Original Article

The Perception, Level of Safety Satisfaction and Safety Feedback on Occupational Safety and Health Management among Hospital Staff Nurses in Sabah State Health Department

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Abstract

Background: **This study aimed to determine the perception and level of safety satisfaction of staff nurses with regards to Occupational Safety and Health (OSH) management practice in the Sabah Health Department, and to associate the OSH management dimensions, to Safety Satisfaction and Safety Feedback.**

Methods: **A cross-sectional study using a validated self-administered questionnaire was conducted among randomly respondents.**

Results: **135 nurses responded the survey. Mean (SD) score for each dimension ranged from 1.70 ± 0.68–4.04 ± 0.65, with Training and Competence dimension (mean [SD], 4.04 ± 0.65) had the highest while Safety Incidence was the least score (mean [SD], 1.70 ± 0.68). Both mean (SD) scores for Safety Satisfaction and Safety Feedback was high, 3.28 ± 0.51 and 3.57 ± 0.73, respectively. Pearson's correlation analysis indicated that all OSH dimensions had significant correlation with Safety Satisfaction and Safety Feedback (*r* coefficient ranged from 0.176–0.512) except for Safety Incidence.**

Conclusion: **The overall perception of OSH management was rather low. Significant correlation between Safety Satisfaction and Safety Feedback and several dimensions, suggest that each organization to put in place the leaders who have appropriate leadership and supervisory skills and committed in providing staff training to improve staff's competency in OSH practice. In addition, clear goals, rules, and reporting system will help the organization to implement proper OSH management practice.**

Keywords: *hospital administration, nurses, occupational health, safety management, workplace*

Introduction

Based on World Health Organization (1), over 59 millions health workers are exposed to various type of health and safety hazards every day including biological, chemical, and physical hazards. Prevention of occupational injuries among the healthcare workforce is vital to provide high quality patient service, improve morale, and enhance productivity by reducing time-loss and other absenteesim (2). Nurses, the largest group of health care providers, deliver care to patients in a variety of health care facilities. In recent years attention has been paid to the occupational risks and injuries of nurses. Injuries and resultant compensation to workers are expensive. In long-term care facilities in the United States, nurses' back injuries are estimated to cost US$6 million in indemnity and medical payment (3).

One of the main contributing factors which influences the Safety Satisfaction of health care providers is job satisfaction. Job satisfaction affects nurses' retention and turnover, their morale level, productivity, commitment, and performance,

which in turns affects patients' safety (4). A health and safety survey showed a majority of nurses indicated that perception on working conditions interfered with their ability to deliver quality care (5). These respondents also reported that health and safety concerns influenced their decisions about the kind of nursing work performed and their continued practice in the field of nursing. In addition, the respondents also stated that the perception of unsafe working conditions may hinder recruitment and retention of qualified staff.

It is important to gauge how healthcare workers perceive the issues of safety and health in their workplace. Evidence shows that the work nature of health workers, involving long working hours and overtime, can create stress and work-personal life imbalance (6). Inadequate nursing staff, poor working environment, and lack of management support impact patient safety and health care delivery (7). Increasing work pressure results in decrease in morale and productivity of nurses (8). Monitoring nurses' working conditions and improving the organizational climate of hospitals is likely to improve nurses' safety and hospital profitability and the quality of patient care delivered (9).

Sabah, the second largest state in Malaysia, is located in the north of the island of Borneo with a multi-ethnic population of 320 1000 in 2009 (10). Health care is provided through 22 government hospitals which include 1 psychiatric hospital, 83 primary health clinics, 38 dental clinics, 20 maternal and child health clinics and 189 rural clinics. In 2006, there were 13 076 health staffs working in Sabah Health Department, with 8041 (61.8%) in the hospitals and 4675 (35.9%), in different health clinics (11).

In Sabah, staff nurses in the job category of U29 (with a minimum qualification of diploma in nursing) form the largest group (31.5%) of frontline hospital workers (11). In providing patient care, these nurses are exposed to many occupational-related safety and health problems. A report by Lim (12) in 2000, the Sabah State Health Department showed that the highest percentage (74.5%) of needle stick injury occured among nurses. Although emphasis on occupational safety and health is in place in Malaysia, there has not been substantiate evaluation of the perception of occupational safety and health management among the employees, including nurses, in Sabah State Health Department. This study aimed to determine the perception and level of safety satisfaction of staff nurses with regards to occupational safety and health (OSH) management practice in the Sabah Health Department, and to associate the OSH management dimensions, to Safety Satisfaction and Safety Feedback.

