Middle-East Journal of Scientific Research 27 (1): 72-74, 2019
ISSN 1990-9233

DOI: 10.5829/idosi.mejsr.2019.72.74

Patient Safety Model Development as Implementation Strategy in *Bidan praktik mandiri* (*Bpm*) Bogor District, West Java Province

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Abstract: Patient safety concept has been developed regarding increasing of medical error incidence around the world. In Indonesia, this concept is predominantly concentrated in hospitals whereas this incidence has been witnessed in Bidan Praktik Mandiri (BPM). This investigation was aimed to develop patient safety model in BPM situated in Bogor Distric, West Java Province. Cross-sectional study was carried was out using Independent Practice Midwife/Bidan Praktik Mandiri (BPM) situated in Bogor Distric, West Java Province. This study was conducted using mixed method in three steps of research. The first step was targeted construction of patient safety in BPM with three Prefer Focused Group (FGD) and in-depth interview on 2 informants. Consecutively, the second step was cross split on 90 Midwife and analyzed using SEM PLS. Stage 3 is the evaluation of the model carried out quantitatively with the design of pre and posttest at 30 BPM who have participated in the Patient Safety Model training. Results showed that there was proper targeted patient safety in BPM including patient identification accuracy, effective communication, medicine safety, the procedure and treatment reassuring, infection risk and risk of patient fall. Thereafter, in step two was all of patient safety indicators in BPM according to the previous step was valid. In evaluation of model implementation (step 3) results showed that this model was effective in increasing knowledge (p 0.000), character (p 0.000), motivation (p 0.0000) and behavior (0.001) BPM related to patient safety. Conclusion: patient safety model developed in BPM was built from targeted variable, knowledge, character, motivation and behavior of patient safety interaction.

Key words: Patient Safety % Midwife % BPM

INTRODUCTION

Patient safety is worldwide spoken problem in health service. World Health Organization (WHO) reported millions of patients around the globe who have been treated leading to injury and inevitably death per year owing to practical health mistake. Furthermore, WHO declared the World Alliance for Patient Safety Foundation in the implementation of world understanding toward worldwide nations [1]. Midwife is one kind of healthy servicers who provides primary service closed to the society among others. According to Basic healthy research 2013, most of the childbirth in Indonesia (68.6%) was provided by midwife. West Java Province has the highest number of BPM in all of Indonesia with 12, 654 midwives comprising 1, 776 pure practice midwives and 10, 878 midwives independent pure midwives. Patient safety concept has been already applied in level of secondary service such as hospital, nonetheless in BPM. Midwife practice is the health service activity provided by midwife to patient (personal, family and society) based on authority of a midwife. In Indonesia, BPM patient safety model has been not yet implemented. Based on above-mentioned evident and problem identification we developed model of patient safety as implementing strategy in BPM.

MATERIALS AND METHODS

Mixed method study was employed in this research wherein the model development of quantitative approach using exploratory research was carried out as the first step. Afterwards, two model trials with quantitative method using analytical survey (Partial Least Square)

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and study cohort prospective design without control (Pre-Past test) were applied. Consecutively, in the second step was model development and training of patient safety in BPM continued by the third step which was trial of safety model in BPM.

Patient safety development in BPM was conducted by quantitative manner thereby using cross split design. This was subjected in order to depict targeted condition of patient safety, behavior, knowledge, character and motivation of patient safety at certain time.

The population of this study was all of nurses located in working area in Bogor Regency. Sample in this research was taken from all of midwive in BPM according to the criteria. Based on the calculation utilizing sample size measurement, we obtained minimal sample 27 respondents for the intervention group. Data analysis using univariate in order to describe result from every variable was used. Bivariate analysis was employed to distinguish the knowledge, behavior, motivation and character before and after training.

RESULTS

Patient Safety: According to concept, there was one exogenous variable (Target of Patient safety) and five endogenous variables (Knowledge, behavior, motivation and character). The result of R-square was the value of goodness-fit model as listed in Table 1.

