

Nurses' Intention and Behavior in Reporting Adverse Event: Application of Theory of Planned Behavior

Niat dan Perilaku Perawat dalam Melaporkan Kejadian Tidak Diharapkan: Penerapan *Theory of Planned Behavior*

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Abstract

Data show that globally, patient safety incident reporting remains low, as is also the case at Baptis Batu Hospital, East Java. This study aimed to determine the influence of attitude, subjective norm and perceived behavioral control (PBC) on the intention to report and determine relation between PBC and nurses' behavior in reporting adverse event. This study used cross sectional approach and was conducted at Baptis Batu Hospital from March 16th to March 31th, 2016. Data were obtained with questionnaires that were distributed to 82 (of 85) nurses working at Baptis Batu Hospital. Data were analyzed using multiple linear regression and Spearman correlation. The results showed that attitude ($B = 0.496$; p value = 0.000) and PBC ($B = 0.766$; $p = 0.037$) significantly influenced the intention to report adverse events, while subjective norm ($B = -0.087$; p value = 0.540) did not influence the intention to report adverse events. There was no relation found between PBC ($r = 0.037$; $p = 0.739$) and intention ($r = 0.031$; p value = 0.783) to behavior of reporting adverse event. These findings indicated that nurses' intention in reporting adverse event was influenced by attitude and PBC, but not by subjective norms. In contrast, intention and PBC did not relate to adverse event reporting behavior.

Keywords: Incidence-reporting behavior, intention, nurses, theory of planned behavior

Abstrak

Data menunjukkan bahwa secara global jumlah pelaporan insiden keselamatan pasien masih rendah, begitu juga di Rumah Sakit Baptis Batu, Jawa Timur. Penelitian ini bertujuan untuk mengetahui pengaruh antara sikap, norma subjektif, dan *perceived behavioral control* (PBC) terhadap niat dan untuk menentukan hubungan antara PBC dan niat terhadap perilaku perawat dalam melaporkan kejadian tidak diharapkan (KTD). Penelitian ini menggunakan pendekatan potong lintang dan dilakukan di Rumah Sakit Baptis Batu pada tanggal 16-31 Maret 2016. Pengambilan data dilakukan dengan menggunakan kuesioner yang dibagikan kepada 82 (dari 85) perawat yang bekerja di Rumah Sakit Baptis Batu. Data dianalisis menggunakan regresi linier berganda dan korelasi Spearman. Hasil penelitian menunjukkan bahwa sikap ($B = 0.496$; nilai $p = 0.000$) dan PBC ($B = 0.766$; nilai $p = 0.037$) secara signifikan memengaruhi niat untuk melaporkan KTD, sedangkan norma subjektif ($B = -0.087$; nilai $p = 0.540$) tidak berpengaruh terhadap niat melaporkan KTD. Tidak terdapat hubungan antara PBC ($r = 0.037$; nilai $p = 0.739$) dan niat ($r = 0.031$; nilai $p = 0.783$) terhadap perilaku melaporkan KTD. Temuan ini menunjukkan bahwa niat perawat dalam melaporkan KTD dipengaruhi oleh sikap dan PBC, bukan norma subjektif. Sebaliknya, niat dan PBC tidak berhubungan dengan perilaku melaporkan KTD.

Kata kunci: Perilaku pelaporan insiden, niat, perawat, *theory of planned behavior*

How to Cite: Ekayani NP, Wardhani V, Rachmi AT. Nurses' intention and behavior in reporting adverse event: application of theory of behavior. *Kesmas: National Public Health Journal*. 2017; 11 (3): 138-144. (doi:10.21109/kesmas.v11i3.1091)

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Received: July 15th 2016

Revised: August 24th 2016

Accepted: January 3rd 2017

Introduction

Patient safety incident (PSI) reporting in health services is a tool to monitor, prevent and reduce PSI occurrence. Reportable event range from adverse events, near misses, no-harm incident and reportable circumstance.¹ PSI reporting facilitates improvement in practices so that incidents are likely to reoccur. The incident report becomes the basis of evaluation and improvement of the health care system, especially patient safety.²

