



The mechanism of anger and negative affectivity on the occurrence of deviant workplace behavior: An empirical evidence among Malaysian nurses in public hospitals

Maslina Mansor¹, Rashidah Mohd Ibrahim¹, Asyraf Afthanorhan^{1*} , and Ahmad Munir Mohd Salleh²

¹Faculty of Business and Management, Universiti Sultan Zainal Abidin, Malaysia

²Faculty of Maritime and Social Development, Universiti Malaysia Terengganu, Malaysia

Abstract

Background: Employees' work experience significantly impacts their cognition and workplace actions. Anger and negative affectivity are two personality traits that have been linked to workplace deviant behavior conduct.

Objective: This study aimed to empirically analyze the deviant workplace behavior and its antecedents among Malaysian nurses in public hospitals.

Methods: A cross-sectional design was employed in this study. The survey questionnaires were distributed proportionately to staff nurses in six government hospitals in 2020, with a total of 387 nurses selected using a simple random sampling. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used for data analysis.

Results: Trait anger triggered deviant workplace behavior in Malaysian nurses, thus supporting the argument that the personality trait could increase deviant behavior ($\beta = 0.245$, $p = 0.000$). At the same time, there was no evidence that negative affectivity could influence deviant behavior in the workplace among nurses in selected public hospitals in Malaysia ($\beta = 0.074$, $p = 0.064$).

Conclusion: The Malaysian nurses had positive affectivity, related to positive emotions like happiness, work interest, and attentiveness. On the other hand, the nurses were suffering from high levels of emotional tiredness. Further research should highlight a deeper understanding of Malaysian nurses' work experiences and workplace stress affecting their physical and mental health.

Keywords

anger; negative affectivity; personality; deviant workplace behavior; nurses; Malaysia

*Corresponding author:

Asyraf Afthanorhan, PhD

Faculty of Business and Management,
Universiti Sultan Zainal Abidin, Malaysia,
Kampus Gong Badak, 21300 Kuala
Terengganu, Malaysia
Email: asyrafafthanorhan@unisza.edu.my

Article info:

Received: 2 December 2021

Revised: 6 January 2022

Accepted: 12 March 2022



This is an Open Access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/), which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

In Malaysia, the number of errors and accidents in both government and private hospitals has increased in recent years, despite efforts by the administrators of these health centers to improve treatment safety. Official figures from Health Ministry show that between 2016 and 2018, the number of incidents related to wrong operations, unintentional foreign body injuries (URFOs), transfusion and medication errors, and patient falls almost doubled in both public and private hospitals (Malaysian Ministry of Health, 2020). During the three-year period, wrong operations increased from six to 11 cases, while URFOs rose from 27 to 32 cases. Transfusion errors increased from 40 to 47 cases, while medication errors increased from 3,104 cases to 3,741 cases. Patient falls experienced the highest increase, with adult patient falls

increasing from 2,374 to 3,547 cases and pediatric falls increasing from 441 to 696 cases (Zainuddin, 2019).

In addition, the incidents are due to ineffective communication, lack of teamwork, high workload, staff fatigue, non-compliance with procedures, and the use of shortcuts (Zainuddin, 2019). Other newspaper clippings indicate that the Ministry of Health receives an average of 7,000 complaints per year relating to various aspects such as services and facilities. Complaints from the public include poor services or communication skills of doctors and nurses, long waiting time before treatment, and inadequate facilities (Shazwani, 2017). The statistics displayed deficiencies and are not in line with the charter set by the Malaysian Ministry of Health itself; "Ensuring Every Customer Is Satisfied with The Services Provided," So it is obvious that deviant workplace behavior has taken place. Therefore, our study aimed to determine the factors that lead

to deviant behavior in the workplace among nurses in a government hospital in Malaysia. Are our nurses bad and not capable?

This study focuses on two variables that lead to the occurrence of deviant workplace behavior by taking into account moral disengagement as an intermediary between the two. This topic is very important because nurses are the people who are responsible for managing us while we are sick. In addition, nurses manage most of the ongoing care and treatment in hospitals—the importance of their role in managing the health of patients and assisting doctors in their daily affairs. Many studies are still being conducted related to the factors driving deviant workplace behavior in nurses, and this shows how important this study continues to be done.

Deviant behavior in the workplace is a form of unethical behavior that runs counter to organizational goals (Wiernik & Ones, 2018) and is a significant problem in many industries, especially in the medical industry (Liang et al., 2018). In developed and emerging countries, such as the United States and the United Kingdom (Zaghini et al., 2016), deviant workplace behavior has become frequent (Sarwar, Naseer, et al., 2020). According to Sarwar, Irshad, et al. (2020), the epidemic has expanded to Asian countries as well.

Inpatient care has long been a source of unethical activity for nurses worldwide (Zaghini et al., 2016). Nursing ethics are an essential element of the job (Zolkefli, 2021), yet nurses often find it difficult to follow the moral obligations that arise out of nowhere (Jahantigh et al., 2016). A dedicated nurse deviates from the standard due to a lack of understanding of the fundamentals (Fida et al., 2016). According to Caruso et al. (2016), it is becoming increasingly challenging for nurses worldwide to work with integrity despite the complex ethical choices and demands.

Nurses have been found to have more conflictual and severe sentiments of anger (Das & Avci, 2015) and emotional instability (negative affectivity) in stressful work environments (Fornés-Vives et al., 2019). Anger and negative affectivity, for example, have been found to play a substantial impact in the emergence of deviant conduct in the workplace (Yang & Diefendorff, 2009). The price of workplace anger and negative affectivity can be devastating. Indeed, for many, this issue immediately reminds us of the headlines of mass shootings at work with horrific victims. Such tragedy comes at the ultimate price, from death, serious injury, and trauma to reduced productivity, property damage, and endless confusion. They represent the most extreme, costly, and attention-grabbing symptom of anger, the actual violence. Fortunately, this is also the least common form of anger. Most angry feelings do not lead to violence. However, mismanagement can still be very costly. However, while it is difficult to calculate the monetary value of direct and indirect costs to an individual or organization, it is possible to list the essential cost-effectiveness of poorly managed anger. Individual anger and negative feelings cause powerful emotional and physical functions. If angry and negative feelings continue to nestle in a person's soul, it will damage the individual's body itself. Anger can hurt your career, and if anger is chronic, it can lead to long-term health problems.

Nurses' deviant behavior in the workplace can contribute to poor patient outcomes and, if not stopped, addressed, or managed, can establish a culture of deviant behavior that can

quickly spread throughout the organization, putting hospital patients at risk (Low et al., 2021; Sili et al., 2014; Stimpfel et al., 2012; Wong et al., 2010; Zhao & Xia, 2019). As a result, more research is needed to uncover other unknown factors linked to nurses' deviant workplace behavior (Fida et al., 2016). Unfortunately, despite the growing amount of research on deviant workplace behavior among employees, many studies have overlooked the usefulness of deviant workplace behavior among hospital nurses in Malaysia (Low et al., 2021; Roopa et al., 2016).

Underpinning theory of General Aggression Model

The General Aggression Model is relatively relevant for the current study, and it was recognized as a new theory in explaining the role of cognitive, emotional, and arousal states that function to determine whether an employee will engage in deviant workplace behavior (Anderson & Bushman, 2002; DeWall et al., 2011). In addition, individual differences such as trait anger and negative affectivity directly affect individual cognition and affect the state of arousal. Finally, this theory seeks to explain individuals will determine the appropriate response to the events by assessing what can and should be done. This includes considering the consequences of their actions by considering a final decision of whether or not to engage in deviant workplace behavior. Thus, the findings will provide some support for this theory. The research framework of the study can be seen in Figure 1.

Trait Anger and Deviant Workplace Behavior

Trait anger refers to individual differences who experience frequent and intense anger. Individuals with an emotional state of anger, such as subjective thoughts of irritation, frustration, hatred, and associated physiological arousal, are more prone to react in difficult or irritating situations (Spielberger, 1988; Spielberger et al., 1999). Adnan (2012) added that characteristic anger could lead to confrontational behavior and dysfunctional outcomes.

Empirical evidence shows that trait anger has also been associated with deviant behavior in the workplace (Howald et al., 2018; Piecuch & Wojciechowska, 2019; Runge et al., 2020; Zhang et al., 2019; Zhou et al., 2018). Previous research by Spector and Fox (2005) suggests that deviant behavior in the workplace is related to individual differences in the propensity to feel and express anger. Individuals with a solid trait for anger, particularly an angry temperament, report an increased prevalence of deviant behavior. Similarly, the prevalence would be higher among employees who believe that they can and are allowed to harm the organization without being detected or punished under the aforementioned deviant work conditions. Since trait anger influences deviant behavior in the workplace, it can be hypothesized that: **H1**: There is a positive relationship between trait anger and deviant behavior in the workplace.

Negative Affectivity and Deviant Workplace Behavior

Personality traits have been associated with a range of workplace deviant behaviors (Zhang et al., 2019). Accordingly, previous researchers have used the stressor-emotion model to examine the regulatory role of personality traits in the relationships between stressors and negative affectivity and between negative affectivity and deviant behavior in the workplace (Yang & Diefendorff, 2009). Negative affectivity can be harmful regardless of where or when it is experienced or

displayed; it can be particularly detrimental in the workplace. [Lan et al. \(2021\)](#) reported significant correlations of negative affect with job satisfaction and depression. One of the reasons negative affect has a more significant destructive potential in the workplace is that people generally work closely together in close quarters. This provides more opportunities for collaboration, innovation, and cooperation. However, it can also be an opportunity to fuel and spread negative feelings. According to early research, people with high levels of negativity, especially if they are “low,” are more prone to regard themselves as victims of hostility toward their coworkers. It is easy to understand how the combination of aggression (perceived or actual) and high levels of negativity can make a workplace toxic. High levels of negativity are associated with anomalies such as absenteeism, employee theft, lower productivity, and a decline in organizational performance ([Koopman et al., 2021](#)). Based on the above discussion, the following hypotheses are suggested: **H2:** There is a positive relationship between an individual's negative affectivity on deviant workplace behavior.

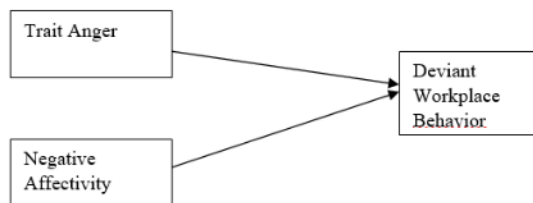


Figure 1 Research framework

Methods

Study Design

The present study used a quantitative analysis with a cross-sectional approach.

Participants

In this study, the participants are staff nurses from a Malaysian government hospital, as stated earlier in our research problem. Therefore, it was expected that almost 70,000 nurses in Malaysia were recorded from the [Department of Statistics Malaysia \(DOSM\) \(2018\)](#). The research setting is conducted in six government hospitals from four states in Malaysia representing each Malaysia zone, such as Kelantan, Kedah, Selangor, and Johor.

To determine the sample size, [Hair Jr et al. \(2017\)](#) and [Westland \(2010\)](#) approaches were used as both of them can accommodate the minimum requirement for a quantitative method such as Structural Equation Modeling (SEM). Using the [Hair Jr et al. \(2017\)](#) approach, the acceptable sample size ranged between 190 and 380, assessed based on the number of measurement items (38 items). Other than that, the [Westland \(2010\)](#) approach suggested that the minimum sample was 296 samples using 0.20 of anticipated effect size and 0.80 of statistical power. Thus, we printed out 450 questionnaires to ensure the minimum samples could be obtained. We also created respondent criteria to ensure the participants involved in this project were reliable and valid for further investigations. Thus, we mapped out the sampling

frame and wrote to the managers of government sectors to obtain permissions.

Instruments

According to [Golafshani \(2003\)](#), the study's credibility in quantitative research is based mainly on developing the instrument used to measure the underlying concept. Similarly, the measurement of a variable is developed to gain consistency, adequacy, accuracy, precision, uniformity, and comparison in assessing and explaining a particular concept. Therefore, the measurement approach includes testifying and confirming the manifest variable that serves as representations of the constructs ([Hair et al., 2019](#)). This study measured three variables: Deviant Workplace Behavior, Negative Affectivity, and Trait Anger, measured on an individual level. According to the rule of thumb, the number of an item or variable should be at least three items per construct ([Hair et al., 2019](#)). A 5-point Likert scale was used to collect responses (1 = strongly disagree to 5 = strongly agree). Each latent construct was treated as a reflective construct and lower-model component. To reduce standard method variance, specific procedural steps were done using Common Method Variance (CMV). According to [Afthanorhan and Aimran \(2020\)](#), CMV can be assessed using three different approaches: Harman Single Factor, Common Latent Factor, and Marker variable. Among CMV approaches, the Harman Single-Factor was recognized as an established method as it can be accommodated to all statistical methods, including PLS-SEM. In this study, the Harman Single-Factor results were 38.9% which met the acceptable limit of 50%.

The instrument was approved by three experts in the particular field for establishing the criterion and content validities under pre-testing. To check the validity of the developed instrument, a small-scale pilot study of the questionnaire was performed using a convenience sampling technique. According to [Hair Jr et al. \(2017\)](#), [Afthanorhan and Aimran \(2020\)](#), and [Afthanorhan et al. \(2021\)](#), the minimum sample for a pilot study is at least 50 samples that is usually tested using Exploratory Factor Analysis (EFA) and Cronbach Alpha methods. The result from the EFA method is considered valid when the sample is above 50.

The results from the pilot study suggested that all factors applied in the current study were reliable, and some of the measurement items were dropped from further investigations due to poor loadings. At last, 38 items were considered valid and maintained for fieldwork ([Table 1](#)). On the first page of the questionnaire, a cover page explaining the study's goal and significance to the respondents and profession. The respondents were also provided written instructions and assurances that their personal information, responses, and identities would be treated with confidentiality.

Table 1 Valid items of the instruments and their sources

Variables	Items	Sources
Deviant Workplace Behavior (DWB)	19	Bennett and Robinson (2003)
Negative Affectivity	10	Watson et al. (1988)
Trait Anger	9	Spielberger (2010)
Total Items	38	

Data Collection

The researchers divided the population into regions. Then, with the assistance of enumerators assigned for this task, the survey questionnaires were distributed proportionately to the number of staff nurses in each hospital, using a simple random sampling technique recognized as one of the probability samplings. A total of 450 surveys were disseminated. Out of them, 387 surveys were used for further analysis after removing the questionnaire with incomplete responses and lining cases. The data collection process took approximately two weeks to be completed, from March 2020 to June 2020.

Data Analysis

All constructs were assessed using Partial Least Squares Structural Equation Modeling (PLS-SEM) method. PLS-SEM was recognized as an alternative to Covariance Based Structural Equation Modeling (CB-SEM) if the assumptions cannot be fulfilled or the proposed model is developed based on lack of evidence (exploratory). In addition, PLS-SEM can be useful for testing the relationships among each construct in a conceptual model. SmartPLS 3.2.8 was used to perform the PLS-SEM method. SmartPLS 3.2.8 provides various options to generate the outer and inner models to calculate the latent variable scores for the latent variables applied in the research model.

Notwithstanding, the PLS-SEM has received criticism from many applied scholars regarding its consistency and biasedness, such as Rönkkö and Evermann (2013), McIntosh et al. (2014), Aimran et al. (2017), Afthanorhan and Aimran (2020), and Evermann and Tate (2016). Consistent PLS and PLS predictions have been introduced to address these criticisms, but their development remains incomplete. But since this study is in exploratory nature where the proposed model is not recognizable for this setting, the PLS-SEM is suitable for hypothesis testing. Moreover, it does not require a stringent assumption such as normality issue and large sample size, which is particularly useful for the present study. Another reason for applying PLS-PM for this study is that the items used for assessing the prospective construct are mostly developed by ourselves and verified by experts in the particular field.

Ethical Considerations

The ethical approval of the study was obtained from Universiti Malaysia Terengganu and Universiti Sultan Zainal Abidin (UniSZA). In addition, ethical clearance was obtained from the authorities of the selected nurses in Malaysia. Each participant signed informed consent prior to data collection.

Results

As shown in Table 2, the majority of the respondents who participated in this study were female, constituting 336 (86.2%), while the remaining 51, representing 13.2%, were male. Regarding marital status, married people occupied the most significant number, 274 respondents representing 70.8%. In contrast, single and divorcees responses 94 and 19 represented 24.2 % and 5%, respectively. Regarding the age group, 111 respondents representing 28.7% of the participants, were between 20-29 years, followed by the age

group between 30-39 years with 141 respondents, which accounted for 36.4% of the total samples. Also, the age group between 40-49 years occupied 116 respondents, representing 30% of the sample, and 50 and above occupied 19 respondents, 4.9%. Regarding working experience in the sector, 47 (12.1%) respondents work less than a year. While the majority of the respondents were from 10 and above years, with almost 193 participants representing 49.9%.

Table 2 Demographic profile of respondents (*N* = 387)

Characteristics	Items	<i>n</i>	%
Gender	Male	51	13.2
	Female	336	86.2
Marital Status	Married	274	70.8
	Single	94	24.2
	Divorce	19	5
Age	20-29	111	28.7
	30-39	141	36.4
	40-49	116	30
	50 and above	19	4.9
Working Experience	Less than a year	47	12.1
	1 to 5 years	74	19.1
	6 to 9 years	73	18.9
	Ten and above years	193	49.9

Convergence validity was determined by factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE). As shown in Table 3, the loadings of all indicators ranged from 0.631 to 0.849, which is higher than the minimum cut-off value of 0.5 proposed by Hair et al. (2010) and Abd Majid et al. (2019). All latent constructs showed sufficient convergent validity. The values of the latent variable CR (ranging from 0.903 to 0.968) were higher than the value of 0.70 proposed by Hair et al. (2019) and Dalila et al. (2020), indicating considerable homogeneity.

Table 3 Convergent validity results

Constructs	Question items	Loadings	AVE	CR
Trait Anger	TA9	0.701	0.631	0.903
	TA8	0.849		
	TA7	0.839		
	TA6	0.745		
	TA5	0.847		
	TA4	0.752		
	TA3	0.832		
	TA2	0.818		
	TA1	0.748		
Negative Affectivity	NA9	0.755	0.662	0.968
	NA7	0.798		
	NA6	0.845		
	NA5	0.824		
	NA4	0.839		
	NA3	0.805		
Deviant Workplace Behavior	NA2	0.827	0.651	0.939
	DWB6	0.79		
	DWB5	0.834		
	DWB4	0.827		
	DWB17	0.775		
	DWB16	0.808		

Note: TA = trait anger; NA = negative affectivity; DWB = deviant workplace behavior

Table 4 Heterotrait-monotrait ratio (HTMT)

	DWB	NA	TA
Deviant Workplace Behavior			
Negative Affectivity	0.295		
Trait Anger	0.393	0.499	

Note: TA = trait anger; NA = negative affectivity; DWB = deviant workplace behavior

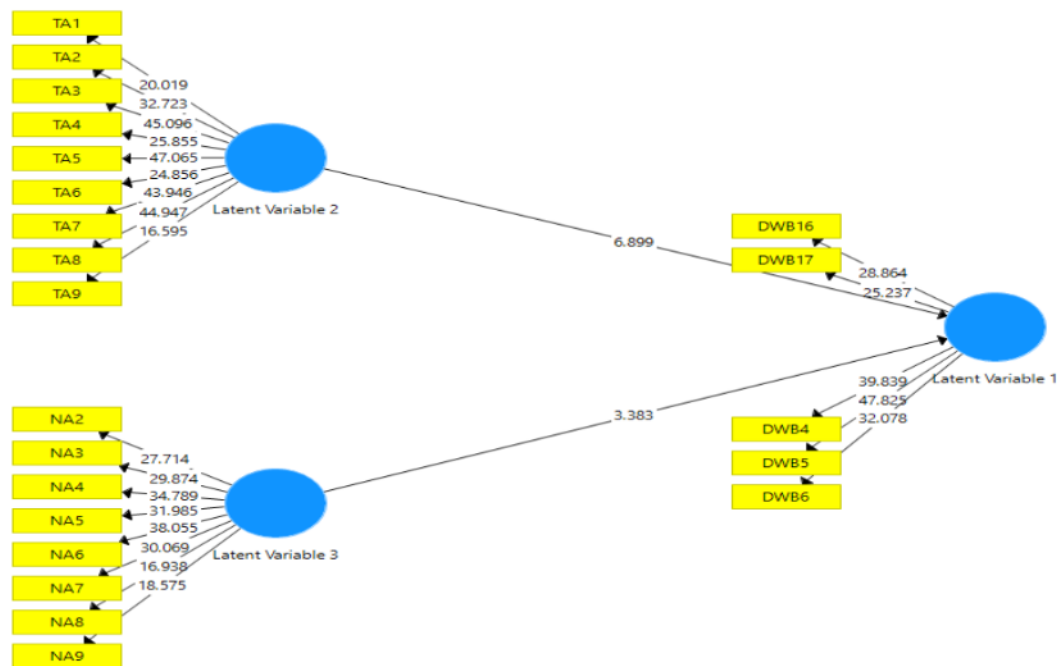
The Heterotrait-MonoTrait (HTMT) ratio of correlations between study variables was used to test the measurement model's discriminant validity. The results presented in [Table 4](#) show that the values ranged from 0.295 to 0.499. Therefore, it can be assumed that discriminant validity demonstrated as the HTMT values in this research did not exceed 0.90 as recommended by [Hair et al. \(2010\)](#).

