

## Applying (testing) Theory of Planned Behavior for family-centered care development

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Abstract

### Abstract

**Background:** FCC is a new phenomenon or innovative approach to planning and evaluation is based on mutually understand and beneficial partnership among health care professionals, patients and families. The hospitals in developed countries are well resourced, while many in developing countries, such as Iran, function with limited resources. The purpose of this study, which was based on Ajzen's theory of planned behavior (TPB), was to determine the extent to which pediatric nurses' attitudes, subjective norms, and perceived control influence nurses' intention to family-centered care for children patients.

**Methods:** An experimental study based on the adapted and modified model from Ajzen's Theory of Planned Behavior was utilized. Proportionate simple randomized sampling was used to select 200 pediatric nurses at 4 hospitals (3 hospital as

intervention, and 1 hospital as control groups) completed a questionnaire assessing their attitude, subjective norm, perceived behavior control, and intention, to provide family-centered care to pediatric wards.

**Results:** Attitude, perceived behavior control, and subjective norm significantly influences nurses' intention to practice family-centered care behavior respectively after intervention [ $(\beta=0.39, t=5.914, p<0.01)$ ,  $(\beta=0.320, t=4.815, p<0.01)$ ,  $(\beta=0.172, t=2.184, p<0.01)$ ].

**Conclusion:** Our findings suggest that the intervention did improve the intention of these nurses to implement family-centered care approach in their practice. In light of this study, theory-based interventions may be a potential solution to improve adherence of healthcare professionals' behaviour.

**Keywords:** family-centered care, Theory of Planned Behaviors, pediatric nurses

## **Introduction**

Health care educators are implored to apply innovative methods to help bridge the gap between attitude and practice and use of new approaches to train nurses (1, 2, 3, 4, 5, 6). Nurse educators at a large ambulatory care organization have provided competency testing and training to all nursing staff. Education includes information on the Family-centered care as “ a method of caring for children and their families within health services which insures that care is planned around the whole family, not just the individual child/person, and in which all the family members are recognized as care receivers (7, 8).

Until at least the late 1950s hospitals worldwide tended to be bleak places for children. It was believed that visits from parents would prevent effective care and were harmful to the child, who would become distressed when the parents left (9,10). Researchers began to suggest, however, that children whose parents did not visit them suffered acute emotional trauma which may have long term

psychological consequences in adolescence and adulthood (10). Family-centered care is a fundamental principle of pediatric nursing and requires a process of cooperation between health professionals and child and family, which results in share decision –making about what the child’s or young person’s care will be provide this (11) and assures the health and well-being of children and their families through a respectful family-professional partnership. It honors the strengths cultures, traditions and expertise that everyone brings to this relationship and it is the standard of practice which results in high quality services (12).

At its care is transformational idea that the provision of healthcare is a corporation in which families and practitioners work together for the child. For this family –professional partnership to succeed, each member must respect the skills and expertise the other partners bring to the relationship; partners must fundamentally trust each other’s actions and motivations; communications must be open, and decision.

Family-centered care is an important goal in its own right (11). In this issue, supports the value of family-centered care in improving outcomes for children and families. Several studies demonstrate that FCC results in fewer hospitalization (13), Reduced hospital costs, Improvement medication use (14), reduced rate of unmet needs and increased use of appropriate services (15). Family-centered care interventions are associated with reduced symptoms (16), improved physical and mental health and functional status (17) and fewer missed school day for children with a number of chronic conditions, including Asthma, diabetes, behavior disorders or traumatic brain injuries (18).

Although taking responsibility for the basic care of their child seems to be an international need of mothers (19) and most of parents in our sample expected that parents should give basic care as a mother , in other developing countries, such as Indonesia and Thailand, fewer parents thought they should be providing basic care (20). It might be related to the Iranian tradition that preserves a

strong parental responsibility for the care of children. But, at the same time, the concept of “Parental presence” was not considered by most of the parents as being exactly synonymous with providing nursing care (21).

Participated in nursing tasks in Western parents (19) and some Asian parents, such as in Hong Kong (22), is by choice. However, similarly, to parents of other non-Western countries, such as Mozambique and Thailand (23), Iranian parents had no choice about participation, as parental participation is a routine expectation due to the under staffing of the wards.