Based on Table 1, the value of r square on patient safety character variable was 71.9% and the rest was 28.1% which was affected by other factors. Midwife's Knowledge variable was 10% and 90% shared in other factors meanwhile behavior was 43.6% competing for other factors (56.4%). Motivation was almost balanced whereby sharing 57% and 43% related to the other factors. The reflected T statistics value against variable was greater than 1.96%, henceforth showing indicator block which correlated positively and significantly to Table 2.

The result of analysis from parameter coefficient between targeted patient survival and patient safety in BPM Bogor regency, West Java Province positively and significantly shown 7.68 on " = 5%. Similarly, midwife knowledge and safety behavior in BPM was also positive and significant about 4.32 on " = 5%. The pointed T-statistics above was away from critical value (1.96).

Patient Safety Model Training: Analysis of knowledge, behavior and motivation of respondents before and after training was listed in Table 3.

Table 1: Evaluation of R *square* patient safety model in BPM

Variable	R Square
Motivation	0, 570038
Knowledge	0, 100149
Patient safety behavior	0, 719161
Targeted patient survival	
Character	0, 436195

Table 2: The percentage of variable between variables of patient safety in BPM

	Significance between variable			
	Exogenous	Endogenous	T-statistics	Conclusion T Statistics> 1.96
T statistics analysis	Targeted patient safety	Patient safety behavior	7, 680340	
	Knowledge	Patient safety behavior		
	Character	Patient safety behavior	4, 329559	
	Motivation	Patient safety behavior	2, 723479	

Table 3: Knowledge, behavior, motivation and character of midwife analysis

Variable	T	D f	P *value*	Conclusion
Knowledge	-15.72	29	0.000	Significant
Behavior	-17.07	29	0.000	Significant
Motivation	-19.57	29	0.000	Significant
Character	-3.888	29	0.001	Significant

DISCUSSION

The use of quantitative approach patient safety model construction in BPM was completely required since the capacity in digging patient safety the perspective of midwife practices. The result in BPM suggested that target on patient safety in BPM was equal to hospital. Patient safety in BPM was completed by target related to treatment accuracy.

Construction of patient safety model in BPM is required in order to develop patient safety. The study in Holland recorded that from 20 out of 1000 practical nurse, there were 39 incidences related to patient safety happened in 12 practical midwives[2]. The record of patient safety in BPM is not available in Indonesia due to the fact that it is not mandatory. When it comes to the fact, the risk of patient safety in BPM has existed. This model was built to minimize the risk in BPM.

The primary target of patient safety is patient identification accuracy. This should be done in order to avoid mistakes which pointed to unsafety. Based on National Patient Safety Agency[3], over the course 2

years from 2003 there were 236 incidences and near-missed incidents due unavailability of patient identification. Moreover.this system can be done by giving service to medical to identify patient before service provided. This goal could be achieved by implementing the training corresponds to that matter.

The target of patient safety is effective communication between patient and nurse. The communication aspect is an indicator of success in the patient safety model in BPM. According to Marchon and Junior [4] and Nygren *et al.* [5] who reported that ineffective communication between nurse and patient is one of predominant factors leading to adverse event. Furthermore Liu *et al*. [6] added, that effective communication is the priority on safety culture. Middle Eastern hospitals must consider culture to adapt patient safety model strategies and patient safety management protocols that are relevant to the conditions of these countries [7]. The skill of well-understood communication may increase patient obedience related in either preventive issues or disease curing [8]. One indicator of effective communication between nurse and patient is the availability of communication media including banner, leaflet and poster dealing with nursing and patient regularly.

The construction model of patient safety in BPM was done by using structural equation modeling. There are six targets achieved and established capable of implementing patient safety. Based on Bates [9] patient safety is the first indicator for health service quality. The need for several variables including Knowledge, behavior, motivation and character is also important regarding the implementation of patient safety. According to the theory of planned behavior, the behavior is affected by behavioral belief, normative belief and control belief. Behavioral belief is implemented in character of the behavior. The better in responding toward issues, the stronger control and intention for implementing that behavior [10].

CONCLUSIONS

Patient safety model in BPM was formed from interaction between target of safety, knowledge, behavior, motivation and character of patient safety. Implementation of model may be applied in BPM through training of patient safety in BPM along with training module corresponds to that matter.

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