Collinearity concerns were identified prior to hypothesis testing to prevent bias in calculating the path coefficients. We first calculated the variance inflation factor (VIF) by combining the impacts of the predictor variables (trait anger and negative affectivity) on moral disengagement and deviant workplace conduct. The VIFs were then estimated based on the impacts of the two predictor factors described above. Because all VIFs and tolerance values were below the threshold value 5 ([Hair et al., 2021](#)), collinearity was not a significant concern among the predictors in our model, as shown in [Table 5](#).

Table 5 Collinearity assessment of predictors on deviant workplace behavior

Model 1	Variance Inflation Factor (VIF)
Trait Anger	1.289
Negative Affectivity	1.292

From our measurement model (see [Figure 2](#)), the R² values for deviant workplace behavior were 0.298, suggesting that only 29.8% of the variance in deviant workplace behavior could be explained by trait anger and negative affectivity. Following the validation of the measurement model, a path analysis was used to assess the two hypotheses. The direction of the beta value, the significance level of the t-value, and the confidence intervals of the lower level (LL) and the upper level (UL), which do not span a zero, were all assessed in order to evaluate the structure, as recommended by [Hair et al. \(2019\)](#). The findings of bootstrapping (see [Table 6](#)) show that trait anger was linked to deviant workplace behavior (*Beta Estimate* = 0.245; *t* = 5.764, *LL* = 0.176, *UL* = 0.313, *p* = 0.00), indicating that H1 was supported. On the other hand, negative affectivity was unrelated to deviant workplace conduct (*Beta Estimate* = 0.074; *p* = 0.064), indicating that H2 was unsubstantiated.

**Figure 2** Structural model of the study

Note: Latent variable 1= Deviant Workplace Behavior (DWB); Latent variable 2=Trait Anger (TA); Latent variable 3= Negative Affectivity (NA)

Table 6 Hypothesis testing results

Relationship	H	Path	Beta value	t-statistics	p-value	LL	UL	Decision
Direct	H1	TA → DWB	0.245	5.764	0.000	0.176	0.313	Supported
	H2	NA → DWB	0.074	1.524	0.064	-0.007	0.153	Unsupported

Note: ** *p* < 0.01; Bootstrapping (n = 500); TA = trait anger; NA = negative affectivity; DWB = deviant workplace behavior

PLS-Predict is a holdout sample-based technique developed by [Hair et al. \(2010\)](#) that employs the PLS-Predict with a 10-fold procedure to verify predictive relevance and provide case-level predictions on an item or construct level. If all item

differences (PLS-LM) are lower, solid predictive power is demonstrated; if all are higher, predictive relevance is not demonstrated. If the majority is lower, moderate predictive strength is demonstrated; and if the minority is lower, weak

predictive power is demonstrated. **Table 7** shows that, with the exception of DWB4, all of the errors in the PLS model were lower than those in the LM, indicating that our model had strong prediction power.

Table 7 PLS-Predict results

	PLS RMSE	LM RMSE	PLS-LM	Q ² _predict
DWB4	1.094	1.093	0.001	0.093
DWB5	1.216	1.22	-0.004	0.104
DWB6	1.231	1.26	-0.029	0.037
DWB16	1.052	1.055	-0.003	0.067
DWB17	1.034	1.045	-0.011	0.074

Note: DWB = deviant workplace behavior

Discussion

This research makes contributions to both the theory and practice of management. Although scholars have recognized that deviance can be socially constructed, a dearth of research has specifically addressed this issue, especially from the perspective of public sector employees. Further, this study aimed to contribute to the workplace deviance literature by empirically examining how individual-based variables interact to explain workplace deviance.

This study brings together research on antecedents of deviant workplace behavior, namely trait anger and negative affectivity underpinned by the General Aggression Model (GAM). Previous studies on antecedents of deviant workplace behavior have used complex models to explain the relationship between variables (Ambrose et al., 2013; Rahim et al., 2012). The General Aggression Model (GAM) outlines a framework by which an employee's frustration provokes deviant workplace behavior. This theory suggests that situational factors stimulate frustration and are followed by emotions often associated with frustration "ranging from minor annoyance to rage" (Spector, 1997). However, a theoretical model of aggression has proven useful in exploring and explaining the many causes of frustration and moderating processes with a wide variety of harm-doing behaviors.

With regard to the managerial contribution, this study contributes to the practice of management. First, on the implication, it benefits the superiors and managers. It is also expected that the result from this study will assist policymakers and practitioners in reducing the occurrences of workplace deviance issues related to individual differences. By understanding the factors that influence deviant workplace behavior, the government would also be in a better position to plan and implement complementary and integrated public administration policies and practices to enhance the effectiveness of the employees in the health sector, thus reducing the existence of deviant workplace behavior.

Second, the result of the study is also expected to assist government sectors in using the information from the study to implement training and development related to this issue. It will also contribute to all fields, which in turn enhance the theoretical and academic integration of several branches (organization behavior and human resource management). The ultimate objective is to reduce deviant workplace behavior, which contributes tangible and intangible costs to the victims and organization. Conducting research in this area also

improved the research centers, stakeholders, and students with essential knowledge that are equally important. The result of this research can be used by legislators in designing policies, programs, planning, and strategies in human resource management practices for the entire nation.

Another critical point is that most nurses are women, ranging from 30 to 39 years. Thus, this figure is in line with the findings of Batz and Tay (2018), who found gender differences in subjective well-being. The result shows that women have higher positive affectivity than men. Furthermore, the discrete emotion "happy" or "happiness" is frequently used to operationalize positive affectivity in large, nationally representative populations. Batz and Tay (2018) discovered that happiness discrepancies between men and women differ by age: young women (18-44) are happier than young men, middle-aged women and men (45-54) are happy, and elderly women (55+) are less happy than older men. As a result, this remark illustrates that our nurses, regardless of their age or gender, are content and capable of managing their emotions.

Limitations

This study has its limitations. First, the study's cross-sectional design limits our ability to draw causal conclusions. Because the study looked at both exogenous and endogenous variables at the same time, it could be biased. As a result, further longitudinal research could confirm the current findings and add to the evidence of causation in the relationship between trait anger, negative affectivity, and workplace deviance. Second, our data came from nurses in Peninsular Malaysia's leading government hospitals. To strengthen the generalizability of the findings, future studies should expand the sample to include nurses working in private hospitals. Finally, this study only looked at two criteria. Other personality qualities such as shyness, openness, conscientiousness, extraversion, and agreeableness should be considered in future studies when predicting deviant conduct in the workplace.

Implications of the Study

Deviant work behaviors have become major concerns in organizations and disrupt the normal activities of the organization and/or its employees and create obstacles for efficient operations. Deviant work behaviors continue to emerge as a major concern in many industrial sectors, particularly in the healthcare industries of both developed and developing countries. The main objective of this study was to empirically analyze the occurrence of deviant workplace behavior and its related factors among nurses in Malaysia. Adopting the General Aggression Model, this study examined whether trait anger and negative affectivity affect nurses' deviant workplace behaviors using cross-section survey methods with a proportionate sampling technique ($N = 387$) with nurses working in government hospitals in Peninsular Malaysia. The study hypotheses were tested using the PLS-SEM.

Our statistical results were inconsistent. Specifically, negative affectivity has little impact on deviant workplace behavior. The characteristics of the nurses in our sample may have contributed to this unexpected finding. The respondents in this study had an average of five years of experience as a

nurse in their respective facilities. Therefore, negative affectivity may not influence deviant behavior in the workplace.

However, our study's findings have consequences for both theory and practice. The study has contributed to the literature on the antecedents of deviant workplace behavior on a theoretical level, which revealed that the trait anger, negative affectivity, and deviant behavior in the workplace are indirectly related. Our findings confirm the applicability of Bushman's general aggression theory (Anderson & Bushman, 2002) in the context of public health in Malaysia.

From a practical perspective, the findings indicate that because characteristic anger could increase the likelihood of deviant behavior in the workplace, hospital administrators should promote regulatory mechanisms within their nursing staff and provide adequate support. This could be done through an anger management event. In addition, employers may need to teach nurses to regulate the trait objectively and correctly to avoid deviant behavior; nurses with positive traits will encourage their colleagues to be more engaged.

Managers and administrators in the healthcare industry can also help by supporting conferences or seminars to raise awareness of undesired social habits that appear harmless but can cause workplace disruption. In addition, employees should be helped to develop resilient attitudes and cope with stressful situations utilizing cognitive-behavioral techniques in workshops like this. Previous research has shown that such training methods can help individuals improve their positive thinking, resilience, and self-efficacy, supporting this conclusion (Luthans et al., 2006).

Conclusion

The study findings revealed that the Malaysian nurses had positive affectivity, which was related to positive emotions like happiness, work interest, and attentiveness. On the other hand, the nurses were suffering from high levels of emotional tiredness. In addition, trait anger was found to influence deviant behavior in the workplace positively. Individuals with a high trait anger level reported more frequent and intense everyday anger in various provocative situations, more anger in ongoing personally provocative situations, a greater tendency to respond to provocation with physical and verbal antagonism, and a lower likelihood of dealing with it constructively. As a result, employees with high levels of anger are likely to respond to a wider range of deviant work behavior.

Declaration of Conflicting Interest

The authors have no conflict of interests to declare.

Funding

This research received no specific grant from any funding agency in public, commercial or non-profit sectors.

Acknowledgment

The authors would like to acknowledge and thank all anonymous reviewers.

Authors' Contributions

MM: abstract, introduction, theoretical and conceptual framework, discussion, and conclusion. RI: objectives, literature review, and methodology. AA: statistical analysis. AMMS: participated in data collection

and logistics. All authors contributed to the article and approved the final version to be published.

Authors' Biographies

Maslina Mansor is a Lecturer at the Faculty of Business and Management, Universiti Sultan Zainal Abidin, Malaysia.

Rashidah Mohd Ibrahim, PhD is a Senior Lecturer at the Faculty of Business and Management, Universiti Sultan Zainal Abidin, Malaysia.

Asyraf Afthanorhan, PhD is a Professor at the Faculty of Business and Management, Universiti Sultan Zainal Abidin, Malaysia.

Ahmad Munir Mohd Salleh, PhD is an Associate Professor at the Faculty of Maritime and Social Development, University Malaysia Terengganu, Malaysia.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

References

- Abd Majid, N., Zainol, F. A., Daud, W. N. W., & Afthanorhan, A. (2019). Cooperative entrepreneurship in Malaysian secondary schools: A review of current practices. *The Journal of Social Sciences Research*, 5(3), 812-818.
- Adnan, A. A. (2012). Gelagat pengguna Islam: Satu disiplin atau sub-disiplin? [Islamic Consumer Behavior: A Discipline or Sub-discipline?]. *Jurnal Pengurusan*, 35, 139-149. <https://doi.org/10.17576/pengurusan-2012-35-12>
- Afthanorhan, A., & Aimran, N. (2020). A prospective study of dengue infection in Malaysia: A structural equation modeling approach. *Environmental Health Engineering and Management Journal*, 7(3), 161-169. <https://doi.org/10.34172/EHEM.2020.19>
- Afthanorhan, A., Awang, Z., Abd Majid, N., Foziah, H., Ismail, I., Al Halbusi, H., & Tehseen, S. (2021). Gain more insight from common latent factor in structural equation modeling. *Journal of Physics: Conference Series*, 1793, 012030.
- Aimran, A. N., Ahmad, S., Afthanorhan, A., & Awang, Z. (2017). The assessment of the performance of covariance-based structural equation modeling and partial least square path modeling. *AIP Conference Proceedings*, 1842, 030001. <https://doi.org/10.1063/1.4982839>
- Ambrose, M. L., Schminke, M., & Mayer, D. M. (2013). Trickle-down effects of supervisor perceptions of interactional justice: A moderated mediation approach. *Journal of Applied Psychology*, 98(4), 678-689. <https://psycnet.apa.org/doi/10.1037/a0032080>
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53(1), 27-51. <https://doi.org/10.1146/annurev.psych.53.100901.135231>
- Batz, C., & Tay, L. (2018). *Gender differences in subjective well-being*. Salt Lake City, UT: DEF Publishers.
- Bennett, R. J., & Robinson, S. L. (2003). The past, present, and future of workplace deviance research. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (pp. 247-281). Lawrence Erlbaum Associates Publishers.
- Caruso, R., Fida, R., Sili, A., & Arrigoni, C. (2016). Towards an integrated model of nursing competence: An overview of the literature reviews and concept analysis. *Professioni Infermieristiche*, 69(1).
- Dalila, D., Latif, H., Jaafar, N., Aziz, I., & Afthanorhan, A. (2020). The mediating effect of personal values on the relationships between attitudes, subjective norms, perceived behavioral control and intention to use. *Management Science Letters*, 10(1), 153-162. <http://dx.doi.org/10.5267/j.msl.2019.8.007>
- Das, G., & Avci, I. A. (2015). The effect of anger management levels and communication skills of Emergency Department staff on being exposed to violence. *Medicinski Glasnik (Zenica)*, 12(1), 99-104.
- Department of Statistics Malaysia (DOSM). (2018). *Department of Statistics Malaysia Official Portal*. Retrieved 10 March 2021 from <https://www.dosm.gov.my/v1/>
- DeWall, C. N., Anderson, C. A., & Bushman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *Psychology of Violence*, 1(3), 245-258.

- Evermann, J., & Tate, M. (2016). Assessing the predictive performance of structural equation model estimators. *Journal of Business Research*, 69(10), 4565-4582. <https://doi.org/10.1016/j.jbusres.2016.03.050>
- Fida, R., Tramontano, C., Paciello, M., Kangasniemi, M., Sili, A., Bobbio, A., & Barbaranelli, C. (2016). Nurse moral disengagement. *Nursing Ethics*, 23(5), 547-564. <https://doi.org/10.1177%2F0969733015574924>
- Fornés-Vives, J., Frias-Navarro, D., García-Banda, G., & Pascual-Soler, M. (2019). The role of neuroticism in predicting psychological harassment in nursing: A longitudinal study. *International Journal of Environmental Research and Public Health*, 16(5), 889. <https://doi.org/10.3390/ijerph16050889>
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597-607.
- Hair, J. F., Black, W. C., & Babin, B. J. (2010). *Multivariate data analysis: A global perspective* (7th ed.). London: Pearson Education. <https://books.google.co.th/books?id=SLRPLgAACAAJ>
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. New York: SAGE Publications. <https://books.google.co.th/books?id=IFiarYXE1PoC>
- Hair, J. F., Page, M., & Brunsveld, N. (2019). *Essentials of business research methods* (4th ed.). New York: Routledge. <https://doi.org/10.4324/9780429203374>
- Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*. California: Sage publications.
- Howald, N., Lortie, B., Gallagher, C., & Albert, M. A. (2018). Preventing and deterring organizational deviance. *Society for Industrial and Organizational Psychology*, 4(1), 23-34.
- Jahantigh, M., Zare, S., & Shahrakipour, M. (2016). The survey of the relationship between ethical climate and ethical behavior in nurses. *Der Pharma Chemica*, 8(3), 189-193.
- Koopman, J., Conway, J. M., Dimotakis, N., Tepper, B. J., Lee, Y. E., Rogelberg, S. G., & Lount Jr, R. B. (2021). Does CWB repair negative affective states, or generate them? Examining the moderating role of trait empathy. *Journal of Applied Psychology*, 106(10), 1493-1516. <https://psycnet.apa.org/doi/10.1037/apl0000837>
- Lan, J., Mao, Y., Peng, K. Z., & Wang, Y. (2021). The combined effects of positive and negative affect on job satisfaction and counterproductive work behavior. *Asia Pacific Journal of Management*, 1-19. <https://doi.org/10.1007/s10490-021-09753-1>
- Liang, L. H., Brown, D. J., Lian, H., Hanig, S., Ferris, D. L., & Keeping, L. M. (2018). Righting a wrong: Retaliation on a voodoo doll symbolizing an abusive supervisor restores justice. *The Leadership Quarterly*, 29(4), 443-456. <https://doi.org/10.1016/j.leaqua.2018.01.004>
- Low, Y. M., Sambasivan, M., & Ho, J. A. (2021). Impact of abusive supervision on counterproductive work behaviors of nurses. *Asia Pacific Journal of Human Resources*, 59(2), 250-278. <https://doi.org/10.1111/1744-7941.12234>
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior*, 27(3), 387-393. <https://doi.org/10.1002/job.373>
- Malaysian Ministry of Health. (2020). *Ministry of Health Malaysia portal*. Retrieved 26 June 2021 from <https://www.moh.gov.my/>
- McIntosh, C. N., Edwards, J. R., & Antonakis, J. (2014). Reflections on partial least squares path modeling. *Organizational Research Methods*, 17(2), 210-251. <https://doi.org/10.1177%2F1094428114529165>
- Piecuch, J., & Wojciechowska, P. (2019). An impact of anger expression on organizational behavior—a literature review. *Przedsiębiorczość i Zarządzanie*, 6(3), 133-144.
- Rahim, A. R. A., Shabudin, A., & Nasurdin, A. M. (2012). Effects of job characteristics on counterproductive work behavior among production employees: Malaysian experience. *International Journal of Business and Development Studies*, 4(1), 123-145.
- Rönkkö, M., & Evermann, J. (2013). A critical examination of common beliefs about partial least squares path modeling. *Organizational Research Methods*, 16(3), 425-448. <https://doi.org/10.1177%2F1094428112474693>
- Roopa, D. N., Nanjundeswaraswamy, T. S., & Swamy, D. R. (2016). An exploratory study on counterproductive work behaviors of nurses. *International Journal of Engineering and Management Research (IJEMR)*, 6(3), 685-692.
- Runge, J. M., Lang, J. W. B., Zettler, I., & Lievens, F. (2020). Predicting counterproductive work behavior: Do implicit motives have incremental validity beyond explicit traits? *Journal of Research in Personality*, 89, 104019. <https://doi.org/10.1016/j.jrp.2020.104019>
- Sarwar, A., Irshad, M., Zhong, J. Y., Sarwar, S., & Pasha, R. (2020). Effects of social undermining in families on deviant workplace behaviours in Pakistani nurses. *Journal of Nursing Management*, 28(4), 938-947. <https://doi.org/10.1111/jonm.13027>
- Sarwar, A., Naseer, S., & Zhong, J. Y. (2020). Effects of bullying on job insecurity and deviant behaviors in nurses: Roles of resilience and support. *Journal of Nursing Management*, 28(2), 267-276. <https://doi.org/10.1111/jonm.12917>
- Shazwani, I. (2017). Health Ministry gets 7,000 complaints, spends RM20mil on compensation annually. *New Straits Times*. <https://www.nst.com.my/news/nation/2017/11/299206/health-ministry-gets-7000-complaints-spends-rm20mil-compensation-annually>
- Sili, A., Fida, R., Zaghini, F., Tramontano, C., & Paciello, M. (2014). Counterproductive behaviors and moral disengagement of nurses as potential consequences of stress-related work: Validity and reliability of measurement scales. *La Medicina Del Lavoro*, 105(5), 382-394.
- Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences* (Vol. 3). California: Sage.
- Spector, P. E., & Fox, S. (2005). The stressor-emotion model of counterproductive work behavior. In S. Fox & P. E. Spector (Eds.), *Counterproductive work behavior: Investigations of actors and targets*. American Psychological Association. <https://doi.org/10.1037/10893-007>
- Spielberger, C. D. (1988). *Manual for the state-trait anger expression scale (STAXI)*. Odessa, FL: Psychological Assessment Resources.
- Spielberger, C. D. (2010). State-Trait anger expression inventory. *The Corsini Encyclopedia of Psychology*. <https://doi.org/10.1002/9780470479216.corpsy0942>
- Spielberger, C. D., Sydeman, S. J., Owen, A. E., & Marsh, B. J. (1999). Measuring anxiety and anger with the State-Trait Anxiety Inventory (STAI) and the State-Trait Anger Expression Inventory (STAXI). In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment* (pp. 993-1021). Lawrence Erlbaum Associates Publishers.
- Stimpfel, A. W., Sloane, D. M., & Aiken, L. H. (2012). The longer the shifts for hospital nurses, the higher the levels of burnout and patient dissatisfaction. *Health Affairs*, 31(11), 2501-2509. <https://doi.org/10.1377/hlthaff.2011.1377>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.
- Westland, J. C. (2010). Lower bounds on sample size in structural equation modeling. *Electronic Commerce Research and Applications*, 9(6), 476-487. <https://doi.org/10.1016/j.eierap.2010.07.003>
- Wiernik, B. M., & Ones, D. S. (2018). Ethical employee behaviors in the consensus taxonomy of counterproductive work behaviors. *International Journal of Selection and Assessment*, 26(1), 36-48. <https://doi.org/10.1111/ijsa.12199>
- Wong, C. A., Spence Laschinger, H. K., & Cummings, G. G. (2010). Authentic leadership and nurses' voice behaviour and perceptions of care quality. *Journal of Nursing Management*, 18(8), 889-900. <https://doi.org/10.1111/j.1365-2834.2010.01113.x>
- Yang, J., & Diefendorff, J. M. (2009). The relations of daily counterproductive workplace behavior with emotions, situational antecedents, and personality moderators: A diary study in Hong Kong. *Personnel Psychology*, 62(2), 259-295. <https://doi.org/10.1111/j.1744-6570.2009.01138.x>
- Zaghini, F., Fida, R., Caruso, R., Kangasniemi, M., & Sili, A. (2016). What is behind counterproductive work behaviors in the nursing profession? A systematic review. *Journal of Clinical Research & Bioethics*, 7(4), 1000277. <https://doi.org/10.4172/2155-9627.1000277>
- Zainuddin, A. (2019). Cases on medical negligence on the rise, Health Ministry's data shows. *The Malaysian Reserve*. <https://themalaysianreserve.com/2019/09/18/cases-on-medical-negligence-on-the-rise-health-ministries-data-shows/>
- Zhang, Y., Crant, J. M., & Weng, Q. (2019). Role stressors and counterproductive work behavior: The role of negative affect and

