

# Modeling of Loneliness in Mothers with Children having Specific Learning Disorders based on Coping Strategies with the Mediating Role of Self-Efficacy

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## Abstract

**Background:** The presence of specific learning disability (LD) in any family overshadows the structure and mental health of family members, especially mothers. The purpose of this study was the modeling of loneliness in mothers with children having LD based on coping strategies with the mediating role of self-efficacy.

**Methods:** The method of the current study was structural equation modeling. The statistical population included all the mothers with children having LD referred to medical centers in Tabriz, Iran in 2021, 300 of which were selected as the sample via purposive sampling and the questionnaires of loneliness (Russell and Pilva, 1980), coping techniques (Billing and Moss, 1981), and self-efficacy (Asghari and Nicholas, 1989) were completed. The obtained data were statistically analyzed through correlation coefficient and path analysis using SPSS and AMOS software.

**Results:** The findings showed that the direct path from problem-oriented strategy to feeling lonely ( $P=0.009$ ), from emotion-oriented strategy to self-efficacy ( $P=0.0001$ ), from emotion-oriented strategy to feeling lonely ( $P=0.032$ ), and self-efficacy to feeling lonely ( $P=0.008$ ) were statistically significant, but problem-oriented strategy to self-efficacy was not of significance ( $P=0.413$ ). Additionally, the indirect pathway from problem-oriented to feeling lonely via self-efficacy was not significant ( $P=0.395$ ), but emotion oriented to feeling lonely via self-efficacy was significant ( $P=0.005$ ).

**Conclusion:** Based on the results of this work, it could be acknowledged that researchers and consultants in educational and medical centers can benefit by holding training workshops on coping strategies and skills training to strengthen self-efficacy and reduce the feeling of loneliness of mothers with LD children.

**Keywords:** Specific learning disorders, Feelings of loneliness, Coping strategies, Self-efficacy

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## 1. Introduction

The birth of a child in any family makes the parents and family members happy. In particular, the mother as the main caregiver of the child provides the child with different wishes. In the meantime, issues related to the birth of a child do not always go as normal as expected and may disrupt the normal course of parental life with the birth of a child with a specific illness or disorder, such as a child with a learning disability (LD). Learning disability has a prevalence of 15-17% (1) and is diagnosed when there are certain defects in the child's ability to understand and process information effectively and correctly and in learning basic academic skills; such as reading and writing or math is lower than peers (2). Learning disabilities are disorders in which one or more of the child's functions are impaired in standardized tests, namely reading, writing, and math (3). It is also a defect in general academic skills that manifests itself in children's reading, math, and writing skills. It also

creates many problems for children in terms of academic achievement, social performance, or in the activities of daily living (1). Therefore, the presence of a child with special needs, such as a child with a learning disability, in any family, overshadows the structure and mental health of family members, specifically mothers. In addition, Matteucci and colleagues showed that almost all of these children's problems are addressed to their mothers; thus, the mothers of children with special learning disabilities have less psychosocial health and more of these mothers show more depression and anxiety than other mothers (4).

Being in such situation due to the pressures of everyday life causes mothers to stay away from social activities and provides them with a sense of loneliness in the long run. Loneliness is an unpleasant situation that results from the difference between interpersonal relationships in real positions (5). This feeling, which is the result of weak interpersonal relationships (6),

has been proposed as an emotional state (7) and can be related to other psychological characteristics. Numerous studies have shown that parents of children with learning disabilities, particularly their mothers, experience emotional issues and use more inefficient coping styles in dealing with problems than parents of normal children (6, 8). In fact, stress and repeated experiences of negative emotions activate the central nervous system (CNS), autonomic system (ANS), and endocrine system in mothers with LD children and the activity of these systems can in turn affect the body's immune responses negatively. This situation causes the person to apply coping strategies to exercise control and management over them (9).

