

The Effect of Educational Intervention on Nurses' Attitudes Toward the Importance of Family-Centered Care in Pediatric Wards in Iran

Forouzan Rostami^{1,2}, Syed Tajuddin Syed Hassan³, Farideh Yaghmai⁴, Suriani Binti Ismaeil⁵, Turiman BinSuandi⁶

¹ Ph.D. Candidate of Community Health, Community Health Unit, Department of Medicine, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Malaysia

² Department of Nursing, Faculty of Nursing and Midwifery, Islamic Azad University, Chaloos Branch, Chaloos, Iran

³ Professor, Department of Medicine, Nursing Unit, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Malaysia

⁴ Farideh Yaghmaei, BSN, MSN, Public Health PhD. Associate Professor-Department of Nursing Zanjan Branch, Islamic Azad University, Zanjan, Iran

⁵ Senior Lecturer (Medical), Community Health unit, Department of Medicine, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM), Malaysia

⁶ Professor, Educational unit, Faculty of Education, Universiti Putra Malaysia (UPM), Malaysia

Type of article: Original

Abstract

Introduction: Family-centered care sustains the unity of the child's and the family's health. The aim of this study was to determine nurses' attitudes toward parents' participation in the care of their hospitalized children in Iran in 2015.

Methods: In this experimental study, 200 pediatric nurses from hospitals affiliated with the Shaheed Beheshti University of Medical Sciences in Tehran were selected using the multi-stage, random-sampling method. Data were gathered using a questionnaire that covered demographic information and nurses' attitudes. The questionnaire consisted of 31 items and was completed by the nurses in three stages: 1) before intervention (pre-test), 2) immediately after intervention (post-test), and 3) three months after intervention (follow-up). The data were analyzed via SPSS software and using descriptive and analytical methods. Descriptive statistics, the Spearman Correlation Coefficient, and Repeated Measure Analysis (the Bonferroni method) were used to assess the data.

Results: The results indicated that there was a significant increase in the mean score of attitude after intervention [M (pre) = 3.35%, M (post) = 3.97%, $p < 0.001$]. Most of subjects had neutral attitudes toward family participation in their children's care. There were no significant relationship between the nurses' socio-demographic characteristics and their attitudes.

Conclusion: The nurses' attitudes toward the family's participation in the care of their hospitalized children were moderate. The nurses' attitudes should be improved by taking part in continuous training programs.

Keywords: family-centered care, attitude, nurses

1. Introduction

1.1. Background and statement of the problem

Families are regarded as a crucial part of specialized childcare during illness (1). The concept of family-centered care includes the values of individuality, flexibility, cultural competence, and partnership with families (2). The

Corresponding author:

Professor Dr. Syed Tajuddin Syed Hassan, Universiti Putra Malaysia, Serdang, Selangor Darul Ehsan, 43400, Malaysia. Tel: +60.122322142, Email: syedtsh@gmail.com and stshasan@gmail.com

Received: April 22, 2015, Accepted: July 28, 2015, Published: September 16, 2015

iThenticate screening: July 19, 2015, English editing: August 15, 2015, Quality control: September 12, 2015

© 2015 The Authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

involvement of family members carries particular weight in pediatric care, because children are directly dependent on family members for their care (3). In addition, it is important to consider that, in later years, family members request that professionals consider their views and practical knowledge and regard them as resources, mainly within the field of psychiatry (4). Parents' participation in the care of hospitalized children can be a challenging experience for both the parents and the members of the medical staff (5). This type of parental care has many advantages, including the parents' skills and helping to maintain family relationships, as well as instilling in the parents a feeling of confidence that they can provide appropriate care after the child is discharged. It also has many advantages for the child, such as reduced stress and enhanced feelings of safety, which can have positive effects on the child's emotional wellbeing and behavioral disorders (6). The views of nurses who work in pediatric care concerning the influence of families are critical in this study, because its focus is rooted in the conceptual frameworks of the theory of planned behavior (TPB) model by Ajzen (7). The TPB was first proposed by Ajzen in 1985 as an extension to the theory of reasoned action, which included attitudes as variables that influenced intentions and behaviors (8). The variable of attitude refers to an individual's perceptions about the advantages and disadvantages of nurses' performing a particular behavior to influence family nursing practice (9). Shifting nurses' perceptions about a proposed change in behavior is likely to be critically important in the eventual successful implementation of changes in conventional interventions (10). In accordance with this model, the positive attitude of nurses towards Family-Centered Care (FCC) is fundamentally important in facilitating changes in behavior that can lead to healing and shorter hospital stays for children. Therefore, it is essential to determine the attitudes of pediatric nurses towards the importance of families in providing appropriate care for children (11). In addition, it is important for professionals to recognize and appreciate family members' practical knowledge to avoid family members' having feelings of detachment in their child's care, which reinforces how vital it is for families to participate in the care of their children (2). In a study conducted in Sweden ($n = 634$) of randomly selected nurses, it was found that more experienced nurses were more likely to respect the care of the family than younger and unskilled nurses. However, the main finding was that, in general, nurses have a positive view towards families (12, 13).

