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Effect of Educational Intervention on Nurses' Attitude, Intention and Behaviour Towards Family-Centered Care in Pediatric Wards in Iran: A Randomized Control Trial Utilizing Prospect Theory

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Abstract: **Background:** The concept, family-centered care (FCC), is used to describe the way families are involved in the health care of hospitalized children. In developing countries, most paediatric wards claim to be 'family-centered', which means that the wards adopt a philosophy where parents are acknowledged as being central to their children's existence. Despite substantial investments in researchers, dissemination and advocacy, huge gap exist between what is known about effective health services and what is done in real world practice. There is no common agreement between health care workers on provision of FCC in Iran. **Objectives:** To identify the effect of educational intervention on Family-Centered Care model on attitude, intention and behaviour of pediatric nurses. **Methods:** Participants were randomly assigned to complete a questionnaire assessing paediatric nurses' attitude towards providing FCC in Iran. **Results:** There is no significant relationship between socio-demographic characteristics and attitude towards provision of FCC for both intervention and control groups ($p>0.05$). The mean of behaviour in the intervention group (1.57 unit) increased and difference among pre- and post-tests in behaviour score in the intervention group was significant ($P<0.05$). **Conclusion:** The findings have important theoretical implication as theory of planned behaviour verified that nurses' behaviours changed after educational intervention.

Keywords: Family-centred care, Attitude, Intention, Behaviour, Paediatric nurses

1. Introduction

Family-centered care (FCC) has been recognized in the past 30 years to play a role in families when planning and implementing services for children that are hospitalized. It is identified that families should be supported in their natural care giving role[1,2]. This philosophy has led to evaluation of the role of service providers as they participate not as decision makers but as members of a team of professionals who collaborate with the family to determine what is best for the child[3]. The goal of FCC is to meet the needs of patients' families, including their needs for information and support, and the opportunity to be close to their loved ones[4].

Family in this context is defined as a unit made up of a child admitted to hospital and his or her parents or caretakers who are bound together by emotional, biological, economic or other ties[5].Teaching has traditionally played an integral role in the education of health profes sionals[6]. Theory should be integrated into practice to reduce the gap in nursing education[7]. The literature revealed that there is a gap in theory-practice in nursing, which is one of the major challenges, and includes discrepancy between teaching of theory and clinical behaviour.

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Researchers have utilized the Theory of Planned Behaviour in the area of FCC provision by nurses as a framework to understand the determining factors in stage of behavioural changes. This is a valid theory for understanding human behaviour[8].

Attitude can predict the intention of an individual to show behaviour towards an object. Attitude influences the general level of person's intention and the relationship between attitude and intention can be determined if the intention is measured[9]. High correlation between attitude and intentions are expected when they are measured at the same time and on the same target. Thus, the measurement of intention can predict positive or negative behaviour. Given that, attitudes significantly predict intention and intentions generally correlate with behaviour[10].

Intention is viewed as being related to the corresponding behaviour[11]. Despite substantial investments in researchers, dissemination and advocacy, huge gap exist between knowledge on effective health services and what is done in real world practice. Researchers have explained these gaps by concluding that there are obstacles to provision of FCC, such as lack of education in relationship to understanding the concept of FCC. This concept needs additional skills namely, interpersonal relationships, negotiation, clarifying parental and professional roles, and additional educational activities to facilitate collaborative parent or professional relationships[12].

The hospitals in developed countries are well equipped, while many in developing countries, such as Iran, function with limited resources. Nursing in the developing nations might apply knowledge based on the developed countries, but this might be culturally inappropriate[13].The statistics in Iran showed that 6.5% of neonates have low birth weight ,among which, 75% are premature and need to be hospitalized in Neonatal Intensive Care Unit (NICU)[14].

The role of FCC in pediatric nursing, common understanding between the nursing staff and the child's parents can lead to providing higher-quality medical attention. However, nurses and parents have different perceptions of stressors regarding the admission of a child at the hospital in Iran[15]. In this regard, training the personnel for better understanding of the families and involving them in the care based on their abilities according to the philosophy of family-centered care has been suggested[16]. This study evaluated the effect of educational intervention on Family-Centered Care model on attitude, intention and behaviour of pediatric nurses in Iran (Tehran).