Material and Methods

This was a cross-sectional study conducted among the hospital staff nurses with a minimum of 6 months work experience. Using Statcalc in Epi Info version 6 (Atlanta, GA), with a population size of 3391 nurses, the expected prevalence of occupational related injury of 30% and the precision of 10%, and the confidence level at 95%, the total sample size is 79 nurses. A letter was then sent to all the 22 hospitals to invite participation and request a response within 2 weeks. Only 7 hospitals consented to participate. Sampling frame was obtained from each of the 7 hospitals and random sampling was conducted to select 20 respondents from each hospital. Each respondent was given an informed consent form together with a questionnaire through their respective supervisors. The respondents returned their completed questionnaires to the researcher through their respective administrative office.

Data collection was done using a set of self-administered questionnaires adopted with permisson from Nor Azimah et al.'s study (13). The questionnaires examined the perception of employees of the management of OSH in public hospitals in Malaysia. The questionnaires consisted of 2 sections: (1) 6 items on socio-demographic data of respondents; (2) 85 items on perception of different dimensions of the implication of OSH management dimensions. The OSH dimensions were grouped into 10; namely Leadership Style, Safety Responsibility, Management Commitment, Role of Supervisor, Training and Competence, Safety Communication, Health and Safety Goals, Safety Rules and Reporting, Work Pressure, and Safety Incidents which represented the independent variables while Safety Satisfaction and Safety Feedback represented the dependent variable. The items on OSH management were scored on a 5 point Likert-type scale where 1 indicates strongly disagree/highly dissatisfied and 5 indicates strongly agree/highly satisfied. Pilot test on the questionnaire was conducted with overall Cronbach's alpha of 0.77, and for the different dimensions, Cronbach's alpha ranged from 0.60–0.90. Content validity was based on literature and verified by lecturers and clinicians familiar with the subjects.

Ethical approval and permission to conduct the research was obtained from the Sabah State Health Department, Clinical Research Centre Sabah, and the National Medical Research Register (NMRR-09-1053-4962). Statistical analysis was done using SPSS version 18 (SPSS Inc., IL, US) for descriptive report and inferential statistical analysis. Demographic profiles and workplace information were examined using frequency and percentage. The mean (SD) for the demensions were assessed. The association between independent and dependent variables were analyzed using Pearson's correlation. The level of significance was set at 5% (2 sided).

Results

A total of 135 respondents participated in the study giving a response rate of 96% (135 of 140). The mean (SD) age of the respondents was 35.4 ± 8.17 years, with majority from the age group of 40-years-old and above. The majority of the respondents were female (97.8%) and Kadazan (56.3%) (Table 1). About 62% of the respondents worked in general wards and Intensive Care Unit/Critical Care Unit. More than 80% of the respondents had working experience between 1–15 years. 60% of the respondents had worked in their current hospital for a duration of 1–10 years (Table 2).

Table 3 depicts the score of the 10 dimensions used to measure OSH management as perceived by the respondents. The finding showed that Training and Competence had the highest mean (SD) score of 4.04 ± 0.65. Safety Incidents, on the other hand, had the lowest mean (SD) score of 1.70 ± 0.68. Overall, the mean score of respondents' perception ranged between 1.70–4.04 which indicated the responses centred around a mixture of scores on "disagree/not satisfied" and "agree/satisfied".

Pearson's correlation analyses were used to determine the relationship between the study factors. The results of this analyse are shown in Table 4. The dependent variable, Safety Satisfaction and Safety Feedback had a significant correlation with all but 3 independent variables; Safety Communication, Work Pressure, and Management Commitment.

