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The Mediating Role of Resilience in the Relationship Between Self-Efficacy and Demographic Variables in Parents of Children with Cystic Fibrosis

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ABSTRACT

Objective: In genetic diseases such as Cystic Fibrosis, parental self-efficacy is an important variable that increases the child's compliance with treatment. The aim of this study is to determine the mediating role of resilience in the relationship between self-efficacy and demographic variables in parents of children with Cystic Fibrosis.

Methods: The participants of the research were 269 children with Cystic Fibrosis and their parents living in Turkey. Parents were reached via WhatsApp communication tools of the Cystic Fibrosis Association (KIFDER). The data of the research were gathered online between September 1 and December 20, 2020. Child with Cystic Fibrosis and Parent Identification Form, General Self-Efficacy Scale and Resilience Scale for Adults were used as data collection tools. Descriptive statistics and linear regression were utilized to analyze the data, while Hayes' PROCESS was utilized to analyze the mediating role.

Results: Demographic variables that predict parents' self-efficacy; It was determined as the number of children, maternal income level, gender and the need for information about Cystic Fibrosis. Parents' mean self-efficacy score was 30.00±.62. Self-perception (β=.252,SE=.054,95%CI [0.144-0.360], p<.01) and future perception sub-scales (β=.147,SE=.043,95%CI) of the resilience scale [0.061-0.233, p<.01) had an indirect mediating effect on parental self-efficacy.

Conclusion: In parents of children with Cystic Fibrosis, parental self-efficacy is negatively affected by the increase in the number of children they have. Another variable in increasing parental self-efficacy is increasing parental psychological resilience.

Keyword: Self-Efficacy, Parents, Children, Cystic Fibrosis, Resilience

1. INTRODUCTION

Cystic fibrosis (CF) is a genetically inherited chronic disease with a high mortality rate that occurs because of mutation in the gene encoding the cystic fibrosis transmembrane regulator (CFTR) protein and affects multiple organs and glands (1). Before screening programs, cystic fibrosis was mostly diagnosed with recurrent lung infections that did not respond to treatment. In the last 10 years, the first diagnosis is made with heel prick blood in newborn screening programs as CF symptoms are observed (2). While the life expectancy of infants with Cystic Fibrosis (CF) has considerably improved thanks to recent advancements in therapy (3), daily routine treatments have become more complex, burdensome and time-consuming (4). In particular, the maintenance of the airway and drug management are stress sources for parents (5). When parents are not given assistance for stress management, the disease is harder to control, and psychosocial issues may develop (6). The quality of life for children with CF is adversely impacted by the psychosocial issues of their parents (7). Studies on the quality of life of children with persistent illnesses highlight the link between parental self-efficacy and the effectiveness of therapy (8-9). Parental self-efficacy plays an important role in childcare, health management and activities of daily living in children with chronic diseases such as cystic fibrosis (10-11).

Self-efficacy has positive effects on self-management of disease in parents who are primarily responsible for the care and treatment of the child in chronic diseases (10). It has been suggested that raising parents' self-efficacy

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is a successful strategy for lessening the intensity of the illness and enhancement the quality of life of children (12). Home attendance protocol in cystic fibrosis makes the child dependent on parents for treatment (13). Demographic variables affecting parental self-efficacy of children with chronic diseases are reported as age, education, economic status and number of children (14). In the literature, there are conflicting studies on the variables affecting parents' self-efficacy levels. (15-16). For this reason, there is a need to determine the relationship between parents' self-efficacy and the variables affecting it as it will guide the planning of nursing care.

Planning strategies to boost parents' self-efficacy in the delivery of care is advised for practical uses for pediatric nurses (17). Results of a systematic review dealing with parental self-efficacy report that parental self-efficacy is affected by modifiable factors such as the number of children, education, work situation and number of births. Although the importance of increasing self-efficacy in parents of children with CF was emphasized in the same study, it was noted that there was little evidence on how to increase it and what it is affected by (16).

The level of resilience is another important factor in coping with the difficulties faced by parents during chronic diseases such as CF that are life-threatening and involve numerous uncertainties (18-19). Resilience is defined as the capacity of individuals to cope with stressful and traumatic events and the ability to adapt positively to changing challenging factors (20). While resilience allows parents to effectively utilize their assets (21), Additionally, it lessens the caregiving burden on parents, helps children grow positive emotions, and improves their quality of life (22). By enhancing parents' coping mechanisms and problem-solving abilities, resilience also boosts the clinical decision-making and therapy in the context of chronic illnesses (23).