2. Method

2.1 Study design and data collection

An experimental control randomized trial design was used in this study, with the following research questions.

1. What is the level of attitude towards FCC by pediatric nurses after intervention?
2. What is the level of intention for FCC after intervention?
3. What is the level of changes in behaviour score in FCC for pediatric nurses after intervention?
4. What is the correlation between attitude and intention to provide FCC after the intervention?

The target population for this study was pediatric nurses in pediatric wards. Pediatric nurses (n=200) who attended an educational intervention for FCC based on Theory of Planned Behaviour (TPB) in paediatric hospitals in Iran were randomly selected. A pre and post-tests design was used to assess the changes in attitude and intentions to provide FCC among nurses before and after educational program in the two groups (intervention and control). It was designed for paediatric nurses at three phases. Phase 1: this consist of the base line studies, Phase 2: consist of development of educational module and implementation of the intervention, and Phase 3: consists of outcome evaluation immediately and three month post intervention.

Participants were used for attitude and intention survey based on the theory of planned behaviour[18,19] parts I and II; the researcher developed a behavioural questionnaire that evaluated paediatric nurses behaviour changes by mothers whose children were hospitalized. Demographic data were obtained from all participants, including age, income, training, work experience in pediatric wards, and work experience in hospitals.

All the instruments used in the study were self-report instruments. Questionnaire examined the attitude, behavioural intention and the behaviour of pediatric nurses using family-centered care strategies. This instrument was constructed according to the

theoretical framework of TPB[11,19], and attitude, intention and behavioural were investigated.

2.2 Measures

The tool was validated by content validity Index (CVI) and face validity method. To validate the content, the researcher sent a questionnaire to two faculty members who are expert in paediatric nursing at UPM (University Putra Malaysia), and five faculty members that are experts in paediatric nursing at Shahid Beheshti, Tarbiat Moddaress, and Tehran University. The expert gave some suggestions, constructive corrections and feed back to the researcher (CVI== 95.22).

Piloting of the instrument was conducted among 30 respondents to measure the reliability of the instrument. Reliability (internal consistency) of each of the scales was tested using Cronbach's alpha reliability coefficients. The result of reliability test also indicated that the Alpha Cronbach for all related items was almost 0.9 and above which shows that the instrument has an adequate consistency and reliability across the study. The Reliability for attitude, intention and behaviour was 0.934, 0.84, and 0.94, respectively which still indicated that the instrument had an adequate consistency and reliability across the study.

Nurses in the intervention group were invited to participate in educational classes on FCC. Some important elements of intervention quality that makes participants to be recruited and meet the required sample size were adhered to. Therefore, the researcher sent prior information on the study, arranged the activities in a way that they did not disturb subjects' routine work pattern based on their request and utilized some incentives such as refreshments in the classes. A certificate of appreciation was given to the nurses in the intervention groups after the completion of the study. The intervention was implemented for two days in two session training classeswith3 h in every session. Each participant was given a copy of educational module after the class. The educational module was given to participants in the intervention group during the class. The researcher used power point presentation; pamphlet and some questions were discussed in the class. The participants in the control group only performed their routine duty and after completing the questionnaire by nurses as pre-test, they received one educational pamphlet on children nutrition.

Follow-up with meeting, e-mail and mobile surveys were post intervention for 3 months (third month) to motivate nurses. In the baseline and post-test (immediately after the intervention), a total of 100 participants completed the questionnaire but after 3 months follow up, 99 participants in the case and 97 in the control group completed the questionnaires.

2.3 Statistical analysis

Data were entered using Statistical Package of Social Sciences (SPSS) version 21. Descriptive statistics including means, frequencies and percentages, were used to describe the sample demographically with regards to age, income, training, number of years in practice in hospitals, and number of years in practice in pediatric wards as variables.

A two way analysis of variance (ANOVA) followed by Bonferroni test were conducted to assess and compare the differences between the control and experimental group at the three phases (pre, post and follow-up tests). Frequencies of responses to these instruments were investigated for each instrument. Reliability of instrument was explored using Cronbach's alphato determine the overall internal consistency of the instruments, as well as the subscales.

Tests of association were performed using Pearson Product Moment Correlations to identify the relationships between the participants' scores on the attitude, intention and behaviour instruments.