Table 1: Demographic profiles of participants (n = 135)

Socio-demographic characteristic	Number of participant (n)	Percentage of participant (%)
Age group (years)		
20–24	8	5.9
25–29	27	20.0
30–34	34	25.2
35–39	30	22.2
40 & above	36	26.7
Gender		
Male	3	2.2
Female	132	97.8
Race		
Kadazan	76	56.3
Others	32	23.7
Malay	14	10.4
Bajau	7	5.2
Rungus	4	3.0
Murut	1	0.7
Chinese	1	0.7

Table 2: Workplace profiles of participants (n = 135)

Workplace profile	Number of participant (n)	Percentage of participant (%)
Place of Work		
Hospital wards/ICU/CCU	84	62.2
OPD	19	14.0
OT/Labour room/ Procedure room	14	10.4
Administrative office	2	1.5
Others	16	11.9
Years of working as staff nurse, U29 (years)		
Below 1	3	2.2
1–5	41	30.4
6 –10	43	31.9
11 –15	30	22.2
16 –20	8	5.9
21 & above	10	7.4
Experience working in the current hospital (years)		
Below 1	17	12.6
1 –5	52	38.5
6 –10	29	21.5
11 –15	20	14.8
16 –20	7	5.2
21 & above	10	7.4

Abbreviations: CCU = Critical Care Unit, ICU = Intensive Care Unit, OPD = out patient deparment, OT = operation theater.

Table 3: Perception of OSH management

Dimensions	Mean	SD	Range
Training & Competence	4.04	0.65	2.25–5.00
Safety Rules & Reporting	3.70	0.64	2.20–5.00
Safety Responsibility	3.62	0.62	2.20–5.00
Role of Supervisor	3.62	0.66	2.00–5.00
*Feedback on Safety	3.57	0.73	1.50–5.00
Health & Safety Goals	3.56	0.76	1.60–5.00
Leadership Style	3.39	0.66	1.60–5.00
*Safety Satisfaction	3.28	0.51	2.06–4.82
Management Commitment	3.15	0.60	1.83–5.00
Safety Communication	3.23	0.47	2.25–4.50
Work Pressure	2.76	0.48	1.83–4.67
Safety Incidents	1.70	0.68	1.00–4.00

* *Dependent variable*. Abbreviation: OSH = occupational safety and health.

Table 4: Interscale correlations of the OSH management dimensions, Safety Satisfaction, and Safety Feedback.

Independent variable	Dependent variable	
	Safety satisfaction	Safety feedback
Safety Incidents	-0.141	-0.184*
Health Safety Goal	0.350**	0.512**
Training & Competence	0.240**	0.337**
Safety Rules & Reporting	0.432**	0.453**
Safety Communication	0.106	0.164
Work Pressure	0.112	0.255**
Leadership Style	0.307**	0.336**
Role of Supervisor	0.416**	0.415**
Management Commitment	0.176*	0.056
Safety Responsibility	0.291**	0.420**

* Significant at the 0.05 level (2-tailed), ** Significant at the < 0.01 level (2-tailed).
Abbreviation: OSH = occupational safety and health.

Discussion

The overall perception of occupational safety and health among the staff nurses was reported to be similar to that in a study done by Nor Azimah et al. (14). On the mean score of the dimensions of OSH management (Table 3), respondents were highly satisfied with the Training and Competence dimension. This dimension has 3 items: (1) respondents' perception of their understanding about safety requirements, (2) health and safety risks in their job and (3) what to do to ensure high standards of health and safety. Respondents also tend to agree strongly that their training had covered their job related health and safety risks. This dimension scored more highly compared to Nor Azimah et al.'s (14) and was probably a reflection of the active OSH programme promotion and training in Sabah. Training is important as employees who receive safety training suffer fewer work-related injuries than their untrained counterparts (15), as it allows employees to acquire greater competencies to control work and perform jobs more safely (16).

The Safety Incidents dimension had 7 items. 2 items required the respondents to indicate the number of incidences that they perceived could harm the staff (2 items). 5 items related to personal injuries occurring during the previous 5 years as a result of moving and handling of patients, needle stick and sharp injuries, slip, trips or falls, work related stress, or exposure to dangerous substances. Congruent with Nor Azimah et al's (14) study, this study also reported very low incidence (Table 3). A score of 1.72 indicated that respondents either experienced few injuries themselves or perceived few incidences that would harm staff 1 or 2 times in the past year. This finding was similar to those reported by de Castro et al. (17).

Respondents rated Safety Satisfaction slightly lower with a mean (SD) score of 3.28 ± 0.51 than Safety Feedback mean (SD) score of 3.57 ± 0.73. This finding may indicate that although respondents agreed or strongly agreed with the feedback but they might not be highly satisfied with the safety system.

Similar to Nor Azimah et al.'s (14), the respondents of this study scored low on Work Pressure. A score of 2.76 indicated that respondents did not perceive they have enough staff to handle workload, satisfied with their work schedule, or able to take scheduled rest breaks.