Huge numbers of PSI in the world and in Indonesia reflect the magnitude of this problem. A study conducted by World Health Organization (WHO) in 2004 in many developed countries including the United State, the United Kingdom, Denmark, and Australia found that adverse events ranging from 3.2 to 16.6%.¹ WHO reports on a study involving 11,379 inpatients at 58 hospitals in Argentina, Colombia, Costa Rica, Mexico and Peru found that PSIs were filled for as many as 10% of patients.³

There is difficulty in gathering accurate PSI data in Indonesia due to issues with the reporting system, even the predicted cases exceed the international cases. The Hospital Patient Safety Committee (HPSC) published 114 PSI reports in 2009, 103 reports in 2010, and 34 reports in the first quarter of 2011. The PSI report from January to April 2011 contained adverse event cases (14.41%) and near miss incident (18.53%) which were caused by several situations, such as process or clinical procedures (9.26%), medications (9.26%), and patient falls (5.15%).⁴

Low awareness of reporting PSI was also found at Baptis Batu Hospital in Batu, East Java. PSI reports at Baptis Batu Hospital fluctuated over the last three years. Compared to the predicted PSI data based on admission rates, there were 179 (64%) in 2013 and as many as 111 (29%) in 2015 of incidents that were not reported. Quite the opposite in 2014, the number exceeding predicted may due to accreditation assessment. Implementation of hospital accreditation motivates management to increase PSI reporting, so the PSI report in 2014 increased dramatically.

In health care practice, many barriers to PSI reporting remain. One study identified seven causes of low PSI reporting: fear of being blamed, low commitment of the management or related units, the absence of reward on reporting PSI, low knowledge of circumstances that warrant PSI reporting, low PSI socialization, no training joined and low socialization from HPSC.⁵

As stated by chairman of HPSC, the factors that inhibit PSI reporting in Baptis Batu Hospital were fear of being blamed, feeling of back-stabbing among friends as an old culture associated with senior and junior terms still attached, concerns about future remuneration and staff, especially inexperienced staff, who fail to identify near misses.

PSI reporting is a new behavioral form that urges to establish as a part of patient safety culture. One theory used in assessing a person's behavior is the theory of planned behavior (TPB) developed by Ajzen.⁶ TPB is relevant to understanding the effect of health personnel behavior and has been successfully applied to several health care services.^{7,8} According to TPB, behavior shown by individuals arises because of their intention to behave. The emergence of intention to behave is influenced by three determinants: attitude towards the behavior; subjective norm; and perceived behavioral control (PBC). Numerous studies have applied TPB to the health field including Javadi *et al.*,⁹ who studied the patient safety behavior of nurse; Cooke and French,¹⁰ who studied the intentions and behavior following the health screening program; Jansma *et al.*,¹¹ who assessed the intention and behavior of medical residents after patient safety training.

This study aimed to determine the influence of attitude, subjective norm, and PBC on the nurses' intention and to determine the relation of PBC and intentions to behavior on reporting adverse event at Baptis Batu Hospital. Nurses play an important role in reporting PSI, therefore, their commitment to actively participate in the PSI reporting system can contribute positively to the safety-based service system.^{12,13} Results are expectedly used as data to build positive behaviors in PSI reporting system at Baptis Batu Hospital.

Method

This study used cross sectional approach. Data were collected from 82 of 85 nurses who worked at Baptis Batu Hospital. The three nurses not included resulted from one not being available during the study and two providing incomplete responses. A closed ended 5 point Likert scale questionnaire adapted from Ajzen,⁶ with a total of 32 items of statements, were self-administered to the nurses. The questionnaire had been validated. The data analysis used multiple linear regression to determine influence of attitude, subjective norm and PBC to the nurses' intention in reporting adverse event and Spearman's correlation for relation between PBC and intention toward behavior in reporting incident.