Following analysis of variance test, two groups of educational intervention settings were shown to have statistically significant differences in the mean of attitude, behavioural intention and behaviour change scores. Post–Tukey Honestly Significant Difference (HSD) test was performed for these groups.

3. Results

3.1 Descriptive statistics

Subject identification is depicted in **Table 1**. Two hundred paediatric nurses were randomly selected in the two groups (100 intervention groups and 100 control groups) and they completed the questionnaires. At baseline and post-test (immediately after intervention), all the participants in the intervention and control groups were involved in the survey. Finally, after 3 months

follow up, 99 participants in the intervention and 97 in the control group remained in the study.

3.2 Demographics

The sample predominantly consisted of females. Most of the participants in the intervention and control groups were less than 30 years of age (35.4 and 38.1%, respectively).The results of Chi square test revealed that there was no significant difference between the intervention and control groups regarding age (χ^2= 0.166, p= 0.920). Results of Chi square test showed that there was no significant difference between the intervention and control groups regarding income (χ^2= 0.928, p= 0.819). According to the results, 93.9 of the respondents in the intervention group and 83.6% in the control had no specific training regarding FCC. In terms of work experience in hospital, the frequency observed in the intervention and control group was 34 and 34.3%, respectively for those who have less than four-year work experience, while the respondents who had worked for more than 12 years in both intervention and control groups were18.2 and 15.5%, respectively. For work experience in pediatric ward also, the frequency observed in both groups for 1 to 4 years was 51.5%. There is no significant relationship between socio-demographic characteristics, attitude, intention and behaviour towards providing family-centered care.

3.3 Attitude

In order to evaluate differences in the mean of attitude scores in the 3 phases of pre-post and follow up test for both groups (intervention and control), a two way repeated measure ANOVA was applied to assess whether there were groups and tests differences in attitude.

The result revealed that the difference between pre and post-tests in attitude score in the intervention group was significant ($p<0.05$). The mean for the attitude in the intervention group increased (0.619).This results illustrate that there was no significant difference between all the tests in the control group ($p>0.05$).

Also, repeated measure ANOVA on intention score revealed that the interplay between group and test was statistically significant ($F_{(1.5,\ 300)}$ =155.284, $P<0.05$, $\eta 2$=0.445).

The outcome of post hoc test (Bonferroni) showed that the difference between pre- and post-tests in behavioural intention score in the intervention group was significant ($p<0.05$).The mean of intention in the intervention group was0.983 unit. This results showed that for the control group, there was no significant difference between all the tests ($p>0.05$, **Table 1**).

TEST	Group	n	Mean	SD
Pre test	Intervention	99	3.564	0.465
	Control	97	3.555	0.546
Post test	Intervention	99	4.547	0.459
	Control	97	3.541	0.536
Follow up	Intervention	99	4.325	0.368
	Control	97	3.483	0.492

Table 1. Descriptive statistic (Mean, SD) of behavioural intention

TEST	Group	n	Mean	SD
Pre test	Intervention	99	2.748	0.687
	Control	97	2.708	0.687
Post test	Intervention	99	4.318	0.543
	Control	97	2.742	0.581

Table 2. Descriptive statistic (Mean, SD) of Behaviour

The result of Pearson correlation showed that attitude significantly correlated with intention (**Table 3**).

	Intention		
	Pre-test	Post test	Follow-up
Attitude	0.526**	0.712**	0.664**

Table 3. Correlation between intention and attitude

** Correlation is significant at the 0.01 level (2-tailed).

Pre-test: Before intervention, Post-test: after three months

The results of repeated measure ANOVA on behaviour score indicated that the interaction among groups and test was statistically significant ($F_{(1, 194)}$ =188.44, P<0.05, η2=0.493); hence, to test the related hypothesis, post hoc test (Bonferroni) was employed to compare the mean scores. These results indicated that both main effect of time and group were significant.

The results of post hoc test (Bonferroni) showed that the difference between pre- and post-tests in behaviour score in the intervention group was significant (p<0.05).The mean of behaviour in the intervention group increased (1.571 units).This results indicated that there was no significant difference among all the tests in the control group (p>0.05, **Table 2**).

Findings revealed that attitude was a strong predictor variable that significantly explained intentions in the three steps. According to the results in the pre-test, the most significant predictor was attitude (β=0.339, t=4.75, p<0.01) which had the highest impact on intention (β=0.319, t=4.889, p<0.01).