Perkins studied a meta-analysis of all studies describing the use of the TPB to predict healthcare providers’ behavior (24). They reported on 19 articles describing 20 studies but noted that only one of these studies actually measured a behavioral outcome: most of the studies correlate variables in the theory with behavioral intention only.

This study was designed to determine whether measures of attitude, subjective norms and

perceived behavioral control would predict nurses' intention to implement FCC method.

The findings of earlier studies from developed and developing countries that more parents than staff thought that the parents should be required to stay with their child, some negative effects of the parents' presence on the quality of care, related to poor communication between parents and the nurses, was the main reason for some nurses' disagreement with the parents staying with the child despite stating its advantage in reducing the child's anxiety and uncooperativeness. For the nurses parents were part of the hospital's division of labor but not formally. However, using parents' unpaid care- providers might lead to parental resentment, jeopardize the child's safety, and challenge parent-nurse partnership ideology. But, the services should be designed around the needs of the children and their family.

## **Theoretical Framework**

Researchers have applied a variety of theories from social - psychology to understand and facilitate behavior change among nurses. Ajzen was the first to report theory of planned behavior in 1991 that has guided recent research to improve kinds of health care behaviors i.e (25)., to change nurses' knowledge, attitude in Cancer pain management (26), to predicting of evidence-based interventions and family-centered care in children with autism disorders (27), to understand nurses, intention to computer use (28). The TPB demonstrate that intention is the most important influenced by three structure, attitude, subjective norms, and perceived of behavior control. For use of Family-Centered Care in teaching, attitude includes performing behaviour reflects an individual's global positive or negative evaluations of performing a particular behaviour; that is, attitude is determined by the individual's belief about the value of a given outcome of behaviour (25). The key purpose of the TPB is to provide an explanation for the attitude-behaviour relationship, which is mediated by intention (29). The construct called subjective

norms reflected the individual's perceptions of social pressure to perform (or not) a behaviour; that is, if an individual believes that significant number of other people approve (or disapprove) of the behaviour, he/ she is more (or less) likely to perform the behaviour. The third construct, perceived behaviour control, refers to the degree of personal control that the individual has over the behaviour. For this research, perceived behaviour control relates to nurse perceptions of ease of use of family-centred care and whether the available facilities are sufficient. Application of the TPB in this study is depicted in Figure 1. Each of the TPB constructs was applied in the educational intervention. Actual performance education about family-centred care was assessed in immediately and after 3 months evaluation at the end of educational sessions.

## Method

### Design

The independent variables were attitude, subjective norms, and perceived behaviour control. The two dependent variables were behavioural intention and

behaviour regarding provision of family-centred care by paediatric nurses in paediatric wards. All participants took the same 91-item survey before and after intervention.

### Sample and Setting

This study was implemented at Shohada, Moddaress, Ayatollah Taleghani, and Mofid Hospitals in Tehran for children, which 200 paediatric nurses (100 in intervention group and 100 in control group) to train.

### Instrument

After 3 months, we conducted an experimental study of paediatric nurses to assess their attitude, subjective norms, perceived behavior control, and intention to family-centered care implementation. This study was deemed exempt by the Shaheed Beheshti University ethic committee and the hospitals institutional review board as a quality of project and questionnaires.

The name of the survey used was paediatric nurses attitude, subjective norms, perceived behavior, and intention to use family-centered care. The survey

was employed as pre, post and follow up (after 3 months) measure of the TPB constructs of attitude, subjective norms, perceived behavior, and intention to family-centered care.

We created a 91 –items multiple choice data collection tool based on Constructing questionnaires based on the theory of planned behavior (30). A 5-point Likert –type response scale (1=Strongly disagree to 5- Strongly agree) was used with single item. The questionnaire including 31 items about attitude to family-centred care, 24 items about subjective norms to FCC, and 24 Items perceived behaviour control to FCC, 6 items about intention to FCC, and 6 items about behaviour to FCC, because no validated instrument existed in this context. To establish content validity, two faculty member that were expert in paediatric nursing from UPM (University Putra Malaysia), and five faculty member that were experts in paediatric nurses of Shahid Beheshti, Tarbiat Moddaress university, and Tehran University helped develop the survey. The tool was

validated by content validity Index (CVI= 95) and face validity method. Paediatric nurses pilot tested the survey to content validity of the measures and reliability of questionnaire. Reliability of instruments were assessed using item-total subscale correlations and Cronbach's alpha coefficients for attitude, subjective norms, perceived behaviour control, intention, and provision of family-centred sections of questionnaire. The scale of each items ranged between 1 - 5. Therefore, for categorization of the mean of each dimension this range divided in three part as low, moderate, and high. The range between 1 to 5 divided 3, Therefore,

1- 2.33 was considered as low.

