International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

Relationship Between the Likelihood of Reporting Adverse Events Among Nursing Officers and Their Perceptions on Identified Barriers and Enablers for Reporting

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Abstract

In order to improve patient safety in hospital setups, learning from previous errors is important. Therefore the institute should have adequate data on adverse events which have occurred in their settings. The way of gathering those data is Adverse Event Reporting. The objective of this study was to measure the relationship between the likelihood of reporting adverse events by Nursing Officers in Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy and their perception on selected barriers and enablers, as identified in literature, for adverse event reporting. This was a quantitative study, and the study instrument was a validated self-administered questionnaire with a six point likert scale. Nursing officers working in Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy were the study population. The whole population was taken to this study as it is below the calculated sample size. Correlations between the likelihood of reporting adverse events was measured with the participants' perceptions on their training on adverse event reporting, leadership, feedback received for reported adverse events, knowledge on adverse event reporting, presence of culture of blame and the existing process of adverse event reporting. The response rate for the questionnaire was 69% (n=277).

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There was statistically significant positive moderate correlation between the participants' likelihood of incident reporting and their perception on the process of reporting an adverse event (r = 0.591). Their perceptions on leadership (r = 0.472), perceived knowledge on incident reporting (r = 0.462), perception on feedback received for reported incidents (r = 0.438), perceived training received for incident reporting (r = 0.378) and the perception of the presence of culture of blame (r = 0.164) showed weak positive correlations with their likelihood of reporting adverse events. Simplification of the process of adverse event reporting can be recommended to improve incident reporting in these selected wards in the Teaching Hospital, Kandy.

Keywords: Adverse event reporting; Patient safety; Nursing Officers; perception; Teaching Hospital; Kandy.

1. Introduction

For many reasons, improvement and maintenance of quality during provision of healthcare has become important [1]. One major reason is that healthcare outcomes can be improved through quality improvement. This in turn contributes to the improvement of the health conditions of the entire society contributing to create a healthy nation. In addition, owing to the quality healthcare provision, the frequency of re-acquiring ailments is reduced, and as a consequence, revisits to the Out Patient facilities can be reduced. In their meta-analysis study, [2] the researchers found that the chance of early readmission was increased by 55% when the quality of care was low. Therefore, this helps in reduction of overutilization of healthcare facilities, which again improves healthcare quality. Moreover, improvement of quality in healthcare decreases waste of resources used in healthcare settings [3]. Patient safety is one of the aspects of quality in health care settings [4] and therefore, patient safety has to be improved to uplift quality of care in hospitals. The Importance of adverse event reporting is that the healthcare providers can analyze root causes for those errors so that corrective actions and extra precautions can be taken to prevent them happening in the future [5,6]. The national policy on healthcare quality and safety was approved by the Cabinet of Ministers of Democratic Socialist Republic of Sri Lanka in the year 2015 [7], and simultaneously, adverse event reporting format was also finalized, guidelines were published and an incident reporting system was formally introduced to Sri Lankan government hospitals by the Ministry of Health, Sri Lanka [8].

Many studies have been carried out all around the world on the barriers to adverse event reporting. Findings of those studies are important to conceptualize the factors affecting adverse event reporting. Researchers have shown that fear of blame and presence of blame culture in healthcare institutes was one of the barriers to incident reporting [9,10,11,12,13]. In addition it has been found that lack of feedback for reported adverse events was another barrier for reporting [13,12]. In addition, it was shown that presence of the belief that incident reporting did not lead to take any action also discouraged incident reporting [9]. According to the research carried out in a military hospital in Saudi Arabia, lack of knowledge was found as the main barrier for reporting an incident [14]. According to a qualitative study done in United States [15], lack of availability of information on what to be reported were barriers for adverse even reporting. Moreover, literature has shown that, process related to incident reporting was another barrier for reporting incidents [15,13,10]. Some researchers have showed the importance of the leaders' attitudes for safety behaviours of subordinates [16]. The Crisis Prevention Institute has shown that training has also important for incident reporting [17].

2. Methodology

This was an analytical cross sectional study. The study setting was Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy. The unit of analysis of this study was a Nursing Officer attached to a basic specialty ward. Literature review was performed to identify the factors that affects adverse event reporting, and a conceptual framework was developed accordingly (Figure 1).

