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The Effects of an Empowerment Program on the Stress Among Mothers of Neonates Undergoing Colostomy

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Abstract

Background: It is difficult and stressful for mothers to care for neonates undergoing colostomy. The mothers of neonates undergoing colostomy usually lack knowledge and skills of home caring procedures; hence, they may experience great stress.
Objectives: The current study aimed to evaluate the effects of an empowerment program on the stress level of the mothers of neonates undergoing colostomy.
Patients and Methods: This clinical trial was conducted in the neonatal intensive care units of the Bahrami, Mofid, and Ali-Asghar pediatric hospitals and the pediatric medical center hospital, Tehran, Iran. In total, 42 mothers were recruited and were randomly and equally allocated to the control and the experimental groups. Primarily, mothers' stress level was assessed one day after colostomy surgery by the depression, anxiety, and stress scale-21 (DASS-21). An empowerment educational program was implemented for the mothers in the experimental group while the mothers in the control group only received the routine care of the study setting. The level of mothers' stress was reassessed one month after the study intervention. Data analysis was performed through conducting the Wilcoxon test and was applied by SPSS version 19.
Results: The results of the study showed that after the study intervention, stress levels in the control and the experimental groups were significantly lower than the baseline stress level ($P < 0.001$). The decrease in the stress level of mothers in the experimental group was significantly larger than that of the control group.
Conclusions: The implementation of the empowerment program in the neonatal colostomy care alleviated mothers' stress.

Keywords: Empowerment Program, Stress, Mother, Neonate, Colostomy

1. Background

Becoming father and mother is a pleasant experience and a new situation. Families need support to encounter and manage such a situation (1). During pregnancy, parents envision the gender, size, general appearance, and behaviors of their neonates. However, conflicts between parents' imaginations and neonate's health; for example, the occurrence of congenital anomalies or diseases, can affect parents' perceptions of their neonate and cause stress (2).

One of the neonatal problems is gastrointestinal anomalies such as anorectal anomalies, imperforate anus, traumas, the Hirschsprung disease, necrotizing enterocolitis, and retrovesical, retrourethral and rectovaginal fistula. These anomalies are usually managed by creating a colostomy (3). Colostomy is associated with complications such as skin irritation, leakage from diaper or colostomy bag, foul smelling stool, reduced quality of life, and stress for parents.

Stress is an emotional state which originates from person-environment relationships (2). It can cause disharmony between the immediate situation and person's biopsychosocial resources. Stress is directly or indirectly associated with several emotional or physical problems such as coronary artery disease, ulcerative colitis, anxiety disorders, cancer, and sleep disorders. The type and the magnitude of the effects of stress greatly depend on the afflicted person's coping ability (4). In general, parents' stress refers to the situations in which environmental requirements are beyond their personal and social resources. Mothers usually suffer from greater levels of stress than fathers (5).

Families of neonates who have special needs usually live a life which is different from the lives of families with healthy neonates. Studies showed that mothers of sick neonates may experience great inconvenience and feel that they need to spend all of their time with their sick neonates. Consequently, they may experience great stress while coping with their neonates' problems (1).

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Fortunately, family-centered care has become widespread in neonatal intensive care units (NICUs). Given the importance of providing family-centered care to neonates, families (particularly mothers) need to have accurate perceptions of their neonates' diseases (4). Studies show that providing emotional support and educations to mothers in hospitals not only help them cope with their infants' hospitalization, but also enable them to give post-discharge care to their neonates at their homes (6). The aim of parent education is to promote their independence to deliver care to their neonates (7). Accordingly, nurses are responsible for supporting, educating, and empowering mothers to cope with their neonates' diseases and to care for their neonates at home (8).

Currently, technological advances provide many different educational aids (such as booklets and video clips) which can facilitate the expansion of parents' knowledge. Nurses can use educational aids such as booklets to educate the parents of neonates undergoing colostomy (3). They can inform mothers about the problems of their neonates and thereby, alleviate their stress-inducing despair (9).

The clinical experiences show that the mothers of neonates undergoing colostomy usually do not receive sufficient information about colostomy care and prognosis; hence, they experience many problems after their neonates are discharged from hospital. Mothers' lack of knowledge can cause them great stress. Stress in turn can make them unable to accurately care for their neonates and colostomy at home.