It is important to understand the mediating effect of resilience on demographic variables affecting self-efficacy in parents of children with Cystic Fibrosis. Because self-efficacy affects how these parents can provide better care for their children and how they can maintain their own quality of life. In the literature, it is reported that parents with high psychological resilience can cope with stress more effectively. It is reported that they develop multiple coping strategies and are associated with effective use of social support networks. The aim of this study is to determine the mediating role of resilience in the relationship between self-efficacy and demographic variables in parents of children with Cystic Fibrosis.

H1 Demographic variables influence parental self-efficacy.

H2 Psychological resilience variable significantly mediates the relationship between parental self-efficacy and demographic variables.

2. METHODS

The aim of this research was to create a model to dentification the mediating role of demographic parameters affecting parental self-efficacy and parental psychological resilience. It is reported that parental self-efficacy is affected by variables such as number of children, child age, child gender, parent education, age, gender, income level (16). From this perspective, all variables in this study's regression analysis will be included in the model, and the variables with a meaningful association will be assessed individually in the model. Secondary aim of the study can be expressed as is to verify the connection among the demographic characteristics, self-efficacy and psychological resilience of parental with a child with CF.

2.1. Sample

The data of the research were gathered through communication with parents between April 1st and July 31st, 2022, via WhatsApp accounts created online by KIFDER (Cystic Fibrosis Association). The population of the study consisted of 750 parents registered to KIFDER WhatsApp groups. The population of the study consisted of 750 parents registered to KIFDER WhatsApp groups. The sample calculation method for groups with known population was used to determine the sample size of the study. According to Yazıcıoğlu and Erdoğan (2004), with a sampling error of 0.05, probabilities of $p = 0.5$, $q = 0.5$ and confidence interval $\alpha = 0.05$, at least 254 parents should be sampled in a population of 750 parents (24). The study was completed with 269 parents who met the inclusion criteria and voluntarily agreed to participate in the study. The population of the study consisted of 750 parents registered to KIFDER WahtsApp groups.

2.2. Data Collection Tools

The data of the study were collected by using (1) the *Child with CF and Parent Identification Form*", (2) *"General Self-Efficacy Scale"* and (3) "*Resilience Scale for Adults.*

The Child with CF and Parent Identification Form

The Identification Form for Child with CF and Parent have collected data about the age, gender, education level, working status, income level of parents, place of residence, number of children, number of children with CF, educational needs related to the disease of child and parent (10-14).

General Self-Efficacy Scale

General Self-Efficacy Scale' developed by Schwarzer & Jerusalem (1995) determines the general self-efficacy of parents. The self-efficacy level of Parents was collected with the *General Self-Efficacy Scale* (25). The scale has 10 items and is scored on a 4-point Likert scale. The scale score was accepted as the total score of the scale. Scores between 10 and 40 are obtained from the scale and high scores are accepted as high self-efficacy perception. The Turkish validity and reliability study of the scale was carried out by Aypay

(2010) and alpha coefficient was determined as 0.83 (26). In this study, the Cronbach's alpha reliability coefficient of the *General Self-Efficacy Scale* was found as .90.

Resilience Scale for Adults

The level of resilience in parents was determined by using the *Resilience Scale for Adults* The Resilience Scale for Adults was developed by Friborg et al. (2009). (27). The scale consists of 6 sub-scales as follows: Structured Style, Planned Future, Family Cohesion, Perception of Self, Social Competence, and Social Resources. In the scale, structural style (3,9,15,21) and future perception (2,8,14,20) are measured with 4 items each; family cohesion (5,11,17,23,26,32), self-perception (1,7,13,19,28,31) and social competence (4,10,16,22,25,29) with 6 items each; and social resources (6,12,18,24,27,30,33) with 7 items. There are 33 questions in total. Questions 1-3-4-8-11-12-13-14-14-15-16-23-24-25-27-27-31-33 will be reverse questions. If it is desired that psychological resilience increases as the scores increase, the answer boxes should be evaluated as 12345 from left to right. In this research, it was scored as 12345 from left to right. The minimum score in the questionnaire is 33 and the maximum score is 165. The Turkish validity and reliability study of the scale was carried out by Basım & Çetin (2011), and the alpha coefficient was determined as 0.86 (28). In this study, the Cronbach's alpha reliability coefficient of the Resilience Scale for Adults was found as .89.