Coping strategies are a complex and multidimensional phenomenon with cognitive, emotional, and behavioral characteristics (10). Coping is defined as a special process against stress that is prepared by the individual's perceptions, emotions, and behaviors to adapt and change. Therefore, coping skills are cognitive and behavioral reactions of individuals in response to life-threatening situations and stimuli. In other words, coping strategies are cognitive and behavioral strategies used by individuals to control a life-threatening situation (11). In this regard, various studies have revealed that effective coping with stressful situations, in addition to using appropriate coping strategies, requires a person to believe and trust in their abilities to better adapt to the current situation, because a negative attitude towards their abilities increases the severity of people's discomfort and makes it difficult to understand and adapt to existing problems (10, 12). In this regard, Albert Bandura's theory of social cognition has introduced the beliefs or judgments of the individual to his/her abilities to perform tasks and responsibilities as self-efficacy (13, 14). Bandura argued that based on self-efficacy, human cognitive, social, emotional, and behavioral skills to achieve different goals are effectively organized and the amount of damage related to life problems is reduced. Research has also shown that people with better emotional self-efficacy feel less lonely and with a greater sense of efficiency, pain catastrophe is reduced (12, 15).

Therefore, considering that a significant number of families in the Iranian society suffer from the negative effects of having a child with special needs and consequently a very high burden of care, psychological, social and financial pressures family stability and organization could easily be disrupted. On the other hand, given that mothers as the main caregiver of the child and a key role in the mental health of family

members, addressing the situation of mothers and research in this area is important. Hence, the pathology of psychological and social empowerment of the main caregivers of these children, namely the mother, can be effective in introducing a consistent treatment model based on a set of research strategies and guidelines. Therefore, the aim of this study was the modeling of loneliness in mothers with children having LD based on coping strategies with the mediating role of self-efficacy.

## 2. Methods

The present study was descriptive in terms of method and type of structural equation modeling.

### 2.1. Participants

The statistical population of the present study was all the mothers with children with LD who referred to medical centers in Tabriz, Iran in 2021. Due to the prevailing conditions in the community in terms of the prevalence of the COVID-19 pandemic, there were restrictions on the access to the mothers of the children under study. Subsequently, an attempt was made to proceed with the minimum number of participants based on the completion of the questionnaires through the virtual system.

In structural equations, the minimum sample size was determined with latent variables, not observable ones. The hidden variables are either the factors or the dimensions of the model. Additionally, 20 samples are required for each hidden factor or variable and at least 200 samples are generally required for this type of studies (16).

### 2.2. Data Collection

The questionnaires used to collect data are as follows:

#### 2.2.1) Loneliness Scale

The Loneliness Scale was designed by Russell and colleagues in 1980, consisting of 20 four-choice, 10 negative, and 10 positive sentences that provide a general score on loneliness (17). In this questionnaire, "never" has the score of (1), "rarely" (2), "sometimes" (3), and "always" (4). The score range is between 20 (minimum) and 80 (maximum), thereby making the average score 50. A score higher than the average indicates greater intensity of loneliness. The reliability of this test in

the new revised version was reported to be 78%. The reliability of the test through their test method was reported by Russell and colleagues 89% (17). Zarei and colleagues in normalizing the UCLA loneliness scale version 3 in Farsi obtained a Cronbach's alpha from 0.90 to 0.91 (18). Cronbach's alpha coefficient of the questionnaire used in this study was 92%.

### 2.2.2) Coping Response Inventory (CRI)

This scale was developed in 1982 by Moss and Billings and includes two general scales of problem-focused coping (problem-oriented) and emotion-focused coping (emotion-centered) with 32 terms. The scoring method is based on a Likert scale which are as follows: none=0, sometimes=1, often=2, and always=3 (19). In the research by Zarnaghashand co-workers, the validity of the questionnaire was obtained using Cronbach's alpha method with 354 samples for the total score with a coefficient of 0.71, 0.79 for the problem-oriented strategy subscale, and 0.78 for the emotion-oriented subscale. The reliability coefficient of retesting of this scale was reported to be 0.79 (20). In a study confirming the face validity, Zonozian and colleagues reported the reliability of this scale with internal consistency method from 0.41 to 0.66. In addition, the reliability coefficient of its retest was 0.79. The validity of this scale was reported to be 0.90 using Cronbach's alpha method for the problem-oriented strategy and 0.65 for the emotion-oriented strategy (21). Herein, the Cronbach's alpha coefficient obtained for the component of emotion-oriented and problem-oriented coping strategies were 0.92 and 0.87, respectively.