Results

Table 1 showed the distribution of respondents, and overview of attitude variable, subjective norm, PBC and the intention of adverse event reporting. Attitude variable had a high enough mean value (3.85). Outcome evaluation indicator had higher mean value than behavioral belief indicator. The outstanding statements were on that the hospital should significantly dismiss the attitude of finding who to blame on every adverse event reporting (4.17); the hospital needed to evaluate adverse event re-

porting (4.15); and adverse event reporting was needed in order to learn from the mistakes occurred (4.11). 14.6% of respondents stated that they were worried that they would be blamed if reporting an adverse event.

Table 1 showed a subjective norm image consisting of two indicators, namely normative belief and motivation to comply. The table also showed that the respondents had quite high mean value of subjective norms (3.54), either all or each indicator. These figures indicated a positive support for adverse event reporting from all referencing norms i.e. family, friends, managers and management. Although it did not show significant differences, the highest indicator mean value contained in normative belief (3.64) with prominent item contained in the statement “the management (3.84) and the manager (3.83) requires me to report adverse event”.

Table 1 also showed that the PBC was composed of two indicators, namely control belief and perceived power control. The results showed the mean of belief control indicator was in enough category with the lowest mean value in the statement “I get a reward when reporting adverse event” (3.02) and nearly 20% of respondents disagreed to the statement. In perceived power control indicator, a statement regarding the decision to report adverse event depended on my control was still low (3.17). It proved that their control in terms of adverse event reporting remained low.

Intention variable in Table 1 did not have indicator, but only consisted of three statement items with a mean of variables 3.63. The highest mean was contained in the statement “I will always report any PSI that causes injury to the patient” (3.76).

Based on Table 2, 72 of 82 respondents claimed that they had seen, heard and experienced PSI at the hospital, which indicated behavior in reporting safety incidents. The highest frequency of respondents’ experience were adverse event and no-harm incident which were 87.8% each, although only slight difference occurred between reportable circumstance and near miss incident (5-9%). Based on the intensity, there was only a small portion of respondents who always reported any adverse event (11.2%).

Influence of Attitude, Subjective Norm, PBC on Intention of Adverse Event Reporting

Result analysis on the influence of attitude, subjective norm, and PBC on nurses’ intentions in reporting adverse event using multiple linear regression could be seen in Table 3.

The results showed F count equals to 50.277 with a probability of 0.000. This means that simultaneously variables attitude, subjective norm, and PBC had a significant effect on the intention to report adverse event. However, partially subjective norm did not affect the in-

tion to report adverse event.

Adjusted R square had a value of 0.646 which means that the contribution of attitude, subjective norm, and PBC on the intention to report adverse event at Baptis Batu Hospital was 64.6%, while the remaining 35.4% was contribution from other variables that were not addressed in this study. The dominant variable affecting intention to report adverse event was PBC ($\beta = 0.552$).

Relation between Perceived Behavioral Control and Intention on Behavior of Adverse Event Reporting

Relation between PBC and intention towards behavior was analyzed through Spearman correlation. Result analysis indicated that there was statistically insignificant relation between PBC ($r = 0.031$; p value = 0.783), and intention ($r = 0.037$; p value = 0.739) of reporting adverse event, furthermore each had a very small correlation coefficient value.