2.3. Data Collection

After the research ethics committee permission was obtained, the research procedure and purpose were explained to the parents in an online meeting organized through KIFDER. After the first information meeting, parents were sent a research invitation and information text via WhatsApp application. Parents who responded to the invitation were informed about the study by the researchers via WhatsApp application. It was made clear that participation in the study was completely voluntary and that participants could withdraw from the study at any time. Parents who met the inclusion criteria and voluntarily accepted to participate in the study were contacted. Pre-interviews were conducted with 5 parents to test the applicability of the data collection forms and these parents were not included in the sample of the study. Interview times were arranged according to the convenience of the parents. Each interview lasted on average 20-25 minutes. During the interview, the 'Child with CF and Parent Identification Form', 'General Self-Efficacy Scale' and 'Resilience Scale for Adults' prepared through the Google Form application were sent to the parents and they were asked to fill them in. The responses were recorded. Information messages continued to be sent until the sample size was reached.

2.4. Data Analysis

Number, percentage, mean and standard deviation are given for the descriptive statistics of the study data. The conformity to normal distribution of numerical data was evaluated by Skewness (between – .56 and – .25) and Kurtosis (between – .70 and .24) test and data was determined to have a normal distribution. Generalized linear models and backward multiple linear regression analysis were used to identify potential demographic variables that might influence scores on the General Self-Efficacy Scale. The significance level was accepted as $p<.05$. General Self-Efficacy Scale scores of parents in the primary analyzes were evaluated with PROCES method was used to determine the mediator effect of resilience on the relationship between parental self-efficacy and demographic variables. PROCESS is a macro extension of the SPSS program, which is used in moderation, mediation and conditional process analysis (29). The SPSS macro-PROCESS model 4 was used in this research. PROCESS uses the regression-based or ordinary least squares approach to evaluate moderation trends.

2.5. Ethical Aspect of the Study

Approval for the research was given by the Ethics Committee of Necmettin Erbakan University Health Sciences Scientific Research (meeting and Decision Number: 05 dated 05.07.2020). Before starting the data gathered process, the parents were informed about the aim and context of the investigation and their online consent was obtained, indicating that they agreed to participate in the research.

The limitation of the study is that the data are collected online. The fact that the parents of children with CF who are WhatsApp users participated in the research constitutes our first limitation in terms of generalization. Secondly, the mediator effect of resilience on self-efficacy was examined in this study. Further evidence is needed to explain the relationship between parental self-efficacy and resilience, considering all variables affecting parental self-efficacy.

3. RESULTS

3.1. Descriptive Characteristics of Participants

In the research, 50.9% of children with CF were girls, 31.6% were between the ages of 7 and 12, 40.5% had received preschool education, and 36.8% had a teacher coming to the home for education. 79.9% of the parents who answered the questionnaire were mothers. 53.9% of the mothers were between the ages of 31-40, 41.3% had primary education and 82.9% were not working. Demographic characteristics of the children with CF and their parents who participated in the study are given in Table 1.

When the General Self-Efficacy Scale (GSE) scores of the parents of the CF children were investigated, the mean general self-efficacy score of the parents was 30.00±62, and the mean adult resilience score was 37.33±.62 (Table 1).

Table 1. *Descriptive Characteristics of Children with Cystic Fibrosis and Their Parents (n= 269).*

Descriptive Characteristics	n	%
Gender of the child		
Female	137	50.9
Male	132	49.1
School Attended by Child		
Preschool / Kindergarten	109	40.5
Primary school	64	23.8
Middle school	50	18.6
High school	42	15.6
University	4	1.5
Type of education		
The teacher is coming home	99	36.8
Going to school	170	63.2
Age Group of Children		
1-3 age group	55	20.4
4-6 age group	65	24.2
7-12 age group	85	31.6
13-18 age group	64	23.8
Questionnaire Respondent		
Mother	215	79.9
Father	54	20.1
Mother Age Group		
21-30 age group	60	22.3
31-40 age group	145	53.9
41-50 age group	60	22.3
51-60 age group	4	1.5
Father Age Group		
21-30 age group	15	5.6
31-40 age group	148	55.0
41-50 age group	87	32.3
51-60 age group	19	7.1
Education Level of Mother		
Illiterate	5	1.9
Primary education	111	41.3
High school	87	32.3
University	66	24.5
Education Level of Father		
Primary education	95	35.3
High school	91	33.8
University	83	30.9
Working Status of Mother		
Not working	223	82.9
Working	46	17.1
Working Status of Father		
Not working	26	9.7
Working	243	90.3

