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EDITORIAL TEAM

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Editorial Address

Secretariat of Jurnal Keperawatan Indonesia
Faculty of Nursing, 4th Floor, E Building Health Sciences Cluster, Universitas Indonesia
Campus UI Depok 16424
Tel. +6221-7884-9120; Mobile. +62-851-7331-9979
E-mail: jurnal.keperawatan@ui.ac.id
http://jki.ui.ac.id

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Attitudes to Patients' Safety Questionnaire in The Arabic Context: Psychometric Properties

Muayyad Ahmad*, Bushra Ghannam

School of Nursing, University of Jordan, Amman 11942, Jordan

*E-mail: mma4@ju.edu.jo

Abstract

Patient safety education is often implicit in undergraduate nursing curricula, making it harder to meet competency standards. The Attitudes to Patient Safety Questionnaire (APSQ-III), which was developed in 2009 by Carruthers and collaborators in the United Kingdom, examines patient safety on a more sophisticated system level and has the potential to lead productive, nonhierarchical collaboration in educational settings. This study's goal was to use rigorous psychometric testing to validate the Arabic version of the Attitudes to Patient Safety Questionnaire (APSQ-III) for nursing students in an Arabic context. The majority of the 217 students recruited for this study through a convenience sampling technique were in their fourth year of college. There were two phases of APSQ-III validation investigations. Initially, three nurses were hired. The team documented their ideas and selected the best one. The Arabic version of the APSQ-III was translated using World Health Organization (WHO) principles. A number of models were developed and evaluated. On the APSQ-III, which had a total of 25 questions, a principal components analysis with equamax rotation was carried out. The analysis revealed that the six higher-order factors with respective eigenvalues of (5.9, 3.1, 2.0, 1.3, 1.2, and 1.1) account for 58.4% of the total variance. All resulting factors contained at least three variables with clean loadings. The APSQ-III, which has been modified for use with nursing students in Jordan and other Arab countries has achieved construct validity and a Cronbach's alpha reliability of 0.80 for measuring attitudes regarding patient safety.

Keywords: Arab, attitudes, patients, safety, validation

Abstrak

Kuesioner Sikap terhadap Keselamatan Pasien dalam Konteks Arab: **Psychometric Properties.** *Pendidikan keselamatan pasien sering kali tidak tersirat dalam kurikulum sarjana keperawatan, sehingga lebih sulit untuk memenuhi standar kompetensi.* Attitudes to Patient Safety Questionnaire (APSQ-III), *yang dikembangkan oleh Carruthers dan kolaboratornya pada tahun 2009 di Inggris, meneliti keselamatan pasien pada tingkat sistem yang lebih canggih dan memiliki potensi untuk menghasilkan kolaborasi yang produktif dan tidak hirarkis dalam lingkungan pendidikan. Tujuan dari penelitian ini adalah untuk memvalidasi versi bahasa Arab dari APSQ-III untuk mahasiswa keperawatan dalam konteks bahasa Arab, dengan menggunakan pengujian psikometrik yang ketat. Mayoritas dari 217 mahasiswa yang direkrut melalui* convenience sampling technique, *berada di tahun keempat kuliah. Ada dua tahap investigasi validasi APSQ-III. Awalnya, tiga orang perawat direkrut. Tim mendokumentasikan ide-ide mereka dan memilih yang terbaik. Versi bahasa Arab dari APSQ-III diterjemahkan dengan menggunakan prinsip-prinsip WHO. Sejumlah model dikembangkan dan dievaluasi. Pada APSQ-III, yang memiliki total 25 pertanyaan, dilakukan analisis komponen utama dengan rotasi equamax. Analisis tersebut menunjukkan bahwa enam faktor tingkat tinggi dengan nilai eigen masing-masing (5.9, 3.1, 2.0, 1.3, 1.2, dan 1.1), menyumbang 58.4% dari total varian. Semua faktor yang dihasilkan mengandung setidaknya tiga variabel dengan* clean loadings. *APSQ-III, yang telah dimodifikasi untuk digunakan mahasiswa keperawatan di Yordania dan negara-negara Arab lainnya, telah mencapai validitas konstruk dan reliabilitas Cronbach's alpha sebesar 0,80 untuk mengukur sikap terkait keselamatan pasien.*

Kata Kunci: *Arab, keselamatan, pasien, sikap, validasi*

Introduction

Educating the healthcare workforce about patient safety has emerged and is widely recognized as an effective tool for safeguarding patients' health (Paul et al., 2023; WHO, 2011).