- proactive personality. *International Journal of Selection and Assessment*, 27(3), 267-279. <https://doi.org/10.1111/ijsa.12255>
- Zhao, H., & Xia, Q. (2019). Nurses' negative affective states, moral disengagement, and knowledge hiding: The moderating role of ethical leadership. *Journal of Nursing Management*, 27(2), 357-370. <https://doi.org/10.1111/jonm.12675>
- Zhou, Z. E., Eatough, E. M., & Wald, D. R. (2018). Feeling insulted? Examining end-of-work anger as a mediator in the relationship between daily illegitimate tasks and next-day CWB. *Journal of Organizational Behavior*, 39(8), 911-921. <https://doi.org/10.1002/job.2266>

- Zolkefli, Y. (2021). Nursing ethics education in Brunei Darussalam—Where are we today? *Belitung Nursing Journal*, 7(1), 55-56. <https://doi.org/10.33546/bnj.1265>

Cite this article as: Mansor, M., Ibrahim R. M., Afthanorhan, A., & Salleh, A. M. M. (2022). The mechanism of anger and negative affectivity on the occurrence of deviant workplace behavior: An empirical evidence among Malaysian nurses in public hospitals. *Belitung Nursing Journal*, 8(2), 115-123. <https://doi.org/10.33546/bnj.1994>



Knowledge, attitude, and practice of surgical site infection prevention among operating room nurses in southwest China

Wen Feng^{1,2} , Wipa Sae-Sia^{1*} , and Luppana Kitrungrote¹ 

¹Faculty of Nursing, Prince of Songkla University, Hatyai, Songkhla, 90112, Thailand

²Department of Anesthesiology, Guizhou Provincial People's Hospital, Guiyang, Guizhou Province, 550002, China

Abstract

Background: Surgical site infection has become a problem in the operating room, and the nurses' knowledge, attitude, and practice could impact the incidence of the infection. Unfortunately, there is a dearth of studies on this issue in China. Therefore, determining nurses' knowledge, attitude, and practice of surgical site infection prevention is necessary.

Objectives: This study aimed to examine the knowledge, attitude, and practice of surgical site infection prevention and their relationships, as well as to identify differences in knowledge, attitude, and practice of surgical site infection prevention according to nurses' demographic characteristics.

Methods: A sample of 999 operating room nurses participated in 49 tertiary hospitals and 75 secondary hospitals in Guizhou Province, Southwest China. Data were collected using validated questionnaires through a Chinese survey website. Data were analyzed using descriptive statistics, One-Way Analysis of Variance, and Pearson product-moment correlation.

Results: The knowledge of surgical site infection prevention was at a low level, the attitude was positive, and the practice was at a high level. Approximately 39% of the nurses passed knowledge scores of $\geq 70\%$, 60% gave a positive attitude score of $\geq 80\%$, and 76% achieved a practice score of $\geq 80\%$. The nurses' attitude was positively related to knowledge ($p < .01$), and practice ($p < .01$), respectively. However, knowledge and practice did not significantly relate. The age group of 30-39 years old had significant higher knowledge than other age groups. The nurses with working experience of 6-15 years had significant higher knowledge scores than other groups. In addition, the nurses with one time of training frequency had significant lower attitude and practice scores than those with six to ten times of training frequency.

Conclusion: Approximately 60% of operating room nurses still had inadequate knowledge regarding surgical site infection prevention, but they had a positive attitude and high level of practice. The findings of this study might serve as an input for nurse administrators or policymakers to provide updated knowledge or guideline, closed supervision, and in-service training on surgical site infection prevention for operating room nurses.

Keywords

surgical site infection; operating room nurse; knowledge; attitude; practice; China

*Corresponding author:


Wipa Sae-Sia, RN, PhD
Faculty of Nursing, Prince of Songkla
University, Hatyai, Songkhla, 90112,
Thailand
Fax: +66-74-6421
Email: wipa.sa@psu.ac.th

Article info:

Received: 26 December 2021

Revised: 29 January 2022

Accepted: 1 April 2022

 This is an Open Access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/), which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

Surgical site infection is defined as an infection that may occur in a patient within 30 days after an operation without an implant (Berríos-Torres et al., 2017; Mangram et al., 1999). Surgical site infections are the most common and complex healthcare-associated infections. Surgical site infections could lead to patient mortality and increased cost of care (Bhangu et al., 2018; Purba et al., 2020; Silvestri et al., 2018). Although surgical site infections have declined in the past decade, their rate in China is still problematic, especially during operations.

In a survey conducted among 65,885 patients in Guizhou Province, located in Southwest China, 17.29% contracted surgical site infections out of 1,643 nosocomial infections (Zhang et al., 2015). Recently, a national cross-section study revealed that the incidence of surgical site infection within postoperative 30 days was 7.1% of 1046 colorectal surgery patients in 55 hospitals in China (Zhang et al., 2020). Meanwhile, the occurrence rate of surgical site infection was 7.4% of 953 patients after emergency abdominal surgery in 47 hospitals in China (Li et al., 2021).

Factors leading to surgical site infection include patient and operative factors. Patient factors include advanced age,

metabolic diseases, nicotine use, obesity, malnutrition, hypoalbuminemia, and high blood glucose level (Li et al., 2021; Wang et al., 2019). Operative risk factors are classified into three types: 1) environment, including the ventilation in an operating room and sterilization of surgical instruments, 2) surgical equipment, including surgical drains; and 3) healthcare providers, including the knowledge, attitude, and practice of nurses (Mujagic et al., 2019; Poirrot et al., 2018).

It has been documented that the quality of nursing care is significantly related to nurses' knowledge, attitude, and practice to deliver evidence-based nursing care to patients (Lin et al., 2019). A recent qualitative study found barriers to nurses' adherence to surgical site infection prevention included their knowledge and skills regarding applying aseptic technique principles in practice (Lin et al., 2019). Previous studies in China indicated that nurses who passed the average knowledge score ranged from 19.3% to 57.78% (Chen et al., 2013; Yang & Cheng, 2014; Zhou et al., 2014). A study in China revealed that 63.08% of nurses got the average score of 9.35 from a total score of 12, and only 63.08% of nurses provided the correct answer of hair removal using electric razors instead of normal razor blades (Hao et al., 2018). A recent study showed that operating room nurses had a moderate level of knowledge, positive attitude, and low level of practice in terms of the terminal disinfection of infected operations (Zhang et al., 2019).

Based on the review, age, working experience, and frequency of training were related factors of knowledge, attitude, and practice of infection prevention. The participants younger than 30 years had a low level of knowledge in India (Patil et al., 2018). A study showed that 44.4% of nurses younger than 25 years had a low level of knowledge (Sadaf et al., 2018), and the participants were older than 31 years had a higher level of knowledge and practice than younger groups (Desta et al., 2018). In addition, the less working experience (less than five years) was related to the low level of knowledge of surgical site infection prevention (Patil et al., 2018; Sadaf et al., 2018). The participants with less working experience had a low level of practice (Sadaf et al., 2018). The study showed that nurses with more than ten years of working experience had a high level of knowledge and practice than the group working less than five years (Desta et al., 2018). Besides, the participants who attended the training courses were related to their high level of knowledge (Desta et al., 2018). The operating room nurses with three times or more above training had a higher knowledge of terminal disinfection of infection than others (Zhang et al., 2019).

The latest Chinese surgical site infection prevention guideline (Chinese Society of Surgical Infection and Intensive Care of Chinese Society of Surgery in Chinese Medical Association et al., 2019) was modified from the international guideline (Berríos-Torres et al., 2017; World Health Organization, 2018). In addition, the Chinese Nursing Association Operating Room Professional Committee published the "Guide to Operating Room Nursing Practice" in 2014 and updated it every year (Chinese Nursing Association Operating Room Professional Committee, 2021). The operation room nurses' practice is based on this nursing practice guideline. However, the surgical site infection prevention content in the operating room was similar to the latest Chinese surgical site infection prevention guideline.

To date, no study has examined Chinese operating room nurses' knowledge, attitude, and practice on surgical site infection prevention based on up-to-date evidence or studied the relationship between these variables. This study was the first provincial-level survey on surgical site infection prevention among operating room nurses working in tertiary and secondary hospitals in southwest China. Exploring this subject in Guizhou Province will provide the operating room organization in China with rich information that can be used for conducting intervention studies to enhance the quality of nursing care, especially in the perioperative phase. This study has two objectives: 1) to examine the level of knowledge, attitude, and practice of surgical site infection prevention and their relationships among operating room nurses working in Guizhou Province, China; 2) to identify differences in knowledge, attitude, and practice of surgical site infection prevention according to nurses' demographic characteristics.

Conceptual framework

The conceptual framework of this study was developed based on the Knowledge-Attitude-Practice (KAP) model (Launiala, 2009) and the evidence-based practice for surgical site infection prevention proposed by the Centers for Disease Control (CDC) (Berríos-Torres et al., 2017; Mangram et al., 1999) and the World Health Organization (World Health Organization, 2016, 2018). It was proposed that knowledge, attitude, and practice could interact with each other in the KAP model (Rav-Marathe et al., 2016). It revealed that there was a relationship between individuals' knowledge, attitude, and practice, and an individual's knowledge and attitude could impact practice. The prevention of surgical site infection in the CDC and WHO guidelines includes pre-operative, intra-operative, and post-operative preventive strategies. Based on the review, the operating room nurses had a very low grasp of some aspects of surgical site infection prevention in previous decades in China. This study focused only on intra-operative prevention strategies, and the knowledge, attitude, and practice of surgical site infection prevention covered the following areas: 1) the operating room environment; 2) sterilization of surgical attire and drapes; 3) asepsis surgical techniques; and 4) surgical site infection-related risk factors for patients (Berríos-Torres et al., 2017; Mangram et al., 1999; World Health Organization, 2016, 2018).

Methods

Study Design

A descriptive correlational design was chosen for this study, which was conducted between May 2019 and August 2019.

Participants

The participants of this study were all population of operating room nurses who worked in the operating room in Guizhou Province, China. A convenience sampling method was used to invite 2,481 operating room nurses working in 124 hospitals composed of 49 tertiary hospitals and 75 secondary hospitals. Data were collected online using the questionnaires through the Chinese survey website (Wen Juan Xing) plus WeChat, a popular social application in China. There were approximately

50 % ($n = 1,215$) of operative nurses who uploaded the questionnaires by Wen Juan Xing. Based on the criterion of having working experience in operating room for more than half a year, 1,036 participants (85.27%) were recruited for the analysis. However, there were 37 participants with extreme outlier data; therefore, only 999 nurses were used for the final data analysis. This sample size has met the power of .99-1.00 for correlation between attitude and knowledge, and between attitude and practice, with a significant level of .05 using the G Power Program (Polit & Beck, 2017). The inclusion criteria of the participants were (1) having at least a diploma certificate in nursing and (2) having working experience in the operating room for more than six months in Guizhou Province.

Instruments

Data were collected by using self-administration questionnaires. The questionnaires were developed by Saksri et al. (2018) based on the guidelines from Berríos-Torres et al. (2017); Mangram et al. (1999); World Health Organization (2016). The authors obtained approval from questionnaire developers and modified the questionnaires based on the updated Chinese practice guidelines (Chinese Nursing Association Operating Room Professional Committee, 2018; World Health Organization, 2018).

The questionnaires were translated using the back-translation technique (Polit & Beck, 2017). Firstly, the questionnaires were translated from Thai to English by the second author, one of the original questionnaire developers. Secondly, the Chinese version of the questionnaires was translated from English by the first author. Thirdly, the Chinese version of the questionnaires was translated back into English by a Doctor's degree medical lecturer in China. Finally, the original English version and back-translated English version were evaluated by a bilingual English expert, an English language lecturer with a master's degree in China.

The questionnaires were composed of 1) Demographic Characteristics, which included socio-demographic information, work-related information, application of surgical site infection prevention guidelines, and infection control training; 2) The Knowledge, Attitude, and Practice (KAP) questionnaires were developed based on the KAP model (Launiala, 2009), CDC (Mangram et al., 1999), and WHO (World Health Organization, 2018), which consisted of three parts: (i) Knowledge of surgical site infection prevention, which was tested using 22 true/false items covering the operating room environment, sterilization of surgical attire and drapes, asepsis surgical technique, and risk factors for patient-related surgical site infection; (ii) Attitude to surgical site infection prevention, which was composed of 31 items related to the issues of perception and feelings about prevention; and (iii) Practice on surgical site infection prevention, which included 22 questions about prevention of surgical site infection among operating room nurses.

The scoring method used for the knowledge, attitude, and practice questionnaires included 1) correct answer or "0" for an incorrect one, with a total score between 0 and 22; 2) for each item of the attitude questionnaire, a 5-point Likert scale was employed, ranging from "strongly agree" (5 points) to "strongly disagree" (1 point) with a total score between 31 and 155; 3) a 4-rating scale was used for the practice questionnaire from never practice (0 point) to always practice (3 points) with

a total score between 0 and 66. Knowledge and practice were categorized into five levels; very low (<60%), low (60% - 69.99%), moderate (70% - 79.99%), high (80% - 89.99%), and very high (90% - 100%); attitude was categorized into three levels as negative (<50%), neutral (50% - 79.99%), and positive towards surgical site infection prevention (80% - 100%) (McDonald, 2002).

The content validity of the KAP questionnaires was assessed by a panel of five experts. The first expert was a nursing educator in Thailand, the second one was a medical educator from Guizhou Medical University, and the other three experts were operating room head nurses from Guizhou Provincial People's Hospital, 363 Hospital in Sichuan Province, and Sichuan Provincial Hospital for Women and Children. The content validity index of the KAP questionnaires were .83, .89, and .94 for the Knowledge (K) Questionnaire, the Attitude (A) Questionnaire, and the Practice (P) Questionnaire, respectively.

For internal reliability, the questionnaires were tested on 20 nurses who worked in two public hospitals in Guiyang city. The Kuder-Richardson formula 20 (KR-20) was used to test the internal consistency reliability of the Knowledge Questionnaire. The Cronbach Alpha internal reliability was used for the Attitude and Practice Questionnaires. The reliability of the Knowledge, Attitude, and Practice Questionnaires were .72, .84, and .97, respectively. After that, the KAP questionnaires were translated into Chinese using the back-translation technique (Polit & Beck, 2017).

Data Collection

Data were collected online using the Wen Juan Xing website (www.sojump.com) and WeChat social application. The invitation letter and the quick response (QR) code of questionnaires from WeChat were provided to the operating room head nurses of the study settings and asked them to distribute to their nurses, particularly to those willing to participate. All participants accessed the questionnaires online and answered individually using the Wen Juan Xing website via smartphones. A WeChat account was allowed to submit the questionnaires only once to avoid duplication.

Data Analysis

Data were coded and analyzed by SPSS 20 (IBM Corp, Armonk, New York). Knowledge, attitude, and practice were analyzed by descriptive and inferential statistics of Pearson product-moment correlation between knowledge, attitude, and practice. Differences in knowledge, attitude, and practice in each subgroup of demographic characteristics were analyzed using a one-way analysis of variance. The significant level was set as $p < .05$. The distribution of studied variables met the assumptions of normality and linearity.

Ethical Consideration

This study was approved by the Social and Behavioural Science, Institutional Review Board (IRB), Prince of Songkla University, Thailand (2019 Nst – Qn 014), and acquired official permission from the IRB of Guizhou Provincial People's Hospital to collect data. The informed consent was presented on the first page of the online survey through the Wen Juan Xing application. In addition, the participants were informed regarding the study objective, voluntary and anonymous

participation, and the right to exit filling the questionnaire at any time. The researchers kept the information and identity of the participants confidential by using a coding system.

Results

Participants' Characteristics

The participants' age ranged from 20 to 57 years, with a mean age of 31.30 ($SD \pm 6.47$). Most of them were female (83%).

More than half (64.8%) of the participants were from tertiary care hospitals. Around half of the participants (56.6%) had a bachelor's degree. The mean working experience was 7.32 ($SD \pm 6.13$) years. Most of the participants (91.5%) indicated that the infection control department controlled and evaluated the quality of surgical site infection prevention practice. For the relative surgical site infection prevention training, 66.7% of participants had taken part in the training program fewer than five times during the last two years ([Table 1](#)).

Table 1 Demographic characteristics of participants ($N = 999$)

Variables	<i>n</i> (%)
Gender	
Male	829 (83.0)
Female	170 (17.0)
Age (years) ($M = 31.30$, $SD \pm 6.47$, $Min-Max = 20-57$)	
20-29	469 (47.0)
30-39	427 (42.7)
40-49	83 (8.3)
50-59	20 (2.0)
Level of hospital	
Tertiary	647 (64.8)
Secondary	352 (35.2)
Education	
Diploma	389 (39.1)
Undergraduate	566 (56.5)
Graduate	5 (0.5)
Not specified	39 (3.9)
Working experience (years) ($M = 7.32$, $SD \pm 6.13$, $Min-Max = 0-40$)	
< 5	378 (37.9)
5-10	440 (44.0)
11-20	139 (13.9)
21-30	33 (3.3)
31-40	9 (0.9)
Frequency of training in surgical site infection prevention (last two years)	
< 5 times	666 (66.7)
5-10 times	188 (18.8)
> 10 times	145 (14.5)
Having guidelines in hospitals	
No	328 (32.8)
Yes	671 (67.2)
Having an infection control department	
No	85 (8.5)
Yes	914 (91.5)

Level of Knowledge, Attitude, and Practice of Surgical Site Infection Prevention

It is shown that 43.5% of participants had a low level of knowledge, and 59.5% had a positive attitude toward surgical site infection prevention. In addition, 37.6% of participants had a high level and 38.8% had a very high level of surgical site infection prevention practice ([Table 2](#) and [Table 3](#))

Table 2 Mean, standard deviation, and levels of knowledge, attitude, and practice of surgical site infection prevention ($N = 999$)

Surgical Site Infection Prevention	<i>M</i> (%)	<i>SD</i> (%)	Level
Knowledge	67.98	7.96	Low
Attitude	81.26	7.55	Positive
Practice	84.65	13.50	High

Table 3 Level, frequency, and percentage of participants categorized by knowledge, attitude, and practice ($N = 999$)

Level	Knowledge <i>n</i> (%)	Attitude <i>n</i> (%)	Practice <i>n</i> (%)
Very low	180 (18.0)	-	55 (5.5)
Low/Negative*	434 (43.5)	4* (0.4) *	39 (3.9)
Moderate/Neutral*	323 (32.3)	401* (40.1) *	142 (14.2)
High/Positive*	58 (5.8)	594* (59.5) *	376 (37.6)
Very high	4 (0.4)	-	387 (38.8)

Note: * refers to attitude level

Correlation of Knowledge, Attitude, and Practice of Surgical Site Infection Prevention

[Table 4](#) shows that knowledge was positively correlated with attitude ($r = .14$, $p < .01$), and attitude was positively correlated with practice ($r = .30$, $p < .01$). However, no correlation was found between knowledge and practice ($p = .07$).

Table 4 Correlation between knowledge, attitude, and practice of surgical site infection among operating room nurses ($N = 999$)

Variables	Knowledge	Attitude	Practice
Knowledge	1		
Attitude	.137**	1	
Practice	.058	.302**	1

Note: ** $p < .01$

Mean Differences of Knowledge, Attitude, and Practice According to Demographic Characteristics

Table 5 shows that different working experiences significantly differ in surgical site infection prevention knowledge. It was

demonstrated that participants with working experience of 0-5 years had significant lower knowledge scores than those of 6-15 years. Conversely, the participants with working experience of 6-15 years had significant higher knowledge scores than those of 16-25 years. In addition, the training frequency of surgical site infection prevention also illustrated different attitudes and practice scores. Participants with one time of training experience had significant lower attitude scores than those with 6-10 times of training experience. Similarly, participants with one training experience had significant lower practice scores than those with 2-5 times of training experience and those with 6-10 times of training experience.