Table 1. Continues: *Descriptive Characteristics of Children with Cystic Fibrosis and Their Parents (n= 269).*

Descriptive Characteristics	n	%
Number of Children		
1 child	50	18.6
2 children	118	43.9
3 children	77	28.6
4 children and more	24	8.9
Number of Children with Cystic Fibrosis		
1 child	240	89.2
2 children	25	9.3
3 children	4	1.5
Social Security of the Family		
Yes	236	87.7
No	33	12.3
Income-Expenditure Status of the Family		
My income is less than my expenses	110	40.9
My income is equal to my expenses	125	46.5
My income is more than my expenses	34	12.6
Place of Family Living		
Provincial center	180	66.9
District center	70	26.0
Town/village	19	7.1
Lack of Knowledge / Need for Information about Cystic Fibrosis		
Yes	226	84.0
No	43	16.0
Scales	**Min-Max**	**$\overline{X}$ ±SD**
Self-Efficacy Total	11.00-40.00	30.00±.62
Resilience Total	18.20-50.00	37.33±.62

3.2. Change in Parent Self-Efficacy Scale Scores According to Demographic Variables

Model 1 and Model 2 examined the relationship between demographic variables and self-efficacy of parents with children with CF in Table 2. The findings of Model 1 are presented below. Gender was determined as an effective variable on self-efficacy scores ($p<.05$). Parents of girls had 2.382 points higher self-efficacy scores than those of boys. The number of children affected self-efficacy scores ($p<.05$). The self-efficacy scores of parents with one or two children were 1.898 points higher than those of parents with three or more children. Income was determined as an effective variable on self-efficacy ($p<.05$). The self-efficacy scores of parents with negative income were – 2.072 points lower than those of parents with neutral or positive income. The need for information about CF was found to be an effective variable on parental efficacy ($p<.05$). Parents who did not need information about CF had 2.385 points higher self-efficacy scores than parents who needed information. The child's education level, age, type of parent, age, education level, employment status, number of children with CF, presence of social security, and place of residence did not affect self-efficacy scores ($p>.05$) (Table 2).

Model 2 was reanalyzed by removing statistically insignificant variables. Gender was determined as an effective variable on self-efficacy scores (p<.05). The self-efficacy score of the parents of girls was 2,640 points higher than that of the parents of boys. The number of children was found to be an effective variable on self-efficacy (p<.05). The self-efficacy scores of parents with one or two children were 1.640 points higher than those of parents with three or more children. Income affected self-efficacy (p<.05). The self-efficacy scores of parents with negative income were 1.920 points higher than those of parents with neutral or positive income. The need for information about CF was an influential variable on parental efficacy (p<.05) Parents who did not need information about CF had 2.480 points higher self-efficacy scores than parents who needed information (Table 2).

Table 2. *Comparison of Generalized Self-Efficacy Scale Mean Scores According to Sociodemographic Characteristics of Children with Cystic Fibrosis and Their Parents According to Generalized Linear Models (n= 269)*