Table 1. Distribution of Response and Overview Variable on Attitudes, Subjective Norms, PBC and Intention to Adverse Event Reporting

Variable	Indicator	Mean Value of Indicator	Mean Value of Variable
Attitude	Behavioral belief	3.71	3.85
	Outcome evaluation	3.99	
Subjective norm	Normative belief	3.64	3.54
	Motivation to comply	3.44	
Perceived behavioral control (PBC)	Control belief	3.55	3.44
	Perceived power control	3.33	
Intention			3.63

Table 2. Distribution of Respondents’ Response and Description about Patient Safety Incident

Kinds of Patient Safety Incident	Have seen, heard, and experienced patient safety incident at hospital?			
	Yes		No	
	F	%	F	%
Reportable circumstance	67	81.7	15	18.5
Near miss incident	63	76.8	19	23.2
No harm incident	72	87.8	10	12.2
Adverse event	72	87.8	10	12.2

Table 3. Analysis on Relation of Attitudes, Subjective Norms and Perceived Behavioral Control with Intention of Adverse Event Reporting

Variable	Regression Coefficient (B)	Std. Error	Beta (β)	t	Sig.
Attitude	0.496	0.130	0.387	3.800	0.000
Subjective norm	-0.087	0.140	-0.069	-0.616	0.540
PBC	0.766	0.146	0.552	5.246	0.037
Adjusted R square	= 0.646		F count	= 50.277	
t table	= 1.66		F table	= 2.73	
			F significant	= 0.000	
			α	= 0.05	

Discussion

In general, attitudes, subjective norm, PBC and intention of adverse event reporting had an average mean value that indicated a positive evaluation from reporting as an effort to improve patient safety.

Nurses' Attitude in Adverse Event Reporting

The results showed that most nurses had a positive attitude towards reporting adverse event. Study conducted by Hung also presented a positive attitude on the reporting of medication administration error (MAE).¹⁴ Several other studies had also suggested that nurses had more positive attitudes in terms of reporting PSI.^{5,15,16} It showed that nurses had a positive attitude towards the problem of patient safety and became more confident to report PSI since nurses were involved more in reporting practices.

The findings in this study also revealed that although it tends to have a positive attitude, still there were respondents who felt blamed if reporting adverse event. This means blaming culture in reporting adverse event at Baptis Batu Hospital remained exist. Blaming culture was one of factors inhibiting PSI reporting. According to the interview, Chairman of HPSC of Baptis Batu Hospital said that there were factors that inhibited PSI reporting, one of which was the fear of blame. One of the challenges in the development of patient safety was how to build a patient safety culture without blaming culture.

Nurses' Subjective Norm in Adverse Event Reporting

The results showed that overall the norms of family, co-workers, supervisors, and management had a perception that supported adverse event reporting. However, of the four references, the managers and management were considered the sectors that agreed to adverse event reporting, then managers was the sector whose opinion was mostly given attention by the respondent. A study by Hung stated that nurses were willing to report the MAE due to the strict requirements from the nursing managers, compared to their own attitudes to report MAE.¹⁴

There were several factors that influenced a person in making decision to behave. According to Kotler,¹⁷ the factors that influenced the decision were cultural factors that included the role of culture, social classes; social factors that included reference group, family, role and status; personal factors; and psychological factors.

The findings that showed differences in the reference in reporting adverse event at Baptis Batu Hospital explained that there were acceptable cultural differences because the embedded culture was not only obtained from work, but also from various affecting places, such as family environment and social groups. However, the decision was based on individual belief. This strength-

ened that cultural factors might affect individuals' action. If the management and the manager required adverse event reporting, for example, but when the obeyed family norm said no, then the nurse would not report any adverse event.

Perceived Behavioral Control in Adverse Event Reporting

The results showed that PBC had an average mean value. It was clear that the system offered an ease as well as a desire to report positive adverse event. However, when to report was desired, the control becomes low and tied with the absence of reward and a feeling of guilty. From the interview, the chairman of HPSC mentioned that Baptis Batu Hospital had implemented a program providing rewards to staff who reported PSI as one of those was awarding points associated with monthly incentive. Therefore, staff motivation to report PSI was expected to increase. However, if reporting PSI was purposefully to get the reward, it could be seen as unethical behavior. This is in line with Tucker's statement in Cahyono,¹⁸ that nurses tend to make adjustments with an insecure and inconvenient environment than having to discuss or report any fault that results in injury.