Table 5 Differences of knowledge, attitude, and practice in each subgroup of demographic characteristics ($N = 999$)

Demographic characteristics	Knowledge		Attitude		Practice	
	<i>M (SD)</i>	<i>p-value</i>	<i>M (SD)</i>	<i>p-value</i>	<i>M (SD)</i>	<i>p-value</i>
Education level		.68		.14		.94
Diploma	14.99 (1.82)		125.29 (11.90)		55.93 (8.75)	
Bachelor	14.92 (1.69)		126.28 (11.56)		55.81 (9.07)	
Graduation	15.40 (1.14)		133.60 (7.77)		57.00 (7.03)	
Age (years)		.03		.49		.90
20-29	14.88 (1.73)*		126.39 (11.34)		56.06 (9.01)	
30-39	15.12 (1.73)+		125.22 (12.44)		55.69 (8.66)	
40-49	14.64 (1.86)		126.28 (9.75)		55.52 (9.10)	
50-59	14.50 (1.96)		126.60 (11.52)		56.40 (11.36)	
Working experience (years)		.008		.98		.96
0-5	14.88 (1.67)**		125.98 (11.59)		55.89 (8.77)	
6-15	15.13 (1.79)++		125.83 (12.23)		55.82 (9.09)	
16-25	14.47 (1.86)		125.42 (9.75)		55.74 (8.07)	
26-40	14.57 (1.99)		126.48 (10.45)		56.86 (11.49)	
Frequency of surgical site infection prevention training		.83		.02		<.001
1 time	15.01 (1.61)		124.28(12.08)***		53.88 (10.07)****	
2-5 times	14.93 (1.78)		125.92 (11.94)		56.08 (8.48)	
6-10 times	14.96 (1.75)		127.27 (10.68)		57.20 (8.43)+++	

Note: *age group of 20-29 years old had significant lower knowledge than those of 30-39 years old; + age group of 30-39 years old had significant higher knowledge than those of 40-49 years old; **working experience 0-5 years had significant lower knowledge score than those of 6-15 years; ++working experience 6-15 years had significant higher knowledge score than those of 16-25 years; ***1 time of training experience had significant lower attitude score than those of 6-10 times of training experience; ****1 time of training experience had significant lower practice score than those of 2-5 times of training experience; +++1 time of training experience had significant lower practice score than those of 6-10 times of training experience.

Discussion

The results of this study revealed that operating room nurses' knowledge was at a low level. However, the attitude was at a positive level, and the practice of surgical site infection prevention was at a high level. A detailed explanation is described in the following sections.

Knowledge, Attitude, and Practice of Surgical Site Infection Prevention

The low level of knowledge of surgical site infection prevention might be related to working experience and the contents of guidelines. Additional analysis revealed that operating room nurses who had working experience of less than five years had lower knowledge than those with working experience of 6-15 years. This study showed that 47.8% of the participants had less than five years of work experience. According to a previous study, a person with more than five years of work experience has more knowledge than those with less than five years' experience (Novelia et al., 2017). However, this claim

was not the case in this current study. It was found that participants who had working experience of 16-25 years had significantly lower knowledge scores than those with working experience of 6-15 years. It might be due to the fact that nurses who have long working experience might take less time to inquire about up-to-date evidence of surgical site infection prevention.

Another factor might be related to the contents of the current Chinese nursing educational material. Educational material on surgical site infection prevention guidelines for operating room nurses in China is based on the Chinese Nursing Association Operating Room Professional Committee, which still has somewhat different contents as compared to the international guidelines of the Centers for Disease Control and World Health Organization (Mangram et al., 1999; World Health Organization, 2018). Using different guidelines seems to be one factor leading to the low level of knowledge regarding surgical site infection prevention.

Although the frequency of attending training courses on surgical site infection prevention might affect the new knowledge of surgical site infection prevention, this is not the

case in this current study since no significant different knowledge exists from different frequencies of training courses. However, it affects the attitude and practice of surgical site infection prevention. Participants with more attendance frequencies had higher attitude and practice scores than those with fewer training frequencies. Due to the training, the operating room nurses also became aware of surgical site infection prevention during day-to-day work. Then, the more awareness they acquired, the higher practice of surgical site infection prevention based on the knowledge, attitude, and practice (KAP) model (Launiala, 2009). In addition, additional analysis showed that participants aged between 20 and 29 years old had significantly lower knowledge than those between 30 and 39 years old, but not different from those with age greater than 39 years old. The high level of practice of middle-aged adults might be related to more daily practice and more acquired evidence-based practice from any resources other than other age groups. Desta et al. (2018) pointed out that the middle-aged group of healthcare workers practiced infection prevention more than the younger nurses.

However, there are still some areas recommended in the international guidelines that operating room nurses do not practice, such as using electric razors instead of normal razor blades for hair removal, removing hair even though it does not interfere with a surgery site, and inspecting all air in the operating room through an air filter that has passed standard quality certification. Unfortunately, these issues are not stated clearly in the Chinese national practice guidelines (Chinese Nursing Association Operating Room Professional Committee, 2018; National Health Commission of the People's Republic of China, 2010). This might be the reason why operating room nurses in China have a different way of carrying out these procedures.

Relationships Between Knowledge, Attitude, and Practice of Surgical Site Infection Prevention

Based on the KAP model, knowledge and attitude can be mutually influential and linked to practice (Launiala, 2009). Higher standards of knowledge can change the attitude toward surgical site infection prevention. On the other hand, a positive level of attitude can encourage learning and bring about better practice, as proposed by learning theory (Krathwohl et al., 1964). The results revealed that there was a positive correlation between knowledge and attitude, and between attitude and practice of surgical site infection prevention. This finding was similar to previous studies (Kolade et al., 2017; Lobo et al., 2019).

Although the KAP model identifies the link between knowledge and practice, it was not verified in this study. It can be explained that the high level of practice of surgical site infection was related to the supervision by senior nurses in surgical site infection prevention on a day-to-day basis and their greater work experience. Surgical site infection prevention knowledge was specifically associated with updated surgical site infection prevention guidelines that did not relate to common daily work. Therefore, there was no significant relationship between knowledge and practice of surgical site infection prevention in this study. The findings of this study were similar to previous studies (Chitimwango, 2017; Patil et al., 2018).

Implications of the Study

The operating room nurses had an overall high level of surgical site infection prevention practice based on a self-report questionnaire in this study. However, they had a low level of practice in surgical site infection prevention, especially in using razors for hair removal. Therefore, they are encouraged to follow the updated information on hair removal techniques. It would be useful to do an intervention study in the future regarding the improvement of the level of operating room nurses' knowledge, especially for surgical site infection prevention. It is also recommended that the national operating room nurses' guidelines be reviewed based on this study. A limitation of the online data collection technique could preclude high accessibility of the expected target population; therefore, observation of future data collection is recommended for warranting the study's validity.

Conclusion

The finding of this study was evidenced that knowledge of surgical site infection prevention among operating room nurses in one province of China was inadequate, but they had a positive attitude and a high level of practice. There was a significant association between knowledge and attitude, attitude and practice, but not between knowledge and practice. The findings of this study could offer basic information for nursing administrators or policymakers at the local and national levels to consider strategies to provide updated knowledge of surgical site infection prevention or updated guideline for operating room nurses. Close supervision by experienced nurses and in-service training of surgical site infection prevention to operating room nurses are also recommended. Future research to examine the effectiveness of intervention enhancing surgical site infection prevention knowledge will be needed.

Declaration of Conflicting Interest

All contributing authors declare that no conflicts of interest exist.

Funding

The study was partially supported by a thesis grant from Thailand's Education Hub for the Southern Region of ASEAN Countries (TEH-AC) Scholarship through Prince of Songkla University, Thailand.

Acknowledgment

The principal investigator acknowledged Thailand's education hub for the southern region of ASEAN countries (TEH-AC) scholarship for granting a study scholarship. Also, all authors thanked all participants and research assistants.

Authors' Contributions

WF made significant contributions to the research proposal, the literature review, data collection, data analysis and interpretation, and drafting of the article. WS and LK made substantial contributions to the research proposal, the literature review, study conception and design, data analysis and interpretation, drafted the article, and critical revision of the article.

Authors' Biographies

Wen Feng is a Master student of Nursing Science in Adult and Gerontological Nursing (International Program) at Prince of Songkla University, Hatyai, Thailand. She is also a Registered Nurse at the

Department of Anesthesiology, Guizhou Provincial People's Hospital, Guiyang, Guizhou Province, China.

Wipa Sae-Sia, RN, PhD, is an Associate Professor at the Department of Adult and Gerontological Nursing, Faculty of Nursing, Prince of Songkla University, Hatyai, Thailand.

Luppana Kitrungrote, RN, PhD, is an Assistant Professor at the Department of Adult and Gerontological Nursing, Faculty of Nursing, Prince of Songkla University, Hatyai, Thailand.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

References




- Berrios-Torres, S. I., Umscheid, C. A., Bratzler, D. W., Leas, B., Stone, E. C., Kelz, R. R., Reinke, C. E., Morgan, S., Solomkin, J. S., Mazuski, J. E., Dellinger, E. P., Itani, K. M. F., Berbari, E. F., Segreti, J., Parvizi, J., Blanchard, J., Allen, G., Kluytmans, J., Donlan, R., & Schechter, W. P. (2017). Centers for disease control and prevention guideline for the prevention of surgical site infection, 2017. *JAMA Surgery*, 152(8), 784-791. <https://doi.org/10.1001/jamasurg.2017.0904>
- Bhangu, A., Ademuyiwa, A. O., Aguilera, M. L., Alexander, P., Al-Saqqa, S. W., Borda-Luque, G., Costas-Chavarri, A., Drake, T. M., Ntirenganya, F., & Fitzgerald, J. E. (2018). Surgical site infection after gastrointestinal surgery in high-income, middle-income, and low-income countries: A prospective, international, multicentre cohort study. *The Lancet Infectious Diseases*, 18(5), 516-525. [https://doi.org/10.1016/S1473-3099\(18\)30101-4](https://doi.org/10.1016/S1473-3099(18)30101-4)
- Chen, Y., Dong, Y., Huang, C., & Gao, Y. (2013). Compliance of prevention of surgical site infections among operating room nurses. *Chinese Journal of Nosocomiology*, 23(21), 5217-5219.
- Chinese Nursing Association Operating Room Professional Committee. (2018). *Guide to operating room nursing practice* (5th ed.). Beijing, China: People's Medical Publishing House.
- Chinese Nursing Association Operating Room Professional Committee. (2021). *Guide to operating room nursing practice* (8th ed.). Beijing, China: People's Medical Publishing House.
- Chinese Society of Surgical Infection and Intensive Care of Chinese Society of Surgery in Chinese Medical Association, Chinese College of Gastrointestinal Fistula Surgeons of Chinese College of Surgeons in Chinese Medical Doctor Association, & Ren, J. (2019). Chinese guideline for the prevention of surgical site infection. *Chinese Journal of Gastrointestinal Surgery*, 22(4), 14.
- Chitimwango, P. C. (2017). *Knowledge, attitudes and practices of nurses in infection prevention and control within a tertiary hospital in Zambia* [Master's Thesis, Stellenbosch University]. Stellenbosch, South Africa.
- Desta, M., Ayenew, T., Sitotaw, N., Tegegne, N., Dires, M., & Getie, M. (2018). Knowledge, practice and associated factors of infection prevention among healthcare workers in Debre Markos referral hospital, Northwest Ethiopia. *BMC Health Services Research*, 18(1), 465. <https://doi.org/10.1186/s12913-018-3277-5>
- Hao, H., Meng, X., Han, M., & Shang, L. (2018). Neurosurgical nurses' current cognition of the prevention measures of surgical site infection. *Clinical Nursing in China*, 10(3), 199-202+206. <https://doi.org/10.3969/j.issn.1674-3768.2018.03.005>
- Kolade, O. A., Abubakar, S., Adejumo, S. R., Funmilayo, H. V., & Tijani, A. (2017). Knowledge, attitude and practice of surgical site infection prevention among post-operative nurses in a tertiary health institution in north-central Nigeria. *International Journal of Nursing and Midwifery*, 9(6), 65-69. <https://doi.org/10.5897/IJNM2017.0262>
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of educational objectives: The classification of educational goals. Handbook II: The affective domain*. (2nd ed.). UK: David McKay.
- Launiala, A. (2009). How much can a KAP survey tell us about people's knowledge, attitudes and practices? Some observations from medical anthropology research on malaria in pregnancy in Malawi. *Anthropology Matters*, 11(1). <https://doi.org/10.22582/am.v11i1.31>
- Li, Z., Li, H., Lv, P., Peng, X., Wu, C., Ren, J., & Wang, P. (2021). Prospective multicenter study on the incidence of surgical site infection after emergency abdominal surgery in China. *Scientific Reports*, 11(1), Article 7794. <https://doi.org/10.1038/s41598-021-87392-8>
- Lin, F., Gillespie, B. M., Chaboyer, W., Li, Y., Whitelock, K., Morley, N., Morrissey, S., O'Callaghan, F., & Marshall, A. P. (2019). Preventing surgical site infections: Facilitators and barriers to nurses' adherence to clinical practice guidelines-A qualitative study. *Journal of Clinical Nursing*, 28(9-10), 1643-1652. <https://doi.org/10.1111/jocn.14766>
- Lobo, D., Sams, L. M., & Fernandez, S. L. (2019). Correlation between health professionals' knowledge, attitude and practice about infection control measures. *Journal of Medical and Allied Sciences*, 9(1), 26-31. <https://doi.org/10.5455/jmas.17740>
- Mangram, A. J., Horan, T. C., Pearson, M. L., Silver, L. C., Jarvis, W. R., & Hospital Infection Control Practices Advisory Committee. (1999). Guideline for prevention of surgical site infection, 1999. *Infection Control and Hospital Epidemiology*, 20(4), 247-280. <https://doi.org/10.1086/501620>
- McDonald, M. (2002). *Systematic assessment of learning outcomes: Developing multiple-choice exams*. Massachusetts, US: Jones & Bartlett Learning.
- Mujagic, E., Zeindler, J., Coslovsky, M., Hoffmann, H., Soysal, S. D., Mechera, R., von Strauss, M., Delko, T., Saxer, F., Glaab, R., Kraus, R., Mueller, A., Curti, G., Gurke, L., Jakob, M., Marti, W. R., & Weber, W. P. (2019). The association of surgical drains with surgical site infections - A prospective observational study. *The American Journal of Surgery*, 217(1), 17-23. <https://doi.org/10.1016/j.amjsurg.2018.06.015>
- National Health Commission of the People's Republic of China. (2010). *Surgical site infection prevention and control guideline (Trial)*. Retrieved from <http://www.moh.gov.cn/mohyzs/s3594/201012/50039.shtml>
- Novelia, S., Sia, W. S., & Songwathana, P. (2017). Nurses' knowledge and practice regarding the prevention of cesarean section surgical site infection in Indonesia. *GSTF Journal of Nursing and Health Care*, 4(2). https://doi.org/10.5176/2345-718X_4.2.140
- Patil, V. B., Raval, R. M., & Chavan, G. (2018). Knowledge and practices of health care professionals to prevent surgical site infection in a tertiary health care centre. *International Surgery Journal*, 5(6), 2248-2251. <https://doi.org/10.18203/2349-2902.isj20182231>
- Poirot, K., Le Roy, B., Badrikian, L., & Slim, K. (2018). Skin preparation for abdominal surgery. *Journal of Visceral Surgery*, 155(3), 211-217. <https://doi.org/10.1016/j.jvisc.2018.03.004>
- Polit, D. F., & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence for nursing practice* (10th ed.). Philadelphia, US: Wolters Kluwer Health.
- Purba, A. K. R., Luz, C. F., Wulandari, R. R., van der Gun, I., Dik, J. W., Friedrich, A. W., & Postma, M. J. (2020). The impacts of deep surgical site infections on readmissions, length of stay, and costs: A matched case-control study conducted in an academic hospital in the Netherlands. *Infection and Drug Resistance*, 13, 3365-3374. <https://doi.org/10.2147/idr.S264068>
- Rav-Marathe, K., Wan, T., & Marathe, S. (2016). A systematic review on the KAP-O framework for diabetes education and research. *Medical Research Archives*, 4(1), 1-22.
- Sadaf, S., Inayat, S., Afzal, M., & Hussain, M. (2018). Nurse's knowledge and practice regarding prevention of surgical site infection at allied hospital Faisalabad. *International Journal of Scientific and Engineering Research*, 9(5), 351-369.
- Saksri, Y., Naka, K., & Sae-Sia, W. (2018). *Relationship between knowledge, attitude, and practice towards prevention of surgical site infection during intraoperative period among perioperative nurses* (Publication Number 7681). Prince of Songkla University, Thailand.
- Silvestri, M., Dobrinja, C., Scomersi, S., Giudici, F., Turollo, A., Princic, E., Luzzati, R., de Manzini, N., & Bortul, M. (2018). Modifiable and non-modifiable risk factors for surgical site infection after colorectal surgery: A single-center experience. *Surgery Today*, 48(3), 338-345. <https://doi.org/10.1007/s00595-017-1590-y>
- Wang, Z., Chen, J., Wang, P., Jie, Z., Jin, W., Wang, G., Li, J., & Ren, J. (2019). Surgical site infection after gastrointestinal surgery in China: A multicenter prospective study. *Journal of Surgical Research*, 240, 206-218. <https://doi.org/10.1016/j.jss.2019.03.017>
- World Health Organization. (2016). *Global guidelines for the prevention of surgical site infection*. Geneva: World Health Organization.
- World Health Organization. (2018). *Global guidelines for the prevention of surgical site infection* (2nd ed.). Geneva: World Health Organization.

- Yang, Y., & Cheng, J. (2014). Survey of operating room nurses' knowledge and practice on surgical site infection prevention. *Chinese Journal of Nurses Training*, 29(20), 1894-1896.
- Zhang, M., Mou, X., Yang, H., Chen, J., Xu, Y., Zhang, J., Zhu, Y., He, L., Chen, L., Yang, T., Xue, T., Zhang, M., & Wu, H. (2015). Cross-sectional survey on prevalence of nosocomial infection among 65885 hospitalized patients in Guizhou province in 2014. *Modern Preventive Medicine*, 41(16), 3040-3044.
- Zhang, X., Wang, Z., Chen, J., Wang, P., Luo, S., Xu, X., Mai, W., Li, G., Wang, G., Wu, X., & Ren, J. (2020). Incidence and risk factors of surgical site infection following colorectal surgery in China: A national cross-sectional study. *BMC Infectious Diseases*, 20(1), Article 837. <https://doi.org/10.1186/s12879-020-05567-6>
- Zhang, X. Q., Wang, Y. L., & Xu, M. (2019). Analysis of current situation and influencing factors of knowledge, attitude and behavior of terminal disinfection in operation room nurses with infection. *Chinese Nursing Management*, 19(1), 123-127.
- Zhou, F., Huang, Q., & Lei, X. (2014). Medical staffs' knowledge, attitude, and practice on surgical site infection prevention in primary hospitals. *Chinese Journal of Today Nurse*, 10, 122-124.

Cite this article as: Feng, W., Sae-Sia, W., & Kitrungrote, L. (2022). Knowledge, attitude, and practice of surgical site infection prevention among operating room nurses in southwest China. *Belitung Nursing Journal*, 8(2), 124-131. <https://doi.org/10.33546/bnj.2018>



Life skills and sexual risk behaviors among adolescents in Indonesia: A cross-sectional survey

Ati Surya Mediawati¹, Iyus Yosep^{2*}, and Ai Mardhiyah³

¹ Department of Fundamental Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia

² Department of Psychiatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia

³ Department of Pediatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia

Abstract

Background: Adolescents require life skills and individual and interpersonal abilities to grow into adults with a healthy lifestyle. Although the majority of the literature indicates that life skills increase teenagers' cognitive, social, and emotional abilities, there is a lack of data correlating life skills to sexual risk behaviors.

Objective: This study aimed to examine the relationship between life skills and sexual risk behaviors among adolescents aged 15–19 in Bandung, Indonesia.

Methods: This study was conducted using a cross-sectional survey of 480 adolescents from April to May 2021. A representative sample was drawn from the students aged 15–19 years. The participants were selected using simple random sampling generated by computer software. Life Skill Training Questionnaire High School (LSTQ-HS) and sexual risk behaviors instruments were used for data collection, and logistic regression was used for data analysis.

Results: From a total of 480 respondents, about 23.3% had masturbation experience, 25.8% had petting experience, 8.3% had sexual intercourse, 5% had sex before 18 years of age, and 4.2% had oral sex experience. Sexual risky behaviors were associated with unfavorable refusal skill (AOR = 6.46, 95% CI = 2.37, 17.53), assertiveness skill (AOR = 3.51, 95% CI = 1.32, 4.33), problem-solving skill (AOR = 5.35, 95% CI = 2.88, 11.39), and self-control skill (AOR = 7.31, 95% CI = 2.79, 17.24).

Conclusion: Life skills are important protective aspects for those who engage in sexually risky behavior. Considering the study findings, tailored life skills programs are critical for adolescent wellbeing and risk reduction. Nurses who take a proactive role in providing sexual and reproductive health services may provide more accurate information and provide early screening and assessment for sexual and reproductive behavior to reduce risky sexual behavior among adolescents. Schools are also encouraged to work with local health departments to conduct sexual education counseling programs.