Since the publication of To Err is Human by the Institute of Medicine (IOM) in 2000, there has been a noticeable push to develop strategies and solutions to reduce patient safety risk (IOM Committee, 2011). As part of their traditional role, nurses, who make up the majority of the health workforce, have been viewed as crucial to protecting patients' health (IOM Committee, 2011). Individually and organizationally, nurses must be equipped with the essential knowledge and skills regarding patient safety issues in order to play a leading role. According to the available research, the early introduction of undergraduate nursing students to patient safety principles has a significant effect on the latter group's long-term patient safety knowledge, abilities, and behaviors (Al Tamimi & Ahmad, 2022; Patient Safety & European Commission, 2014). Undergraduate nursing programs often contain implicit patient safety education, making competency criteria harder to meet. Through thorough psychometric testing, this study verified that the Arabic version of the Attitudes to Patient Safety Questionnaire (APSQ-III), which has been adopted for use with nursing students in Jordan and other Arab nations, is valid and reliable for measuring patient safety attitudes.

Education on patient safety is usually taught in a manner that is more implicit than explicit in undergraduate nursing courses, which may make it more difficult to achieve safety competency standards (Tella et al., 2014). In general, patient safety-related nursing curriculum stress individual safe clinical practices (e.g., Medication security and infection control) (Lee et al., 2020; Usher et al., 2018) and technical skills related to patient safety (e.g., the five medicine safety rights). Non-technical abilities, such as communication and teamwork, appear to be underrepresented in nursing school, despite the fact that these skills are extremely important (Ricciardi & Cascini, 2020).

The challenges associated with incorporating patient safety education into the nursing curriculum are not only related to the content, but also to the evaluation of students' educational needs. A recent systematic review conducted with the intention of evaluating patient safety educational interventions for undergraduate nursing students found heterogeneity in the number and type of targeted samples, educational interventions utilized, assessment instruments utilized, and outcomes measured (Ahmad et al., 2018; Lee et al., 2020). Therefore, it is necessary to have a valid instrument for evaluating the current perceptions and educational needs of students in order to determine the most suitable curricular strategies and educational interventions. In order to do this, it is necessary to have a valid instrument for evaluating the current perceptions and educational needs of students.

Mortensen et al. (2022) carried out a scoping review in order to locate methods for assessing the nursing staff's capacity for ensuring patient safety. All nine instruments identified by the authors for measuring patient safety competencies are self-administered Likert-type scales. The APSQ-III, which was developed by Carruthers and colleagues in the United Kingdom in 2009, is one of the included instruments that assess patient safety on a more complex system level and can be used to guide efficient and non-hierarchical collaboration in education.

Although the APSQ-III is a useful instrument for evaluating attitudes toward patient safety, valid instruments are still required to meet the evolving, diverse, and particular requirements of patient safety research and practice. The ongoing refinement and verification of instruments guarantee their continued efficacy as guiding mechanisms for enhancing patient safety in diverse settings (Shin & Lee, 2024). Other instruments that assess patient safety on a more basic system level include the Patient Safety Culture Questionnaire (PSQ-III), which was developed by Carruthers and colleagues in the United States in 2005 (Cuffee, 2012).

The decision to use the APSQ-III instead of an alternative instrument was based on its reputation for rigor, its psychometric qualities, and its close applicability to nursing students in an

Arabic environment. The original APSQ-III was designed specifically for medical students; it evaluates attitudes toward patient safety across multiple domains. APSQ-III consists of 26 items evaluated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree). Additionally, it encompasses nine essential patient safety categories (Patient safety training received, Error reporting confidence, Working hours as an error cause, Error inevitability, Professional incompetence as an error cause, Disclosure responsibility, Team functioning, Patient involvement in reducing error, and Importance of patient safety in the curriculum) (Garcìa et al., 2023).

The first iteration of the APSQ-III exhibited satisfactory consistency across its factorial structure (reliability coefficients ranging from 0.71 to 0.82), and its content validity was found to be adequate (Elorrio et al., 2016). The developers of the original instrument hypothesized that the APSQ-III may be utilized to evaluate attitudes toward patient safety in a variety of other health-related fields and settings (Atwa et al., 2023).

In the nursing literature, Abu-El-Noor et al. (2019) utilized the APSQ-III to measure attitudes of nurses working in government hospitals in the Gaza Strip toward patient safety and to examine factors influencing attitudes. This was done to determine how nurses felt about patient safety. The instrument was translated into Arabic, its face validity was examined, and its Cronbach's reliability was determined to be acceptable at .718% (Abu-El-Noor et al., 2019). To evaluate the effectiveness of an educational intervention on a sample of sixty master's level nursing students, Raines et al. (2016) employed a modified version of the APSQ questionnaire that they had previously developed. Nevertheless, neither the questions nor the psychometric features of the questionnaire were covered in this article.