1.2. Objective and hypothesis

The purpose of this study was to determine the attitudes of nurses towards the importance of family-centered care in pediatric wards before and after an educational intervention program that focused on applying the theory of planned behavior model. Based on theoretical framework of the theory of planned behavior model the following hypothesis was tested: Nurses' attitudes toward the provision of family-centered care are different before and after the educational intervention (three months).

2. Material and Methods

2.1. Research design and setting

This experimental study was focused on the effectiveness of educational intervention concerning family-centered care in changing the attitudes of nurses in the pediatric wards of the hospitals affiliated with Shahid Beheshti University of Medical Sciences in Tehran in 2015.

2.2. Sampling, eligibility criteria, and data collection

The original sample size of nurses was 158 after 10% had dropped out, so, based on the pilot study data we had collected, we calculated that the final sample size of nurses to be 174, with 87 randomly assigned to the control group and 87 randomly assigned to the intervention group. Thus, we decided to have 100 nurses in each group. Multistage random sampling methods were used to select the participants. According to the information that was obtained from the Ministry of Health, we chose the eligible hospitals that had the required sample sizes of nurses for both groups. The first digit of the first random number was matched with corresponding matching number on the list of hospitals. After picking the first hospital to be included in the sample, we proceeded in order in the table of random numbers from top to bottom and left to right to select the next hospitals to be included in the sample. The inclusion criteria were: 1) full-time employment, 2) a Bachelor's degree in nursing or higher, 3) currently working in a pediatric ward or at least one year of experience work doing so, and 4) between the ages of 25-55. The exclusion criteria were: 1) foreign nurses and 2) working part-time or on contract. Based on the inclusion and exclusion criteria, 100 participants were chosen from the three intervention hospitals and 100 participants were chosen from the one control hospital. In the intervention group, one participant dropped out for the follow-up intervention assessment (after three months) and three participants dropped out for the follow-up in the control group (after three months). A post-test was conducted immediately, and follow-up was conducted in both groups after three months. There were 200 participants during the study period at baseline (100 in intervention and 100 in control), and there

were 196 participants at three months (99 in the intervention group and 97 in the control group) who completed the three-month, post-intervention assessment. The participants in the two groups answered the questions in the same questionnaire that was used at the beginning and after three months.

2.3. Instrument

To determine the most commonly-held nurses' attitudes, we conducted an elicitation study on a sample of 15 nurses who worked in the pediatric wards. In this stage, each interview lasted for 35-75 minutes. In every part of the interview, we used the probing method to get additional information and to get clarification of the information (Table 1). Non-verbal behavior during the interview was observed.

Table 1. Content of open-ended questions to elicit commonly-held attitudes concerning providing family-centered care

No.	Questionnaire items
1	Do you have any information about family-centered care?
2	Do you believe elements of family-centered care?
3	What are the obstacles that nurses face in the provision of family-centered care?
4	What is the effect of provision of family-centered care on the family's and the nurses' satisfaction?
5	What is the effect of the family's collaboration in meeting children's emotional needs and their satisfaction?
6	What is the effect of the family's presence on the control of infection?
7	What is the effect of parents' cooperation on the nurses' responsibilities?
8	Does family-centered care affect the quality of care that children receive?
9	Do nurses need any specific skills to provide family-centered care?
10	Does collaboration with the family have any effect on the relationship between nurses and parents?
11	Are you sure that you have adequate ability to provide family-centered care when you are depressed or busy?
12	Is it easy for you to provide family-centered care?
13	Do you think that parent's collaboration affects nurses' authority?

