



## Research Paper: A Structural Model of Health-Related Quality of Life Based on Parenting Stress and Spiritual Well-Being With the Mediating Role of Locus of Control in Parents of Children With Specific Learning Disorder



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**Running Title** Health-Related Quality of Life Children With Specific Learning Disorder

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### ABSTRACT

**Background:** Raising children with Specific Learning Disorder (SLD) is a stressful experience that may influence the Health-Related Quality of Life (HRQOL) of parents of children with SLD.

**Objectives:** The current study aimed to investigate the mediating role of locus of control in the relationship of parenting stress and spiritual well-being with HRQOL in parents of children with SLD.

**Materials & Methods:** This is a descriptive cross-sectional study. The study population comprised all parents of children with SLD in 2020-21, among whom 174 parents were selected through convenience sampling. The research instruments included the SF-36 Questionnaire, Parenting Stress Index, the Spiritual Well-Being Questionnaire, and the Locus of Control Scale. The proposed model was evaluated using path analysis.

**Results:** there was a significant relationship between spiritual well-being and HRQOL, locus of control and HRQOL, parenting stress and locus of control, and between spiritual well-being and locus of control ( $P < 0.01$ ). However, no significant relationship was found between parenting stress and HRQOL. Indirect paths of parenting stress were significantly correlated with HRQOL through the mediating role of locus of control and there was a significant relationship between spiritual well-being and HRQOL with the mediating role of locus of control ( $P < 0.01$ ).

**Conclusion:** This study revealed that locus of control is a significant mediator in the relationship of parenting stress and spiritual well-being with HRQOL in parents of children with learning disorder.

**Keywords:** Health-related quality of life, Locus of control, Parenting stress, Specific learning disorder, Spiritual well-being

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## 1. Introduction

**S**pecific Learning Disorder (SLD) is a disorder that interferes with a student's ability to read, write, or do mathematical calculations in standardized tests. Students with SLD succeed, but slower than expected with respect to their age and intelligence. Individuals with learning disorder suffer from impaired information regulation, visual and auditory perception, and memory and attention [1]. Students with learning disabilities may function poorly without specific aids, their family and friends consider them incapable and therefore, they suffer from low self-esteem and motivation [2]. In fact, they act weaker than expected from their peers and intelligence quotient or based on standard reading, writing and calculating tests [3]. In addition, children with learning disabilities tend to drop out of school, and they will also have problems with their job and social functioning [4]. An approximate amount of 5 to 15% of children suffer from SLD and this disorder is more prevalent in boys than girls [5]. SLD is a neurodevelopmental disorder with biological origin meaning that the interaction of the genetic, epigenetic, and environmental factors impacts the brain's ability in the accurate and precise process of verbal and non-verbal information. The main characteristic of children with an SLD is their consistent problems in learning basic academic skills including correct and fluent word reading, reading comprehension, correct word writing, correct spelling, correct calculation of mathematical operations, and mathematical reasoning [6, 7].

These children can have a significant impact on family functioning and relationships, and even cause changes in the routine tasks of the family members. Given that, it usually leads to irreversible damages to parents and families. Parents are sometimes so vulnerable to this problem that it causes serious damages to their Health-Related Quality of Life (HRQOL) [8]. A variety of factors affect HRQOL such as physical health, mental status, independence, social relationships, and personal beliefs, and the relationship of these factors with the environment where that person lives [9]. HRQOL can predict the amount and impact of the disease, damages, inabilities, and psychological health [10]. 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 con-

textual factors, among which the QoL overlaps with the psychological health in the first two components [11].

Various factors influence the HRQOL of parents of children with SLD such as parenting stress that is a stressful experience in raising children suffering from a disability [12, 13]. This issue has a relationship with mothers' low psychological health and affective disorder [14]. 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 [15]. Various studies approved the relationship between parenting stress and the HRQOL [16-21].

Evidence suggests that true religious beliefs fulfill basic human needs and their moral, emotional and spiritual gaps [22]. Parents' spiritual well-being is associated with enduring the stress of having children with specific learning disabilities [23]. It is composed of spirituality and well-being with two dimensions of religious well-being and existential well-being [24]. Religious well-being refers to a connection with a Higher Power, i.e., God. Existential well-being is a psychosocial element which expresses one's feelings about the meaning and purpose of life. Religious and existential well-being both include excellence and movement beyond one's self [25]. Various studies have shown the relationship between spiritual well-being and HRQOL [26, 27].