Keywords

life skills; school adolescents; sexual behavior; substance use; nursing; Indonesia

*Corresponding author:

Iyus Yosep, S.Kp., M.Si., M.Sc, PhD
Psychiatric Nursing Department, Faculty of
Nursing, Padjadjaran University. Jl. Raya
Bandung-Sumedang KM. 21, Hegarmanah,
Jatinangor, Kabupaten Sumedang, West
Java, 45363, Indonesia
Email: iyusyosep2019@gmail.com

Article info:

Received: 20 October 2021

Revised: 22 November 2021

Accepted: 12 February 2022



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

Adolescent development is vital for character development and identity formation and a critical transition period from child to adult (Indonesian Ministry of Health, 2018). Adolescence is a time of considerable sexual development. Adolescence marks the beginning of puberty, a crucial milestone in sexual maturation (Santos, 2022), establishing a sense of identity in late adolescence (17–19 years) through social contact, peer interaction, and sexual attraction (Herting & Sowell, 2017). Adolescents begin to estimate their own risk-taking around middle adolescence (Sanci et al., 2018). During adolescence, a person's desire for intimacy and love grows, and they experiment with numerous ways to show it (Herting & Sowell,

2017). Adolescents are naturally curious and enthusiastic to try new things and explore with adults, such as sexuality issues and use drugs injection (Pumama et al., 2018).

As per the 2020 data, published by the Indonesian Census Bureau, adolescents (10–19 years of age) count approximately 46 billion or 17% of the total Indonesian population (51% age of 10 to 14 and 49% age of 15 to 19 years old) (Central Bureau of Statistics, 2020). Bandung is the first highest number of adolescents in Indonesia, accounting for 60% of total adolescents in Indonesia. As a result of early marriage in developing nations such as Indonesia, teenagers are more likely to become pregnant at an early age and to become parents before the age of 18. In the 2017 Indonesia Demographic and Health Survey (IDHS) data, 80% of women and 84% of men admitted that they had been in a relationship.

The 15-17 age group is the group that started dating for the first time (45% women and 44% men). The majority of women and men admit to engaging in various activities when dating, such as holding hands, hugging, lips kissing, and touching. In addition, it is reported that 8% of men and 2% of women have had sexual intercourse. Premarital sex was reported by 59% of women and 74% of men between the ages of 15 and 19. The majority of the cases occurred between the ages of 17 and 19, with the median age being 18 (National Population and Family Planning Board, 2017). Another study in 2017 reported that 12.5% of males and 2.7% of females aged 15-19 had premarital sexual intercourse (Yolanda et al., 2019). According to data from Bandung Census Bureau, approximately 65% of high school adolescents had premarital sex; 20% of them had an abortion (National Population and Family Planning Board, 2017). Another study in Bandung reported that 91% of 15–19-year-olds had sexual intercourse before marriage (Purnama et al., 2018). In addition, the sexual risk behavior among adolescents in Bandung is highly worrying. The higher number of sexual abuse and human trafficking involving adolescents as “sex slaves” has been prevalent (Paransa & Hatta, 2021).

Premarital sex practice among adolescents is increasing at an alarming rate, which could have a negative effect on women's reproductive health in the future. Sexual exposure during adolescence could increase the risk of sexually transmitted illnesses such as HIV/AIDS, adolescent pregnancy, and fatherhood (Unigwe et al., 2022). Early marriage, which results in early sexual exposure, and pregnancy, has also been shown to have adverse effects on reproductive health (Sezgin & Punamäki, 2020). In addition, promiscuity negatively influences health because it encourages risky behaviors, including free sex, illegal activity like abortion, the use of illicit drugs, and the spread of sexually transmitted diseases (STDs) (Lutfinawati & Ananingsih, 2014; Pratiwi & Basuki, 2011). However, formal sex education in schools is rare or insufficient in many developing countries. Inadequate sex education leads to unprotected sex, unwanted pregnancy, and STDs. Unprotected sex in adolescents is due to a lack of understanding and inappropriate sex education (Kumar et al., 2017). Also, parental communication on sexuality and STDs is lacking (Rogers, 2017). As a result, adolescents have limited opportunities to discuss sexual concerns, hindering healthy sexual development (Sales et al., 2013).

Life skills are the ability to perform adaptive and positive behaviors that enable individuals to effectively deal with the demands and challenges of everyday life (World Health Organization, 1994). It is a broad concept that comprises varied cognitive skills required to function in society, preserve mental health, and enjoy a more rewarding social life. Unlike dispositional characteristics like personality traits, life skills are acquired (World Health Organization, 1994). In the social learning theory, the conceptual framework of life skills includes psychological aspects such as acquired learnable behaviors and attitudes that are amenable to modeling (Bandura, 1986; Botvin & Kantor, 2000). According to Kase et al. (2016), adolescents and adults engage in four main categories of daily activities. First, we need Decision-Making skills (DM), which help us make good decisions about how to solve problems based on logic and imagination. Second, Interpersonal Relationship skill (IR) refers to the ability to imagine sentiments

and emotions based on other people's words and behaviors and exhibit empathy. Third, Effective Communication skill (EC) is the ability to communicate one's ideas to others successfully. Fourth is the Coping-with-Emotions skill (CE), which entails the ability to effectively manage one's own emotions (Kase et al., 2016).

Higher life skills increase socially appropriate behavior (Botvin & Kantor, 2000). Adaptive behavior can be seen in educational contexts. Since DM reflects executive functions and CE affects emotional regulation, these characteristics appear to be linked to risky sexual behaviors (Hattori & Ikeda, 2016). Developing one's life skills requires inputs such as information, skills, and attitudes in order to grow and maintain a greater quality of life (Lestari & Suminar, 2016). Life skills have a significant impact on supporting the lives of teenagers, notably the prevention and reduction of adolescent challenges. Adolescents' life skills are hoped to provide them with a tougher, stronger, more disciplined, religious, moral, and character-filled life (Ermayani, 2015). Adolescents with strong character will become superior and proud teenagers due to their physical health, emotional stability, and intellectual development (Ermayani, 2015).

A previous study reported that 52.6% of adolescents were able to make decisions for themselves and their families, and 15.4% were unable to solve the problem due to complex issues (Sulistianingrum & Arifah, 2016). Unable to solve problems affects problem-solving skills, leading to teenagers' frustration and hopelessness (Sulistianingrum & Arifah, 2016). A study in Thailand has reported that 44% of adolescents lack life skills, and 40% have inadequate communication skills. However, recent studies reveal that relatively few youth contacts focused on life skills, and service use remains low at 12% (Dingeta et al., 2012; Kennedy et al., 2014; Temesgen & Markos, 2015; Wolie, 2014). Schools were an excellent place for adolescents to communicate positive and unpleasant life experiences. There are several areas where nurses may help enhance adolescents' sexual and reproductive health and minimize the number of unintended pregnancies and sexually transmitted illnesses, including communities, schools, public health facilities, and acute care clinics. Thus, understanding the relationship between life skills and sexually risky behavior in adolescents is critical for developing sexual and reproductive health programs and determining whether or not to incorporate life skills into school health programs. Although many studies have been conducted to explore adolescent sexual risk behaviors and their associated factors, none have investigated the relationship between life skills and sexual risk behaviors among adolescents in Indonesia. This study aimed to examine the relationship between life skills and sexual risk behaviors among adolescents aged 15–19 in Bandung, Indonesia.

Methods

Study Design

This survey was conducted using a cross-sectional design at a senior high school in Bandung, West Java, Indonesia. With a total population of 41,231 people, Bandung is home to around 12,369 young people aged 10–24 years, including

teenagers, accounting for 30 percent of the total population (Central Bureau of Statistics, 2020).

Participants

The inclusion criteria of the participants were adolescents aged 15-19 years and willing to be respondents. In contrast, the exclusion criteria were adolescents who have cognitive impairment and are diagnosed with HIV. The participants were selected using the convenience sampling technique. Estimated sample were calculated using G-Power software version 3.1 with F-test, $\alpha = 0.05$, effect size = 0.10 (Fung & Cohen, 1998), power level = 0.80, estimation a minimum sample of 199. Following the addition of a 10% non-response rate, the total minimum sample size to be recruited was 210.

Instruments

The adolescent life skills variable in this study was measured using Life Skill Training Questionnaire High School (LSTQ-HS) made by the National Health Promotion Associates (NHPA), which was developed by Botvin and Kantor (2000) in English. The questionnaire consists of four sections (A and D) with a total of 52 questions. The questionnaire used a Likert scale; strongly agree = 4, agree = 3, disagree = 2, disagree = 1, and strongly disagree = 0. Unfavorable life skills are those with a score below average (mean = 94.38). The instrument had good valid ($r = 0.43$) and reliability (Cronbach' Alpha = 0.88) (Botvin & Kantor, 2000).

A measure of sexual risk behaviors used an instrument developed by Ugarte et al. (2013). Each participant was questioned about their sexual behavior over the previous 12 months. This questionnaire is divided into five aspects and has a total of 22 questions. Sexual risk behavior is defined if they practiced at least one of the listed behaviors in the questionnaire. There was a dichotomy in the responses: adolescents with risky sexual conduct (classified as 1) and no risky sexual behavior (coded as 0). Cronbach Alpha was 0.70 (Ugarte et al., 2013).

All instruments were translated from English to Indonesian and back to English to ensure it was the same. After receiving consent from the original authors, the translation process began. Two Indonesian multilingual nursing scholars independently translated the instruments. The researchers then analyzed the two translated versions that addressed ambiguities and inequalities and chose the final form. The reverse translation procedure was created with the goal of establishing a significance instead of a literal "word for word" translation (Ozolins et al., 2020). First, an independent bilingual translator translated the instrument from Indonesian to American English. Finally, both healthcare professionals and the primary investigators evaluated the reverse-translated instrument in comparison to the original instruments. Twenty (5%) of senior high school students were pre-tested. The internal consistency of the questionnaire was determined by Cronbach's alpha 0.7. The data were verified daily for errors and missing data.

Data Collection

Data were collected from April to May 2021. The researchers were aided by one of the instructors whom the school assigned to schedule online meetings with prospective school

respondents to recruit respondents who met the previously established research inclusion criteria.

Data Analysis

Univariate analysis was used to analyze studied variables using frequency, mean, standard deviation, and range. Bivariate logistic regression in ENTER mode was utilized to evaluate the association between studied variables. Variables with a p -value less than 0.25 in bivariate regression were included in the multivariate regression model. Adjusted odds ratios (AORs) were used to evaluate the association, with a p -value less than 0.05 indicating a statistically significant.

Ethical Consideration

This study was approved by the ethical committee of Universitas Padjadjaran, Indonesia (II/130L/ETIK/VII/2020), and the study was also approved by the Indonesian Political and National Unity Agency. The researchers discussed the aims, benefits, time of the research, then explained the rights of the respondents and the time agreed to conduct the research process with the respondent. The respondents who agreed to participate in the study completed an informed consent form. Besides, permission to use the instrument was obtained from the original authors prior to data collection.

Results

A total of 480 adolescents responded to the study, yielding a response rate of 95%. The respondents' mean (\pm SD) age was 16.89 (SD = 0.76) years. As Table 1 shows, 65% of the participants were males. The religion of 95% of respondents was Muslim, followed by 5% Protestant. In addition, 84.2% of respondents had received sexual education information. The majority of sexual education information obtained by the respondents came from the internet (44.2%).

Table 1 Demographic characteristics of the participants ($n = 480$)

Variables	n (%)	Mean \pm SD
Age		16.89 \pm 0.76
Gender		
Male	312 (65.0)	
Female	168 (35.0)	
Grade		
X	164 (34.2)	
XI	168 (35.0)	
XII	148 (30.8)	
Education on risky behaviors		
Yes	404 (84.2)	
No	76 (15.8)	
Source of information		
Internet	212(44.2)	
Friend	144 (7.5)	
Teacher	128 (26.7)	
Parent	8 (1.7)	
Mass media	96 (20.0)	

Table 2 shows that the mean total score of life skills among adolescents was 94.38 (SD = 14.63). The highest life skill domain was refusal skill (17.84 \pm 7.37), followed by assertiveness (6.84 \pm 2.77), problems solving (5.93 \pm 2.03), and self-control skills (4.69 \pm 1.75). Of 480 respondents,

23.3% had masturbation experience, 25.8% had petting, 8.3% had sexual intercourse, 5% had sex before 18 years of age, and 4.2% had oral sex experience.

Table 2 Life skills and sexual risk behaviors among adolescents in Indonesia ($n = 480$)

Variables	Mean \pm SD	Range	n (%)
Life skills	94.38 \pm 14.63	51 - 119	
Refusal skill	17.84 \pm 7.37	0 - 24	
Assertiveness skill	6.84 \pm 2.77	0 - 12	
Problem-solving skill	5.93 \pm 2.03	0 - 8	
Self-control skill	4.69 \pm 1.75	0 - 8	
Sexual risky behavior			
Masturbation			112 (23.3)
Petting			124 (25.8)
Sexual intercourse			40 (8.3)
Sex before 18			24 (5.0)
Oral sex			20 (4.2)

Table 3 shows that being male, receiving education on risky behaviors, having unfavorable refusal skills, assertiveness skills, problem-solving skills, and self-control skills were statistically significant with sexual risk behaviors. In the multivariate logistic regression, after adjusting for potential confounders, being female, being male, receiving education on risky behaviors, having unfavorable refusal, assertiveness, problem-solving, and self-control skills were associated with sexual risk behaviors. Life skills showed a statistically significant correlation with risky sexual behavior even after controlling for the other variables. Having unfavorable refusal (AOR = 6.46, 95% CI = 2.37, 17.53), assertiveness skill (AOR = 3.51, 95% CI = 1.32, 4.33), problem-solving skill (AOR = 5.35, 95% CI = 2.88, 11.39), and self-control skill (AOR = 7.31, 95% CI = 2.79, 17.24) were found to be significantly associated with risky sexual behavior.

Table 3 Relationships between demographic characteristics, life skills, and sexual risk behaviors

Variables	Sexual risk behaviors		Crude OR with 95% CI	Adjusted OR with 95% CI
	Yes ($n = 175$)	No ($n = 305$)		
Age				
15	15	70	Ref.	Ref.
16	18	122	2.66 [0.67, 9.72]	1.43 [0.18, 3.76]
17	30	62	2.14 [0.78, 5.92]	1.61 [0.10, 5.14]
18	47	20	1.77 [0.08, 7.19]	0.221 [0.11, 5.01]
19	65	31	0.95 [0.04, 4.10]	0.71 [0.04, 2.41]
Gender				
Female	70	235	Ref.	Ref.
Male	105	70	3.62 [2.06, 6.51] *	4.39 [1.74, 19.16] *
Grade				
X	45	130	Ref.	Ref.
XI	63	125	2.42 [0.89, 7.73]	2.05 [0.20, 5.84]
XII	67	50	0.63 [0.23, 9.56]	1.10 [0.08, 2.45]
Education on risky behaviors				
Yes	79	259	2.67 [1.29, 6.43] *	3.46 [1.37, 8.25] *
No	96	46	Ref.	Ref.
Source of information				
Internet	54	112	1.134 [0.68, 8.32]	0.55 [0.18, 1.63]
Friend	26	87	1.04 [0.45, 4.06]	0.22 [0.03, 2.81]
Teacher	17	42	0.38 [0.01, 3.08]	0.037 [0.01, 0.15]
Mass media	17	24	0.044 [0.025, 5.20]	0.69 [0.04, 3.31]
Parent	10	10	Ref.	Ref.
Life skills				
Refusal skill				
Unfavorable	76	284	7.46 [3.27, 16.73] *	6.46 [2.37, 17.53] *
Favorable	99	21	Ref.	Ref.
Assertiveness skill				
Unfavorable	68	232	7.01 [2.34, 18.23] *	3.51 [1.32, 4.33] *
Favorable	107	73	Ref.	Ref.
Problem-solving skill				
Unfavorable	56	257	5.68 [4.34, 20.56] *	5.35 [2.88, 11.39] *
Favorable	119	48	Ref.	Ref.
Self-control skill				
Unfavorable	85	244	4.96 [2.37, 12.03]	7.31 [2.79, 17.24] *
Favorable	90	61	Ref.	Ref.

Discussion

In this study, adolescent life skills were reported low. This study corroborates with [Manaboriboon et al. \(2016\)](#), which found that adolescents' life skills for HIV prevention remained

inadequate. A possible source of inadequate life skills in adolescents is a lack of fundamental debriefing during adolescent development, which results in being unable to successfully navigate the transition phase from adolescence to adulthood without experiencing difficulties ([Manaboriboon et al., 2016](#)). Adolescents with poor life skills are more likely to

engage in risky behaviors such as drug use, drinking, and sexual activity, leading to HIV infection (Darmawati et al., 2021; Fauzi et al., 2021). Healthcare professionals, especially nurses, must increase health promotion activities to improve adolescent life skills.

Problem-solving and self-control skills were the lowest domain scores of life skills among adolescents. Perhaps, this is because adolescence is an age of unreasonable expectations in terms of ideals. Aiming too high and expecting too little can lead to debilitating stress. Previous research indicates that unpleasant emotions such as anger or distress can have a detrimental effect on health if they are not addressed appropriately (Sulistianingrum & Arifah, 2016). In contrast, refusal and assertiveness skills have the highest domain scores of life skills in this study. This result is demonstrated by the adolescents' ability to say "no" or decline an invitation with a negative value. Adolescents may avoid unfavorable invitations like smoking, drinking, and smoking marijuana (Lindayani et al., 2020). Good communication between adolescents and peers or parents in transmitting knowledge helps adolescents the sexual risk behaviors (Darmawati et al., 2021). Nurses and other health care providers must strengthen health promotion in sexual risk behavior prevention initiatives focusing on enhancing the life skills of adolescents.

Our study also found that the prevalence of adolescent sexual behavior was high. Kissing, hugging, and masturbation are all common adolescent sexual behaviors. Adolescents are driven by a desire to be like adults, which motivates them to do what adults often do in terms of sexuality (Purnama et al., 2018). A previous survey in America found that nearly 46% of sexually active high school students did not wear a condom, and new sexually transmitted diseases cases were recorded among adolescents aged 15 to 24 (Kann et al., 2018). Furthermore, 60% of adolescents agreed to have engaged in premarital sex, and 50% of those living with HIV and AIDS, which presents a dilemma for Indonesian youth today (Imron, 2017). However, increasing premarital sex among youths could impair reproductive health, especially among young women (Salam et al., 2016). Thus, nurses and other health professionals must collaborate with schools to improve health promotion through sexual education counseling.

In addition, this study demonstrated an association between gender and sexual risk behavior. Previous research has indicated that adolescent males are more likely than females to engage in sexual risk behaviors (Killoren & Deutsch, 2014). Gender norms may explain some sex disparity, which requires females to refrain from sex than males (Kreager et al., 2016). Thijs et al. (2015) reported that having sexual intercourse was more common in boys than in girls, and Skinner et al. (2017) projected that boys are more likely than girls to have many sexual partners by the age of 17 and that girls experienced more unwanted sex (Skinner et al., 2017). In summary, previous findings on the association between gender and sexually risky behavior are inconsistent, and additional research is needed to identify whether the associations have any sex-specific implications.

Life skills have a significant correlation with sexual risk behaviors among adolescents. Life skills can help adolescents develop self-confidence, enabling them to be more independent and capable of making sound decisions. A

previous study reported that about 12.1% of adolescents had the decision-making ability, reject risky behaviors such as having free sex, violence, and screening the influence of social media (Sulistianingrum & Arifah, 2016). Young people with inadequate life skills are more likely to engage in high-risk behaviors with serious long-term health and social repercussions (Salam et al., 2016). Adolescence is also a time of many critical life events and actions, many of which might have detrimental effects on one's health (Salam et al., 2016). Considering these findings, tailored life skills programs are critical for adolescent wellbeing, risk reduction, and HIV prevention.

However, there are some limitations of this study that should be highlighted. First, measuring sexual risk behaviors in adolescents can be challenging. Relying only on self-reported screening procedures might lead to recollection bias and social desirability bias, associated with participants' honesty when reporting on sensitive topics (Althubaiti, 2016). It is possible that respondents' responses were influenced by their mistrust of the survey's privacy and confidentiality. Even though self-reported data on sensitive topics such as teen drinking habits are often valid (Maslowsky et al., 2019), including parental and teacher ratings could help future studies gain a more accurate finding. Second, because this study employed cross-sectional data, it was impossible to demonstrate temporal relationships or causality, although life skills might theoretically minimize sexual risk behaviors. Future research should adopt longitudinal designs to determine whether life skills are predictors of sexual risk behaviors and examine patterns particular to the gender relationship. Finally, a lack of information on potential confounding variables, such as social views and norms, might influence the association between life skills and sexual risk behaviors.