All interviews were conducted by researchers, and the interviews were continued until the researchers felt that the maximum amount of information had been obtained. Four more interviews were conducted to ensure that a total of 15 interviews was conducted. In this research, we used the content analysis method. The interviews were transcribed verbatim, and they were analyzed simultaneously with the data collection process. After each interview, the information was recorded in the shortest possible time, and the information was reviewed two or three times. This same process was used for all 15 interviews. The nurses' sentences, each typically in the form of an expression of the meaning of a word and their implications were extracted from the interviews. To facilitate the detection of the thoughts they had expressed during the interviews, relevant clauses were inserted. Then, the information gathered from the interviews was classified into relevant categories, and we used the findings of the qualitative research (semi-structured interviews with nurses and children). Thirty-one items were collected and evaluated on a 5-point Likert scale (Strongly agree, Agree, Neutral, Disagree, Strongly disagree). Then, we conducted a pilot study to assess the reliability of the questionnaire and gathered additional comments from the population about the items on the questionnaire to prepare the final draft of the questionnaire for the main study. Since the socio-demographic characteristics of subjects can affect the correlations among the variables in the proposed model, we included in the pilot questionnaire the participants' ages, levels of education, work experience in the hospital, and work experience in pediatric wards. In the pilot study, the questionnaire was tested with 30 pediatric nurses in hospitals affiliated with Shahid Beheshti University to provide a brief introduction to the study and so the researcher could explain the importance of their participation in the study. The questionnaire was translated to the Persian language and distributed to the participants. Then, the participants were asked to follow the hyperlink at the end of the invitation. In keeping with the requirements of research ethics, the first page of the research project provided an introduction to the study and its objectives and indicated the requirements for participation in the study. To assess the participants' attitudes concerning the study, we incorporated related statements, such as "The mother's participation helps a hospitalized child feel secure" and "The mother's participation shortens the duration of hospitalization." FCC based on the Theory of Planned Behavior survey that was used in this study consisted of two sections. Section one included questions about demographic variables, and Section two consisted of a tool to measure pediatric nurses'

attitudes toward FCC. Some questions had negative scores (ATT15-ATT20 and ATT24-ATT26), we conducted data analysis after recoding.

Validity is defined as whether a scale yields meaningful information about the behavior/construct in which the researcher is interested. The measures in this study were evaluated by the researcher, her faculty adviser, and a pilot group of experts. The items included on each scale were determined to have adequate face validity. In addition, the validity of the content of each of the scales was assessed by manuals that provided specific instructions for creating each subscale, to clearly represent the necessary components of the constructs in the TPB model (14-16). The specific wording of each item was consistent with an accurate reflection of the construct of perceived behavioral control in the TPB (16). This same level of instruction was used for each domain. Given that the guidelines from theory developer (Ajzen) in 2005 were followed explicitly to create these measures, they were esteemed to adequately reflect the constructs from his theory of planned behavior. The tool was validated by the content validity index (CVI) and face validity methods. To validate the content, we sent the questionnaire to two faculty members at University Putra Malaysia (UPM) who were experts in pediatric nursing and to five faculty members at Shahid Beheshti University and Tarbiat Moddaress University in Tehran who were experts in pediatric nursing for corrections, suggestions and feedbacks. Later, we revised the tool based on the input received from these experts. Expert panels, the members of which were selected based on their experience, certified that the content of the instrument was valid. They were asked to review the items on the questionnaire for clarity and to determine whether they fit the subscale label and definition. The professionals were nursing faculty members, supervisors, and members of the nurses' staffs. Measurements of attitude, subjective norms, perceived behavior control, intention, and behavior of family-centered care were obtained through questionnaires based on Theory of Planned Behavior by Francis in 2004 (16). The questionnaire including 31 items about attitudes toward family-centered care. The reliability (internal consistency) of each of the scales was tested using Cronbach's alpha reliability coefficients. The results of the reliability tests indicated that, for the control group, the values of Chronbach's alpha for all related items were almost 0.8 or above, which showed that the instrument had adequate consistency and reliability across the study.

