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ORIGINAL ARTICLE

The relationship between nursing staff behaviour and the implementation of occupational safety and health (OSH) in the Emergency Department of Hospital X, Central Tapanuli

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ABSTRACT

Hospital Occupational Health and Safety (OHS) encompasses a range of activities aimed at ensuring and protecting the safety and health of all hospital personnel, patients, patient companions, visitors, and the hospital environment. These efforts are undertaken through the prevention of workplace accidents and occupational diseases. This research aimed to analyse the relationship between nurses' behaviour and the implementation of Occupational Health and Safety (OHS) in the Emergency Department (ED) of Hospital X, Central Tapanuli, in 2025. This study employed a quantitative method with a cross-sectional design. A sample of 31 nurses participated in the research, and data were collected via questionnaires. The collected data were subsequently analysed using univariate and bivariate tests, specifically the Chi-Square test. The bivariate test results indicated a significant association between nurses' knowledge and the implementation of OHS in the ED (p-value = 0.002 < 0.05). Similarly, a significant association was found between nurses' attitudes and the implementation of OHS in the ED (p-value = 0.001 < 0.05). Based on these findings, it can be concluded that there is a relationship between the actions of nursing staff and the implementation of OHS in the ED of Hospital X, Central Tapanuli, in 2025. The implications of this research highlight the need for enhanced understanding and knowledge of OHS implementation among healthcare professionals in the ED of Hospital X, Central Tapanuli.

Keywords: behavior, nursing staff, OHS

Introduction

Healthcare and Occupational Safety (HOS) in Hospitals constitutes a comprehensive system that is essential for ensuring and protecting the safety and health of all individuals within the hospital environment. This system encompasses hospital personnel, patients, patient companions, visitors, and the physical hospital environment. The primary focus of HOS is the prevention of occupational accidents and work-related illnesses through the implementation of an Occupational Health and Safety Management System (OHSMS) as an integral component of overall hospital management. Effective risk control pertaining to hospital

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activities and work processes is expected to cultivate a safe, healthy, and hazard-free environment for all stakeholders involved.[1,2]

The global landscape of occupational safety and health underscores the urgency of implementing HOS across various sectors. Data from the International Labour Organization (ILO) in 2023 recorded nearly 3 million work-related deaths annually due to accidents and illnesses, with work-related illnesses representing the largest proportion (2.6 million fatalities).[3] At Indonesia, data indicated an increase in workplace accident cases, reaching 347,855 incidents, with a ratio of 84 cases per 10,000 workers.[4] A similar situation is reflected in the United States through reports from the Bureau of Labor Statistics (BLS) and the Occupational Safety and Health Administration (OSHA), which demonstrate a high incidence of work-related injuries and illnesses.[5]

Within the context of the hospital environment, specific risks such as needlestick injuries are a significant concern. Research conducted in Sirjan in 2020 revealed that the majority of needlestick injuries among nurses were unreported, indicating issues within the reporting system and potential undetected risks.[6] Another study in North Sumatra by Sitohang[7] found a significant association between nurses' knowledge of HOS and its implementation in the Emergency Department (ED). These findings are supported by various other studies that highlight the importance of factors such as the use of Personal Protective Equipment (PPE), knowledge, attitudes, incident reporting, and the effectiveness of HOS training in creating a safe working environment in healthcare facilities.[8–10]

This study aims to comprehensively analyse the relationship between nurses' behaviour and the level of Occupational Health and Safety (HOS) implementation in the Emergency Department (ED) of Hospital X. Through an in-depth understanding of this relationship, it is anticipated that this research can make a significant contribution to formulating more effective interventions to enhance nurses' adherence to HOS practices.

Method

This study employed a quantitative approach with a cross-sectional research design. The aim of this research was to provide a comprehensive overview of the knowledge, attitudes, practices, and implementation of Occupational Safety and Health (OSH) among nurses working in the Emergency Department (ED) of Hospital X. The research was conducted at Hospital X, located in the Central Tapanuli region. Data collection took place over a two-week period, from 21st February to 3rd March 2025. Prior to commencement, ethical approval for this study was obtained from the Health Research Ethics Committee (HREC) of Prima Indonesia University, as documented in letter number 076/KEPK/UNPRI/I1/2025.

The target population for this study comprised all nurses actively working in the Emergency Department (ED) of Hospital X. Given the limited population size, a total sampling technique was employed, meaning that all members of the population were included as the study sample. Consequently, the sample size for this research consisted of 31 nurses.

Primary data were collected through structured interviews using a questionnaire as a guide. The questionnaire used was an adaptation of an instrument developed by Sitohang[7]. This instrument was contextually modified to specifically assess nurses' knowledge, attitudes, and practices related to OSH within the ED environment, as well as the general implementation of OSH at Hospital X. During the data collection process, a nurse facilitated interaction with the respondents to ensure a smooth process. In addition to primary data, this study also utilised secondary data obtained from relevant records or reports available at Hospital X. This secondary data served as a complement and provided additional context to the research findings.