2. Objectives

The current study aimed to evaluate the effects of an empowerment program on the stress level among mothers of neonates undergoing colostomy.

3. Patients and Methods

The current study was conducted from April to November 2014 in the NICUs of four hospitals affiliated to the universities of medical sciences located in Tehran, Iran. The study was registered in the Iranian registry of clinical trials under the code 2014060417972N1. Bahrami and Mofid pediatric hospitals were randomly assigned to the experimental group; while Ali-Asghar hospital and pediatric medical center were allocated to the control group.

The sample size was calculated by the findings of a pilot study, a standard deviation of 5, a confidence level of 95%, and a power of 80%. Accordingly, 42 mothers were conveniently recruited and equally allocated to the study groups. All mothers of neonates undergoing colostomy that referred to the study setting and met the eligibility criteria were included in the study. The eligibility criteria were undergoing colostomy and having any other congenital diseases. Before initiating the study, ethical approval was obtained from the ethics committee of Tehran University of Medical Sciences, Tehran, Iran. Moreover, informed consent was obtained from the participating mothers before including them in the study. The mothers were also assured that their data would be managed confidentially and that the study would not affect the treatments provided to their neonates.

One day after the stent placement, the data on mothers' personal characteristics and baseline stress level were collected. Mothers in the control group received the routine care of the study setting, which consisted of educations about changing neonate and skin care. Such educations were provided only verbally at the time of hospital discharge. Moreover, their care provision ability was not assessed. On the other hand, mothers in the experimental group received an empowerment intervention from the first day after the stent placement was created for their neonates up to the time of their neonates' discharge from hospital. The empowerment intervention consisted of three theoretical and practical training sessions each of which lasting 30 - 45 minutes. The contents of the sessions were as follows:

Session 1. The function of the digestive system, the defecation route, the necessity of colostomy, colostomy-related complications such as inflammation, infection, necrosis, or compression of skin, stoma prolapse or retraction, dehydration and risk of bleeding;

Session 2. Neonatal care, using and changing the colostomy bag and diaper, managing the foul smell of stool, skin care, feeding the neonate, changing neonate's clothes, preventing neonate's access to colostomy, infection management, bathing the neonate, the prognosis for colostomy, monitoring growth and development, and going on a trip with a neonate undergoing colostomy;

Session 3. Role playing of colostomy care by mothers and assessment of their ability to provide colostomy care by the authors.

Educations were provided individually and face to face in the NICUs, at neonates' bedside. Finally, the mothers were provided with a booklet containing the educational materials. The booklet had been developed through a literature review. Moreover, the authors gave a phone number to the participants to contact and ask their colostomy-related questions. Mothers' stress level was reassessed one month after hospital discharge. After conducting the post test, the educational booklet was also given to the mothers in the control group. The study data were analyzed through conducting the Wilcoxon test.

The depression, anxiety, and stress scale-21 (DASS-21) was used for data collection. Developed by Cooper, the DASS-21 can determine the level of stress (8). Evidence shows the validity and the reliability of the English version of the DASS-21. The DASS-21 was translated into different languages such as Chinese, Malay, Italian and Spanish. In Iran, Asghari Moghaddam et al. also evaluated the reliability and the validity of the DASS-21 in a sample of 420 people. The seven items of the stress domain of the DASS-21 evaluate stress-related symptoms such as tension, restlessness, and negative feelings. Each of the items are scored from 0 (did not apply to me at all) to 3 (applied to

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me very much or most of the times). As the DASS-21 is the short form of the DASS-42, the final scores of its domains need to be multiplied by two. Scores of 0 - 14, 15 - 18, 19 - 25, 26 - 33 and higher than 33 are respectively interpreted as normal stress, mild stress, moderate stress, severe stress and very severe stress.

4. Results

In total, 42 mothers of neonates undergoing colostomy participated in the study. The results of the Mann-Whitney U, the Fisher exact, and the chi-square tests revealed that the study groups did not differ significantly regarding most of the demographic characteristics.