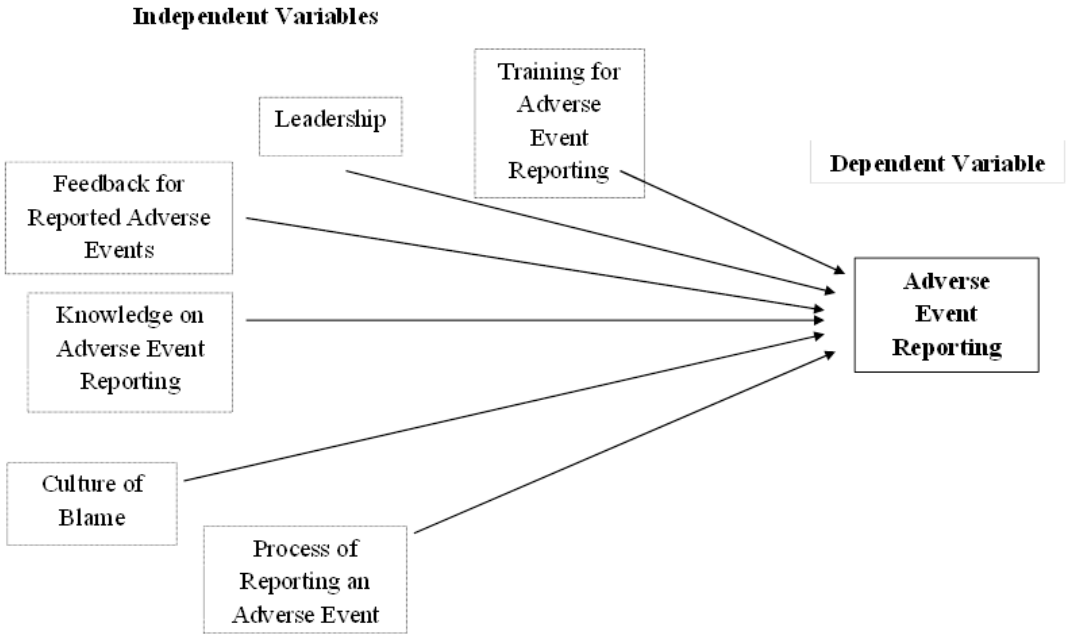

Figure 1: Conceptual Framework (Developed by the Author)

The questionnaire was developed according to the variables derived from the conceptual framework. Variables were operationalized and questions were developed for different variables to assess the perception of participants to different variables. Then a focus group discussion was held with senior medical administrators and relevant clinicians to validate the questionnaire. Face validity, content validity and consensual validity was confirmed by the experts. Both positive and negative questions were added to the questionnaire so as to eliminate the response bias. This self-administered questionnaire consisted of a six (6) point Likert scale. Initially the questionnaire was developed in English language and later it was translated to Sinhala by an independent translator. Then it was retranslated from Sinhala into English by another independent translator. Accuracy was checked and changes were done accordingly. In the similar manner, it was translated to Tamil language and was retranslated from Tamil to English. Ethical clearance was obtained from the Ethics review committee of the Postgraduate Institute of Medicine, University of Colombo. Permission for data collection was obtained from the Director of the Teaching Hospital, Kandy. The self-administered questionnaire was pre tested in the Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Peradeniya after getting the permission form the Director of the Teaching Hospital, Peradeniya. The test 'test-retest reliability' was performed to measure the reliability of the questionnaire. The test Cronbach's Alpha coefficient was measured using the software SPSS.

For the purpose of getting a simple random sample for the questionnaire, the following formula was applied to calculate the sample size of Nursing Officers [18];

$$N = \frac{Z^2 \times P(1-P)}{D^2}$$

N - Minimal sample size

Z - Critical value (1.96) of specified confidence interval (95%)

P - Anticipated population proportion

D - Acceptable amount of absolute error (0.05)

Therefore,

$$N = \frac{(1.96)^2\ 0.5\ (1-0.5)}{(0.05)^2}$$

$$= 384$$

A non-response rate was assumed as 10% and another 38 were added to the minimum sample.

Therefore, the sample size was = 384 + 38

= 422

However, the number of total Nursing Officers attached to Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards was 402, and it was below the sample size. Therefore, all the Nursing Officers attached to Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards were taken for the questionnaire. Nursing officers who had less than six months of service in the Teaching Hospital, Kandy were excluded because they might not be fully adapted to the hospital setting. The data was collected for one month duration starting from 15th of April, 2017. Contamination effect was removed by taking necessary measures during filling of the questionnaire by the participants. Data analysis was done both manually and with the use of computer software SPSS Version 21. Missing data was checked before entering into the computer. However, the computer database was checked for possible errors that could have happened during the data entry process. Points were given to responses for the questions in the Likert scale. Average values were calculated separately for all variables in the Likert scale. In computing average values, all the negatively worded questions were reverse coded. Correlations and multiple regressions were measured between the average value of likelihood of incident reporting and the average values of other variables by calculating Pearson's correlation coefficient.

3. Results

The questionnaire was intended for 402 Nursing Officers, and out of that 277 responded. Therefore, the response rate for the questionnaire was 69%.

The distribution of respondents according to their type of currently working ward is shown in Table 1.

Table 1: Distribution of Respondents by Type of Ward Currently Working in

Ward	Number	Percentage %
Medical	85	30.9%
Surgical	78	28.4%
Paediatric	50	18.2%
Gynaecology and Obstetrics	62	22.5%
Total	275*	100%

* 2 participants have not responded this this question.

Majority of respondents (30.7%) were from the medical wards.

The overall Cronbach's Alpha coefficient was 0.868.The significance level Paired t test was 0.26 in overall. As it was greater than 0.05, the questionnaire was considered reliable over time.