Conclusion

This study revealed that adolescents had low life skills and a higher prevalence of sexual risk behaviors. In addition, life skills had a significant correlation with sexual risk behaviors. Future studies to explore more profound sexual practices using qualitative exploration are needed to understand adolescents' experience of sexual risk behaviors. Given the potentially detrimental effects of risky sexual behaviors on adolescent sexual and reproductive health, these behaviors must be identified and assessed early in adolescents. This is crucial in Indonesia, where adolescent pregnancy, abortion, and HIV infection are familiar yet limited treatment access. Nurses who proactively provide sexual and reproductive health services to adolescents may provide more accurate information to their peers. It is essential for nurses to screen adolescents for behavioral problems so that they can provide sexual and reproductive health services. Nurses also could provide early screening and assessment for sexual and reproductive behavior, including HPV vaccination and safety of the home, school, and social environments. Schools are encouraged to work with local health departments to implement sexual education counseling programs. Additionally, community-based sexual and reproductive health education and behavioral assessments can be used to target

underprivileged teenage groups through schools, hospitals, clinics, homeless shelters, and religious and community settings.

Declaration of Conflicting Interest

All author declares no conflict of interest.

Funding

This study was funded by Universitas Padjadjaran, Indonesia.

Acknowledgment

The authors would like to thank their colleagues for their contribution and support to the research. They are also thankful to all the reviewers who gave their valuable inputs to the manuscript and helped complete the paper.

Authors' Contributions

All authors contributed equally in this study in substantial contributions to the conception or design of the work, analysis, or interpretation of data for the work; drafting the work; final approval of the version to be published.

Authors' Biographies

Dr. Ati Surya Mediawati, S.Kp., M.Kep is Assistant Professor at Department of Fundamental Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia.

Iyus Yosep, S.Kp., M.Si., M.Sc, PhD is Associate Professor at Department of Mental Health Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia.

Ai Mardhiyah, S.Kp., M.Kes is Assistant Professor at Department of Pediatric Nursing, Faculty of Nursing, Universitas Padjadjaran, Indonesia.

Data Availability

The datasets generated during and/or analyzed during the current study are not publicly available due to subject confidential information but are available from the corresponding author on reasonable request.

References










- Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare*, 9, 211-217. <https://dx.doi.org/10.2147%2FJMDH.S104807>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. New Jersey, USA: Prentice-Hall, Inc.
- Botvin, G. J., & Kantor, L. W. (2000). Preventing alcohol and tobacco use through life skills training: Theory, methods, and empirical findings. *Alcohol Research & Health*, 24(4), 250-257.
- Central Bureau of Statistics. (2020). *Youth data in Indonesia*. Retrieved 2 December from <https://www.bps.go.id>
- Darmawati, I., Dharmansyah, D., Lindayani, L., & Alfiani, R. (2021). Life skill remaja dalam pencegahan HIV/AIDS [Adolescent life skills in HIV/AIDS prevention]. *Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal)*, 7(1), 66-73. <https://doi.org/10.33755/jkk.v7i1.198>
- Dingeta, T., Oljira, L., & Assefa, N. (2012). Patterns of sexual risk behavior among undergraduate university students in Ethiopia: A cross-sectional study. *Pan African Medical Journal*, 12(1). <https://doi.org/10.11604/pamj.2012.12.33.1621>
- Ermayani, T. (2015). Pembentukan karakter remaja melalui keterampilan hidup [Youth character formation through life skills]. *Jurnal Pendidikan Karakter*, 6(2), 127-141. <https://doi.org/10.21831/jpk.v0i2.8618>
- Fauzi, A., Anggraini, N., & Fatkhurhman, N. (2021). Self-management: A comprehensive approach to improve quality of life among people living with HIV in Indonesia. *Belitung Nursing Journal*, 7(5), 395-401. <https://doi.org/10.33546/bnj.1554>
- Fung, D., & Cohen, M. M. (1998). Measuring patient satisfaction with anesthesia care: A review of current methodology. *Anesthesia & Analgesia*, 87(5), 1089-1098. <https://doi.org/10.1213/0000539-199811000-00020>
- Hattori, Y., & Ikeda, K. (2016). Relationships between intentional suppression for mind wandering and negative mood during a lecture. *The Japanese Journal of Personality*, 25(1), 62-73. <https://doi.org/10.2132/personality.25.62>
- Herting, M. M., & Sowell, E. R. (2017). Puberty and structural brain development in humans. *Frontiers in Neuroendocrinology*, 44, 122-137. <https://doi.org/10.1016/j.yfrne.2016.12.003>
- Imron, A. (2017). *Pendidikan kesehatan reproduksi remaja [Youth reproductive health education]*. Yogyakarta, Indonesia: Ar-Ruzz Media Group.
- Indonesian Ministry of Health. (2018). *General situation of HIV/AIDS and HIV test*. Jakarta: Pusat Data Dan Informasi Kementerian Kesehatan Republik Indonesia.
- Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., Lowry, R., Chyen, D., Whittle, L., & Thornton, J. (2018). Youth risk behavior surveillance—United States, 2017. *MMWR Surveillance Summaries*, 67(8), 1-114. <https://dx.doi.org/10.15585%2Fmmwr.ss6708a1>
- Kase, T., Imura, S., Bannai, K., & Oishi, K. (2016). Development of the life skills scale for adolescents and adults. *Shinrigaku Kenkyu: The Japanese Journal of Psychology*, 87(5), 546-555. <https://doi.org/10.4992/jjpsy.87.15229>
- Kennedy, F., Pearson, D., Brett-Taylor, L., & Talreja, V. (2014). The life skills assessment scale: Measuring life skills of disadvantaged children in the developing world. *Social Behavior and Personality: An International Journal*, 42(2), 197-209. <https://doi.org/10.2224/sbp.2014.42.2.197>
- Killoren, S. E., & Deutsch, A. R. (2014). A longitudinal examination of parenting processes and Latino youth's risky sexual behaviors. *Journal of Youth and Adolescence*, 43(12), 1982-1993. <https://doi.org/10.1007/s10964-013-0053-z>
- Kreager, D. A., Staff, J., Gauthier, R., Lefkowitz, E. S., & Feinberg, M. E. (2016). The double standard at sexual debut: Gender, sexual behavior and adolescent peer acceptance. *Sex Roles*, 75(7), 377-392. <https://doi.org/10.1007/s11199-016-0618-x>
- Kumar, R., Goyal, A., Singh, P., Bhardwaj, A., Mittal, A., & Yadav, S. S. (2017). Knowledge attitude and perception of sex education among school going adolescents in Ambala District, Haryana, India: A Cross-Sectional study. *Journal of Clinical and Diagnostic Research: JCDR*, 11(3), LC01. <https://doi.org/10.1007/s00737-019-00960-w>
- Lestari, D. P., & Suminar, T. (2016). Pola pembelajaran program kecakapan hidup (life skill) menjahit Di BLK Kabupaten Pekalongan [Learning patterns of the sewing life skills program at the BLK in Pekalongan Regency]. *Journal of Nonformal Education*, 2(2). <https://doi.org/10.15294/jne.v2i2.7155>
- Lindayani, L., Darmawati, I., Purnama, H., & Permana, B. (2020). Integrating comprehensive geriatric assessment into HIV care systems in Indonesia: A synthesis of recent evidence. *Creative Nursing*, 26(1), 9-16. <https://doi.org/10.1891/1078-4535.26.1.9>
- Lutfinawati, D., & Ananingsih, I. (2014). Hubungan peran orang tua dengan sikap remaja tentang seks bebas [The relationship between parental roles and adolescent attitudes about free sex]. *Jurnal Ners dan Kebidanan (Journal of Ners and Midwifery)*, 1(2), 098-103. <https://doi.org/10.26699/jnk.v1i2.ART.p098-103>
- Manaboriboon, B., Lolekha, R., Chokephaibulkit, K., Leowsrisook, P., Naiwatanakul, T., Tarugsa, J., Durier, Y., Aunjit, N., Punpanich Vandepitte, W., & Boon-Yasidhi, V. (2016). Psychosocial needs of perinatally HIV-infected youths in Thailand: lessons learnt from instructive counseling. *AIDS Care*, 28(12), 1615-1622. <https://doi.org/10.1080/09540121.2016.1198745>
- Maslowsky, J., Owotomo, O., Huntley, E. D., & Keating, D. (2019). Adolescent risk behavior: Differentiating reasoned and reactive risk-taking. *Journal of Youth and Adolescence*, 48(2), 243-255. <https://doi.org/10.1007/s10964-018-0978-3>
- National Population and Family Planning Board. (2017). *Demographic and health survey: Adolescent reproductive health 2017 [in Bahasa]*. <http://www.dhsprogram.com>
- Ozolins, U., Hale, S., Cheng, X., Hyatt, A., & Schofield, P. (2020). Translation and back-translation methodology in health research—a critique. *Expert Review of Pharmacoeconomics & Outcomes Research*, 20(1), 69-77. <https://doi.org/10.1080/14737167.2020.1734453>

- Paransa, R. F. J., & Hatta, M. I. (2021). Hubungan antara keterlibatan ayah dalam pengasuhan dengan perilaku seksual remaja dalam berpacaran [The relationship between father's involvement in parenting and adolescent sexual behavior in dating]. *Prosiding Psikologi*, 7(2), 573-577. <http://dx.doi.org/10.29313/v0i0.28479>
- Pratiwi, N. L., & Basuki, H. (2011). Hubungan karakteristik remaja terkait risiko penularan HIV-AIDS dan perilaku seks tidak aman di Indonesia [The relationship between adolescent characteristics related to the risk of HIV-AIDS transmission and unsafe sex behavior in Indonesia]. *Buletin Penelitian Sistem Kesehatan*, 14(4), 346-357.
- Purnama, H., Darmawati, I., & Lindayani, L. (2018). The Effectiveness of Skills for Adolescents with Healthy Sexuality (SAHS) program on reducing the risk of HIV transmission among adolescents. *Indonesian Nursing Journal of Education And Clinic (INJEC)*, 3(1), 1-8. <http://dx.doi.org/10.24990/injec.v3i1.170>
- Rogers, A. A. (2017). Parent-adolescent sexual communication and adolescents' sexual behaviors: A conceptual model and systematic review. *Adolescent Research Review*, 2(4), 293-313. <https://doi.org/10.1007/s40894-016-0049-5>
- Salam, R. A., Faqqah, A., Sajjad, N., Lassi, Z. S., Das, J. K., Kaufman, M., & Bhutta, Z. A. (2016). Improving adolescent sexual and reproductive health: A systematic review of potential interventions. *Journal of Adolescent Health*, 59(4), S11-S28. <https://doi.org/10.1016/j.jadohealth.2016.05.022>
- Sales, J. M., Smearman, E. L., Brody, G. H., Milhausen, R., Philibert, R. A., & DiClemente, R. J. (2013). Factors associated with sexual arousal, sexual sensation seeking and sexual satisfaction among female African American adolescents. *Sexual Health*, 10(6), 512-521. <https://doi.org/10.1071/SH13005>
- Sanci, L., Webb, M., & Hocking, J. (2018). Risk-taking behaviour in adolescents. *Australian Journal of General Practice*, 47(12), 829-834. <https://doi.org/10.31128/AJGP-07-18-4626>
- Santos, T. (2022). Positive youth development in adolescence. *Journal of Mother and Child*. https://doi.org/10.34763/jmotherandchild.20212503SI.edit2021_25_03SI_3
- Sezgin, A. U., & Punamäki, R.-L. (2020). Impacts of early marriage and adolescent pregnancy on mental and somatic health: The role of partner violence. *Archives of Women's Mental Health*, 23(2), 155-166. <https://doi.org/10.1007/s00737-019-00960-w>
- Skinner, S. R., Marino, J., Rosenthal, S. L., Cannon, J., Doherty, D. A., & Hickey, M. (2017). Prospective cohort study of childhood behaviour problems and adolescent sexual risk-taking: Gender matters. *Sexual health*, 14(6), 492-501. <https://doi.org/10.1071/SH16240>
- Sulistianingrum, S., & Arifah, S. (2016). *Gambaran kecakapan hidup (life skill) pada remaja SMP Muhammadiyah 2 di Surakarta [Overview of life skills in youth at Muhammadiyah Junior High School 2 in Surakarta]* [Thesis, Universitas Muhammadiyah Surakarta]. Surakarta, Indonesia.
- Temesgen, G., & Markos, Y. (2015). Assessment of substance use and risky sexual behaviour among public college students in Bonga town, Southwest Ethiopia. *American Journal of Biomedical and Life Sciences*, 3(5), 91-97. <https://doi.org/10.11648/j.ajbls.20150305.11>
- Thijs, P. E., van Dijk, I. K., Stoof, R., & Notten, N. (2015). Adolescent problem behaviour: The gender gap in European perspective. *European Journal of Criminology*, 12(5), 598-615. <https://doi.org/10.1177%2F1477370815578195>
- Ugarte, W. J., Högberg, U., Valladares, E., & Essén, B. (2013). Assessing knowledge, attitudes, and behaviors related to HIV and AIDS in Nicaragua: A community-level perspective. *Sexual & Reproductive Healthcare*, 4(1), 37-44. <https://doi.org/10.1016/j.srhc.2012.11.001>
- Unigwe, I., Yang, S., Song, H. J., Lo-Ciganic, W.-H., Hincapie-Castillo, J., Cook, R., & Park, H. (2022). Trends in sexually transmitted infections in United States ambulatory care clinics from 2005–2016. *Journal of Clinical Medicine*, 11(1), 71. <https://doi.org/10.3390/jcm11010071>
- Wolie, D. (2014). *Determinants of sexual behaviors among adolescents in Addis Ababa: The role of individual, familial and neighbourhood characteristics* [Thesis, Addis Ababa University]. Ethiopia.
- World Health Organization. (1994). *Life skills education for children and adolescents in schools. Pt. 1, Introduction to life skills for psychosocial competence. Pt. 2, Guidelines to facilitate the development and implementation of life skills programmes*. <https://apps.who.int/iris/handle/10665/63552>
- Yolanda, R., Kurniadi, A., & Tanumihardja, T. N. (2019). Faktor-faktor yang berhubungan dengan sikap remaja terhadap perilaku seksual pranikah di Kecamatan Siberut Selatan, Kepulauan Mentawai tahun 2018 [Factors related to adolescent attitudes towards premarital sexual behavior in South Siberut District, Mentawai Islands in 2018]. *Jurnal Kesehatan Reproduksi*, 10(1), 69-78. <https://doi.org/10.22435/kespro.v10i1.2174>

Cite this article as: Mediawati, A. S., Yosep, I., & Mardhiyah, A. (2022). Life skills and sexual risk behaviors among adolescents in Indonesia: A cross-sectional survey. *Belitung Nursing Journal*, 8(2), 132-138. <https://doi.org/10.33546/bnj.1950>



Relation between socio-demographic factors and professionalism among nurses in Saudi Arabia: A comparative analysis

Hussein Alshumrani¹, Bander Albagawi², Sandro Villareal^{2*}, Benito Areola Jr³,
Hamdan Albaqawi², Saleh Algamdi¹, Abdulrahman Alerwi⁴, Ahmed Saad
Altheban⁵, and Seham Alanazi³

¹ Regional Nursing Administration, Bisha Health Affairs, Saudi Arabia

² Medical Surgical Department, College of Nursing, University of Hail, Hail, Saudi Arabia

³ Medical Surgical Department, College of Nursing, Shaqra University, Riyadh, Saudi Arabia

⁴ Intensive Care Area (SICU, MICU, Burn Unit and COVID-19 ICU), King Fahad Hospital, Madina, Saudi Arabia

⁵ College of Nursing, University of Hail, Hail, Saudi Arabia

⁶ Leadership and Management Department, College of Nursing, University of Hail, Hail, Saudi Arabia

Abstract

Background: Analyzing how nurses handle professionalism in their careers will help all concerned individuals identify areas of concern to develop and enhance further to achieve or maintain a high degree of professionalism.

Objective: This study aimed to determine the level of professionalism among nurses and its differences according to socio-demographic characteristics.

Methods: A quantitative cross-sectional approach was utilized in three significant regions of Saudi Arabia. A simple random sampling technique was employed with 305 respondents, resulting in a 95.9% response rate. A Google Form survey was used to collect the data between January and April 2021.

Results: Nurses perceived themselves highly in professional organization (Mean = 3.94, SD = 0.17), belief in public service (Mean = 3.91, SD = 0.22), belief in self-regulation (Mean = 3.97, SD = 0.08), sense of calling (Mean = 4.01, SD = 0.13), and belief in autonomy (Mean = 3.71, SD = 0.15). There was no significant difference between gender and professional organization, belief in public service, self-regulation, or belief in autonomy. Still, there was a significant difference in belief in public service ($t = 2.794$; $p = 0.006$) and sense of calling ($t = 4.290$; $p = 0.001$). As to age, only belief in self-regulation was significant ($t = 5.984$; $p = 0.003$). Moreover, the educational qualifications reached an insignificant difference in professionalism. Conversely, the type of facility has been found to have reached significant differences with a professional organization ($F = 3.057$; $p = 0.029$), belief in public service ($F = 4.130$; $p = 0.007$), beliefs in regulation ($F = 3.452$; $p = 0.017$), sense of calling ($F = 3.211$; $p = 0.023$), and belief in autonomy ($F = 5.995$; $p = 0.001$). Lastly, the current position found no significant difference in professionalism.

Conclusion: Nurses in the Kingdom of Saudi Arabia perceived themselves as highly professional, and male nurses were found to have a sense of calling more than their female counterparts. Age, educational qualification, and current position had no significant difference in professionalism. Conversely, the type of facility had a significant difference with the belief in autonomy. These findings support and sustain the role of nurses in this 21st-century health care that is significantly needed to provide the most quality care.

Keywords

nurses; professionalism; demography; Saudi Arabia

*Corresponding author:

Dr. Sandro Villareal

College of Nursing, University of Hail, Hail, Saudi Arabia

Email: sandrocostanillavill2016@gmail.com

Article info:

Received: 7 October 2021

Revised: 5 November 2021

Accepted: 12 March 2022



This is an Open Access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/), which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

Nurses significantly possess a critical role in improving health outcomes, service designs, redesigns, and decision making at all levels of policymaking and providing services in a particular

health care institution. Professionalism is characterized by independent decision-making using the best evidence available. This is made by realizing purposeful relationships and an environment in which professional practice is fostered ([Nursing and Midwifery Council, 2015](#)). Additionally, professionalism in nursing entails applying knowledge and

skills, fulfilling activities based on standards, displaying leadership, possessing self-discipline, having professional commitment or being loyal to the profession, and adhering to social values and norms (Chitty & Black, 2010).

The concept of professionalization has evolved due to many political, economic, and social changes (Shohani & Zamanzadeh, 2017). Ghadirian et al. (2014) claimed that nursing professionalism is determined by attitude, cognitive, and psychomotor attributes. Also, professionalism in nursing has a complex nature, and it is multidimensional. The word professionalism is a complicated notion. It is difficult to describe and quantify because there is no scientific basis. However, there are studies on professionalism. In such studies, institutions or organizations are the main topics rather than the qualities of the professional. The common understanding of professionalism is generally understood as the adherence of a person to a set of norms, code of conduct, or selection of qualities. It also regards how professionals conduct themselves at work and represent their values. Because of its multidimensional concept, most discussions about professionalism include implicit assumptions and varying incomplete uses (Khan & Khan, 2018).

Nursing professionalism has a bearing on various factors. For example, total years of nursing experience predicts professionalism (Dikmen et al., 2016; Kim-Godwin et al., 2010); gender-related attitudes have been found to be significantly related to nursing professionalism (Park et al., 2019), higher educational preparation (Tanaka et al., 2014), and updated training were significantly related to professionalism (Tola et al., 2020). Moreover, marital status has not been significantly associated with professionalism, according to an earlier study (Rabie, 2021). Older workers appear less likely to be related to professional development (Pool et al., 2013). Although the aforementioned factors contribute to strengthening the image of professionalism, they may differ from the nurses' perspectives. To the best of our knowledge, this study is the first conducted in Saudi Arabia to view professionalism in the context of nurses' demographics.

The rapid changes in the current health care system and other related factors cause nurses to respond in a more different and challenging way (Bloom et al., 2018). It involves a more ethical and professional manner of solving issues related to the field. Hence, analyzing how nurses handle professionalism in their careers will help all concerned individuals to achieve or maintain a high degree of professionalism. Although there are assumptions in the understanding of nursing professionalism, it is necessary to explore the understanding of nursing professionalism. Therefore, this study aimed to investigate the socio-demographic factors affecting professionalism among nurses in Saudi Arabia.

Methods

Study Design

A quantitative cross-sectional approach was employed in this study. A survey was conducted to measure the professionalism of nurses through a questionnaire. The units of analysis were individuals, not any organizations. In this study, we attempted to measure the attributes of nurse

professionals. The study was conducted in a natural environment known as a non-contrived study.

Participants

The population involved in the study was staff nurses working in different hospitals throughout Saudi Arabia. Exclusion criteria were those nurses working in primary health care centers and private hospitals or clinics and those who did not understand English. The researchers used the RAOSOFT calculator (<http://www.raosoft.com/samplesize.html>) in determining the number of participants from the three most significant regions of Saudi Arabia (Eastern, Northern, and Central), yielding 320 participants. A simple random sampling technique was used through a random computer generator to randomly pick the participants, with only 305 answering the link provided (95.3% response rate).