Descriptive Characteristics	Model 1					Model 2				
			95% Wald Confidence Interval					95% Wald Confidence Interval		
	B	Std. Error	Lower	Upper	p	B	Std. Error	Lower	Upper	p
(Intercept)	27.872	2.4888	22.994	32.750	**.000**	26.060	0.790	24.510	27.620	**.000**
Gender of the child										
Female	2.382	.7363	.939	3.825	**.001**	2.64	0.720	1.230	4.060	**.000**
Male	ref	.	.	.	.	Ref	.	.	.	.
School Attended by Child										
≤ Primary school	-3.141	1.6502	-6.375	.094	.057					
≥ High School	ref	.	.	.	.					
Number of Children										
1-2 child	1.898	.8724	.188	3.608	**.030**	1.64	.750	.016	31.200	**.030**
≥ 3 children and more	Ref	.	.	.	.	Ref	.	.	.	.
Income-Expenditure Status of the Family										
My income is less than my expenses	-2.072	.7681	-3.577	-.566	**.007**	1.920	.740	0.046	.337	**.010**
My income is equal to/more than my expenses	Ref	.	.	.	.	Ref	.	.	.	.
Lack of Knowledge / Need for Information on Cystic Fibrosis										
I don't need information	2.385	.9879	.449	4.322	**.016**	2.480	.980	.055	4.420	**.012**
I need information	Ref	.	.	.	.	Ref				
Age Group of Children										
1-3 age group	-.774	1.6860	-4.079	2.530	.646					
4-6 age group	1.940	1.5886	-1.174	5.054	.222					
7-12 age group	.851	1.5116	-2.112	3.813	.574					
13-18 age group	ref	.	.	.	.					
Questionnaire Respondent										
Mother	1.364	.8992	-.398	3.127	.129					
Father	ref	.	.	.	.					
Mother Age Group										
21-30 age group	.811	1.4891	-2.108	3.729	.586					
31-40 age group	1.173	1.0341	-.853	3.200	.257					
≥ 41age	ref	.	.	.	.					
Father Age Group										
21-30 age group	1.104	2.0222	-2.859	5.068	.585					
31-40 age group	-.008	.9645	-1.898	1.882	.993					
≥ 41age	ref	.	.	.	.					
Education Level of Mother										
≤ Primary education	-.604	.9574	-2.480	1.272	.528					
≥ High school	ref	.	.	.	.					
Education Level of Father										
Primary education	-.026	.9597	-1.907	1.855	.978					
≥ High school	ref	.	.	.	.					

Table 2. Continues: *Comparison of Generalized Self-Efficacy Scale Mean Scores According to Sociodemographic Characteristics of Children with Cystic Fibrosis and Their Parents According to Generalized Linear Models (n= 269)*

Descriptive Characteristics	Model 1					Model 2				
			95% Wald Confidence Interval					95% Wald Confidence Interval		p
	B	Std. Error	Lower	Upper	p	B	Std. Error	Lower	Upper	
Working Status of Mother										
Not working	1.241	1.0036	-.726	3.208	.216					
working	ref	.	.	.	.					
Working Status of Father										
Not working	-.551	1.3495	-3.196	2.094	.683					
working	ref	.	.	.	.					
Type of education										
The teacher is coming home	.492	.7824	-1.041	2.026	.529					
Going to school	ref	.	.	.	.					
Number of Children with Cystic Fibrosis										
1 child	.280	1.2340	-2.138	2.699	.820					
2-3 children	Ref	.	.	.	.					
Social Security of the Family										
Yes	-1.511	1.2224	-3.907	.885	.216					
No	Ref	.	.	.	.					
Family Living Place										
Provincial center	.283	1.4497	-2.558	3.124	.845					
District center	.904	1.5776	-2.188	3.996	.567					
Town/village	Ref	.	.	.	.					

Multiple regression analysis (backward method) was performed to evaluate the effect of the independent variables on the GSE scores of the parents. There is a strong correlation among the total points of the Adult Resilience Scale and the subscales of the scale (r: .68 to .84, p<.001) Tolerance for total score: .000, VIF: – could not be calculated). Therefore, in the regression analyses, the total resilience score was not included in the model due to autocorrelation. The subscale scores were included in the model. According to the correlation analysis and Collinearity statistics, no high level of autocorrelation was found among the remaining independent variables included in the regression model.

Of the independent variables included in the regression model, six independent variables, namely income-expenditure status, the structural style, social resources, family cohesion, social competence sub-scale scores of the Adult Psychological Resilience Scale, and the need to be informed about CF and its score, were excluded from the regression model respectively because they did not have sufficient effect on the total score of general self-efficacy (p>.05).

The order of importance (from the most important to the least important) of the five variables that had a significant effect on the General Self-Efficacy Scale score of the parents who remained in the model and had a child with CF, is as follows: total points for self-perception sub-scale of the Adult Resilience Scale (p<.001) and planned future sub-scale, gender of the child with cystic fibrosis (p<.01), educational status of the child and number of children in the family (p<.05) (Table 3). A 1-point increase in The Resilience Scale for Adults self-perception sub-scale increases parents' general self-efficacy scores by .24 points and a 1-point increase in the planned future sub-scale score by .15 points. The general self-efficacy score of parents whose children with cystic fibrosis are girls is .19 points higher than those whose children with cystic fibrosis are boys. The general self-efficacy score of parents whose children with CF were educated at high school and university level was .19 points higher than those whose children were educated at primary school or less. The general self-efficacy score of parents with one or two children is .14 points higher than those with three or more children.

