Original Article

Comparing the Effect of Nurse-led and Peer-led Training on Stress of Mothers of Children with Chronic Diseases

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Abstract

Background: For children and their families, the diagnosis of a chronic disease can come as a mental and psychological shock. **Objective:** The present study was undertaken to compare the effect of nurse-led and peer-led training methods on the stress of mothers of children with chronic illness. **Methods:** A two-group, pre-test and post-test design, clinical trial was conducted on sixty mothers of children with chronic diseases. Using a permuted-blocked randomized sampling method, the subjects were equally assigned into two groups of 30 to receive either peer-led or nurse-led training. All of the mothers in the two intervention groups were responded the parenting stress index within 48–72 h after the diagnosis and hospitalization of their child and then again after the end of the training program. The mothers in each intervention group were divided into small subgroups of 2–3 and each subgroup participated in three 30 min training sessions held either by a trained peer or by a nurse. Data analysis was performed using *t*-test, Chi-square test, Mann-Whitney, and paired *t*-test. **Results:** No statistically significant difference was observed between the stress scores of peer-led group (320.29 ± 44.38) and nurse-led group (319.60 ± 41.12) before the intervention. After the implementation of the intervention programs, a greater decrease was observed in the mean stress score of the nurse group (314.48 ± 19.67), as compared to the peer group (320.5 ± 22.92). However, the difference was not statistically significant ($P > 0.05$). **Conclusion:** Peer- and nurse-led training methods did not yield much different results. Therefore, it is recommended to substitute peer-led training method for nurse-led training method, due to the nurses' huge workload.

Keywords: *Child, Chronic disease, Education, Mothers, Nurses, Peer group, Psychological, Stress*

Introduction

Parents' stress of having a child with a chronic disease lead them messing their lifestyle and regular family behaviors.[1] According to a previous study, one-third of the children under the age of 18 suffer from at least one debilitating disease.[2] There is no detailed statistics showing the prevalence of chronic diseases in Iran; however, the prevalence of asthma, as the most common chronic health issue in children, is 10%–15% in this country.[3] For children and their families, the diagnosis of a chronic disease can come as a mental and psychological shock.[4] Frequent hospitalization of these children put them, and their parents – especially their mothers under pressure and they experience a great deal of fear and anxiety.[5,6] Moreover, parents' unawareness of the cause and mechanism of therapeutic and caring techniques can foster their negative feelings such as anger, restlessness, irritability, isolation, and anxiety. Therefore, they have a specific requirement for

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psychological support. Otherwise, they might fall into depression.[7]

Evidence showed that proper training of parents and preparing them mentally and spiritually to accept the difficulties of their child's disease can be very helpful.[8]

Some of the studies suggest that nurses are in a unique position to support and train the parents having a child with chronic illness and to reduce the negative effects of chronic diseases on the child and family.[9,10] On the other hand, a number of studies have examined the effect of peer group training (i.e., peer parents) and reported that this method was effective in reducing stress,[8,11] creating an intimate and safe learning environment,[12] acquiring knowledge and information,[13] and encouraging the parents to display proper health-related behaviors.[14] However, no study is available on the comparison of the nurse-led and peer-led training on stress of mothers of children with chronic diseases.

Objectives

The present study was undertaken to compare the effect of nurse-led and peer-led training methods on the stress of mothers of children with chronic illness.

Methods

The study design and participants

A two group, pre- test and post-test design, clinical trial was conducted on sixty mothers of children with chronic diseases (asthma, diabetes, and nephrotic syndrome). The subjects were selected from those referred to Shafizadeh Pediatric Hospital in Amirkola, Iran from June 22 to November 22, 2015.

The sample size was calculated based on a pilot study on 10 children. Based on the results, the mean ± standard deviation of the difference of stress in the control and the experimental groups were 2.0 ± 0.8 and 1.5 ± 0.5. For the present study, considering $\beta = 0.20$, $\alpha = 0.05$, $\sigma_1 = 0.5$, $\sigma_2 = 0.8$, $\mu_1 = 1.5$, and $\mu_2 = 2$, 30 subjects were enrolled in each group.