The means of mothers' age in the control and the experimental groups were 27.57 ± 6.58 and 30.23 ± 3.03 years old, respectively. More than half of the mothers in the control (61.9%) and the experimental (61.9%) groups held high school diploma, were housewives (76.2% vs. 95.2%) and had a gestational age of 28 - 37 weeks (57.1% vs. 5.1%). Their husbands were white-collar workers (42.9% vs. 52.4%). Moreover, most of the mothers had male neonates (76.2% vs. 815).

The results of the Wilcoxon test showed that after the study intervention, stress levels in the control and the experimental groups were significantly lower than their baseline stress levels ($P < 0.001$; Tables 1 and 2). The decrease in the stress level of mothers in the experimental group was significantly larger than that of the control group.

Table 1 shows that before and after the study intervention, most of the mothers in the control group had moderate to severe stress. The results of the Wilcoxon test showed that one month after the study, mothers' stress levels were significantly lower than their baseline stress levels (mean comparison).

Table 2 shows that before the study intervention, most of the mothers in the experimental group had moderate stress while after the intervention, most of them had normal level of stress. The results of the Wilcoxon test showed that one month after the study, mothers' stress levels were significantly lower than their baseline stress levels (mean comparison).

Table 1. The Absolute and the Relative Frequencies of Pre- and Post-Intervention Stress Levels in the Control Group[a,b,c]

Stress	Time	
	Before	After
Normal	0	3 (14.3)
Mild	2 (9.5)	3 (14.3)
Moderate	4 (19)	11 (52.4)
Severe	11 (52.4)	2 (9.5)
Very severe	4 (19)	2 (9.5)
Total	21 (100)	21 (100)
Mean ± SD	28.37 ± 5.85	21.04 ± 6.49

[a] Values are presented as No. (%) unless otherwise indicated.
[b] Statistical tests were performed by the Wilcoxon test.
[c] The results of statistical test: Z value= –3.858; P value < 0.001.

Table 2. The Absolute and the Relative Frequencies of Pre- and Post-Intervention Stress Levels in the Experimental Group

Stress	Time	
	Before	After
Normal	1 (4.8)	21 (100)
Mild	1 (4.8)	0
Moderate	15 (71.4)	0
Severe	4 (19)	0
Total	21 (100)	21 (100)
Mean ± SD	29.04 ± 4.84	5.04 ± 2.65

[a] Values are presented as No. (%) unless otherwise indicated.
[b] Statistical tests were performed by the Wilcoxon test.
[c] The results of statistical test: Z value= –4.026; P value < 0.001.

5. Discussion

In this study, colostomy care was educated to the mothers of neonates having colostomy in three sessions. Educations were continued if requested by mothers until they reached an acceptable level of empowerment. Moreover, the mothers were provided with an educational booklet containing colostomy care materials in order to prevent forgetting verbal educations. The study findings revealed that the empowerment program was effective in alleviating mothers' stress. Ameh et al. found that the parents and the caregivers of neonates who had colostomy sorely needed health information about their neonates' diseases. They recommended that education should be planned and provided based on mothers' educational status and socioeconomic background (10).

Aite et al. also highlighted the parents' needs to information about their children's diseases (11). Sheikh et al. noted that children's colostomy can be associated with different problems and complications and stoma care clinics can help to prevent such complications. The current study attempted to reduce colostomy-related complications through empowering the mothers of the neonates undergoing colostomy (12). Hassink et al. noted that the parents of children with anorectal anomalies usually experience problems in rearing their children. They also mentioned that helping parents care for their children gives them the opportunity to provide better care services to their children (13). However, they neither provided education to parents nor implemented any intervention to reduce parents' problems and stress.

Joseph et al. also found that the fathers of children hospitalized in surgical NICUs experienced high levels of stress (14). However, the current study solely assessed the stress level of the mothers of neonates undergoing colostomy and did not include fathers in the study. Consequently, it seems that implementing empowerment program for fathers is essential. Cooper et al. reported that implementing family-centered care programs can alleviate families' stress and enhance their confidence in care delivery to their neonates (8). Therefore, authors

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attempted to reduce mothers' stress and empower them to provide better care to their neonates through implementing an empowerment program.

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Footnotes

Authors' Contribution: Zahra Goudarzi: drafting the manuscript and the first author; Masoumeh Askari: collecting data, drafting the manuscript and the corresponding author; Parvaneh Asgari: collecting data and drafting the manuscript; Abbas Mehran: analyzing data.

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