The values of Pearson's Correlation Coefficient between the average value of likelihood of incident reporting and the average values of other variables are shown in table 2.

Table 2: Correlations between Likelihood of Incident Reporting with Variables

Variables	Incident Reporting	
	Pearson's Correlation	Probability
Process Related to Incident Reporting	0.591	< 0.001
Leadership for Incident Reporting	0.472	< 0.001
Knowledge on Incident Reporting	0.462	< 0.001
Feedback for Reporting Incidents	0.438	< 0.001
Training on Incident Reporting	0.378	< 0.001
Culture of Blame	0.164	< 0.001

All the factors tested in this study were significantly correlated with incident reporting with a probability value below 0.001. Out of all the factors, the perception on "Process Related to Incident Reporting" showed the highest correlation coefficient of 0.591 with their likelihood of incident reporting.

Scientifically important all the variables which had more than 0.4 for r values were taken to measure multiple regressions. Table 3 shows multiple regressions between incident reporting with variables.

Table 3: Multiple Linear Regressions

Factors	Unstandardized Coefficients	Significance
	B	p value
Process Related to Incident Reporting	0.586	< 0.001
Knowledge on Incident Reporting	0.175	0.002
Feedback for Reporting Incidents	0.136	0.186
Leadership for Incident Reporting	0.066	0.450

Out of all factors, the perceptions on "Process Related to Incident Reporting" and "Knowledge on Incident Reporting" showed significant p values.

Table 4 shows the model summary.

Table 4: Model Summary

R	R Square	Adjusted R Square
0.685	0.469	0.455

Adjusted R square value was 0.455.

Table 5 shows the Analysis of Variance.

Table 5: ANOVA

F value	Significance
34.443	< 0.001

Analysis of Variance (ANOVA) showed the significance less than 0.001.

4. Discussion

Response rate in this study was 69%. One of the reasons for that may be the high work load for the nursing staff. In addition, the topic of this study is sensitive, and that may be another reason for this relatively low level of response rate. All the variables tested with quantitative method have statistically significant positive correlation with likelihood of incident reporting. However, according to the multiple regression analysis, only the variables "process related to incident reporting" and "knowledge on incident reporting" showed statistical significance, highlighting the most influencing factors out of all the independent variables. Participants perception on "Process Related to Incident Reporting" showed statistically significant ($p < 0.001$) correlation giving the highest Pearson's Correlation Coefficient value of 0.591 out of all the other variables. These findings tally with the situation in the international context as some researchers [13] stated. Respondents' perception on leadership showed statistically significant positive moderate correlation ($r=0.472$) with their likelihood of reporting incidents. Therefore, extension of training programmes to build leadership skills in middle level and operational level managers would be beneficial in an attempt of improving incident reporting. There was statistically significant moderate correlation ($r=0.462$) between Nursing Officers' perception on their knowledge and their

likelihood of reporting incidents, and this finding highlights the importance of giving knowledge to them for improving adverse event reporting. Pearson's Correlation for feedback for reporting incidents was 0.438. These findings tally with the results of the qualitative study done by researchers [13] and with study done in six South Australian hospitals [19]. In this study, by responding to a question in the questionnaire, 79% of the Nursing Officers stated that they were unaware of the process of analyzing the reported incidents. Pearson's Correlation for training on adverse event reporting was 0.378. However, in most of the previous studies conducted on factors affecting incident reporting, training had not been taken as a separate variable because researches has considered the variable "training" under the variable "knowledge". Correlation coefficient for the perception on Culture of Blame was 0.164. Fifty six percent of the respondents to the questionnaire believed that they felt fear about disciplinary action when reporting an incident. Those findings are in par with the results of the international studies [9]. Meanwhile the test ANOVA showed that there was statistically significant difference in likelihood of incident reporting within the type of ward. This finding suggests that blame culture has contributed to the differences in adverse event reporting behavior among those selected wards.

5. Limitations

Most of the Nursing Officers, especially who were working in Medical wards, filled the questionnaire during their busy duty hours. Therefore they might have filled the questionnaire in hurry and as a result, there is a possibility of decreasing the quality of responses to the questionnaire. This study was conducted in Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy. Many factors can vary between region to region and hospital to hospital. Thus the results may not be generalized to all of the hospitals in Sri Lanka.

6. Conclusion

Statistical tests showed that there were significant moderate positive correlations between Nursing Officers' perceptions of process of incident reporting and knowledge. There were weak positive correlations between their perception on leadership, knowledge, feedback, training and culture of blame between their likelihood of reporting adverse events. However, multiple regression analysis showed that the process and knowledge had statistically significant coefficient, implying the process and knowledge of adverse event reporting as most influencing factors for incident reporting. Streamlining the Process of Incident Reporting can be recommended for this setting.

Acknowledgements

The Director and the Deputy Directors of the Teaching Hospital, Kandy and the Director of the Teaching Hospital, Peradeniya should be acknowledged for granting permission to the researcher to carry out the research and to do the pre testing of the questionnaire.

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