It was found in the mediator effect analysis that the child's gender and the way of education did not have a mediator effect on self-efficacy. The mediating effect of perception of self and planned future sub-scales, and the number of children on self-efficacy are explained in Figure 2. When the mediating role of resilience between parental self-efficacy and the number of children among demographic variables was examined; it was determined that the model created was statistically significant (p<.05) and the R^2 value is 27.0%. The explanatory rate of the model is 27.0%.

It was observed in the model that the demographic variable of the number of children had a significant and direct effect on parental self-efficacy (β=.135, SE=.067, 95%CI [0.003-0.267], p=.043).

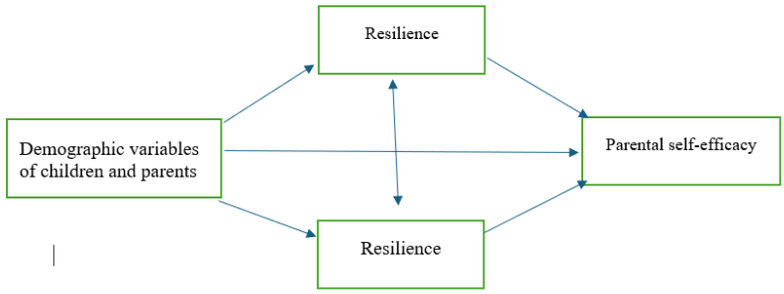

Figure 1. *Variable relationship to be examined in line with the hypotheses based on the Process model*

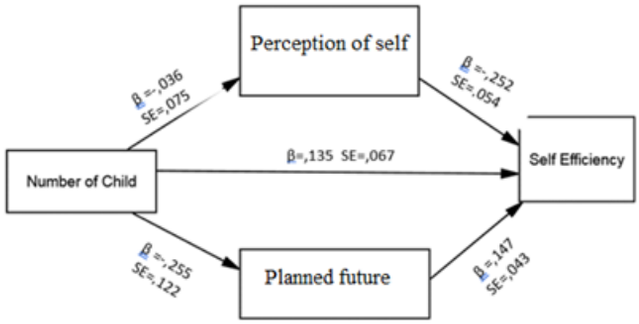

Figure 2. *Model 4 (Parallel mediation model) from Hayes 2013*

There was no correlation between the self-perception sub-scale of resilience and the number of children (β=-.036, SE=.075, 95%CI [-0.096-0.286], p=.635), but there was an indirect mediator effect on self-efficacy (β= .252, SE=.054, 95%CI [0.144-0.360], p=.001.

There was a significant and positive correlation between the planned future sub-scale scores of resilience and the number of children (β=.255, SE=.122, 95%CI [0.015-0.494], p=.036) and there was an indirect mediator effect on self-efficacy (β=.147, SE=.043, 95%CI [0.061-0.233], p=.001) (Table 4).

Table 3. *The Effect of Independent Variables on General Self-Efficacy Scale Scores of Parents: Results of Multiple Linear Regression Analysis (n= 269)*

Independent variables	B	S. Error	b	t	p	For B 95% Confidence Interval	
(Constant)	1.39	.16		8.690	.000	1.07	1.70
Resilience Perception of self	.24	.05	.30	4.528	.000	.14	.35
Resilience Planned Future	.15	.04	.23	3.406	.001	.06	.23
Gender of the child	.19	.06	.15	2.943	.004	.06	.31
Education of child	.19	.08	.12	2.296	.022	.03	.36
Number of children	.14	.07	.11	2.137	.034	.01	.27
R: .56 Adjusted R^2: .30 F: 23.51 p: .000 Durbin Watson: 1.38							

Table 4. *The mediating role of perception of self and planned future sub-scales between the number of children and self-efficacy of parents*

Outcome Variables	Predictor Variables	β	S.E.	t	p	%95 CI
Resilience Planned future	Number of children	.255	.122	2.094	**0.036**	0.015-0.494
Resilience Perception of self	Number of children	-.036	.075	-.474	0.635	-0.096-0.286
Self-Efficacy	Resilience Perception of self	.252	.054	4.638	**0.001**	0.144-0.360
Self-Efficacy	Number of children	.135	.067	2.021	**0.043**	0.003-0.267
Self-Efficacy	Resilience Planned future	.147	.043	3.390	**0.001**	0.061-0.233