2.4. Analysis

SPSS IBM (version 21) was used for statistical analysis. Descriptive statistics were used to describe the demographics of the sample and background variables. To evaluate the main research hypotheses of the current research, we used the inferential method, including two-way repeated measure analysis of variance (RMANOVA), followed by the Bonferroni test for mean comparison between the control group and the experimental group at three steps, i.e., pre-test, post-test, and follow-up test.

2.5. Ethical considerations

This study was approved by the University of Putra Malaysia, the Ministry of Health Sciences, and the Ethics Committee of the Faculty of Medicine and Health Sciences of Shaheed Beheshti University in Iran. Written informed-consent forms were obtained from the nurses before were allowed to participate in the study.

3. Results

The sample consisted of 200 nurses who responded to the attitude questionnaire before participating in the educational intervention concerning FCC. The results of the chi-squared test indicated that there was no significant difference between the ages of the nurses in the intervention and control groups ($X^2 = 0.166$, $p = 0.920$). These results also indicated that 2% of the respondents in the intervention group and 2.1% of the respondents in the control group had incomes between 300 to 500 K Tomans (Table 2). All related items of attitude in the control group in the pre-test "Mother participation secures hospitalized child feeling." had the highest mean ($M = 4.14$, $S.D = 0.59$) followed by "Mother knowledge can be increase the quality of care." ($M = 4.12$, $S.D = 0.56$). The lowest mean related to "Mother can be present when Cardiopulmonary resuscitation (CPR) is being done on the child if they wish." ($M = 1.93$, $S.D = 0.61$). In post-test also the highest mean observed for same items ($M = 4.06$, $S.D = 0.58$) and Item 27 ($M = 4.07$, $S.D = 0.54$) respectively. All related items of attitude in intervention group in pre-test "The mother's participation helps a hospitalized child feel secure" had the highest mean ($M = 3.99$, $S.D. = 0.51$), and it was followed by "The mother's participation comforts the child and takes care of her or his physical needs" ($M = 3.96$, $S.D. = 0.45$). The lowest mean value was related to "Mother can be present, if she wishes, when CPR is being done on her child" ($M = 2.17$, $S.D. = 0.98$). In the post-test, the highest means were observed for "The mother's presence is adequate, and her participation in providing care for her child is not required" ($M = 4.51$, $S.D. = 0.52$)

and ““The mother’s participation helps a hospitalized child feel secure” ($M = 4.48$, $S.D. = 0.52$). The lowest mean was observed for “The mother’s participation shortens the length of the hospital stay” ($M = 2.76$, $S.D. = 1.08$), and the same results were observed in the follow-up test. To determine how the respondents’ socio-demographic characteristics and attitudes concerning the provision of family-centered care were correlated, Spearman correlation coefficient analyses were used to identify the demographic characteristics that had a significant relationship with attitude in the pre-test, post-test, and follow-up test. Table 3 shows that no significant relationship existed between age and attitude and the provision of family-centered care ($p > 0.05$).

Table 2. Frequency distribution of respondents’ background and characteristics

Variable	Level	Case (n = 99)		Control (n = 97)		χ^2	p
		n	%	n	%		
Age	< 30 years	35	35.4	37	38.1	0.166	0.920
	30 to 40 years	36	36.4	34	35.1		
	> 40 years	28	28.3	26	26.8		
Monthly income	300K– 500K	2	2	2	2.1	0.928	0.819
	500K– 1,000K	28	28.3	24	24.7		
	1,000K-2,000K	57	57.6	62	63.9		
	2,000K – 3,000K	12	12.1	9	9.3		
Training	yes	6	6.1	13	13.4	3.016	0.082
	no	93	93.9	84	86.6		
Work experience in hospital	1 – 4 years	34	34.3	33	34	1.799	0.615
	5 – 10 years	21	21.2	28	28.9		
	11 – 20 years	26	26.3	21	21.6		
	21 and more	18	18.2	15	15.5		
Work experience in pediatric ward	1 – 4 years	51	51.5	50	51.5	0.520	0.914
	5 – 10 years	22	22.2	25	25.8		
	11 – 20 years	18	18.2	15	15.5		
	21 or more years	8	8.1	7	7.2		

