


Fig 1. The theoretical model of the research

3. Methods

Design and participants

This descriptive-correlational study was conducted using path analysis. The statistical population consisted of all parents of children with SLD in Andimeshk, Iran, in 2020. Participants in the present study were selected from the clients referring to the Learning Disorder Center in Andimeshk. The consent of the authorities of learning disorder training centers was obtained, and the required coordination was made with the children's parents. In this study, the sample size was selected based on the number of studied variables. There was a total of 12 observed variables ($12 \times 10 + 50 = 170$). To reduce sampling error, 186 (93 mothers and 93 fathers) parents of children with an SLD participated in this research and received the questionnaires. After the elimination of distorted questionnaires, 174 (87 mothers and 87 fathers) participants were included in the study. The inclusion criteria entailed granting consent to participate in the research, an age range of 27-48 years, holding at least a middle school completion certificate, and the absence of psychological disorders (based on the self-declaration of participants). On the other hand, the exclusion criteria were unwillingness to continue participation in the study and failure to respond to all items of the questionnaire. Thereafter, the questionnaires were collected and analyzed. Questionnaires were completed with participants' consent, and written informed consent was obtained from participants in this study to observe ethical considerations. The study was approved by the Ethical Committee of Islamic Azad University-Ahvaz Branch (code: IR.IAU.AHVAZ.REC.1399.122).

Research Instruments

36-Item Short Form Health Survey questionnaire (SF-36)

This scale, which was developed by Weber in 1992, contains 36 items and 8 subscales, namely physical functioning, role limitations due to physical problems, general health perceptions, vitality, social functioning, role limitations due to emotional problems, general mental health, and health transition psychical function. The scores on this scale range from 0-100, with scores below 45 representing very poor QOL, 45-60 signifying poor QOL, 60-75 denoting good QOL, and above 75 indicating overall QOL. Brazier et al. (29) reported Cronbach's alpha greater than 0.85 and a reliability coefficient greater than 0.75 for the questionnaire. Fallahzade and Balanian (30-34) reported an alpha Cronbach coefficient of 0.86 for the whole questionnaire. In the present study, Cronbach's alpha coefficient was 0.83 for the questionnaire.

Parenting Stress Index (PSI)

This 36-item questionnaire, which was designed by Abidin in 1992, evaluates the importance of stress in the child-parent system. Its subscales are Distractibility/Hyperactivity, Adaptability, Reinforces Parent, Demandingness, Mood, and Acceptability within the child domain; Competence, Isolation, Attachment, Health, Role Restriction,

Keyes's Social Health Questionnaire

This 15-item questionnaire measures five dimensions of social solidarity, social acceptance, social contribution, social actualization, and social adaptation. This inventory is rated based on a 4-point Likert scale. The participants demonstrated their agreement by very much: 4, very: 3, a little: 2, and very little: 1. The lowest score in the questionnaire is 15, and the highest score is 60. The scores are divided into three groups: poor social health, moderate social health, and high social health. Corey Lee (35) reported that the Social Health Questionnaire has excellent reliability and validity. Sharbatian (36) reported a Cronbach's alpha of 0.90 for the questionnaire. In this study, Cronbach's alpha coefficient was 0.87 for the questionnaire.

Data were analyzed using descriptive and inferential statistics, including mean, standard deviation (SD), and Pearson correlation coefficient. The proposed model was evaluated by path analysis in AMOS software (version 25).

4. Results

The demographic results revealed that parents were within the age ranges of 27-31 (17%), 32-39 (57%), and 40-48 years (26%). In terms of education, they had primary education (49%), a

Depression, and Spouse/Parenting Partner Relationship within the parent domain. It is scored based on the Likert scale ranging from 1-5 (totally agree to totally disagree). A higher score indicates a higher level of parental stress. Abidin (31) reported the reliability and validity of this questionnaire as acceptable. Mohammadipour et al. (32) reported an alpha Cronbach coefficient of 0.80 for the questionnaire. In this study, Cronbach's alpha was 0.79 for the questionnaire.