### 2.2.3) Pain Self-Efficacy Questionnaire (PSEQ)

This questionnaire is based on Bandura's theory of self-efficacy, developed by Asghari and Nicholasin 1989, comprising 10 questions to assess the patient's belief in the ability to perform various activities despite the existence of pain (22). The questionnaire also assesses a person's effectiveness and satisfaction in living with pain and includes questions on a 7-point Likert scale from (0=not at all sure) to (6=quite sure). Consistent with the results of previous studies, the validity and reliability of the Persian version of pain self-efficacy was investigated. The results of confirmatory factor analysis in a sample of 348 patients with chronic pain revealed that the Persian version of pain self-efficacy is a saturation factor, which was obtained to be 0.92. In addition, in a Cronbach's alpha study, this scale was equal to 0.89 (23). In the study of Latifian and co-workers, Cronbach's alpha coefficient was calculated

to be 0.93 (24). In the present study, Cronbach's alpha coefficient of this questionnaire was 0.81.

### 2.3. Data Analysis

To analyze the research data, the statistical methods of correlation coefficient and path analysis were employed by the help of SPSS and Amos software.

## 3. Results

Primarily, 300 mothers were selected as the sample through purposive sampling method. The average age of mothers was  $32.76 \pm 5.65$  years and 62.7% of the subjects were in the age distribution of 25-34 years and 37.3% were in the age distribution of 35-45 years. In terms of education level, 11% were illiterate, 45.3% had an undergraduate degree, 23.3% had a bachelor's degree, and 20.3% had a master's degree or higher.

Inclusion criteria were:

- Having a child with a learning disability.
- Ability to read and write and answer questions
- Not suffering from certain diseases
- Not using psychiatric drugs.

Exclusion criteria were:

- Dissatisfaction and cancel of continuing to participate in research
- Exposure to possible psychological damages

According to Table 1, the mean score of the problem-oriented coping method was  $(13.23 \pm 3.66)$ ,  $(40.85 \pm 7.16)$  for emotion-oriented strategy,  $(37.26 \pm 7.43)$  for self-efficacy, and  $(45.63 \pm 8.58)$  for feeling lonely.

According to the results of Table 2, problem-oriented strategy with feelings of loneliness had a significantly negative relationship ( $P=0.009$ ), self-efficacy had a significantly negative relationship with the feelings of loneliness ( $P=0.008$ ). However, emotion-oriented strategy had no significant relationship with feelings of loneliness and self-efficacy.

Afterwards, to perform path analysis and structural equations, the assumptions of this test were checked. By converting raw scores to standard scores and

**Table 1:** The central indicators and scattering of research variables

Variables	Minimum	Maximum	Mean	SD
Problem-oriented coping method	4	21	13.23	3.66
Emotion-oriented coping method	23	60	40.85	7.16
Self-efficacy	30	49	37.26	7.43
Feeling lonely	28	62	45.63	8.58

**Table 2:** Results of Pearson correlation analysis

Variables	Problem-oriented strategy	Emotion-oriented strategy	Self-efficacy	Feelings of loneliness
Problem-oriented strategy	1			
Emotion-oriented strategy	-0.077	1		
Self-efficacy	0.177**	-0.009	1	
Feelings of loneliness	-0.27**	0.039	-0.337**	1

\*\* Significance at the level of 0.01, \* Significance at the level of 0.05

**Table 3:** Output model fit indices

Indicators	$\chi^2$	df	$\chi^2/df$	GFI	AGFI	CFI	RMSEA	P
Output model	327.49	1126	2.599	0.891	0.851	0.916	0.073	0.0001

examining z scores greater than 2.5, it showed that there was no univariate outlier data. Additionally, examining the Mahalanobis distance to detect multivariate throw data demonstrated that multivariate throw data does not exist and the default multivariate throw data was established. The two assumptions of linearity of relations and the similarity of the distribution of residuals with the graph of the distribution of the predicted scores and residual scores were examined which, according to the results of the lack of a clear trend in the distribution of points on the page, indicates compliance with this default.