The study assessed four primary variables: knowledge, attitude, practice, and the implementation of Occupational Health and Safety (OHS). Respondent knowledge was evaluated using a 10-item multiple-choice questionnaire (a, b, c). Each correct answer was awarded a score of 1, while incorrect answers received a score of 0. Consequently, the possible range of knowledge scores for respondents was 0 to 10. The level of knowledge was categorised into three groups: (a) good, for respondents scoring between 8 and 10 (76%-100%); (b) adequate, for scores between 6 and 7 (56%-75%); and (c) poor, for scores between 0 and 5 (<56%). Respondent attitude was measured using 10 statements employing a four-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). For positively worded statements, scores were assigned as follows: SA=4, A=3, D=2, and SD=1. Conversely, for negatively worded statements, the scoring was reversed: SA=1, A=2, D=3, and SD=4. Based on this scoring system, the possible range of attitude scores for respondents was 10 (lowest) to 40 (highest). Respondent attitude was then

categorised into two groups: (1) positive, for scores between 26 and 40; and (2) negative, for scores between 10 and 25.

Respondent practice was assessed using 10 questions with 'yes' or 'no' response options. A 'yes' response was scored as 1, and a 'no' response as 0. Thus, the possible range of practice scores for respondents was 0 to 10. The level of practice was categorised into two groups: (a) good, for respondents scoring between 6 and 10; and (b) poor, for scores between 0 and 5. The implementation of OHS in the hospital setting was measured by asking respondents 5 questions with 'yes' or 'no' response options. Each 'yes' response was scored as 1, and each 'no' response as 0. The possible range of OHS implementation scores was 0 to 5. The level of OHS implementation was categorised into two groups: (a) good, for respondents scoring 5; and (b) poor, for scores between 0 and 2.

The data collection process in this study was carried out through a systematic series of stages. The initial stage involved submitting a research permit application from Prima Indonesia University to the relevant authorities at Hospital X. Following the acquisition of permission, the researcher engaged in intensive coordination with the hospital administration and the nurses in the ED to explain the objectives and procedures of the research in detail. Subsequently, face-to-face interviews were conducted with each respondent (ED nurse) using the prepared questionnaire. Concurrently with the collection of primary data, secondary data were also gathered from relevant records or reports within Hospital X. After all data were collected, the next step involved checking the completeness of the primary data before proceeding to the analysis phase.

The data analysis in this study was conducted in several stages. The initial phase involved univariate analysis, which aimed to describe the frequency distribution of each variable individually, encompassing both independent and dependent variables. Following the characterisation of individual variables through univariate analysis, the research proceeded to bivariate analysis. This bivariate analysis aimed to examine the interaction between two variables. The interactions investigated included comparisons, associations, and correlations. The relevant statistical test employed in this analysis was the chi-squared test.

Results

The data presented in Table 1 provides a quantitative overview of several key variables within the studied population (n=31). The table delineates the distribution of participants across different categories for knowledge, attitude, practice, and the implementation of Occupational Safety and Health (OSH) protocols. Regarding knowledge levels, the majority of the participants (74.0%, n=23) demonstrated good knowledge, while a smaller proportion (26.0%, n=8) exhibited adequate knowledge. This suggests that a substantial segment of the studied group possesses a satisfactory understanding of the relevant knowledge domain.

Table 1. Distribution of knowledge, attitude, practice, and the implementation of OSH protocols

Variable	n	%
Knowledge		
Good	23	74.0
Adequate	8	26.0
Attitude		
Positive	25	81.0
Negative	6	19.0
Practice		
Good	27	87.0
Poor	4	13.0
OSH Implementation		
Good	23	74.0
Poor	8	26.0

In terms of attitude, the findings indicate a predominantly positive disposition among the participants. A significant majority (81.0%, n=25) held positive attitudes, contrasting with the minority (19.0%, n=6) who expressed negative attitudes. This prevalence of positive attitudes may be a facilitating factor in the adoption and adherence to recommended practices. Examining the reported practices, a large majority of the participants (87.0%, n=27) engaged in good practices. Conversely, a small fraction (13.0%, n=4) reported poor practices. This suggests that the observed behaviors within the study population are largely aligned with desirable standards.

Finally, the assessment of OSH implementation reveals that a considerable proportion of the participants (74.0%, n=23) reported good implementation of OSH protocols. However, a notable segment (26.0%, n=8) indicated poor implementation. This finding highlights a potential area for improvement in ensuring consistent and effective adherence to safety and health guidelines within the studied context.

Table 2 presents the relationship between OSH implementation and three distinct variables: knowledge, attitude, and practice. The data is categorized based on whether OSH implementation was reported as "Good" or "Poor," and the table displays the frequency (n) and percentage (%) of respondents within each category for each variable. A p-value, derived from a statistical test (likely a chi-square test of independence), is also provided for each variable to assess the statistical significance of the observed association with OSH implementation.