The eligible subjects for this research were identified through daily referring to the aforementioned hospital and going over their hospitalization records alongside consulting with the treating physician. The inclusion criteria were: mothers of children diagnosed with chronic diseases at least in the past 48–72 h and without a history of hospitalization, eager to participate, having at least basic reading and writing skills, being physically and mentally healthy, having no substance or drug dependency, and gaining a stress score higher than normal based on the parenting stress index (PSI). The exclusion criteria were experiencing a stressful event and worsening of the child's condition during the study and also mother's unwillingness to further participation in educational program.

The level of maternal stress within 48–72 h after the diagnosis of the illness and hospitalization was measured using the PSI. Then, using a permuted-blocked randomized sampling method, the subjects were equally assigned into two groups of 30 to receive either peer-led or nurse-led training [Figure 1].

Preparation of the trainers

Mothers in the first and second groups were trained either by the nurse or by a peer, respectively. Peers were mothers having a child with similar disorder, and their

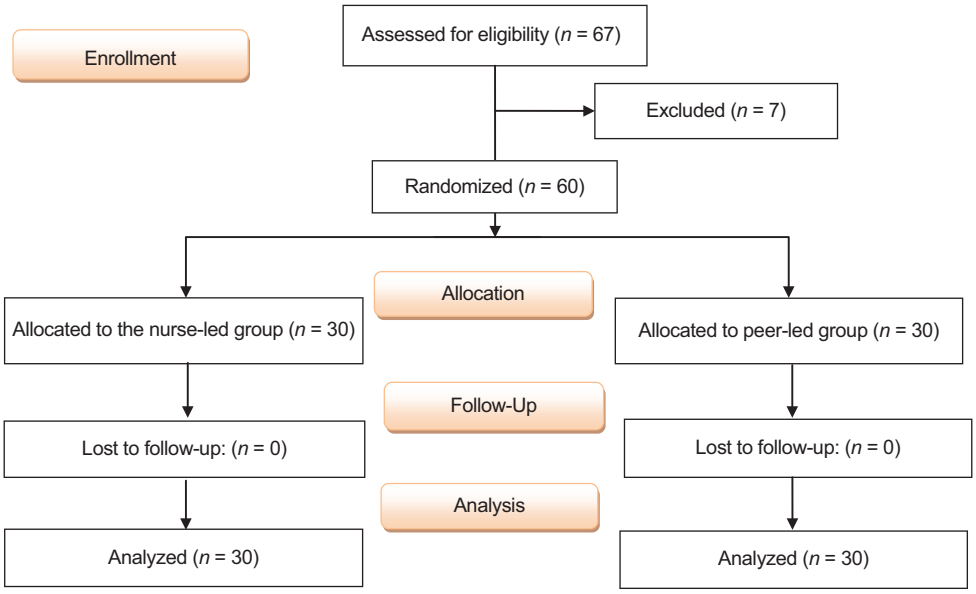

Figure 1: Consort flow diagram of the study

children had been hospitalized in the respective wards in Amirkola Hospital. In coordination with the head nurse, a total of three mothers (whose children had a diagnosis of chronic asthma, diabetes, or nephrotic syndrome) were selected by the researcher, were briefed on the study aims, and were invited to participate in the study. Then, three 1.5 h sessions was held to teach each peer mother about the nature and the process of the disease and factors affecting it, its treatments, signs and symptoms, how to deal with the disease symptoms, medications and their side-effects, how to use each medication, how to take care of the diseased child, the impact of the disease on lifestyle and how to deal with it, how to deal with the reactions of people around, and appropriate diet. The peer mothers were also trained on how to manage a peer training session. All these sessions were conducted by the researcher who was an expert nurse. The content of the educational sessions was prepared through literature review, was adjusted according to the educational and caring needs of the mothers and children, and was confirmed by the faculty members of the nursing school of Tabriz University of Medical Sciences.

The intervention

All of the mothers in the two intervention groups were responded the study instrument (including the demographic form and the PSI). The mothers in each intervention group were then divided into small subgroups of 2–3 (according to the disease of their children), and each subgroup was scheduled for its specific training sessions.

In the first intervention group (i.e., the nurse-led training), small subgroups of 2–3 mothers were trained in three 30 min sessions by a nurse who was previously trained and tested for this purpose. In the second group (i.e., the peer-led training), small subgroups of 2–3 mothers were trained in three 30 min sessions by a peer mother who was previously trained for this purpose. The first researcher was also present and supervised all the peer training sessions to ensure the accuracy of the information exchanged.