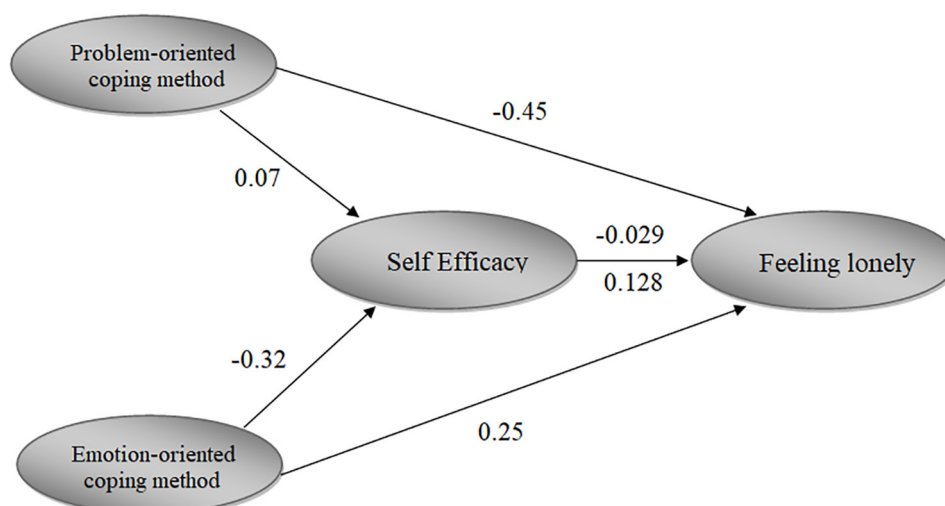
To examine the independence of the residues, the Durbin -Watson test statistic was used, which was equal to 2.083, illustrating that the presumption of independence of the residues was observed. To detect the existence of alignment, the value of VIF (Variance Inflation Factor) index equal to 1 and the value of tolerance index equal to 1 showed that there were no large correlations between the predictor variables and no serious alignments were evident. A value greater than 10 VIF (Variance Inflation Factor) indices implies alignment. Similarly, if the tolerance index is less than 0.1, it indicates alignment; thus, after ensuring that the assumptions of structural equation analysis were observed, the results of this test are presented as follows.

Table 3 represents the fit indices of the output model. According to the table, the fit indices include chi-square ( $\chi^2=49.49$ ), relative chi-square ( $\chi^2/df=2.599$ ),

good fit index (GFI=0.891), Adjusted Goodness of Fit index (AGFI=0.851), comparative fit goodness index (CFI=0.916), and the root mean square error of approximation (RMSEA=0.073) indicate the optimal fit of the output model.

According to Figure 1 and Table 4, the direct path from problem-oriented strategy to feeling lonely ( $P=0.009$ ,  $\beta=-0.453$ ), from emotion-oriented strategy to self-efficacy ( $P=0.0001$ ,  $\beta=-0.325$ ) and loneliness ( $P=0.032$ ,  $\beta=0.250$ ), and from self-efficacy to feeling lonely were statistically significant ( $P=0.008$ ,  $\beta=-0.393$ ), but direct paths from problem-oriented strategy to self-efficacy were not of statistical significance ( $P=0.413$ ,  $\beta=0.074$ ). Therefore, it can be argued that emotion-oriented strategies could negatively predict self-efficacy. Moreover, problem-oriented strategy and self-efficacy in a negative way and emotion-oriented strategy in a positive way are able to predict loneliness. Subsequently, to investigate the intermediate relationships of the proposed model and to achieve the significance of indirect coefficients, the bootstrap test of AMOS program with a sample number of 7000 people and the default confidence level of the program was used, the results are presented in Table 4.

According to Table 4, problem-oriented strategy did not have a significant indirect effect on feeling lonely through self-efficacy ( $P=0.395$ ,  $\beta=-0.029$ ). Emotion-oriented strategies ( $P=0.005$ ,  $\beta=0.128$ ) could positively and indirectly predict loneliness through self-efficacy.



**Figure 1:** The figure shows coefficients of the effect of problem-based and emotion-oriented strategy on the feeling of loneliness through self-efficacy.