4. Discussion

None of the socio-demographic variables (age, income, training, work experience in hospitals and work experiences in paediatric wards) significantly predicted nurse's intention for implementation of FCC. Moreover, the study showed no significant relationship between all socio-demographic characteristics with attitude and intention in pre-test, post-test and follow up.

Training did not have significant relationship with TPB variables, it might be related to homogeneity of responses, because based on the results, majority of the population (93.8%) stated that they did not have any training and 6.2% noted that they had training on FCC. Similarly, findings revealed that age, income, training, work experience, and experience in paediatric wards have no significant effect on increase of nurses' attitude, which is consistent with this study[20].

In addition, no significant relationship was found between socio-demographic variables ATT, and intention to provide family-centred care in pre-test, post-test and follow-up (P>0.05), and the nurses' attitudes in the pre-test were moderate and after intervention, it increased to high[21].The outcome of another study showed that age and work experience have no significant relationship with health care professionals' attitude with regards to parent's participation in the care of their hospitalized children at Madani Paediatric Hospital- Khoramabad, Iran[22]. On the other hand, their study had different methodology, location and sample size but the similar results supported that of the current study.

The key purpose of TPB is to provide an explanation for the ATT- behaviour relationship, which is mediated by intention[20].

Due to this fact, attitude of showing behaviour reflects individual's global positive or negative evaluations of showing a practical behaviour; that is, attitude is determined by the individual's perception about the value of a given outcome of behaviour[11].

This study found that, the intervention group recorded a significant positive change in the mean score of attitude (p<0.005), and it increased in the proportion of paediatric nurses who had moderate attitude and increased to high level after 3 months follow up. Significant increase in attitude level was observed in the intervention group, immediately and three months after intervention as compared to baseline, but increase in attitude was not observed in the control group. Consequently, it could be attributed to the availability of information obtained from education in the intervention group. A number of factors played important role in the success of intervention, such as, the sample's composition of well-educated motivated nurses; nurses' attitude towards provision of FCC at three times (pre-test, post-test and follow up) in the two groups(intervention and control) revealed that there is significant association between nurses' attitude, and the interaction between groups and test was statistically significant.

Also, the mean score of attitude between the control and case in pre-test was not statistically significant (p>0.05), while the differences between case and control was significant for attitude in post-test (p<0.05) and follow up test (p<0.05), while the difference between pre and post-tests in attitude scores in the case group was significant. Moreover, an intervention encouraging nurses to stop doing things, as well as get new behaviour started, which is an important step towards a behaviour change. Results of this study support the effectiveness of

the multi-component education in promoting attitude in paediatric nurses in Iran.

Therefore, the results revealed that education is one of the most effective factors to improve attitude, because 93.9% of the population did not have any education on FCC. The mean of attitude in the case group increased; for the control group, there was no significant difference between all the tests. The finding indicated that it is possible to achieve a significantly positive change in paediatric nurse's attitude with educational intervention. The intervention was effective since it increased intentions to breast feed in females, and expanded their knowledge; therefore, leading to more attitude[23]. Thus, these two articles emphasized on education and support the findings of the current study.

A study was conducted by Pasyar and Gholamzadeh[20] on the effectiveness of education in promoting knowledge and intention in the targeted population. Their findings revealed the efficacy of FCC education in promotion of mean levels of attitude of nurses working in paediatric wards immediately and after 3 months education, in emergency wards of Shiraz University of Medical Sciences. Their results showed that education highly and positively increased attitude and knowledge on treatment of personnel, and consequently, it positively affected promotion of patient's health and qualitative improvement of services as well as nurses' job satisfaction. Their method has an impact on sustainability of information up to 3 months after intervention and supported the present results.

Cassista *et al*.[24] applied the theory to evaluate modification of nurses' intention for recommendations regarding the use of filter needles. In total, 270 nurses participated in their study. The study aimed to develop a theory-based intervention to increase nurse intention to use filter needles according to clinical guideline recommendations by a large university medical Centre in Quebec (Canada). Nurses' intention was high in the pre intervention and increased slightly after the intervention. Their finding is important and supports the fact that despite the high baseline value, the intervention could still improve nurses' intention to follow clinical guideline recommendations. Similarly, they held two theoretical constructs from the theory of planned behaviour: attitude and perceived behaviour; the control significantly improved by educational intervention. Therefore, their findings support the current one because it helped to identify how paediatric nurses use FCC to increase their attitude towards providing FCC. Furthermore, majority of the paediatric nurses seemed very satisfied and agreed with educational intervention. Although, our results and theory were similar, the sample size and location were different.