Intentions in Reporting Adverse Event

The results showed that nurses' intention to report adverse event tend to be high. Most respondents said they would always report PSI that caused injury to the patient. The higher the intention was, the higher the behavioral intention to report adverse event would be. Previous studies also mentioned that pharmacists and nurses' high intention on reporting MAE would improve the behavior of reporting MAE.^{14,15} Individual understanding on something would greatly affect the intention. Intention would greatly affect performance, meaning that if each officer intended to report PSI then the performance on reporting would also be better.¹³

Behavior in Reporting Adverse Event

The results showed that most respondents had reported PSI although its intensity varied. The highly conveyed PSI types were no-harm incident and adverse event. This is in line with the study stating that PSI reported were those causing injury only.^{19,20}

Study conducted in Panti Rapih Hospital Yogyakarta stated that almost 50% of employees did not report adverse event in their work unit and only 6% of employees reported 21 or more incidents.²¹ PSI reporting that went into HPSC in one of the hospitals in East Java in 2011-2013 were 19 reports, 41 reports, and 3 reports respectively.⁵ This showed the low PSI reporting that was about < 1%, lower than the theoretical predictions by WHO in 2011 which mentioned that the potential PSI was 10% of admissions.

One of factors affecting patient safety, especially in PSI reporting, was medical personnel behavior, and it could be said that PSI reporting depended on how the medical officers behaved.⁹ To achieve a permanent change in behavior pattern, it is important to focus not only on individual attitudes and intentions, but also stimulates the environment, including hospital culture and patient safety policy.¹⁶

Effect of Attitude, Subjective Norm and Perceived Behavioral Control on Nurses' Intention in Reporting Adverse Event

The results showed that attitude affected positively and significantly on nurses' intention in reporting adverse event. This is in line with previous study conducted by Hung on MAE reporting by nurses.¹⁴ This finding was also in line with the study that showed a positive relation between attitudes and intentions in reporting medication errors.^{22,23}

Almost all nurses at Baptis Batu Hospital expressed a positive attitude towards adverse event reporting. It explained that reporting adverse event reinforced the efforts to improve patient safety in hospitals. Information about patient safety is used by health personnel to form transformation as an effort to reduce recurring mistake, therefore, PSI reporting requires involvement and commitment of the organization and the individual of health care provider.²⁴ Blaming culture among nurses at Baptis Batu Hospital related to adverse event reporting raised the feeling of fear if reporting adverse event. This is in line with the statement that one of the factors inhibiting reporting is afraid of blame.^{5,25}

This study identified that there was no statistical effect between subjective norm and intention to report adverse event. Mascherek *et al.*²⁶ stated that the subjective norm did not contribute significantly to the intention of using surgical checklist. Since WHO issued a surgical checklist in 2009, studies showed that surgical checklist had effectively improved patient safety. Surgical checklist has been considered as the gold standard that does not require approval and consider opinions of others.

On the other hand, Gavaza *et al.*¹⁵ stated that there was a significant relation between subjective norm and intention. In fact, subjective norm is said to have dominant influence. This indicates that the importance of social influence as antecedent for intention and behavior of reporting adverse drug events (ADEs). Cultural factor explains that a person usually follows the individual references that exist around the working area. Then education from managers and seniors regarding patient safety is an important priority that must be fulfilled.

The results showed that PBC significantly affected nurses' intention to report adverse event. The results are in line with study conducted by Cassista *et al.*²⁷ stating that prior to the intervention, attitudes and PBC affected

the intention to use clinical guidelines recommendation about the use of filter needles. PBC influence lasts until post intervention and PBC is said to be the determinant in deciding intention.

Descriptively, the data showed that resources, such as forms and reporting route were easily perceived by nurses, so nurses' intentions to report adverse event at hospital were expected to increase. However, it is contrary to no-reward concept when reporting adverse event which positively lessen nurses' intention to report adverse event. Self-control perceived by some nurses was also low. It could be concluded that although the form and the plot were easy but self-control was low and the absence of reward, nurses' intention for reporting adverse event could potentially remain small. Besides, nearly 20% of nurses still felt guilty if reporting adverse event, which could lead to reduce nurses' intentions to report.