Data Collection

The data collection began in January 2021 and ended in April 2021 using a Google Form sent electronically to the nursing directors as crucial people of the various hospitals throughout the Kingdom. The instructions and study objectives were included in the Google Form, along with informed consent.

Instruments

The data on nursing professionalism were collected using the modified version of Hall's inventory of professionalism by Snizek (1972). The questionnaire contained 25 questions about the elements influencing nursing professionalism. It was made up of five dimensions: the use of professional organization, belief in public service, belief in self-regulation, sense of calling, and autonomy. The participants were instructed to categorize the attributes using a 5-point Likert scale: strongly disagree, disagree; neutral; agree, and strongly agree. Every dimension of the attitudinal attributes of professionalism consisted of five positive and negative questions distributed in the questionnaire. Thus, the high to low scores represented the opinions of the respondents on their level of professionalism. The higher the mean, the higher the perception of professionalism.

The content of the questionnaire was previously validated and tested at the King Khalid Hospital, Saudi Arabia. Validators were three specialists in the field of nursing practice. Two of them are acknowledged as nursing managers, and one is the preceptor for the ethics in nursing. The three experts agreed that all items appeared to measure and were appropriate for the topic. A pretest with 15 nurses was done to examine the instrument's dependability. The alpha coefficient for the reliability test was 0.89.

Data Analysis

Statistical Package for the Social Sciences (SPSS) version 25 was used to analyze the data. Frequency counts and percentages were used to determine the profiles of the respondents. Independent *t*-test and analyses of variance (*F*-test) were used to determine significant differences between the demographic profiles and the level of professionalism.

Ethical Considerations

The authors obtained permission and approval to conduct the research from the University Ethical Board – University of Hail,

Saudi Arabia (H-2021-002). Informed consent was also secured to ensure participants' full understanding and voluntary participation. Anonymity, confidentiality, privacy, and rights of the participants were fully monitored throughout the research process.

Results

The percentage breakdown of the different profiles of respondents is shown in [Table 1](#).

Table 1 Respondents' characteristics ($N = 305$)

Demographics	<i>n</i>	%
Gender		
Male	88	28.9
Female	217	71.1
Age		
20-30	130	42.6
31-40	129	42.3
41 and above	46	15.1
Level of education		
Nurse assistant	5	1.6
Diploma	105	34.4
BSN	156	51.1
Masters	30	9.8
Doctorate	9	3.0
Current assignment/position		
Director of nursing	15	4.9
Deputy director of nursing	10	3.3
Supervisor	26	8.5
Head nurse	36	11.8
Educator	21	6.9
Staff nurse	197	64.6
Type of facility		
Hospital	202	66.2
Clinic	43	14.1
Primary health care	49	16.1
School	11	3.6

This study enlisted the participation of 305 nurses from around Saudi Arabia. Females made up 71.1% ($n = 217$). The age categories of the respondents varied, with most of the workforce falling into the 20–30 age range (42.6%). The number of participants decreased as the age range increased: and 42.3% of the participants were between 31 and 40 years old. Still, the number of participants with 21 years and above of experience declined as they became senior nurses. A considerable number of respondents ($n = 156$; 51.1%) had a baccalaureate degree in nursing, followed by a diploma in nursing ($n = 105$; 34.4%). The bulk of the 305 respondents were staff nurses ($n = 197$; 64.6%) and head nurses ($n = 36$; 11.8%). A sizable percentage of the respondents ($n = 202$; 66.2%) worked in hospitals, while 3.6% ($n = 11$) were from universities.

The level of professionalism was reflected on the basis of adaptations from Hall's professional attitude questionnaire among nurses working in the Kingdom of Saudi Arabia, as shown in [Table 2](#). All five dimensions measured were interpreted as equally high levels in terms of the professionalism of the nurses. Nonetheless, variations in the level of average means (professional organization (3.94), belief in public service (3.91), belief in self-regulation (3.97),

sense of calling (4.01), and belief in autonomy (3.71)), were observed.

Table 2 Level of nursing professionalism ($N = 305$)

Subscales	Mean	SD	Interpretation
Professional organization	3.94	0.17	High
Belief in public service	3.91	0.22	High
Belief in self-regulation	3.97	0.08	High
Sense of calling	4.01	0.13	High
Belief in autonomy	3.71	0.15	High

The differences between socio-demographics and professionalism are presented in [Table 3](#). There was no significant difference between gender and professional organization, belief in public service, self-regulation, and belief in autonomy, but a significant difference between gender and belief in public service ($t = 2.794$; $p = 0.006$) and sense of calling ($t = 4.290$; $p = 0.001$). Regarding age, there was a significant difference only in the belief in self-regulation ($t = 5.984$; $p = 0.003$). Moreover, there was no significant difference in educational qualifications regarding professionalism. Conversely, there was a significant difference in the type of facility with a professional organization ($F = 3.057$; $p = 0.029$), belief in public service ($F = 4.130$; $p = 0.007$), beliefs in regulation ($F = 3.452$; $p = 0.017$), sense of calling ($F = 3.211$; $p = 0.23$), and belief in autonomy ($F = 5.99$; $p = 0.001$). Finally, there was no significant difference between the current position of nurses and professionalism.

Discussion

This study aimed to determine the level of professionalism among Saudi Arabian nurses and its differences according to socio-demographic factors. Nurses in the Kingdom of Saudi Arabia are highly professional. [Solomon et al. \(2015\)](#) found that a prominent level of professionalism is associated with a positive self-image and organizational culture. Moreover, a moderate level of professionalism among nurses is related to their experience level ([Hasandost, 2016](#)). Nurses believe that professional organizations must be supported, and they should be encouraged. This finding is an indication that nurses believe the organization can assist them in improving their working standards and professional skills through ongoing education. This current finding is supported by the study of [Shohani and Zamanzadeh \(2017\)](#). Furthermore, nurses who belonged to a professional association had an increased definition of nursing professionalism.

The nursing profession is still considered a calling for most of the respondents in all five dimensions as measured according to the attitudes of nurses. Sense of calling ranked the highest, entailing that nurses always believe that nursing is a calling. Moreover, respondents also view nursing as a profession in line with public service ([Shohani & Zamanzadeh, 2017](#)). Furthermore, this present finding is related to Hall's belief that employees must believe that their work benefits themselves and society. This is also in coincidence with the claim of [Wiles \(2022\)](#) that employees nowadays have developed a new sense of consciousness in terms of their role, and they are worth becoming more attached to the world where they live. There, it was claimed that when professionals

and society are at odds, professionals should put their interests aside for the good of society. According to [Thompson \(2021\)](#), the concept of self-regulation entails how well an employee manages their thoughts and actions. Self-regulation can help shape your flexibility when unhappy actions happen outside of your control.

Moreover, a sense of calling is defined as the vocation and obligation, which includes the purpose and meaning of the profession with its highest desire to serve ([Ponton et al., 2014](#)). Being called to the nursing profession is the inherent

characteristic that influences the meaningful engagement with their work. This attribute has been found to affect nurses' motivation in working ([Ziedelis, 2019](#)). Also, this will help nurses achieve job satisfaction ([Xu et al., 2020](#)). This intense feeling compelled them to put much effort into their tasks and made them less likely to abandon them ([Alshammari et al., 2020](#)). In the process of self-realization, calling is a powerful personal resource and motivator. Those who have a calling are willing to face various obstacles and difficulties, even if the working environment is challenging.

Table 3 Differences between socio-demographics and professionalism

Indicators	Group	Mean	SD	df	t/F value	Sig (2 tailed)
Gender						
Professional organization	Male	4.09	0.74	303	0.980	0.328
	Female	4.42	0.61			
Belief in public service	Male	3.89	1.06	303	2.794	0.006*
	Female	4.13	0.85			
Belief in self-regulation	Male	3.37	1.26	303	-0.738	0.461
	Female	3.99	0.98			
Sense of calling	Male	4.05	1.06	303	4.290	0.001*
	Female	3.58	0.74			
Belief in autonomy	Male	3.36	1.13	303	1.185	0.237
	Female	3.59	0.93			
Age						
Professional organization	20-30	4.08	0.88	2.302	0.125	0.883
	31-40	4.34	0.81			
	41 and above	4.27	0.77			
Belief in public service	20-30	3.70	1.07	2.302	1.246	0.289
	31-40	3.65	1.01			
	41 and above	4.05	0.74			
Belief in self-regulation	20-30	3.36	1.13	2.302	5.984	0.003*
	31-40	3.59	0.93			
	41 and above	3.99	0.98			
Sense of calling	20-30	3.58	1.06	2.302	2.080	0.127
	31-40	4.05	0.74			
	41 and above	3.36	1.13			
Belief in autonomy	20-30	3.59	0.93	2.302	0.547	0.579
	31-40	4.27	0.77			
	41 and above	3.70	1.07			
Educational qualification						
Professional organization	Nurse assistant	4.13	0.85	5.299	0.561	0.730
	Diploma	3.37	1.26			
	BSN	4.12	1.00			
	Masters	3.91	0.22			
	Doctorate	4.20	.67			
Belief in public service	Nurse assistant	4.09	0.86	5.299	1.043	0.392
	Diploma	4.30	0.98			
	BSN	3.75	0.99			
	Masters	3.52	1.03			
	Doctorate	4.21	0.86			
Belief in self-regulation	Nurse assistant	4.08	0.88	5.299	2.165	.058
	Diploma	4.34	0.81			
	BSN	4.27	0.77			
	Masters	3.70	1.07			
	Doctorate	3.65	1.01			
Sense of calling	Nurse assistant	4.01	0.13	5.299	1.397	0.225
	Diploma	3.56	1.02			
	BSN	3.99	0.98			
	Masters	3.58	1.06			
	Doctorate	4.05	0.74			
Belief in autonomy	Nurse assistant	3.36	1.13	5.299	1.648	0.147
	Diploma	3.59	0.93			
	BSN	3.71	0.15			
	Masters	3.72	0.86			
	Doctorate	4.09	0.74			

Table 3 (Cont.)

Indicators	Group	Mean	SD	df	t/F value	Sig (2 tailed)
Type of facility						
Professional organization	Hospital	3.89	1.06	3.301	3.057	0.029*
	Clinic	3.60	0.94			
	Primary health care	3.94	0.17			
	School	3.56	1.00			
Belief in public service	Hospital	3.58	1.28	3.301	4.130	0.007*
	Clinic	4.34	0.82			
	Primary health care	4.13	0.85			
	School	3.37	1.26			
Belief in self-regulation	Hospital	4.12	1.00	3.301	3.452	0.017*
	Clinic	3.91	0.22			
	Primary health care	4.09	0.86			
	School	4.30	0.98			
Sense of calling	Hospital	3.75	0.99	3.301	3.211	0.023*
	Clinic	3.52	1.03			
	Primary health care	4.21	0.86			
	School	3.97	0.08			
Belief in autonomy	Hospital	3.67	0.83	3.301	5.995	0.001*
	Clinic	4.08	0.88			
	Primary health care	4.34	0.81			
	School	4.27	0.77			
Current position						
Professional organization	Management	3.70	1.07	3.302	2.498	0.084
	Practice	3.65	1.01			
	Others (e.g., educators)	4.01	0.13			
Belief in public service	Management	3.99	0.98	3.302	0.054	0.947
	Skills	3.58	1.06			
	Others (e.g., educators)	4.05	0.74			
Belief in self-regulation	Management	3.36	1.13	3.302	0.444	0.642
	Skills	3.59	0.93			
	Others (e.g., educators)	3.71	0.15			
Sense of calling	Management	3.9	0.05	3.302	0.796	0.452
	Skills	3.58	1.28			
	Others (e.g., educators)	4.34	0.82			
Belief in autonomy	Management	4.13	0.85	3.302	0.376	0.687
	Skills	3.37	1.26			
	Others (e.g., educators)	4.12	1.00			

Professionalism is a person's conduct at work (McKay, 2019), which is determined by three characteristics—cognitive, attitudinal, and psychomotor (Ghadirian et al., 2014). In this study, nurses agreed that they have their own choices during work and that there are times when their decisions are subject to review. Both may occur due to a lack of consensus or ambivalence among the participants regarding the concept of autonomy (Oshodi et al., 2019). Furthermore, nurses saw the autonomous practice as acting exclusively on their judgments, while others sought clarification or confirmation from more senior personnel. This occurs in an emergency when staff nurses are forced to work in the wards on weekends while the head nurses are unavailable. The results of these studies are inconsistent with the research previously conducted that the five attributes showed low scores in autonomy and public service and an average score in self-regulation (Shohani & Zamanzadeh, 2017). However, a sense of commitment and professional organization displayed high scores, which coincides with this study. Earlier studies showed that professionalism demonstrated an average score compared to this study with a high-level perception (De Braganca & Nirmala, 2017) and empowerment (Alsaqri et al., 2020) on professionalism.

The gender of the nurses was found to have a significant difference in the sense of calling, suggesting that male nurses

have a higher level of professionalism than female nurses. This means that male nurses regard quality nursing care more by upholding principles of respect, strong commitment, and displaying the utmost attitude required. According to Paskaleva et al. (2020), male nurses chose the nursing profession for two major reasons: willingness to help other people and career opportunities. In addition, male nurses consider nursing a decent place for men, and many are satisfied with choosing nursing as a profession. This is an indication that the strong dedication and commitment of male nurses reflect their intense professionalism. Furthermore, it has been found in a recent study by Budu et al. (2019) that male nurses are more professional in their duties and cooperative with male nurses as perceived by patients.

Meanwhile, there was no significant difference in professional organizations, belief in public service, belief in regulation, and autonomy. These findings are suggestions that age has no bearing on the mentioned variables when compared. Both genders regard the importance of such variables equally. Such a finding is in agreement with the conclusions of Matthews (2012). Matthews (2012) stated that "by encouraging all nurses to engage in their professional organizations and associations, noting how these organizations contribute to the accountability and voice of the profession to society." Nurses remain in their hearts the belief

that nursing is a public service, which is notably a part of their orientation about the profession. Moreover, [Riley and Beal \(2010\)](#) stated that the concept of public service had been regarded as an integral part of the profession.

There was also no significant difference between age and professional organization, belief in public service, belief in self-regulation, sense of calling, and belief in autonomy. This means that the beliefs of the respondents were not influenced by their age regarding the mentioned variables. [Pool et al. \(2013\)](#) detected no clear age patterns for enthusiasm in professional development activities. However, younger members of the nursing profession have the least participation in professional organizations ([Lammintakanen & Kivinen, 2012](#)). Indeed, personality growth and maturity advance career developments and amplify career abilities among professionals. This shows that young adults tend to display a higher degree of professionalism because they acquire a personality maturity level that evokes job satisfaction and career satisfaction.

Regardless of their educational qualifications, no significant difference in the professionalism of nurses was found. This finding implies that a graduate nurse is clothed with professional values assimilated during formative academic years. Nurses are equipped with this attribute as they graduate from the nursing program. However, in a systematic review by [Sibandze and Scafile \(2018\)](#), there was a reflection regarding contrasting results. Nonetheless, it is remarkable that the studied respondents proved that educational qualifications do not affect their sense of professionalism. This could be a good indicator of a desirable organizational climate in a particular institution. Another viewpoint is that professionalism is achieved depending on the personal values of a particular individual. Culture, morality, traditions, and religious values would be incorporated into personal values. It only implicates that professionalism is seen not only by highly educated people but also by those who own personal values in the working world. [Mashlah \(2015\)](#) found a strong link between personal values and how workers think, feel, and act, which is engulfed in displaying professionalism. With this, it was then shown that nurses see the importance of possessing personal values affected by their excellent culture and morality to be professionally upright in the profession.

The significant difference found in the type of facility and belief in autonomy suggests that the nature of the job nurses makes them have at least some decisions on their own. In this event, job satisfaction was fostered and felt, which led to highly motivational feelings and indicated a sense of professionalism. According to [Saragih \(2015\)](#), job autonomy and job satisfaction are significantly related, and job performance is affected by job satisfaction. This is an indication that a nurse has given a work assignment that evokes job satisfaction, hence affecting job performance, especially in the way they are becoming autonomous. Additionally, the feeling of entitlement to their decisions and duties pushes them to be satisfied at work. Moreover, the non-significant differences found in the work assignment and professional organization, belief in public service, belief in self-regulation, and sense of calling suggest that the nurses will continue to engage in professional organizations regardless of their job assignment. This also means that the views of the nurses that nursing is rooted in public service and a calling do not change.

There was no significant difference between the current position and the professionalism of the nurses as a whole. This finding is an indication that nurses uphold the attitude required to be observed in the profession on whatever assignment is given to them. This finding is also a reflection that nurses express professional attitudes as expressed in their professional behaviors through relentless quality care by upholding ethical and legal standards. During the training in their baccalaureate program, nurses were developed and evaluated in three significant taxonomies. Those taxonomies included cognitive, psychomotor, and affective, by which nurses were pushed toward upholding professional behavior as they render services to their patients. According to [Ghadirian et al. \(2014\)](#), professionalism in nursing is committed to three dimensions: cognitive, psychomotor, and practical. Hence, professional behavior is produced due to the retained values taught to these nurses, which were acquired in their formal educational training.

Implications and limitations

In this study, the idea that nurses should be encouraged to engage in scientific activities and educational programs and value membership in professional organizations was supported. In fact, nurses are aided by professionalism in acting with honesty and integrity while under pressure due to the nature of their profession. The environment in the nursing profession is benefited by professionalism, improving the efficiency of health care facilities. Nurses can foster close-knit teamwork by promoting and sustaining a culture of respect, cooperation, honesty, and integrity to provide the best possible care for patients. By promoting discourse and compassion, the likelihood of workplace conflicts caused by biases or personal differences may be reduced by professionalism.

The researchers acknowledge some limitations of this study. The first limitation regards the non-inclusion of nurses working at primary health centers and private hospitals. More robust data for understanding the context of professionalism in Saudi Arabia can be added if this limitation is considered. The second limitation is the non-translation of the questionnaire to Arabic, which led to the exclusion of nurses who did not understand English. These limitations should be included in a further investigation for future researchers.

Conclusion

Nurses in the Kingdom of Saudi Arabia perceived themselves as highly professional, and male nurses were found to have a higher sense of calling than their female counterparts. However, there were no significant differences in professionalism caused by the age, educational qualification, and current position of the nurses. Conversely, significant differences regarding the belief in autonomy were caused by the type of facility. Such findings support and sustain the role of nurses in 21st-century health care, which is significantly needed to provide the most quality care.

Declaration of Conflicting Interest

The authors declare that there are no competing interests.

Funding

None.

Acknowledgment

The authors are indebted to the hospital authorities to pursue data gathering, especially to the respondents who participated, and to the University of Hail Ethical Board for their approval.

Authors' Contributions

HA, BA, HA, and SA have made substantial contributions to the conception, design, and acquisition of ethical approval. SV and BA have been involved in analyzing and interpreting data and drafting the manuscript or revising it critically for important intellectual content and revising the draft. SA, AE, AA, and AS have given final approval to the version to be published. Finally, all authors read and approved the final manuscript.

Authors' Biographies

Mr. Hussein Alshumrani is the Regional Nursing Administration Deputy Director, Bisha Health Affairs, Saudi Arabia.

Dr. Bander Albagawi is an Associate Professor at the Medical Surgical Department, College of Nursing, University of Hail, Hail, Saudi Arabia.

Dr. Sandro Villareal is an Assistant Professor at the Medical Surgical Department, College of Nursing, University of Hail, Hail, Saudi Arabia.

Dr. Benito Areola Jr is an Assistant Professor at the Medical Surgical Department, College of Nursing, Shaqra University, Riyadh, Saudi Arabia.

Dr. Hamdan Albagawi is an Assistant Professor at the Medical Surgical Department, College of Nursing, University of Hail, Hail, Saudi Arabia.

Mr. Saleh Algamdi is the Regional Nursing Administration Director, Bisha Health Affairs, Saudi Arabia

Mr. Abdulrahman Alerwi is a Supervisor in the Intensive Care Area (SICU, MICU, Burn Unit and COVID-19 ICU), King Fahad Hospital, Madina, Saudi Arabia.

Mr. Ahmed Saad Altheban is a Nursing Coordinator, College of Nursing, University of Hail, Hail, Saudi Arabia.

Ms. Seham Alanazi is a Lecturer at the Leadership and Management Department, College of Nursing, University of Hail, Hail, Saudi Arabia.

Data Availability

Data is available upon request.