In this regard, parenting stress and spiritual well-being tend to affect parents' HRQOL by affecting their locus of control. According to the document theory, humans tend to attribute their failures and success to controllable factors, i.e., internal locus of control or uncontrollable factors, i.e., external locus of control [28]. Individuals with internal locus of control have full control over their lives and act accordingly. Therefore, they experience less stress and enjoy higher self-confidence; they take responsibility for their actions and enjoy better physical and mental health [29]. On the other hand, individuals with external locus of control believe that they are disabled against external controlling forces and find their attempts fruitless in improving their conditions. They suffer from lower mental health compared to those with internal locus of control [30]. Various studies have confirmed the relationship between locus of control and HRQOL [31-33].

Studies suggest that some parents of children with SLD described and reported widespread negative consequences and problems in their psychological well-being as they realized their child has specific learning disorder.

Many of them have been involved in an intense feeling of recurring sadness, despair and hopelessness [34]. But, the mediating role of locus of control in relationship between HRQOL and parenting Stress and Spiritual Well-Being of children with specific learning disabilities was not studied yet. Therefore, the current study aimed to investigate the multifaceted relationship of parenting stress, spiritual well-being, and locus of control with HRQOL in parents of children with SLD.

## 2. Materials and Methods

### Study type and study population

This cross-sectional study was conducted on parents of children with SLD in Andimeshk (Iran) in 2020-21. SLD was defined as reading and writing disorder that was diagnosed by a psychiatrist of Andimeshk Learning Disorder Training Center. The consent of the authorities of learning disorder training centers was obtained and the required coordination was carried out with the children's parents. According to the rule of thumb of 10 cases per variable, 186 sample size was needed. The sample was selected using the convenience sampling method and recruited from the referral center of Andimeshk city (Tavana Learning Disorder Training Center). The inclusion criteria consisted of granting consent to participate in the research, age range of 27 to 48 years, holding at least a middle school completion certificate, and not suffering from psychological disorders. The exclusion criteria of the research were unwillingness to continue participation in the study, and failure to respond all items of the questionnaire. Due to the Covid 19 pandemic, the questionnaires were provided to the participants through online platforms designed on the Porsline website. A link to the questionnaire was sent to the mobile phone number of the parents. The maximum required time to complete the questionnaire was 60 minutes.

### Study instruments

The research instrument consisted of demographic information (age, gender and education), Short Form Health Survey Questionnaire (SF-36), Parenting Stress Index (PSI), Spiritual Well-being Questionnaire (SWBQ), and Locus of Control Scale (LCS). SF-36 developed by Weber [35] was used to assess health-related quality of life and contains 36 items. The scores on this scale ranged from 0 to 100, with scores below 45 representing very poor QOL, 45-60 representing poor QOL, 60-75 representing good QOL, and above 75 representing overall QOL. Fallahzade and Balanian [36] reported alpha Cronbach coefficient of 0.86 for the whole ques-

tionnaire. In the current study, the Cronbach's alpha coefficient was 0.83 for the questionnaire. PSI was used to assess parenting stress [37]. The scale contained 36 items and 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, depression, and spouse/parenting partner relationship within the parent domain. It was scored based on the Likert scale ranging from 1 to 5 (totally agree to totally disagree). Mohammadipour et al. [38] reported alpha Cronbach coefficient of 0.80 for the questionnaire. In this study, the Cronbach's alpha was 0.79 for the questionnaire. SWBQ developed by Paloutzian and Ellison [39] consisted of 20 items and two subscales including religious well-being, i.e., well-being resulted from the connection with a Higher Power, and existential well-being which is a psychosocial element that expresses a person's feeling of who s/he is, what s/he does and why and where s/he belongs to. This scale is scored on a 6-point Likert scale from Strongly Agree to Strongly Disagree. In positive items, the Strongly Agree choice was scored 6 and the Strongly Disagree was scored 1. Negative items were scored the opposite. The total score of spiritual well-being was obtained from the sum of all scores. Pourseyyed Mohammad et al. [40] reported alpha Cronbach coefficient of 0.83 for the questionnaire. In this study, the Cronbach's alpha was 0.87 for the questionnaire. LCS developed by Rotter [41] is a 29-item scale that measures individuals' expectations of their locus of control. Each item in this scale is dichotomous. Rotter developed 23 scoring items to clarify individuals' expectations of their locus of control and 6 filter items that make the structure and the measured dimension ambiguous to participants. Items 1, 8, 14, 19, 24 and 28 are the filter items that distract the participant from the main course and the research objective. Scoring is based on the sum of scores obtained from the number of check marks the participant puts in front of items. The total score is obtained from the scoring items which indicate an individual's degree and measure of control. In the 23 scoring items, items are scored 1 and b items are scored 0; the total score of participants indicates their type and degree of locus of control. Therefore, those who score 9 and above have external locus of control while those who score less have internal locus of control. Pourhoseinzadeh et al. [42] reported alpha Cronbach coefficient of 0.89 for the scale. In this study, the Cronbach's alpha was 0.86 for the questionnaire.