This study found no statistical relation between PBC with nurses' behavior in reporting adverse event. PBC is a hallmark of TPB which in this study means the nurses' perception on the factors that facilitated or complicated reporting adverse event. PBC is contributory in behavior that is not under full control of individual. Based on the theory, PBC is said to have a direct relation to individual's behavior, but this study found no relation between PBC and behavior. This situation suggested that there were other factors that influenced the behavior in reporting adverse event, such as habit. The habit of reporting depends on the type of PSI (such as patient falls and medication errors were more often reported) and PSI location (such as torn skins were more frequently reported in the inpatient unit compared to in the surgery room).¹³

This study found no statistical relation between intention and nurses' behavior in reporting adverse event. These results are in line with study conducted by Jansma *et al.*¹⁶ regarding the effect of patient safety course to intention and behavior alteration in reporting incident. Ajzen,⁶ defined intention as behavior disposition, when right time and right opportunity exist, it would be executed into action. However, because the accuracy in predicting behavioral intentions varies, some studies found that intentions did not always result in expected behavior. According to King in Aiken, there were several factors that affected the ability of intention in predicting behavior, namely whether the intention was specific or not, the distance and time between intention measurement and behavior, and the ability to perform what was already mentioned.²⁸

Implications and Limitations of Study

Efforts from Baptis Batu Hospital to improve PSI reporting, especially adverse event, could be initiated from the contributing factors to intentions in reporting adverse event as identified in this study. PBC is a factor that has

dominant influence on the intention to report adverse event. Explanation to the staff is needed that reporting PSI will improve the existing system, not to find someone's fault.

To reinforce positive attitudes, more trainings on patient safety should be essentially held, especially concerning PSI reporting supported by follow-up and reevaluation.¹⁶ From this training, improved understanding of patient safety was expected, especially for nurses who had worked at Baptis Batu Hospital. In addition, to achieve changes in behavior patterns, the main focus was stimulating the environment including the culture of the organization especially the culture and policies regarding patient safety, not merely on individuals.^{16,29}

Blaming culture is a universal phenomenon that must be abolished by creating a standard operating procedure to support clear communication lines. Strategy on increasing the intensity in PSI reporting at Baptis Batu Hospital should be focused on constructing no blaming culture and establish positive consequences of reporting behavior in accordance with the local culture, so further strengthen and encourage PBC intentions into behavior. The cultural change must be made profoundly starting from the level of family and peer, not only at the level of hospital management.

This study was only conducted on nurses at Baptis Batu Hospital that reflected the largest group of providers at the hospital. On the other hand, looking at the extent of the profession study objectivity, other health professions such as doctors, midwives and pharmacy should also be included to complete the understanding of patients reporting behavior. The data obtained can be used by management to evaluate the overall PSI reporting at Baptis Batu Hospital. Longitudinal evaluation is recommended for further study since the study did not seek for the cause and effect as this was conducted with a cross sectional approach. The quantitative method used in this study enables a broad range of respondents, but strong blaming culture identified in this study requires further in-depth study with a qualitative approach.

Conclusion

This study shows a high enough reporting intention supported by attitudes, positive subjective norm, but PBC remains relatively poor. Most nurses have reported PSI though with varied intensity. Attitude and PBC have a strong positive influence and been statistically significant on the intention, while the subjective norm does not. Despite, intention and PBC are not found related to PSI reporting behavior.

Recommendation

The strong influence of attitude and PBC on the intention shows that the hospital needs to improve training

on patient safety, particularly PSI reporting, and improve organizational culture in PSI reporting. Further study needs to be carried out on other health professionals at hospitals and in-depth study using qualitative study.

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