References

- Alsaqri, S. H., Pasay-an, E., Villacorte, L., Madjid, F., Pacis, C., & Al-Sadi, A. K. A. (2020). Organizational empowerment among Nursing Faculty in the Northwestern Region of Saudi Arabia. *Makara Journal of Health Research*, 24(2), 7. <https://doi.org/10.7454/msk.v24i2.1205>
- Alshammari, M. H., Pacheco, H., Pasay-an, E., Alshammari, F., Alsharari, A., Felemban, E., & Dayrit, R. D. (2020). Nurses' perspectives on the degree of missed nursing care in the public hospitals in Hail City, Kingdom of Saudi Arabia. *Belitung Nursing Journal*, 6(6), 190-195. <https://doi.org/10.33546/bnj.1233>
- Bloom, G., Wilkinson, A., & Bhuiya, A. (2018). Health system innovations: Adapting to rapid change. *Global Health*, 14, 29.
- Budu, H. I., Abalo, E. M., Bam, V. B., Agyemang, D. O., Noi, S., Budu, F. A., & Peprah, P. (2019). "I prefer a male nurse to a female nurse": Patients' preference for, and satisfaction with nursing care provided by male nurses at the Komfo Anokye teaching hospital. *BMC Nursing*, 18(1), 1-9. <https://doi.org/10.1186/s12912-019-0369-4>
- Chitty, K. K., & Black, B. (2010). *Professional nursing: Concepts & challenges* (6th ed.). St. Louis: Elsevier Saunders.
- De Braganca, A., & Nirmala, R. (2017). Professionalism among nurses: A concept analysis. *Journal of Business and Management Innovation*, 6(7), 60-66.
- Dikmen, Y., Karatas, H., Arslan, G. G., & Ak, B. (2016). The level of professionalism of nurses working in a hospital in Turkey. *Journal of Caring Sciences*, 5(2), 95-102. <https://dx.doi.org/10.15171%2Fjcs.2016.010>
- Ghadirian, F., Salsali, M., & Cheraghi, M. A. (2014). Nursing professionalism: An evolutionary concept analysis. *Iranian Journal of Nursing and Midwifery Research*, 19(1), 1-10.
- Hasandost, F. (2016). Factors influencing professionalism: A cross sectional study among Iranian registered nurses. *IOSR Journal of Nursing and Health Science*, 5(3), 47-49.
- Khan, H., & Khan, M. (2018). Defining and measuring professionalism in professions of service sector. *SE/SENSE Journal of Management*, 1(2), 20-33. <https://doi.org/10.5281/zenodo.1218832>
- Kim-Godwin, Y. S., Baek, H. C., & Wynd, C. A. (2010). Factors influencing professionalism in nursing among Korean American registered nurses. *Journal of Professional Nursing*, 26(4), 242-249. <https://doi.org/10.1016/j.profnurs.2009.12.007>
- Lammintakanen, J., & Kivinen, T. (2012). Continuing professional development in nursing: Does age matter? *Journal of Workplace Learning*, 24(1), 34-47. <https://doi.org/10.1108/13665621211191096>
- Mashlah, S. (2015). The role of people's personal values in the workplace. *International Journal of Management and Applied Science*, 1(9), 158-164.
- Matthews, J. (2012). Role of professional organizations in advocating for the nursing profession. *OJIN: The Online Journal of Issues in Nursing*, 17(3). <https://doi.org/10.3912/OJIN.Vol17No01Man03>
- McKay, D. R. (2019). Professionalism in the workplace. *The Balance Careers*. <https://doi.org/https://www.thebalancecareers.com/professionalism-526248>
- Nursing and Midwifery Council. (2015). *Enabling professionalism in nursing and midwifery practice*. <https://www.nmc.org.uk/globalassets/sitedocuments/other-publications/enabling-professionalism.pdf>
- Oshodi, T. O., Bruneau, B., Crockett, R., Kinchington, F., Nayar, S., & West, E. (2019). Registered nurses' perceptions and experiences of autonomy: A descriptive phenomenological study. *BMC Nursing*, 18(1), 1-14. <https://doi.org/10.1186/s12912-019-0378-3>
- Park, S., Kwon, D. W., Kim, D., & Kim, S. H. (2019). Influences of gender-related perceptions and experiences on nursing professionalism: A cross-sectional study. *Nursing & Health Sciences*, 21(4), 515-522. <https://doi.org/10.1111/nhs.12636>
- Paskaleva, T., Torniyova, B., & Shopov, D. (2020). Professional status of men in nursing. *Journal of IMAB*, 26(1), 3029-3033. <https://doi.org/10.5272/jimab.2020261.3029>
- Ponton, R., Brown, T., McDonnell, B., Clark, C., Pepe, J., & Deykerhoff, M. (2014). Vocational perception: A mixed-method investigation of calling. *The Psychologist-Manager Journal*, 17(3), 182-204. <https://psycnet.apa.org/doi/10.1037/mgr0000019>
- Pool, I. A., Poell, R. F., & Ten Cate, T. J. (2013). Perspectives on age and continuing professional development for nurses: a literature review. *Vocations and Learning*, 6(3), 297-321. <https://doi.org/10.1007/s12186-013-9096-2>
- Rabie, T. (2021). Relation between Halls' Professionalism Scale and nurses' demographic characteristics. *BMC Research Notes*, 14(1), 1-6. <https://doi.org/10.1186/s13104-021-05660-2>
- Riley, J., & Beal, J. A. (2010). Public service: Experienced nurses' views on social and civic responsibility. *Nursing Outlook*, 58(3), 142-147. <https://doi.org/10.1016/j.outlook.2010.02.158>
- Saragih, S. (2015). The effects of job autonomy on work outcomes: Self efficacy as an intervening variable. *International Research Journal of Business Studies*, 4(3), 203-215. <https://doi.org/10.21632/irjbs.4.3.203-215>
- Shohani, M., & Zamanzadeh, V. (2017). Nurses' attitude towards professionalization and factors influencing it. *Journal of Caring Sciences*, 6(4), 345-357. <https://dx.doi.org/10.15171%2Fjcs.2017.033>
- Sibandze, B. T., & Scafide, K. N. (2018). Among nurses, how does education level impact professional values? A systematic review. *International Nursing Review*, 65(1), 65-77. <https://doi.org/10.1111/inr.12390>
- Snizek, W. E. (1972). Hall's professionalism scale: An empirical reassessment. *American Sociological Review*, 37(1), 109-114. <https://doi.org/10.2307/2093498>
- Solomon, Y., Beker, J., & Belachew, T. (2015). Professionalism and its predictors among nurses working in Jimma Zone Public Hospitals, South West Ethiopia. *Journal of Nursing and Care*, 5(4), 292. <https://doi.org/10.4172/2167-1168.1000292>
- Tanaka, M., Yonemitsu, Y., & Kawamoto, R. (2014). Nursing professionalism: A national survey of professionalism among

- Japanese nurses. *International Journal of Nursing Practice*, 20(6), 579-587. <https://doi.org/10.1111/ijn.12201>
- Thompson, H. (2021). What are self-regulations skills? (and how to improve them). *Indeed*. <https://www.indeed.com/career-advice/career-development/self-regulation-skills>
- Tola, M. D., Tafesa, F., & Siraneh, Y. (2020). Assessment of professionalism in nursing and factors associated among nurses working in Arsi zone public hospitals, Oromia, Ethiopia, 2018. *medRxiv*. <https://doi.org/10.1101/2020.09.28.20202986>
- Wiles, J. (2022). Employees seek personal value and purpose at work. Be prepared to deliver. *Gartner*. <https://www.gartner.com/en/articles/employees-seek-personal-value-and-purpose-at-work-be-prepared-to-deliver>
- Xu, S., Tao, L., Huang, H., Little, J., & Huang, L. (2020). Pediatric nurses' turnover intention and its association with calling in China's tertiary hospitals. *Journal of Pediatric Nursing*, 52, e51-e56. <https://doi.org/10.1016/j.pedn.2020.01.005>
- Ziedelis, A. (2019). Perceived calling and work engagement among nurses. *Western Journal of Nursing Research*, 41(6), 816-833. <https://doi.org/10.1177%2F0193945918767631>

Cite this article as: Alshumrani, H., Albagawi, B., Villareal, S., Areola Jr, B., Albagawi, H., Algamdi, S., Alerwi, A., Altheban, A. S., & Alanazi, S. (2022). Relation between socio-demographic factors and professionalism among nurses in Saudi Arabia: A comparative analysis. *Belitung Nursing Journal*, 8(2), 139-146. <https://doi.org/10.33546/bnj.1931>

Children's psychosocial state after the 2018 Lombok earthquake

Ariyanti Saleh^{1*}, Budi Anna Keliat², Herni Susanti², Heni Dwi Windarwati³,
Framita Rahman⁴, Ahmad Sapuan⁵, and Fitrawati Arifuddin⁶



¹ Department of Mental Health Nursing, Faculty of Nursing, Universitas Hasanuddin, Makassar, Indonesia

² Department of Mental Health Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia

³ Department of Mental Health Nursing, School of Nursing, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia

⁴ Department of Community, Family, and Gerontology, Faculty of Nursing, Universitas Hasanuddin, Makassar, Indonesia

⁵ Rumah Sakit Jiwa Mutiara Sukma Provinsi Nusa Tenggara Barat, Indonesia

⁶ Department of Nursing, Akademi Keperawatan Syekh Yusuf, Gowa, Indonesia

Abstract

Background: The current earthquake disaster in Lombok, Indonesia, in July 2018 has caused 564 deaths, and 445,343 were evacuated to refugee camps, including children. Disasters have the potential in resulting short-and long-term effects on the psychological functioning, emotional adjustment, health, and developmental trajectory of children. Nurses play a significant role when a disaster occurs. One of the nurses' roles is to give a traumatic healing intervention to the victims

Objective: This study sought to assess children's psychosocial state after the 2018 Lombok earthquake.

Methods: A total of 189 children from five regencies in Lombok were selected to participate in the study using accidental sampling. Data were collected using the Strengths and Difficulties Questionnaire (SDQ). Descriptive statistics and cross-tabulation were used for data analysis.

Results: The participants consisted of 98 girls (51.9%) and 91 boys (48.1%), with the majority ($n = 142$ [75.1%]) being from school-aged children. The SDQ results showed that most of the children were at the abnormal stage for difficulties ($n = 103$ [54.5%]), and most of them were at a normal stage for strength ($n = 97$ [51.3%]). The cross-tabulation analysis revealed that gender might influence the SDQ score for the strength ($p = 0.034$), but not for difficulties ($p = 0.482$). However, age did not have a correlation with SDQ score, either for strength ($p = 0.475$) or difficulties ($p = 0.836$), respectively.

Conclusion: The study found that children in Lombok generally displayed positive behavior and emotional progress after the earthquake. However, some children remained in distress and thus required more observation from parents or other social welfare agencies. This research may help nurses decide on their nursing care for children who experience disasters.

Keywords

life skills; school adolescents; sexual behavior; substance use; nursing; Indonesia

*Corresponding author:

Dr. Ariyanti Saleh, S.Kp., M.Si
Faculty of Nursing, Universitas Hasanuddin
Jl. Perintis Kemerdekaan Kampus Tamalan-
rea Km. 10 Makassar 90245, Indonesia
Email: ariyanti.saleh@gmail.com

Article info:

Received: 22 November 2021

Revised: 23 December 2021

Accepted: 7 March 2022



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially as long as the original work is properly cited. The new creations are not necessarily licensed under the identical terms.

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

A multitude of factors may expose people to vulnerable situations. Among them are floods, earthquakes, and tropical cyclones, which constitute the three most devastating natural disasters, accounting for 90% of the world's immediate losses (Kouadio et al., 2012; Kousky, 2016). In addition, recent decades have seen the increased occurrence and impact of natural disasters, causing massive damage to the economy and human beings, including severe injuries and millions of deaths (Tang et al., 2014).

In 2011, 332 natural disasters were recorded worldwide, with substantial human and economic impacts, killing 30,773 people and affecting 244.7 million others (Guha-Sapir et al.,

2012). In the past decades, five countries—China, the United States, the Philippines, India, and Indonesia have been most frequently hit by natural disasters (Guha-Sapir et al., 2012). In 2011, 7 of the ten countries with the highest disaster mortality rates were categorized as high-income or upper-middle economies (Guha-Sapir et al., 2012). Most developing countries may also suffer from severe impacts because of poor building practices and insufficient infrastructure despite not being prone to natural disasters.

Indonesia is geographically situated in the "Ring of Fire" and is thus prone to many disasters. Each year the country experiences floods, earthquakes, volcano eruptions, drought, forest fires, tropical cyclones, and landslides (Cameron & Shah, 2015; Husna et al., 2020). In the past ten years, Indonesia was hit by many catastrophic disasters such as the

tsunamis in West Sumatra in 2010 and Tasikmalaya in 2009, the earthquakes and tsunami in Mentawai in 2010, the floods in Wassior West Papua, the Mount Merapi explosion in Yogyakarta in 2010, the floods and tsunami in Palu in 2018, and the earthquake in Lombok in 2018.

Lombok is an island in West Nusa Tenggara Province in Indonesia. The island consists of four districts: West Lombok, North Lombok, Central Lombok, and East Lombok. It has a total area of 4,725 square kilometers and is roughly circular (Horwath HTL, 2017). On 5 August 2018, a magnitude seven earthquake struck Lombok with a depth of 32 kilometers after a series of earthquakes in early July 2018 with a strength of 6.4 SR. This earthquake killed 390 people and injured 1,447 others, not to mention the 67,875 destroyed houses, 468 damaged schools, and 2,793 displaced residents (Dwidiyanti et al., 2018; Suryatningsih, 2018). In addition, it left people in a grave situation, having lost their homes or family members (Dwidiyanti et al., 2018). Such disasters have caused massive repercussions to Indonesia in terms of financial and human damages such as injuries, death, and trauma (Nuari, 2017; Utami et al., 2016). Specifically, many children lost their parents and other family members as well as their homes, stopped going to school, and even sustained injuries (Tim Pusat Studi Gempa Nasional, 2019).

Every year, disasters affect millions of children worldwide, whether natural, such as earthquakes, hurricanes, tornadoes, fires, floods, or manmade, such as war, terrorism, or industrial accidents (Alisic et al., 2014; Masten & Narayan, 2012). Children are particularly fragile to the effects of disasters and other traumatic events because they lack the experience, skills, and resources to help them independently fulfill their developmental, social, emotional, mental, and behavioral health needs (Alisic et al., 2014). Kousky (2016) found that children are the most common victims of disasters. They are also more vulnerable to these events, with different needs that require special treatment after disasters occur (Kousky, 2016). Furthermore, both short- and long-term effects of disasters on children may include some problems in psychological function, emotional adjustment, health, and developmental status. Thus, understanding children's psychological reactions to disasters have become a key concern for public mental health (La Greca et al., 2013).

As the largest workforce in disasters, nurses play a significant role among medical teams in many earthquake cases (Yang et al., 2010). One of the pivotal nurses' roles is giving a traumatic healing intervention to the victims (Dwidiyanti et al., 2018; Istiqomah, 2017). However, to be able to deliver the care effectively, nurses should be able to understand the children's mental health first. Nevertheless, the Strength and Difficulties Questionnaire (SDQ) is well known worldwide, while in Indonesia, it is still rare to be used, particularly in nursing when it comes to disaster.

The recent earthquake in Lombok also affected children, directly or indirectly, with a high risk of developing behavioral and emotional problems. Hence, it is essential to recognize Indonesia as part of the "Ring of Fire" and the severe effects of natural disasters on children. However, while the earthquake in Lombok has been regarded as one of the worst in Indonesia, there has been no study in the nursing field which can examine its effect on Indonesian children. Thus, this paper aims to evaluate children's psychosocial state after the

Lombok earthquake, which can eventually shape a better understanding for nurses, especially in community health nurses that provide nursing care.

Methods

Study Design

This study employed a descriptive quantitative design among children in five regions throughout West Lombok.

Participants

One hundred eighty-nine participants participated in this research. The inclusion criteria of the participants were (a) children aged 4–11 and (b) the ability to speak Bahasa. The participant was determined using the accidental sampling method. The sample size was calculated using the Lemeshow formula for unknown populations, with a maximal estimation proportion of 0.5, alpha of 10% (0.1), and significance level of 0.05 (Lemeshow et al., 1990). Thus, the minimal sample size was 107 participants, including a 10% prediction for dropped out participants.

Instruments

The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997; Keliat & Marliana, 2018) was used to evaluate the psychosocial state of the children who were affected by the 2018 Lombok earthquake. The SDQ is a short behavioral screening instrument for children and adolescents (3–17 years old) that focuses on their strengths and hardships (Goodman, 1997). The questionnaire consists of 25 questions under five subscales: prosocial, hyperactive, emotional problems, behavioral problems, and peer relationships (Keliat & Marliana, 2018). Each item is scored based on a three-point response format: not true (1), somehow true (2), and true (3). The SDQ questionnaire used in this research was already written in Bahasa and could be accessed freely. The SDQ was chosen as a diagnostic tool because it has been successfully implemented in many Asian countries as one of the most reliable indicators of pediatric mental disturbance (Lee & Bhang, 2018; Lieber, 2017; McDermott et al., 2005). One local study showed that the SDQ has good reliability, with a Cronbach's alpha of 0.773 (Oktaviana & Wimbari, 2014).

Data Collection

Data were collected in August 2018 by the researchers and volunteer investigators. The volunteer investigators were informed about the inclusion and exclusion criteria and the questionnaire's scoring procedure in a briefing. The volunteers were divided into five teams consisting of five to six per team composed of lecturers, mental health nurses, and students. The teams were then assigned to five regions throughout Lombok. Each investigator collected data using the questionnaire on the children.

Data Analysis

The data were analyzed using SPSS 24, and descriptive statistics were used to present the mean, standard deviation, frequency, and percentage. In addition, a cross-tabulation was used to identify the association between age, gender, and SDQ.

Ethical Consideration

The study was ethically approved by the Ethics Commission of Universitas Indonesia (no. SK-02/UN2.F12.D1.2.1/ETIK.FIK.2020). Prior to data collection, informed consent was signed by the parents or caregivers of the children. Then, the children were interviewed in the presence of their respective parents or caregivers, from which the SDQ questionnaire data were collected.

Results

Characteristics of the Participants

A hundred response rate of the participants was identified in this study, which 189 children from the five regions were affected by the 2018 Lombok earthquake. The participants consisted of 98 girls (51.9%) and 91 boys (48.1%), with a mean age of 8.2 years. Most participants were school-age children (75.1%) (Table 1).

Table 1 Age and gender characteristics of the participants

Characteristics	<i>n</i> (%)	Mean ± SD
Age		8.2 ± 2.164
Preschool Age	47 (24.9%)	
School-Age	142 (75.1%)	
Gender		
Boys	91 (48.1%)	
Girls	98 (51.9%)	

SDQ Scores of the Participants

Table 2 shows that most participants had an SDQ general score of more than 24 (51.9%), which indicated that some of the children's mental health stages are at risk. For example, for the difficulties score, there were 103 children (54.5%) in the abnormal category and 86 (45.5%) in the normal category. Nonetheless, for the strengths score, more children were in the normal stage (51.3%) than in the abnormal stage (48.7%).

Table 2 Strength-and-difficulty analysis based on SDQ scores

SDQ Score	<i>n</i>	%	Valid Percent	Cumulative Percent
General Score				
< 24	91	48.1	48.1	48.1
≥ 24	98	51.9	51.9	100
Difficulties				
Normal	86	45.5	45.5	45.5
Abnormal	103	54.5	54.5	100
Strengths				
Normal	97	51.3	51.3	100
Abnormal	92	48.7	48.7	48.7

Associations of Age, Gender, and SDQ

Table 3 shows that girls were less strong (55 respondents) than boys (37 respondents). In addition, 78 school-aged children found it difficult to adjust to their current situation after the earthquake. Nonetheless, there were 75 school-aged children in the normal stage for their strength.

Table 3 Age, gender, and SDQ scores

Characteristics	SDQ Score					
	Difficulties		<i>p</i> -value	Strengths		<i>p</i> -value
	Normal (<i>n</i>)	Abnormal (<i>n</i>)		Normal (<i>n</i>)	Abnormal (<i>n</i>)	
Gender						
Boys	39	52	0.482	54	37	0.034
Girls	47	51		43	55	
Total	86	103		97	92	
Age						
Preschool Age	22	25	0.836	22	25	0.475
School-Age	64	78		75	67	
Total	86	103		97	92	

Discussion

To the best of our knowledge, although Indonesia experiences many natural disasters, no research has been conducted on children's post-disaster adaptation and an early assessment of their mental health. Our study is the first to address the children's mental health after the natural disaster, especially the post-Lombok earthquake. Besides, a big help is needed for those children on their physical condition and physiological state considering the massive catastrophe caused by this earthquake. Nurses, particularly community health nurses, play a pivotal role in this circumstance.

There are several important findings of our research. First, this study found a very interesting phenomenon in gender roles in the disaster. In the difficulties domain, the research

found no significant differences in how boys and girls faced difficult situations after the earthquake. This finding was similar to studies conducted by McDermott et al. (2005), Kar (2009), McLaughlin et al. (2009), who also found no statistical differences according to gender.

Our study finding also found that more boys faced difficulties compared to girls, which is quite similar to research conducted by Moriwaki and Kamio (2014) that there was a higher level of difficulties in boys than girls. However, in this study, boys tend to have more strength than girls (54 and 43, respectively). This may be due to the fact that boys tend to engage in post-disaster recovery activities directly. That involvement may indirectly increase their self-esteem and feeling of control (Bokszczanin, 2007). In addition, Lombok, just like other Indonesian regions, is a patriarchal society that believes males should not show their weaknesses and be