TPB will be rejected if ATT does not predict intention; studies measuring ATT, intention and behaviour have consistently demonstrated that the more favourable an individual's attitude towards a particular behaviour, the stronger is the person's intention to express that behaviour[11,25,26]. In 115 studies that used TPB in different areas in which the relationship between ATT- intention was measured, ATT explained approximately 24% of the variance in intention[25].

One of the most important factors among TPB construct in paediatric ward is intention, it should have considerable influence on behaviours in nursing. Due to this fact, the researcher included this variable and it was measured by the declaration of mothers. Results revealed that intervention was affective in changing nurses' behaviour.

Similarly, other researchers confirmed findings of prior meta-analysis study, which reported that attitude is the strongest predictor of behavioural intentions among all TPB antecedent components and as a result, it is closely related to change in behaviour[27,28]. In addition, Dwyer and Williams[29] stated that improvement in the intention level generally correlates with change in behaviour.

In the studies of researchers, stepwise linear regression analysis was applied to explore the predictors of nurses' intentions to offer breast feeding support to women. They reported that 42% of the unique variance in nurses' intention to provide breast feeding support to women was explained by their attitude towards breast feeding. The lack of change in attitude may be caused by poor behaviour outcome[23,30]. The current study had the same results and method of data collection, but this study was conducted at different times, with different sample size, sampling method, location and position of participants.

Finally, change of knowledge based on educational intervention led to change of attitude score after three months of follow up. It means that nurses who had more ATT of FCC behaviours more likely intended to provide FCC than nurse with lower ATT of FCC. Therefore, improving paediatric nurses information on the importance of changing intention and consequently behaviour via educational classes is an appropriate health insurance for improving children's health, resulting in well-being of the community. Additionally, with TPB, the magnitude of relationship between ATT and intention is dependent on the type of behaviour and the situation [11].

5. Conclusion

The findings of this investigation have implications for nursing and the health care system.

One of the most important and common problems among nurses and parents, is the lack of communication and good relationship between them. The parental participation philosophy, which was introduced as a moral issue, might be driven by TPB factors. Nurses whose natural attitude towards provision of FCC, not only contribute to the family in caring for the child ,did not support FCC programme. There are oppositions and obstacles to the development and implementation of FCC in Iran. This study has provided evidence to support the efficacy, design and evaluation of educational intervention of the TPB to promote positive attitude towards implementation of FCC.

It could easily be used by nurses, doctors and other health care professionals to determine the changes of behaviour needing intervention. The scales are also very useful and they allow immediate intervention based on the results. Information on the relationship between ATT and behavioural intention may be applied to develop targeted information and health education for the benefits of implementation of FCC methods in paediatric wards and minimize barriers to implementing FCC. Therefore, FCC might be effective in improving nurses' behaviour and intervention is required to show the benefits.

However, it is noteworthy that not only can actual nurses' behaviour regarding provision of FCC be measured; it is more likely to change behaviour of these groups. Comparably, researchers showed that the relationship between intention and behaviour is likely to be weakened with time; it is more likely that the effects of intervention will not be long lasting[19].

Teaching FCC strategies in the classroom and demonstrating competency in family education by nurses will increase pediatric nurses' attitude, intention, and improve behaviour in practice. Intervention could be repeated at regular intervals (yearly) and evaluated in a longer time to assess any potential change over time in the paediatric nurse's attitudes, subjective norm, perceived behaviour control, intention for FCC and their perceptions of social influence in relation to FCC.

Intention to use FCC methods in pediatric wards setting positively increased after the intervention in this sample. According to TPB, "intention" is the best single predictor of behaviour"[19]. However, the authors stated that implementation of FCC in practice need support from nursing education and administration to fulfill their intention to provide the best possible care to pediatric patients.

Conflict of interests

No conflict of interest is declared by the authors.

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