Table 3. Correlation test between socio-demographic characteristics and attitude

Time		Age	Income	Training	Hospital experience	Ward experience
Post-test	r	-0.016	0.138	-0.028	0.027	0.05
	p	0.82	0.053	0.693	0.71	0.49
Post-test	r	0.035	0.062	0.094	0.085	0.07
	p	0.625	0.39	0.189	0.235	0.328
Follow-up test	r	0.025	0.035	0.118	0.055	0.028
	p	0.732	0.627	0.1	0.445	0.696

In order to evaluate the differences in the mean of attitude scores within the three stages of pre-test, post-test, and follow-up test for both groups (i.e., the intervention and control groups), a two-way, repeated ANOVA measure was used to assess whether the two groups had differences in their attitudes in the tests. The sphericity assumption states that the difference scores of the paired levels of the repeated measures factor have identical population variance. In the same way as the other ANOVA assumptions of normality and homogeneity of variance, it is critical to mention that the sphericity assumption refers to population parameters rather than sample statistics. Mauchly's sphericity test was used to evaluate the sphericity assumption, and the result showed that the sphericity assumption for attitude was violated ($X^2 = 103.1$, $p < 0.01$), therefore, the F-value was adjusted by a Greenhouse-Geisser correction. The results of repeated ANOVA measure of attitude score showed that the interactions between the group and the tests were statistically significant ($F_{(1.42, 275)} = 168.474$, $p < 0.05$, $\eta^2 = 0.465$), therefore, to test the related hypothesis, a post-hoc test (Bonferroni test) was used to compare the mean scores (Table 4). To show the efficacy of intervention, we compared the pre-test, post-test, and follow-up test in both the intervention and control groups separately. The result of post-hoc test (Bonferroni test) indicated that the difference between the pre-test and post-test in attitude score in intervention group was significant ($p < 0.05$). The mean for attitude in intervention group increased 0.619 unit.

These results indicated that there were no significant differences between any of the tests for the control group ($p > 0.05$) (Table 5). It was evident that, in the intervention group, the mean attitude score increased after intervention, but it was consistent over time in the control group.

Table 4. Result of ANOVA within – between subject effects for Attitude

Source	SS	df	MS	F	p	Partial Eta Squared
Time	9.52	1.42	6.70	122.94	<0.01	0.38
Group	15.94	1	15.94	57.04	<0.01	0.22
Interaction between time and group	13.04	1.42	9.18	168.47	<0.01	0.46

Table 5. Difference of Attitude mean scores between tests Intervention and Control Groups for Task

Group	(I) TEST	(J) TEST	Mean Difference	SE	p	Partial Eta Squared
Intervention	Pre-test	Post test	-.619*	0.031	<0.01	0.667
	Pre-test	Follow-up test	-.544*	0.033	<0.01	
	Post-test	Follow-up test	.075*	0.017	<0.01	
Control	Pre-test	Post-test	0.034	0.032	0.858	0.027
	Pre-test	Follow-up test	0.065	0.033	0.155	
	Post-test	Follow-up test	0.031	0.017	0.214	