The content and the structure of the educational sessions were similar in the two intervention groups. Every educational session included of a greeting, a short speech, question and answering, and opportunities for receiving feedback from the mothers. During the educational sessions, mothers had a chance to present their questions, feelings, and problems. At the end of each session, an educational pamphlet covering the content of the session was given to the mothers to be studied. All the educational sessions were held in a peaceful setting in the ward. The first session addressed spiritual and psychological support, concerns, and questions of parents. The second and the third sessions were devoted to the nature and the process of the disease, its treatments, signs and symptoms, how to deal with the disease symptoms, medications and their side-effects, how to take care of the diseased child, appropriate diet, and how to deal with the reactions of people around.

At the end of the third educational session, and in a peaceful environment, all mothers in the two groups were responded to the PSI for the second time. Finally, some gifts were given to the mothers and peers to appreciate their cooperation.

The study instruments

A two-part instrument was used in this study. The first part contained questions on demographic variables such as gender of the child, and mother's education level, living place, job, and level of supports available and economic status. The second part of the instrument was the PSI.

The PSI was developed by Abidin to measure the level of stress in a parent–child system.[15] The PSI comprises 101 items that cover children (47 items) and parents (54 items) characteristic. The child domain includes six subscales, namely, adaptability, acceptability, demandingness, mood, distractibility/hyperactivity, and reinforceability. The parent domain comprises seven subscales, namely, depression, attachment, role restriction, competence, social isolation, spouse and health. The items were scored using reverse scoring based on a 5-point Likert scale ranging from 1 "absolutely agree" to 5 "absolutely disagree." Thus, the summation of scores can range from 47 to 235 on the child domain, 54–270 on the parent's domain, and 101–505 for the total scale. High scores indicate high levels of stress. This questionnaire was previously translated in Farsi by Dadsetan *et al*., and the reliability was confirmed by Cronbach's alpha (α = 0.88).[16] The coefficients of validity were 0.85 and 0.91 for the child and parent domains, respectively. This factor in retest with 10 days interval was reported as 0.94.[17]

Ethical considerations

Before the initiation of the study, the study was approved by the Ethics Committee of Tabriz University of Medical Sciences (ethical approval code: 9372) and was registered at Iranian registry for clinical trials (number: IRCT 201408205168N8). Required permissions were also obtained from the authorities at Shafizadeh Pediatric Hospital in Amirkola.

Data analysis

Data analysis was performed using SPSS software version 13 (SPSS Inc., Chicago, IL, USA). Descriptive statistics (i.e., frequencies and percent) were calculated

for demographics variables. Moreover, the demographic characteristics of the two groups were compared using the Chi-square test. Independent samples *t*-test and Mann–Whitney test was used to compare the mean of quantitative variables of the two groups and paired *t*-test for within group comparisons. Statistical significance was considered at $P < 0.05$.

Results

Mean age of the children was 6.93 ± 2.96 years (range, 1–16 years). It was as 7.042 ± 3.48 years for the nurse group and 6.83 ± 2.52 years for the peer group. There was no significant difference in mean age between the two groups ($P = 0.800$).

Based on the Chi-square test, the two groups were homogenous in terms of all demographic characteristics except for the mothers' mean age [Table 1].

In baseline, the mean of total stress and child domain in the nurse group was lower than peer group, but the mean of parent domain in nurse group was greater. These differences were not statistically significant.

On the other hand, the mean score of total stress in the posttest was lower in the nurse group than peer group. In addition, the mean score of the nurse group was decreased in child and parent domains in the posttest; however, according to the independent samples *t*-test, the difference was not statistically significant between these two groups ($P > 0.05$).

Despite the reduced score of total stress and each sub domains after intervention in the nurse group, these scores were increased in the control group. However, the differences were not statistically significant ($P > 0.05$).

As presented in Table 2, the two intervention groups were almost similar in the means of total stress and child domain in pretest whereas the nurse group scored higher in parent domains. On the other hand, the mean score of total stress in posttest was lower in the nurse group than peer group, however, the difference was not statistically significant.

Discussion

The results showed that there was no significant difference between the two methods (peer- and nurse-led training) in terms of their effects on the stress of mothers who had children with chronic illnesses. This finding might be attributed to the fact that the researcher was present in peer-led group in the whole course of parent-to-parent training and monitored the accuracy of exchanged information. On the other hand, only knowledge about stress reduction methods cannot lead to change the performance and attitude of people. Since stress is a complex and multidimensional response, the response may be influenced by many factors such as cognitive and situational factors.