Child-Parent Relationship Scale (CPRS)

The present research employed the 33-item CPRS by Pianta in 1994. It measures parents' perceptions about their relationship with their children. This scale consists of three components, namely closeness (6 items), attachment (6 items), and conflict (18 items). The items are rated based on a 5-point Likert scale, ranging from 1: totally disagree to 5: totally agree. The total score of this scale is obtained from the sum of the score of closeness and reverse scores of conflict and attachment. The total score of the scale was used in the present study. A higher score indicates a higher level of the child-parent relationship. Dyer et al. (33) reported that the Child-Parent Relationship Scale has excellent reliability and validity. Fereydooni et al. (34) reported a Cronbach's alpha of 0.87 for the scale. In this study, Cronbach's alpha coefficient was 0.85 for the scale. diploma (34%), a bachelor's degree (15%), and a master's degree (2%). Table 1 presents the mean, standard deviation (SD), skewness, kurtosis, and Pearson correlation coefficient of the variables. Figure 2 displays the initial proposed model for determining the HRQOL on the basis of parenting stress, child-parent interaction, and social health.

Prior to data analysis, structural equation modeling was first used to evaluate and confirm the assumptions of multivariate normal distribution, linearity, multi-linearity, and error independence. Skewness and Kurtosis tests were used to assess the data's normal distribution. The kurtosis and skewness of all the variables fell in the range of -1 to +1. The results of the Pearson correlation coefficient indicated a significant correlation between all the research variables ($P < 0.01$) (Table 1). Taking into account the data presented in Table 2, the root mean square error of approximation (RMSEA=0.388) manifested that the initial model should be modified. The initial model was a saturated model, signifying that all possible paths had been tested. The chi-square and other indicators could not be calculated, and after the elimination of one of the paths (parenting stress to HRQOL), the model was desaturated. Therefore, chi-square and other indicators were calculated by the software. Figure 3 depicts the final model (RMSEA=0.001), which shows the good fit of the model.

Table 1. Mean \pm (SD), skewness, kurtosis, and Pearson correlation coefficients of the research variables

Variables	Mean \pm SD	Skewness	Kurtosis	Pearson correlation coefficient
HRQOL	47.00 \pm 27.05	-0.18	0.26	1
Parenting stress	112.96 \pm 38.83	0.44	0.72	-0.348**
Child-parent interaction	85.43 \pm 31.61	0.63	0.39	0.341**
Social health	41.64 \pm 14.08	0.71	0.41	0.456**

HRQOL: Health-related quality of life; SD: Standard deviation; **P<0.01

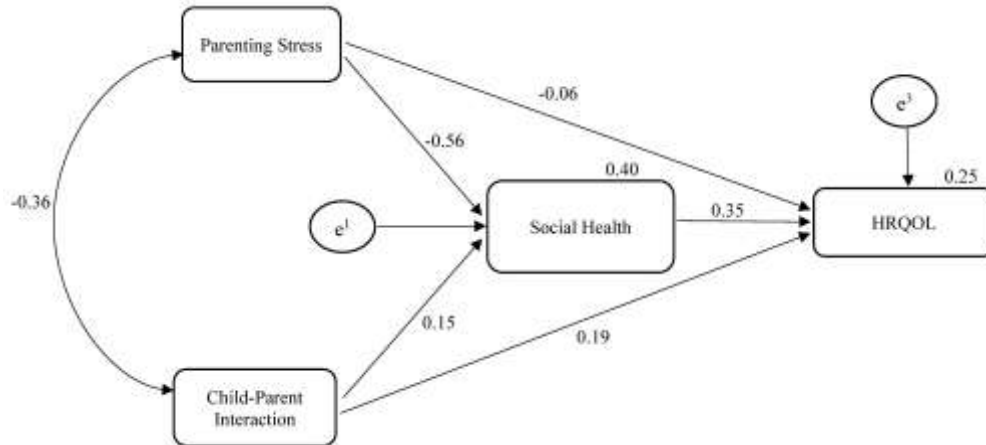


Fig 2. Proposed model pertaining to the mediating role of social health in the relationship of parenting stress and child-parent interaction with HRQOL

Table 2. Initial and final models fit indicators

Fit indicators	χ^2	df	(χ^2 /df)	IFI	TLI	CFI	NFI	RMSEA
Initial model	-	0	-	0.99	-	0.99	0.87	0.388
Final model	0.520	1	0.520	0.99	0.99	0.99	0.99	0.001

IFI: Incremental Fit Index; TLI: Tucker–Lewis index; CFI: Comparative Fit Index; NFI: Normed Fit Index; RMSEA: Root Mean Square Error of Approximation