4. Discussion

Attitude toward performance behavior reflects an individual's global positive or negative evaluations of performing a practical behavior; that is, attitude is determined by the individual's perception about the value of a given outcome of a behavior (7, 9). In this study, it was found that the intervention group recorded a significant positive change in the mean attitude score ($p < 0.005$), and the increase in the proportion of pediatric nurses who had moderate attitude scores had increased to higher levels at the three-month follow-up. Compared to the baseline, a significant increase in attitude level was observed immediately in the intervention group, and also at three months after intervention, but no such increase was observed in the control group. This difference could be attributed to the availability of information obtained from the educational process that was conducted for the intervention group. A number of factors could have contributed to the success of the intervention, such as our sample's being comprised of well-educated, motivated nurses. Also, the attitudes of the nurses in the two groups (intervention and control) concerning the provision of FCC at three different times (i.e., pre-test, post-test, and follow-up test) indicated that there was a significant association between the nurses' attitudes, because the interaction between groups and the tests were statistically significant. Also, the mean attitude score between the control and intervention groups in the pre-test was not statistically significant ($p > 0.05$), while the differences between the intervention and control groups were significant for attitude in the post-test ($p < 0.05$) and in the follow-up test ($p < 0.05$), while the difference between the pre-test and post-test in attitude score in the case group was significant. It was apparent that intervention to encourage nurses to stop doing some things and start doing other things was an important step toward creating behavioral changes. The results of this study support the effectiveness of multi-component education in promoting attitude changes in pediatric nurses in Iran. Therefore, the results of the study indicated that hypothesis education is one of the most effective factors to improve attitude, because 93.9% of the population has no education about FCC. The mean for attitude increased in the case group, but there were no significant differences in any of the tests for the control group. This finding indicated that it is possible to achieve a significant positive change in pediatric nurses' attitudes with educational intervention. Similarly, the findings of a previous study indicated that it is possible to increase nurses' knowledge and attitudes with the help of brief, interactive workshops. The findings of that study were based only on positive changes in RNs' attitudes and knowledge after four weeks of workshops (18). In addition, intervention was effective in that it increased new mothers' intentions to breast feed their babies expanded their knowledge about caring for their babies, and produced better attitudes and subjective norms (19). So, the findings of our study were in good agreement with them concerning the importance and benefits of providing educational opportunities. Based on the results of a study in Shiraz, enhancing the treatment team's knowledge and attitudes concerning the positive effects of FCC treatment produced improvements in patients' healthcare, qualitative improvements in healthcare services, the nurses' job satisfaction (20). In addition, it was found that this approach had a sustainable impact that lasted for an undetermined time after the intervention. It certainly was apparent at the time of the three-month follow-up test. If educational programs are based on assessments nurses' needs and are conducted purposefully using different methods, such as lectures, pamphlets, posters, and booklets,

nurses' attitudes subjective norms, perceived behaviors, behavioral intentions, and actual behaviors can be affected in a notably positive manner (21). Also, the results of a study indicated that the mean level of nurses' attitudes toward obtaining special skills were significantly different after the educational intervention (22). Comprehensive educational programs that emphasize personal educational needs reduce the cost of providing care, and improve the quality of care (23). Nurses' knowledge and preparation for continuing education are essential (24). Therefore, continuing education is a basic need to ensure that pediatric nurses can adapt to the progression of knowledge and the rapid changes in scientific approaches and people's behaviors. As evidence of this, a notable increase occurred in the mean scores of nurses' knowledge immediately and at three months after the educational process (25). In that study, the mean scores of nurses' knowledge increased from 59.2 ± 14.8 before their education training to 88.6 ± 8.4 directly after the training and 71 ± 9.8 three months after the training ($p < 0.016$). The results of our study were contrary to the findings of their study in that there were no significant differences in the nurses' attitudes for the three times they were evaluated. The key purpose of the TPB is to provide an explanation for the ATT- behavior relationship (26). TPB will be rejected if ATT does not predict intention, and studies that have measured ATT, intention, and behavior consistently have demonstrated that the more favorable an individual's attitude is toward a particular behavior, the stronger that person's intention to express that behavior will be (7, 27-29). In 115 studies that used TPB in different areas in which the ATT-intention relationship was measured, ATT explained approximately 24% of the variance in intention (27).

5. Conclusions

Nurses' attitudes concerning the implementation of FCC were moderately favorable. One of the most important and common problems among nurses and parents is their lack of communication and the lack of a good relationship. Parental participation, which was introduced as a moral issue, may be driven now by TPB factors. This study provided evidence to support the efficacy of TPB in the design and evaluation of educational intervention to promote positive attitudes concerning the implementation of FCC. The findings supported various types of intervention, including educational material and pamphlets, posters, PowerPoint presentations, lectures, and training, all of which are effective strategies in promoting FCC behaviors among nurses. The researcher found that the most important predictor for providing FCC was attitude. The findings also indicated that, while nurses endorse the concept of FCC, its practical implementation is more problematic. Also, the results of this study are being used as the basis for assisting pediatric nurses to apply the concepts of family-centered care more consistently in their practice. Thus, an important target of study for future research is to follow the relationship between nurses' extent of training and the importance they give FCC in practice. Such research has the potential to identify the factors that lead nurses to maintain some distance between themselves and the family members of sick children.