2. 33 – 3.66 as moderate.

3. 66 -5 as high level.

The result of reliability test also indicated that the Alpha Cronbach ( $\alpha$ ) for all related items was almost 0.9 and above which shows the instrument had an adequate consistency and reliability across the study. The Reliability for attitude, subjective

norm, perceived behaviour control, intention, and behaviour was 0.934, 0.94, .96, 0.84, and 0.94 respectively which still indicated the instrument had an adequate consistency and reliability across the study. Participation was voluntary. Descriptive statistics, including frequencies and percentages, are reported.

## Data analysis

Data were analysed with the Statistical Package for the Social Science, Version 21. The normality test was done using graphical method and statistical test. Regarding to normality of the distribution if the data were normal the parametric test such as Repeated Measure Anova, Pearson Correlation Coefficient and Multiple Regression Analysis were used to determinate the difference in the mean between the control and intervention groups.

The chi-square test as a non-parametric test was used to determine the significant difference between the control and intervention groups for

socio demographic characteristics which were qualitative (ordinal and nominal) variables. Since the main objective of the study was to compare between two groups, therefore Chi-Square test was applied for homogeneity between control and intervention group. Pearson's correlations were implemented to examine the presence of bivariate linear relationships and also to determine the significant relationships between the two variables. Internal consistency reliability for each subscale (attitude, subjective norms, perceived behaviour control) was calculated on both the pre- and post-scores with use of Cronbach's alpha. In order to examine constructs (attitude, subjective norm, PBC, self-efficacy, and barriers) most predictive of intention and behavior, stepwise regression analyses were performed respectively. The level of significance was set at  $p < 0.05$  for all statistical tests.

## Results

Of 200 paediatric nurses in two groups (intervention and control groups), 99 intervention and 97 in control group completed the survey.

Respondents included 35.4% and 38.1% of respondents in intervention and control group were aged less than 30 years respectively. The results of chi square test revealed that there was no significant difference between intervention and control regarding the age ( $\chi^2 = 0.166$ ,  $p = 0.920$ ). Results of chi square test showed that there was no significant difference between intervention and control regarding the income ( $\chi^2 = 0.928$ ,  $p = 0.819$ ). According to these results 93.9% of respondents in intervention group and 83.6% of respondents in control group had not any specific training regarding family-centred care. Chi square test also showed that there were no significant difference between intervention and control for specific training regarding family-centred care ( $\chi^2 = 3.016$ ,  $p = 0.082$ ).

For work experience in hospital the highest frequency was observed in intervention and control group 34% and 34.3% respectively for those who had an experience less than four years. For the work experience in paediatric ward also the highest

frequency was observed in both group for 1 to 4 years with 51.5%. The result of chi square showed that there was no significant difference between two groups for work experience in paediatric ( $\chi^2 = 0.520$ ,  $p = 0.914$ ).

There was a strong, positive correlation between attitude, subjective norm, perceived behaviour control, and intention to family-centred care. Increases in attitude, subjective norm, and perceived behaviour control correlated with increase in intention in control group as illustrated in Table 2.

In order to evaluate the differences in the mean of attitude scores within the 3 stages of pre-post and follow up test both groups (i.e. intervention and control), a two way repeated measure ANOVA was applied to assess whether there were groups and tests differences in attitude. The results of repeated measure ANOVA on attitude score showed that the interaction between group and test was statistically significant ( $F(1.42, 275) = 168.474$ ,  $P < 0.05$ ,  $\eta^2 = 0.465$ ), therefore to test the related hypothesis, post hoc test (Bonferroni) was applied to compare the mean scores. The result of post hoc test (Bonferroni) revealed that the difference between pre and post-test in attitude score in intervention group was significant ( $p < 0.05$ ).



Based on the reported value of the F-statistic ( $F=38.006$ ,  $p<0.01$ ) there is significant effect of independent variables on intention. Adjusted  $R^2$  value increased to 0.612 after intervention that means model explains 61.2% of the variance in intention of respondents. The value of the F-statistic ( $F = 103.55$ ,  $p<0.01$ ) also revealed that there is significant effect of independent variables on intention. The regression model in follow up test still was significant according to the value of the F-statistic ( $F = 86.59$ ,  $p<0.01$ ) with an adjusted  $R^2= 0.568$  which indicates model explains 61.2% of the variance in intention of respondents after 3 months.