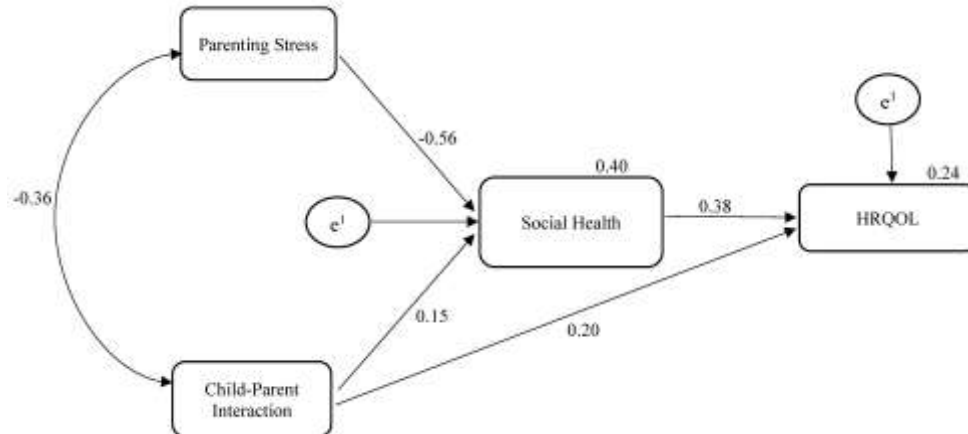


Fig 3. Final model pertaining to the mediating role of social health in the relationship of parenting stress and child-parent interaction with HRQOL

Table 3 illustrates the findings of the path coefficient estimations to examine direct assumptions. According to the results, there was a direct and significant relationship between child-parent interaction and HRQOL ($\beta = 0.204$, $P = 0.004$), as well as between child-parent interaction and social health ($\beta = 0.152$, $P = 0.016$) in parents of children with SLD. Furthermore, the results pointed to a positive and significant relationship between social health and HRQOL ($\beta = 0.383$, $P < 0.001$). There was a negative relationship between parenting stress and

social health ($\beta = -0.561$, $P < 0.001$). The results in Table 3 demonstrated that there was no significant direct relationship between parenting stress and HRQOL ($\beta = -0.062$, $P = 0.471$).

The indirect path from parenting stress to HRQOL through the mediating role of social health was significant ($\beta = -0.150$, $P = 0.001$). Moreover, the indirect path from child-parent interaction to HRQOL through the mediating role of social health was significant ($\beta = 0.050$, $P = 0.021$) (Table 4).

Table 3. Path coefficients of direct effects between research variables in the initial and final models

Path	Initial model		Final model	
	β	P	β	P
Parenting stress to HRQOL	-0.062	0.471	-	-
Child-parent interaction with HRQOL	0.194	0.007	0.204	0.004
Parenting stress to social health	-0.561	<0.001	-0.561	<0.001
Child-parent interaction to social health	0.152	0.016	0.152	0.016
Social health to HRQOL	0.349	<0.001	0.383	<0.001

Table 4. Results of the Bootstrap method for investigating indirect and intermediary paths

Predictor variable	Mediator Variable	Criterion variable	Initial model		Final model	
			β	P	β	P
Parenting stress	Social health	HRQOL	-0.137	0.007	-0.150	<0.001
Child-parent interaction	Social health	HRQOL	0.045	0.027	0.050	0.021

5. Discussion

The present study aimed to assess the mediating role of social health in the relationship of parenting stress and child-parent interaction with HRQOL in parents of children with SLD in Andimeshk, Iran. In general, the results revealed that all direct paths were significant, except for the parenting stress path to HRQOL. The indirect path was significant regarding the relationship between social health and HRQOL. The first findings of the research indicated no direct relationship between parenting stress and HRQOL. This finding is inconsistent with those obtained by Zyga et al. (14), Zeng et al. (16), and Ben-Naim et al. (17).

Previous studies have explored the relationship between parenting stress and HRQOL using correlation coefficient and regression tests, revealing that this relationship was significant. Nevertheless, the present study tested the hypotheses using path analysis. Accordingly, there was a significant relationship between parenting stress and HRQOL based on the Pearson test. However, due to the mediating variable, the total share and effect of parenting stress variable on the HRQOL were described using a mediating variable (i.e., indirect relationship). In other words, in this model, parenting stress affected the HRQOL, but indirectly.

Therefore, it can be argued that the findings of the present study are consistent with those reported in previous studies. In other words, parenting stress had an indirect effect on the HRQOL, signifying that parenting stress in parents of children with an SLD has a crucial impact on their social health, and this factor is effective in their HRQOL. It is worth noting that the statistical populations of these studies are quite different. In general, parenting stress determines the HRQOL to a considerable extent. Considering that QOL is a mental and dynamic concept, high parenting stress in parents of children with an SLD can cause mothers to experience numerous negative and unpleasant emotions, which in turn lead to lower QOL and psychological health of parents.