Table 2. Relationship between OSH implementation with knowledge, attitude, and practice

Variable	OSH Implementation				Total		p
	Good		Poor				
	n	%	n	%	n	%	
Knowledge							
Good	18	58.1	5	16.1	23	74.2	0.002
Adequate	5	16.2	3	9.6	8	25.8	
Total	23	74.3	8	25.7	31	100.0	
Attitude							
Positive	20	64.5	5	16.1	25	80.6	0.001
Negative	3	9.7	3	9.7	8	19.4	
Total	23	74.2	8	25.8	31	100.0	
Practice							
Good	21	67.7	6	19.3	27	87.0	0.001
Poor	2	6.5	2	6.5	4	13.0	
Total	23	74.2	8	25.8	31	100.0	

Regarding knowledge, the analysis reveals a statistically significant association with OSH implementation (p = 0.002). Among those with "Good" OSH implementation (n = 23), a substantial majority (n = 18, 58.1%) demonstrated "Good" knowledge, while a smaller proportion (n = 5, 16.1%) exhibited "Adequate" knowledge. Conversely, within the "Poor" OSH implementation group (n = 8), a notable percentage (n = 5, 16.1% of the total sample) possessed "Good" knowledge, and a smaller fraction (n = 3, 9.6% of the total sample) had "Adequate" knowledge. Overall, of the total sample (n = 31), 74.2% (n = 23) reported "Good" OSH implementation, and within this group, 78.3% (18/23) had "Good" knowledge. The statistically significant p-value suggests that knowledge level is likely associated with the reported quality of OSH implementation.

Concerning attitude, the data indicates a highly statistically significant association with OSH implementation (p = 0.001). The majority of respondents reporting "Good" OSH implementation (n = 23) displayed a "Positive" attitude (n = 20, 64.5%). In contrast, among those with "Poor" OSH implementation (n = 8), a smaller number exhibited a "Positive" attitude (n = 5, 16.1% of the total sample), while a minority demonstrated a "Negative" attitude (n = 3, 9.7% of the total sample). Notably, all respondents with a "Negative" attitude were in the "Poor" OSH implementation group. The highly significant p-value strongly suggests a relationship between attitude and the perceived quality of OSH implementation.

Finally, regarding practice, a statistically significant association with OSH implementation is also observed (p = 0.001). Within the "Good" OSH implementation group (n = 23), a large majority reported "Good" practice (n = 21, 67.7%), while a smaller number reported "Poor" practice (n = 2, 6.5% of the total sample). Conversely, among those with "Poor" OSH implementation (n = 8), a smaller proportion reported "Good" practice (n = 6, 19.3% of the total sample), and an equal number reported "Poor" practice (n = 2, 6.5% of the total sample). The significant p-value indicates that the reported level of practice is likely related to the perceived quality of OSH implementation.

Discussion

Based on the data presented, it can be observed that the majority of participants in this study demonstrated a good level of knowledge, positive attitudes, and sound practices regarding Occupational Safety and Health (OSH). Consistent with this, most participants also reported good implementation of OSH protocols. Furthermore, analysis revealed a significant association between OSH implementation and

knowledge, attitudes, and practices. Individuals who reported good OSH implementation tended to have a good level of knowledge, positive attitudes, and sound practices. Conversely, participants with poor OSH implementation were more likely to exhibit lower levels of knowledge, less positive attitudes, and inadequate practices. Specifically, the majority of participants with good OSH implementation possessed good knowledge. Similarly, a substantial proportion of this group demonstrated positive attitudes towards OSH. The same trend was evident in the aspect of practices, where the majority of participants with good OSH implementation reported sound practices. Conversely, within the group with poor OSH implementation, the proportion of participants with good knowledge, positive attitudes, and sound practices tended to be lower compared to the good OSH implementation group. Notably, all participants who held negative attitudes towards OSH were within the poor OSH implementation group.

A study conducted among garment workers revealed a positive relationship between knowledge, attitudes, and behavior in implementing health protocols. Workers with higher knowledge and positive attitudes were found to exhibit better practices in adhering to health protocols, highlighting the importance of OSH implementation in improving these factors.[11] Research on healthcare workers in Nigeria demonstrated that high levels of knowledge about occupational hazards were associated with better safety practices. However, gaps in attitudes and practices were noted despite adequate knowledge, suggesting that comprehensive OSH implementation can bridge these disparities.[12] A study among migrant workers in China found that knowledge of OH&S laws positively influenced occupational health behaviors. The findings align with the theory of planned behavior, which posits that knowledge is a precursor to forming positive attitudes and behaviors.[13]

Conclusion

These findings indicate that good knowledge, positive attitudes, and sound practices correlate with good implementation of OSH protocols within the studied population. This underscores the importance of these factors in enhancing adherence to and the effectiveness of OSH implementation in the workplace.

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