Acknowledgments:

We express our gratitude to the Dean and Deputy Dean of Research of Graduate Studies, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM) for all their support for this study. We also thank the International Branch of Shahid Beheshti Medical Science University in Iran and the pediatric nurses and personnel of Shohada, Moddaress, Mofid, and Taleghani Hospitals that are affiliated with Shaheed Beheshti University in Tehran and with Islamic Azad University, Chaloos Branch.

Conflict of Interest:

There is no conflict of interest to be declared.

Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

References

- 1) Hielkema M, Winter,AF. de, Meer,G.de, Reijneveld,SA. Effectiveness of a family –centered care method for the early identification of social-emotional and behavioral problems in children: a quasi- experimental study. BMC Public Health, 2011; 11: 639. doi: 10.1186/1471-2458-11-636, PMid: 21827654 PMCID: PMC3175466
- 2) Rappaport DI, Cellucci FM, Leffler MG. Implementing Family-Centered Care Rounds: Pediatric Residents' Perceptions, 2010; 49(3): 228-34. doi: 10.1177/0009922809346568. PMID: 20164072.
- 3) Committee on Hospital Care, American Academy of Pediatrics. Family-Centered Care and pediatrics. 2003; 112(3pt):691-7. doi: 10.1007/s10995-011-0751-7. PMCID: PMC3262132.