Table 1: Comparison of demographic specifications of peer and nurse groups in pretest[a]

Variables	Peer group	Nurse group	*P*[b]
Infant gender			
Girl	16 (53.3)	13 (43.3)	0.422
Boy	14 (46.7)	17 (56.7)	
Mothers' education level			
Up to diploma	8 (26.7)	14 (46.7)	0.108
Diploma and higher	22 (73.3)	16 (53.3)	
Marital status			
With spouse	28 (93.3)	28 (93.3)	0.108
Without spouse	2 (6.7)	2 (6.7)	
Career			
Housekeeper	26 (86.7)	24 (80.0)	0.488
Employed	4 (13.3)	6 (20.0)	
Existence another ill child in family			
Yes	4 (13.3)	6 (20.0)	0.488
No	26 (86.7)	24 (80.0)	
Family support			
Little	16 (53.3)	13 (43.3)	0.438
Not at all	14 (46.7)	17 (56.7)	
Income[c]			
Insufficient income	14 (46.7)	19 (63.3)	0.076
Sufficient income	16 (53.3)	9 (30.0)	
Age of mother	31.17 ± 6.68	38.20 ± 8.15	0.014

[a]The data are presented as *n* (%) or mean ± SD, [b]Chi-square test and *t*-test, [c]two people in the nurse group did not answer to this question. SD: Standard deviation

Table 2: Comparison of mean and standard deviation of child domain, parent domain, and total stress in pretest, posttest stages and between groups[a]

Variable	Time	Groups		*P*[b]
		Nurse-led education	Peer-led education	
Child domain	Pretest	154.10 ± 24.34	154.63 ± 23.37	0.931
	Posttest	151.73 ± 22.81	157.20 ± 23.86	0.369
	P[c]	0.427	0.331	
	Mean difference	2.36 ± 2.93	−2.566 ± 2.59	0.179
Parent domain	Pretest	170.80 ± 23.57	164.43 ± 26.63	0.331
	Posttest	161.90 ± 9.99	165.60 ± 13.27	0.228
	P[c]	0.117	0.856	
	Mean difference	8.90 ± 5.50	−1.16 ± 6.37	0.228
Total stress	Pretest	319.60± 41.12	320.29 ± 44.38	0.952
	Posttest	314.48 ± 19.67	320.51 ± 22.92	0.280
	P[c]	0.359	0.975	
	Mean difference	5.13 ± 5.50	−0.21 ± 6.84	0.451

[a]Values are presented as mean±SD (median), [b]*T*-test or Mann–Whitney, [c]Paired *T*-test. Mean difference (pretest-posttest). SD: Standard deviation

In the current study, both methods prevented an increase in the stress of mothers after hospitalization of their children and during the disease flow. Consistent with our results, Karami *et al*. investigated the effect of educational-supportive interventions on the stress of mothers with preterm infants and reported a significant reduction of stress in the group taught by a nurse as compared to the control group.[10] Preyde and Ardal and Movallali *et al*. also reported similar findings in mothers who supported by the peer group.[8,18] However, Seyedesmaili-Ghomi *et al*. and Hosseini Ghomi and Salimi Bajestani found that the stress of control group who did not received any intervention was increased during the study.[19,20]

Shilling *et al*. reviewed the qualitative and quantitative evidence of the benefits of peer support for parents of children with chronic disabling conditions and reported a positive effect of peer support on psychological health and other outcomes; however, this was not consistently confirmed, and also, it was not possible to aggregate data across studies.[21] It has also been shown that higher level of stress makes parents more likely to mistreat their children whereas the stress level and probability of mistreating children can be decreased with increasing the social supports. As a result, clinical experts should recommend these parents to participate in group and social activities.[22]

Conclusion

The present study indicated that both peer- and nurse-led training had similar effects, and thus, they can be substituted for each other based on accessibility. Nonetheless, we conducted this study on a relatively small sample and without a control group. Then, replication of similar studies on larger samples and with a control group is suggested. Getting access to peer mothers as trainer and learner was difficult, and it was the main limitation of the study.

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Conflicts of interest

There are no conflicts of interest.

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