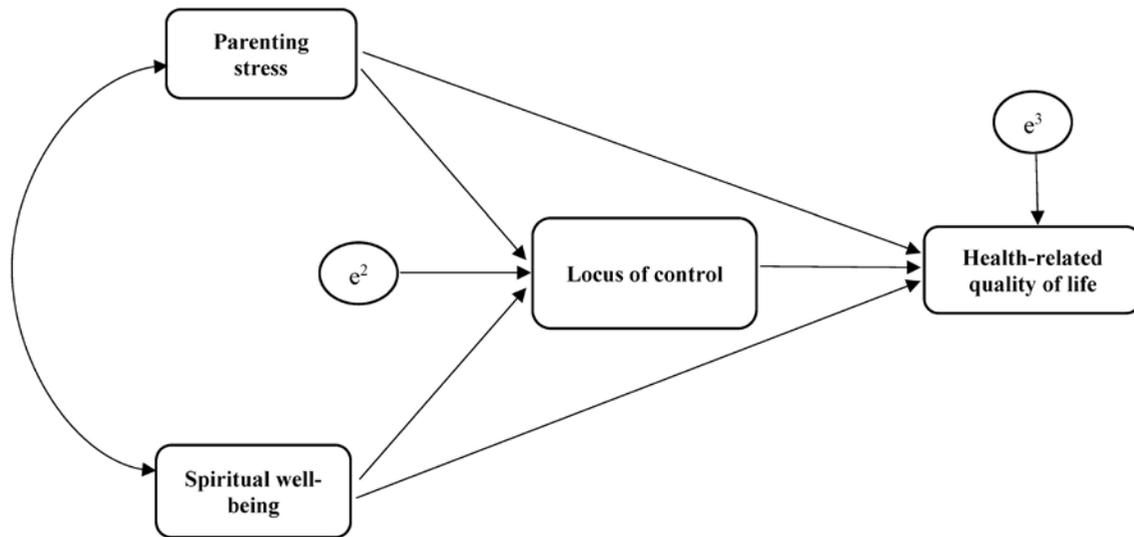


Figure 1. The conceptual model of the research



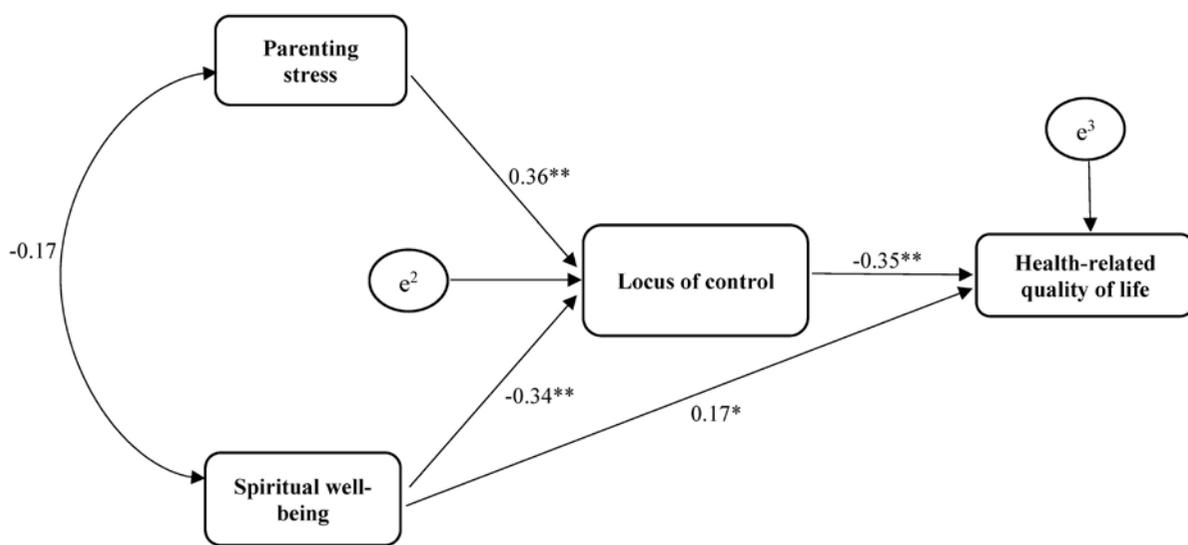
Statistical analyses

Data were analyzed by descriptive and inferential statistics such as mean, standard deviation, and Pearson correlation coefficient. The skewness and kurtosis were used to assess normal distribution of continuous variables. Data were analyzed using SPSS version 25. The proposed model was evaluated by SEM in Analysis of Moment Structures (AMOS) software version 25. The model goodness of fit was evaluated using the following criteria: the Root Mean Square Error of Approximation (RMSEA) <0.08; Incremental Fit Index (IFI) >0.090, and Comparative Fit Index (CFI) >0.90. The conceptual

model of the relationship between study variables were presented in Figure 1.

3. Results

The participants included 174 parents of children with SLD with age range of 27-48 years. The demographic results revealed that 17% of parents were between 27 and 31 years old, 57% between 32 and 39 years old, and 26% between 40 and 48 years old. Among them, 49% had a degree below high school diploma, 34% held a high school diploma, 15% held a bachelor’s degree, and 2% of them held a master degree. Table 1 presents the



\*\*: $P < 0.01$ ; \*: $P < 0.05$



Figure 2. Structural equation model pertaining to the mediating role of locus of control in relationship of parenting stress and spiritual well-being with HRQOL

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

Variables	Mean±SD	Skewness	Kurtosis	Pearson Correlation Coefficient
HRQOL	47.00±27.05	-0.17	0.28	1
Parenting stress	112.96±38.83	0.43	0.71	-0.228**
Spiritual well-being	76.79±29.89	0.51	0.44	0.310**
Locus of control	11.58±6.17	0.90	0.24	-0.414**

HRQOL: Health-Related Quality of Life; \*\*P&lt;0.01