4. DISCUSSION

In this study, it was found that parents' self-efficacy levels were affected by psychological resilience scale self-perception and planned future sub-scale scores, gender of the child with CF, school attendance status, and number of children. The results show that an increase in the psychological resilience scale perception of self and planned future sub-scale scores positively affects parents' self-efficacy. This result is similar to the studies in the literature showing that the increase in the future perception and planned future scores of the psychological resilience scale increases the self-efficacy of parents (30-31). Nurses caring for children with CF should evaluate and support parents' self-efficacy and factors affecting it within the scope of family-centred care.

Another result of this study is that the general self-efficacy levels of parents of children with CF are affected by some demographic characteristics. The general self-efficacy scores of parents who have a male child, who have 3 or more children and whose child with CF has an education level of primary school or below are lower. The result that parental self-efficacy levels decreased as the number of children increased in this study is similar to some studies in the literature showing that parental self-efficacy decreased as the number of children increased (32-33-34).

However, one study showed that parental self-efficacy increased as the number of children increased (35). In a systematic review in which the variables affecting parental self-efficacy were analysed, no definite conclusion was reached that there was a relationship between general self-efficacy of parents and demographic characteristics (16). These different results indicate that more studies are needed on the general self-efficacy of parents of children with CF and the factors affecting it. In this study, the result that the lower education level of the child and the higher number of children decreased the general self-efficacy of the parents may be associated with the fact that these children have more care needs.

In this study, it was found that psychological resilience scale planned future sub-scale scores played a mediating role in increasing the self-efficacy of parents with more children. Nurses can support the self-efficacy level of parents with more children by increasing the planned future sub-scale levels of the psychological resilience scale of parents of children with CF.. In order to increase the level of planned future resilience of parents, it may be recommended that nurses discuss their goals, plans and objectives related to the future and support their hopes for the future (28).

In the literature, it is reported that the perception of self sub-scale of psychological resilience is structurally associated with self-efficacy (36) and contributes positively to the development of self-efficacy (37)). Nurses should plan interventions for the development of psychological resilience perception of self-sub-scale to increase self-efficacy in parents of children with CF. From this point of view, it can be said that there is a need for interventions to improve parents' problem-solving and stress coping skills (28).

Another result of this study is that psychological health plays a mediating role in the relationship between self-efficacy and number of children. Self-perception and future perception, sub-scales of the psychological resilience scale, were found to play a mediating role in this relationship. Psychological resilience is the ability of an individual to resist the problems encountered (38). It is reported that psychological resilience leads to the development of protective factors such as self-efficacy in the process of coping with problems (39). In the literature, it is reported that the mediating role reduces the effect of the independent variable on the dependent variable and at the same time continues to maintain the emerging significant relationship. (40). In this study, it is seen that increased psychological resilience in parents reduces the negative effect of the number of children the parent has on parental self-efficacy. The number of children of parents is an uncontrollable variable, but the psychological resilience levels of parents can be improved. Thus, it may be possible to increase the general self-efficacy of parents who have many children by utilising the mediating role of increased psychological resilience.

Parental self-efficacy directly affects the management of the disease and health outcomes (41-42-43). İt is thought that increasing the self-efficacy of parents whose responsibilities are increasing in the home care process of children with CF will be effective in overcoming the disease. Nurses caring for children with CF will improve the quality of care by assessing parents' self-efficacy and factors affecting it within the scope of family-centred care and planning interventions to

improve it. The findings of this study will shed light on the development of guidance and counselling services offered by nurses to parents.

5. CONCLUSION

In chronic diseases such as CF, the treatment burden increases with age. It has been determined that this situation affects parental psychological resilience and indirectly parental self-efficacy. In addition, the number of children, which is one of the demographic variables of the parents, directly affects the parental self-efficacy. Nurses have responsibilities to evaluate parents, who ignore their own mental health and development during the intensive treatment process, in order to recognize their problems and to implement interventions that improve them. Interventional plans that develop effective coping and problem solving skills in parents can be planned to increase psychological resilience. Increasing psychological resilience will indirectly lead to an increase in parental self-efficacy. We believe that these improvements will be effective in achieving good clinical results and increasing the quality of life of children with CF. In this context nurses should routinely evaluate parents of children with CF and provide guidance and counseling.

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