**Table 4:** The direct, indirect, and total predictive effects of loneliness through self-efficacy

Variables	Direct effect	Indirect effect	Total effect
Problem-oriented strategy –self-efficacy	$\beta$ (0.074) P(0.413)	-	$\beta$ (0.074)
Problem-oriented strategy – feeling lonely	$\beta$ (-0.453) P(0.009)	-	$\beta$ (-0.482)
Emotion-oriented strategy –self-efficacy	$\beta$ (-0.325) P(0.0001)	-	$\beta$ (-0.325)
Emotion-oriented Strategy –feeling lonely	$\beta$ (0.250) P(0.032)	-	$\beta$ (0.378)
Self-efficacy –feeling lonely	$\beta$ (-0.393) P(0.008)	-	$\beta$ (-0.393)
Problem-oriented strategy –self-efficacy –feeling lonely	-	$\beta$ (-0.029) P(0.395)	-
Emotion-oriented strategy –self-efficacy –feeling lonely	-	$\beta$ (0.128) P(0.005)	-

In other words, increasing mothers' scores on emotion-oriented strategies results in decreased self-efficacy, leading to increased feelings of loneliness. Consequently, the model of loneliness of mothers with children with learning disabilities based on coping strategies with the role of self-efficacy mediators had a good fit.

#### 4. Discussion

The aim of this study was to model loneliness in mothers with children having specific learning disorders based on coping strategies with mediating role of self-efficacy. Based on the results, the direct path from problem-oriented strategy to feeling lonely and from emotion-oriented strategy to self-efficacy and feeling lonely are statistically significant. Moreover, problem-oriented strategy and self-efficacy in a negative way and emotion-oriented strategy in a positive way were able to predict loneliness.

Emotional strategies can also positively and indirectly predict feelings of loneliness through self-efficacy. In other words, increasing mothers' scores on emotion-oriented strategies leads to decreased self-efficacy and thus an increased feeling of loneliness.

These findings were consistent with the results of various studies, such as Al-Yagon, Van Denburg and co-workers, Jin and co-workers (8, 12, 15). Explaining the obtained results, using appropriate coping strategies along with believing and trusting in their abilities and strengthening social relationships to overcome feelings of loneliness, mothers with children with learning disabilities can effectively deal with and cope with the existing conditions (12).

In fact, since there is a relationship between the two variables of loneliness and emotion-based and problem-oriented coping strategies, it is suggested that mothers who have children with learning disabilities become familiar with these styles due to their feelings of loneliness and depression. Therefore, low self-efficacy and inability to use appropriate coping strategies can increase a person's feeling of loneliness. Mothers with children with learning disabilities can directly look for ways to deal with the problem using an effective coping style and usually find the right solution to the problem and achieve psychological satisfaction.

On the other hand, this condition contributes to mental order and cohesion and reduces emotional

turmoil. That is, recognizing and evaluating the source of control helps to reduce feelings of loneliness and increase personal efficiency. According to the social cognition perspective, a person with self-efficacy can deal with everyday issues and problems mentally and use his/her cognitive, social, emotional, and behavioral skills to achieve goals and adapt to problematic situations along with organizing effectively and reducing the rate of damage to life problems(9). In other study touching on loneliness in the workplace include research by Melamed and colleagues who found a correlation between job satisfaction and a lack of loneliness amongst therapists working in an outpatient clinic (25).

Finally, our study had also some limitations. They include: a) Using only self-report tools and not controlling other influential family variables, b) The present study was conducted only in Tabriz; hence, care should be taken in generalizing the results, c) A large number of questionnaires and research samples due to the spread of corona virus, due to which the answers were obtained online.

## 5. Conclusions

In general, mothers with children with learning disabilities to deal with and use problem-oriented strategies effectively should believe in personal abilities and employ them to take advantage of the possibilities and factors to reduce the feelings of loneliness, such as the development of social relationships.

Therefore, equipping mothers of children with learning disabilities with effective coping skills and promoting self-efficacy by organizing and holding specialized workshops can be effective in this field.

## Ethical Approval

The participants were informed orally about the study and all the mothers of children with learning disabilities signed an informed consent form before completing the questionnaires. This study was approved by the Ethics Committee of Medical Faculty of Islamic Azad University –Tabriz Branch with the code of IR.IAU.TABRIZ.REC.1399.199.

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