mean, Standard Deviation (SD), skewness, kurtosis, and Pearson correlation coefficient of the research variables. There was weak negative correlation between parenting stress and HRQOL ( $r=-0.23$ ), weak positive correlation between spiritual well-being and HRQOL ( $r=0.31$ ), and moderate negative correlation between locus of control and HRQOL ( $r=-0.41$ ).

Figure 2 shows the final model of the relationship between the study variables. The statistics indicated good fit of the model with the data ( $\chi^2/df=0.799$ , IFI=0.99, CFI=0.99, RMSEA=0.001). According to the results, there was a direct and significant relationship between spiritual well-being and HRQOL ( $\beta=0.17$ ,  $P=0.021$ ), and between parenting stress and locus of control ( $\beta=0.36$ ,  $P=0.001$ ) in parents of children with SLD. Also, the results showed that there was a negative and significant relationship between spiritual well-being and locus of control ( $\beta=-0.34$ ,  $P=0.001$ ) and between locus of control and HRQOL ( $\beta=-0.35$ ,  $P=0.001$ ). The results showed that there was no significant direct relationship between parenting stress and HRQOL ( $\beta=-0.06$ ,  $P=0.371$ ).

The indirect path from parenting stress to HRQOL through the mediating role of locus of control was significant ( $\beta=-0.86$ ,  $P=0.001$ ). Moreover, the indirect path from spiritual well-being to HRQOL through the mediating role of locus of control was significant ( $\beta=0.11$ ,  $P=0.001$ ).

#### 4. Discussion

The current study aimed to investigate the mediating role of locus of control in the relationship of parenting stress and spiritual well-being with HRQOL in parents of children with SLD in Andimeshk (Iran). The results suggested that all direct paths except parenting stress were significantly correlated with HRQOL. Indirect paths were significantly correlated with HRQOL through the mediating role of locus of control.