Pearson's correlation analysis results indicated that all OSH dimensions had positive correlation with Safety Feedback and Safety Satisfaction (r coefficient ranged from 0.176–0.512) except Safety Incidents. Among the significant findings, Leadership Style and Role of Supervisor were found to have positive correlation with Safety Satisfaction and Safety Feedback (see Table 4). This was expected as effective Leadership Style would result in effective supervision and Safety Satisfaction and

Safety Feedback. Literature also reported that appropriate Leadership Style could help to reduce incidents or injuries in the workplace (16) and thus, improve employees' safety satisfaction.

Significant positive correlation was also found between Safety Satisfaction and Training and Competence. This may indicate that when Training and Competence was perceived to increase, the Safety Satisfaction would also increase. Training and Competence was also found to have significant correlation with Safety Feedback which may also indicate that an increased in Training and Competence in safety would motivate an increased in Safety Feedback. The other independent variable with significant relationship with Safety Satisfaction and Safety Feedback were Safety Rules and Reporting, Health and Safety Goal, and Safety Responsibility. Respondents who perceived the importance of safety rules and reporting, goal and responsibility have higher Safety Satisfaction and Safety Feedback. To improve work outcomes and accuracy, assessment of work place health and safety, a good reporting system must be in place with clear health safety goals (17). Nurses must then be encouraged to report injuries and take responsibility for injury prevention.

Unlike Nor Azimah et al.'s (14) study, this study found more dimensions which were not significantly correlated with each other. Safety Satisfaction was found to have no significant correlation with 3 independent variables of OSH management: Safety Incidence, Safety Communication, and Work Pressure. Safety Feedback had no significant correlation with Safety Communication and Management Commitment. Safety Incidence had a negative correlation with Safety Satisfaction and Safety Feedback, indicating that as Safety Incidence increased, the Safety Satisfaction would decrease or when Safety Feedback increased, the Saftey Incidence would decreased. The positive correlation between Work Pressure and Safety Satisfaction indicated that if respondents agreed that they have less work pressure, their satisfaction with safety would also increase. However, this relationship was not significant.

Although Management Commitment has been perceived as the main contributor in establishing a thriving and pervasive safety climate within an organization, this study indicated otherwise. Management Commitment in this study was found to have no significant relationship with Safety Feedback. This finding was found to be incongruent with Nor Azimah et al.'s study (14). One possible explanation was that the respondents did not believe it was the role of management to be determining factors that influenced their knowledge and competence in occupational health and safety. The need to improve and protect themselves and establish a strong safety culture could be considered as part of their intrinsic needs, rather than as extrinsic needs enforced by the management. Another possible explaination for this finding could be that the role of management in implementing the rules and regulations pertaining to safety at work and establishment of safety culture within the organization were unclear, thus, respondents did not perceive Management Commitment as important.

Conclusion

This study revealed that the overall perception of OSH management in Sabah was rather low. The score on Training and Competence was high reflecting that Sabah Health Department had placed emphasis on training. The score of Safety Satisfaction and Safety Feedback were above average indicating that the respondents were satisfied with OSH management. The study also revealed significant correlation between Leadership Style, Role of Supervisor, Health and Safety Goal, Training and Competence, Safety Rules and Reporting, and Safety Satisfaction and Safety Feedback. These findings suggest the need of every health care organisation to have competent and committed leaders with appropriate supervisory skills to ensure effective OSH practice. In addition, organisations need to conduct proper training to improve the competency of the staff on OSH practice. An organisation that has clear health safety goals would enhance staff's safety satisfaction. Clear safety rules and proper reporting system would encourage staff to report injuries and take responsibility of their own safety. This study might lack generalisation as the study population included only staff nurses of government hospitals from 1 state. As it was a preliminary study, further study should include bigger sample involving other categories of hospital staff from different health care setting.

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Authors' Contribution

Conception and design, analysis and interpretation of the data, drafting of the article, critical revision of the article for important intellectual content, final approval of the article, and statistical expertise: CWL
Conception and design, analysis and interpretation of the data, drafting of the article, critical revision of the article for important intellectual content, final approval of the article, provision of study materials or patients, statistical expertise, administrative, technical, or logistic support, and collection and assembly of data: NG
Drafting of the article, critical revision of the article for important intellectual content, and final approval of the article: CCT
Provision of study materials or patients, administrative, technical, or logistic support, and collection and assembly of data: LJF

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