- 4) Nordby K, Kjongsberg K, Hummelvoll JK. Relatives of persons with recently discovered serious mental illness: in need of support to become resources persons in treatment and recovery. *Journal of Psychiatric and Mental Health Nursing*, 2010; 17: 304-11. doi: 10.1111/j.1365-2850.2009.01531.x.
- 5) Aein F, Alhani F, Mohammadi E, Kazemnejad A. Parental participation and mismanagement: a qualitative study of child care in Iran. *Nursing & Health Sciences*, 2009; 11(3): 221-7. doi: 10.1111/j.1442-2018.2009.00450.x.
- 6) Valizadeh F, Ghasemi S F. Medical Staff Attitude toward Parents' Participation in the Care of their Hospitalized Children. *Hayat*, 2008; 14(1): 69-76.
- 7) Ajzen I. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 1991; 50: 179-211. doi: 10.1016/0749-5978(91)90020-T
- 8) Perkins M, Jensen P, Jaccard J, Gollwitzer P, Oettingen G, Pappadopulos E, Hoagwood K. Applying theory-driven approaches to understanding and modifying clinicians' behavior: What do we know? *Psychiatric Services*, 2007; 58(3): 342-8. doi:10.1176/appi.ps.58.3.342.
- 9) Ajzen I. Constructing a theory of planned behavior questionnaire, 2011. Retrieved September, 2011 from University of Massachusetts, Icek Ajzen's personal website: <http://people.umass.edu/ajzen/tpb.html>.
- 10) Beduz MA. A framework to guide the implementation of evidence - based practice changes in nursing, 2008. Unpublished manuscript, school of nursing, McMaster University, Hamilton, Ontario.
- 11) Kargar Najafi M, Borhani F, Dortaj Rabari E, Sabzevari S. The Effect of Family-Centered Empowerment Model on the Mothers' Knowledge and Attitudes about Thalassemia Disorder. *Iranian Journal of Pediatric Hematology oncology*, 2011; (1(3): 89-103.
- 12) Benzein E, Johansson P, Arestedt KF, Saveman BI. Nurses' attitudes about the importance of families in nursing care: a survey of Swedish nurses. *J Fam Nurs*, 2008; 14:162-180. doi: 10.1177/1074840708317058. PMID: 18480033
- 13) Benzein E, Johansson P, Arestedt KF, Berg A, Saveman BI. Families' importance in nursing care: Nurses' attitude-an instrument development. *J Fam Nurs*, 2008; 14: 97-117. doi: 10.1177/1074840707312716, PMID: 18281645
- 14) DeVellis R. Scale development: Theory and applications, 2003. Newberry Park, CA: Sage Publications. PMID: 14558062
- 15) Ajzen I. Attitudes, personality, and behavior (2nd ed.), 2005. Milton-Keynes, England: Open University Press / McGraw- Hill.
- 16) Francis JJ, Eccles MP., Johnston M, Walker A, Grimshaw J, Foy R, ... Bonetti D. Constructing questionnaires based on the theory of planned behaviour, 2004. Newcastle upon Tyne, UK: Centre for Health Services Research, University of Newcastle. ISBN: 0-9540161-5-7.
- 17) Di Lorio CK. Measurement in health behavior: methods for research and evaluation. San Francisco, CA: Jossey-Bass, 2005; 218-9.
- 18) Barglin GM. Can a theory based on educational intervention change nurses' knowledge and attitudes concerning cancer pain management? A quasi-experimental design. *BMC Health Services Research*, 2013; 13, 328. doi: 10.1186/1472-6963-13-328. PMCID: PMC3844371.
- 19) Giles, M., McClenahan, C., Armour, C., Millar, S., Rae, G., Mallett, J., & Stewart-Knox, B. Evaluation of a theory of planned behaviour-based breastfeeding intervention in Northern Irish Schools using a randomized cluster design. *British Journal of Health Psychology*, 2014;19(1):16-35. doi: 10.1111/bjhp.12024, PMID: 23350961.
- 20) Pasyar N, Gholamzadeh S. Effect of Education on Nurses' Knowledge and Performance Regarding AIDS in Emergency Departments of Hospitals Affiliated to Shiraz University of Medical Sciences (SUMS). *Iranian Journal of Nursing Research*, 2009; 4(12-13); 81-90.
- 21) Dadgari A, Kasaiean A, Dadvar L, Kalatejari M, Rezaee M, Mirzaee M. Effects of Education on Nurses' Knowledge and Skill in Drug Dosage Calculation. *Knowledge and Health*, 2012; 7(1): 20-6.
- 22) Zarei S, Taghdisi MH, Solhi M, Tehrani H, Shojayizade D. The Effect of Educational Intervention Based on BASNEF Model to Improve Interpersonal Communication Skills of Nurses, 2013; 1: 173-8.
- 23) Potter PA, Perry AC. *Fundamental of Nursing*, 2009. (7th ed.), St. Louis, MO: Mosby Co.
- 24) Brady D, Hyde A. Certificate-trained staff nurses' perceptions of the changes in nursing education in Ireland from certificate to diploma level. *Journal of Continuing Education in Nursing*, 2002; 33(5): 231-7. PMID: 12269762

- 25) Aminoroaia M, Mashhadi M, Maracy MR., Attari A. Efficacy of purposeful educational workshop on nursing care. *Journal of Education and Health Promotion*, 2014; 3: 82. PMID: 25250348 PMCID: PMC4165124
- 26) Hagger MS, Chatzisarantis NLD. First-and higher-order models of attitudes, normative influence, and perceived behavioural control in the theory of planned behaviour. *British Journal of Social Psychology*, 2005; 44(4): 513–535. doi: 10.1348/014466604X16219.
- 27) Armitage CJ, Conner M. Social Cognitive Determinants of Blood Donation. *Journal of Applied Social Psychology*, 2001; 31(7): 1431–1457. doi: 10.1111/j.1559-1816.2001.tb02681.x.
- 28) Eccles MP, Johnston M, Hrisos S, Francis J, Grimshaw J, Steen N, Kaner EF. Translating clinicians' beliefs into implementation interventions (TRACII): a protocol for an intervention modelling experiment to change clinicians' intentions to implement evidence-based practice. *Implementation Science*, 2007; 2(1): 27. doi: 10.1186/1748-5908-2-27.
- 29) Godin G, Bélanger-Gravel A, Eccles M, Grimshaw J. Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science*, 2008; 3(36): 1-12. doi: 10.1186/1748-5908-3-36.

Archive of SID