The first findings of the research indicated that there was no direct relationship between parenting stress and HRQOL. This finding is inconsistent with the research results of Zyga et al. [16], Zeng et al. [18], and Ben-Naim et al. [19]. Previous studies have explored a significant relationship between parenting stress and HRQOL using correlation coefficient and regression tests. However, the current study tested the hypotheses using SEM. Accordingly, there was a significant relationship between parenting stress and HRQOL based on the Pearson test. However, due to the mediating variable, the total effect of parenting stress on the HRQOL were described using a mediating variable, i.e., indirect relationship. This finding signifies that parenting stress in parents of children with an SLD has a crucial impact on their locus of control and this factor is effective in their HRQOL.

Other findings of the study suggested a significant positive relationship between spiritual well-being and HRQOL. Various studies have confirmed the relationship between spiritual well-being and HRQOL [26, 27]. To explain it, individuals' spiritual well-being plays a critical role in their quality of life, and their religious beliefs and practices help individuals internally to overcome their cognitive, emotional, and physiological problems and stresses. It also helps them to take responsibility for their thoughts and behavior in conflicts and struggles and to try to change them [27]. In terms of interpersonally, spiritual well-being of parents prepares them to pay attention to the existence of God and seek His refuge when experiencing a conflict, suffering, or a learning disorder in their children. So, they can deal with problems more calmly to solve them. Spiritual well-being increases the ability to communicate with God and allows parents to control their environment and effectively communicate with others [26].

Based on the results of this study, there was a positive relationship between locus of control and HRQOL. In other words, parents' quality of life tends to increase by improving their locus of control. This finding is consis-

tent with the research results of León-Del-Barco et al. [31]. To explain it, people with an external locus of control tend to believe that the things happening in their lives are controlled by external factors, such as fate, luck, the influence of powerful others, while those with an internal locus of control tend to believe that they can manage their life events. Therefore, parents with internal locus of control enjoyed better quality of life. In fact, those with internal locus of control have more adaptive skills in the community. Parents with internal locus of control enjoy a fairly desirable quality of life and those with external locus of control suffer from low quality of life [31]. In other words, the more the parents believe that they are responsible for their actions and behaviors and their success and failure are the result of their performance not their fate and luck or the influence of powerful others, the better they function in face of problems. In families of children with specific learning disorder, the way of utilizing coping strategies, generalizing parental self-efficacy, family cohesion and coherence, and a sense of meaning in life are among factors that affect poor parent-child interactions and reduce their HRQOL. Making parents aware of their negative feelings and emotions such as anxiety and stress will improve their internal locus of control and increase their HRQOL.

Another finding suggested the mediating role of locus of control in the relation of parenting stress and spiritual well-being with HRQOL. No research was found in the literature to compare it with the results of this study. Parenting stress improved parents' quality of life by influencing and improving their locus of control. In the indirect path, both a direct and indirect relationship was found between spiritual well-being and HRQOL. Therefore, spiritual well-being tends to improve parents' internal locus of control which leads to improved HRQOL. Generally, spiritual well-being leads to hope in God. One of the factors affecting psychosocial development is the parent-child relationship which is of critical importance in children's life. The quality of this relationship in early childhood underpins their future cognitive, social and emotional development. Locus of control plays a good mediating role in the relationship between spiritual well-being and quality of life. Most problems of children reflect a complex interpersonal relationship between family members, especially parents. In other words, problems in children reflect the faulty relationship between family members which are closely related to improper parenting styles and their poor interaction with children; strengthening parents' spiritual well-being is expected to improve locus of control and HRQOL in parents of children with learning disorder.

Taking into account that the statistical population of the current study was parents of children with SLD in Andimeshk (Iran) with non-random convenience sampling method, the generalization of the results should be generalized cautiously. Besides, the self-report tools of the questionnaire might induce some measurement bias. Using the longitudinal study and other mixed-research methods (such as qualitative and quantitative) can be beneficial in this regard. Furthermore, it is recommended to hold training workshops to strengthen spiritual well-being and increase their locus of control and HRQOL.

## 5. Conclusion

This study revealed that locus of control is a significant mediator in the relationship of parenting stress and spiritual well-being with HRQOL in parents of children with learning disorder. These results can be employed as an appropriate pattern for developing and designing preventive plans regarding the stress experienced by these parents and reduction of their HRQOL.

## Ethical Considerations

### Compliance with ethical guidelines

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

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The paper was extracted from the PhD. Thesis of the first author, at the Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz.

### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

The authors declare that they have no conflict of interests.

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