Findings revealed that three predictors in this model explained, the most important variable, which explained 39% of the variance, followed by attitude. Two predictors in this model explained perceived behaviour control with 32%, and subjective norm with 17% of the variance in immediately after intervention test most significant predictor was ATT followed by PBC 32%, and, SN of variance in behavioural intention (Table 3).

## Discussion

Overall, the results simply revealed that support for the applicability of TPB models for understanding pediatric nurses' behavior. Theory of Planned Behaviour was probably most applicable in

different topics in developed countries such as; Spain (31), Australia (32), USA (33), UK (34), European sample (35). There is thus a need to test it in developing countries such as Iran. This is especially with respect to the concept of family-centred care. The few studies available and reviewed here vary widely in their application of the theoretical model.

According to this study attitude, subjective norm and perceived behavioral control have significant relationship with behavioral intention to practice optimal family-centered care behavior. Attitude was found to be the most important factor in predicting pediatric nurses' intention towards optimal family-centered care behavior. Attitude plays a crucial role in determining nurses' intention that leads to actual family-centered care behavior.

This study aimed to increase nurse intention to provide family-centred care, based on research evidence. Using the intervention mapping framework, a theory-based intervention was developed, implemented, and evaluated in paediatric units of a 4 large hospitals in Tehran (Iran) in order to achieve this goal.

Nurse intention was already moderate in the pre intervention in intervention group questionnaire (mean of 3.36 on 5) and increased immediately after the intervention (mean of 3.98). This finding

is important because, despite a moderate baseline value, it shows that the intervention could still improve nurse intention to provide family-centred care. The same holds for the two theoretical constructs from the TPB that were targeted by the intervention. Both direct determinants of intention, that is, attitude, subjective norm (mean of 3.37 on 5) and increased immediately after the intervention (mean of 4.34), and perceived behavioural control (mean of 3.37 on 5) and increased immediately after the intervention (mean of 3.88), significantly improved following the intervention. Moreover, all items measuring the beliefs associated with these constructs were significantly higher after the intervention. Of particular interest is the fact that the intention that were targeted by the intervention, namely, reason and enjoyment, showed a significant increase of 3.35 to 4.55 immediately after intervention., also showed changes in behaviour an increase of 2.75 in pre-test to 4.32 after 3 months. In contrast in control groups mean score have slightly differences but it was not significant ( $p>0.05$ ).

Also findings confirmed that there is significant effect of attitude, subjective norm, and perceived behaviour control on intention. The regression model in follow up test still was significant according to results TPB variables explains 56.8% of the variance in intention of respondents after 3 months and in follow up test the highest impact on

intention belong to attitude with 31% prediction after perceived behaviour control with 30% predication and least influenced belong to subjective norm with 26% prediction. This result is compared and consistent previous researches with results of study in East Carolina University on eating habits which decelerated attitude, subjective norm, and perceived behaviour control variables accounted for 72% of the variance in behavioural intention to eat a healthful diet (36, 37). Perceived behaviour control is the most important variables in the prediction of nurses' intention to clinical decision making. Overall, independent variable explains 70% variance in nurses' intention. It is also clear from our results that the most important role in predicting nurse intention to integrate research in to implementation family-centred care. Therefore, this difference between variances in different studies is related to accuracy of tools (38). Variance trend to be higher in a less well developed tool than in one that is well developed (39).

## Conclusion

The main objective of this study is to identify the factors that are involved in influencing pediatric nurses' intention to implementation family-centered care. From the findings it has been identified that attitude, perceived behavior control, and subjective norm significantly influences

pediatric nurses' intention to provide family-centered care respectively.

Clinical recommendation adoption and adherence among healthcare professionals is a continuous challenge. This study, based on the intervention mapping framework and the theory of planned behaviour, allowed for the development, implementation, and evaluation of a theory-based intervention among paediatric nurses in order to improve their intention to follow family-centred care method that their use in paediatric wards. Based on the results, we believe that the intervention did improve the intention of these nurses to implement family-centered care approach in their practice. In light of this study, theory-based interventions may be a potential solution to improve adherence of healthcare professionals' behaviour.

## Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors

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