The present study also indicated a significant positive relationship between child-parent interaction and HRQOL. The researcher found no

other studies in this regard. This finding signifies that the child-parent interaction has a crucially important role in the HRQOL, suggesting that the family has a fundamental role in people's health and sickness; moreover, it is the main pillar in maintaining the health of individuals and society. One of the main factors affecting social and psychological development is the child-parent relationship, which is quite crucial in a child's life. Inefficient training styles and inappropriate child-parent interaction during the course of development result in communicative problems and finally children's vulnerability to such disorders as failure in academic achievement, anxiety, behavioral problems, and psychological problems (19). The child-parent interaction is a combination of unique behavior, effects, and expectations between parents and children, including quality time, physical compassion, and verbal communication. If this communication is appropriate and effective, it can improve the parents' QOL.

This study also pointed to a positive relationship between social health and HRQOL, denoting that improving the social health of parents increases their HRQOL. This finding is in accordance with the research results of the studies by Prazeres et al. (26) and Lu et al. (27). Social health emphasizes situations in which individuals behave properly and desirably regarding environmental and interpersonal needs and requirements. One of the sources of parents' stress is having children with an SLD who are a major source of stress for their parents. The most crucial problems and issues of these parents include problems in accepting their child's disability, fatigue due to training, issues pertinent to free time, financial problems of the family, and treatment.

Higher levels of stress in parents are associated with poor functioning of the family, poor HRQOL, correlation, and solidarity. The reduction of stress pertains to problem-oriented coping strategies, efficient family function, as well as the meaning of life, and all of these factors result in the reduction of appropriate child-parent interaction and reduces the quality of their lives (26). In families of children with SLD, such factors as using coping strategies,

generalizing parents' self-efficacy, family consistency and solidarity, as well as feeling the meaning of life, exert an effect on child-parent interactions and reduction of HRQOL. Raising parents' awareness of their negative emotions and such effects as anxiety and stress improves their social health and HRQOL (27). Skills such as enhancing focus and attention, help parents of children with an SLD to maintain their peace and control their stress.

As illustrated by the results of this study, social health mediates the relationship of parenting stress and child-parent interaction with HRQOL. The literature review yielded no related study to be compared with the present study. The direct findings demonstrated that parenting stress had no significant relationship with the HRQOL. Nonetheless, this relationship was not strong enough to cause the indirect relationship of parenting stress with HRQOL to be insignificant. Therefore, the parenting stress affected and reduced social health, thereby reducing parental QOL. Other indirect paths manifested that the child-parent interaction had both direct and indirect relationships with the parents' HRQOL, indicating that the positive child-parent interaction can improve the social health of parents, which in turn improves their HRQOL.

In general, positive child-mother interaction can elevate their social and physical health. In other words, appropriate mother-child interaction influences the social health of these parents and reduces their HRQOL. Moreover, one of the major factors affecting social and psychological development is the child-parent relationship, which is quite crucial in the life of children during their growth. Given that, the quality of these relationships during the early years of a child's life establishes the foundations of their emotional, social, and cognitive growth. Therefore, social health mediates the relationship between child-parent interaction and HRQOL.

The majority of behavioral problems of children reflect the complicated interpersonal status of family members, especially parents. In other words, behavioral problems of children indicated the defective relationship of family members and had a relationship with the improper training style of parents and the defective interaction of parents with their children. Strengthening the child-parent interaction can help the parents' social health; consequently, it can reduce the HRQOL of parents of children with a learning disorder.

Taking into account that the statistical population of the present study was parents of children with an SLD in Andimeshk, the obtained results can hardly be generalized to other communities. Therefore, it is recommended to conduct more studies on other samples in order to generalize the results. Furthermore, the self-report tools of the questionnaire might make the results biased. The use

of longitudinal studies and other mixed-research methods (such as qualitative and quantitative) can be beneficial in this regard.

6. Conclusion

As evidenced by the results of this study, the final model had a good fit. It is a great step in understanding the factors affecting the HRQOL of parents of children with SLD. These results could be employed as an appropriate pattern for developing and designing preventive plans regarding the stress experienced by these parents and the reduction of their HRQOL. Furthermore, it is recommended to hold training workshops to strengthen child-parent interaction and increase their social health and HRQOL.

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Conflicts of interest

The authors declare that they have no conflict of interest.

Ethical Approval

The study was approved by the Ethical Committee of the Islamic Azad University-Ahvaz Branch (code: IR.IAU.AHVZ.REC.1399.122).

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