The instrument was adapted and translated into Spanish (Cervera-Gasch et al., 2021). The author has used 29 items on a 5-point Likert scale (where 1 = strongly disagree; 5 = strongly agree). Their sample size was approximately six participants per item (a total of 177 nursing students), the majority of whom were female (77.4%; n = 137) and proportional to their academic year. It was cut down to 22 components and structured into six dimensions (Responsibility, Organization and communication, Teamwork, Training, Notification, and Consciousness), and the newly developed structure indicated a satisfactory overall internal consistency (= .81), with values ranging from 0.66 to 0.91. Cervera-Gasch et al. (2021) concluded that the APSQ-III has adequate psychometric properties, including good construct validity, internal consistency, and temporal stability.

Due to the paucity of evidence regarding the psychometric properties of nursing education assessments in general, and Arabic contexts in particular, further research is required. The vast majority (95-97%) of Jordan's population consists of Arabs. Jordan is an Arab country located in the northern Arabian Peninsula and West Asia (Dabash, 2023).

Using exploratory factor analysis, the construct validity of a previously validated questionnaire was then evaluated. Factor analysis is a statistical tool for analyzing scores on a large number of variables to determine if there are additional dimensions that describe these variables (Ahmad et al., 2023; Rayan & Ahmad, 2018). Exploratory factor analysis aims to summarize or reduce data by grouping variables that are intercorrelated. The most common method for validating a tool is the principal components (PC) method, which aims to select a set of variables that account for as much of the total variance as possible (Warner, 2013). They arrived at the conclusion that the APSQ-III possesses appropriate psychometric qualities, which include good concept validity, internal consistency, and temporal stability.

On the other hand, to evaluate its psychometric qualities, additional testing with a bigger sample size in a variety of scenarios is necessary.

Thus, a valid instrument that reflects the context and cultural relevance is required. The APSQ-III, which was established in 2009 in the United Kingdom, is indicative of the dominant patient safety attitudes and educational paradigms of that era. The exhaustive description of certain patient safety aspects that are unique to specific educational environments, healthcare systems, and cultures may not be possible in the APSQ-III. Sustaining relevance and applicability across various contexts such as the Arab culture is ensured by the validity of an instrument within this context.

Methods

Design and Setting. Two stages of research were carried out in order to validate the APSQ-III for use with nursing students in the Jordanian environment. Initially, a nominal group of three nurses was formed (two of them are registered nurses who work as quality control staff in governmental hospitals in Jordan, and the third nurse has a master's degree in quality and safety in healthcare management who works as faculty member at one of the Schools of Nursing in Jordan). The term "nominal group technique" (NGT) refers to an organized strategy for group brainstorming that encourages everyone to participate and allows speedy consensus on the relative importance of issues, problems, or solutions. NGT is described as an acronym for "nominal group technique."

The members of the team start by writing down their concepts, and then they vote on which one they think will be the most successful. They did this in order to accomplish their major goal, which was to execute adaptation and translation between cultures. Specifically, they adapted the language to the subject of nursing studies (for example, the term doctor was changed to nurse). Then, the APSQ-III was translated by two professional bilingual speakers into Arabic using WHO guidelines for instrument translation and back translation (Butcher et al., 2019). Then, two expert nurses with a master's degree in quality and safety in healthcare management and who work as quality improvement staff at a private hospital in Jordan evaluated the translation's face validity and provided suggestions for improving its quality.

The Arabic APSQ-III for nursing students has 25 items in six dimensions (Confidence, Causes of errors, Prevention of errors, Professional responsibility, Disclosure responsibility, and Error inevitability). The original version, produced with English medical students, had 26 items on a 7-point Likert scale in nine categories. After implementing the suggested modification, a pilot study with 10 undergraduate nursing students was conducted to assess general comprehension and clarity. These students were conveniently recruited from the School of Nursing at the University of Jordan; the majority (70%) were female, and 50% were in their fourth academic year, while the remaining (10%), (20%), and (20%) were in their first, second, and third academic years, respectively. The results of the pilot study indicated that the final version was comprehensible and that no changes were necessary. In the second part of the research, a cross-sectional study was carried out on nursing students to evaluate the questionnaire's psychometric qualities.

Sample and Sampling. The intended audience was comprised of nursing students from public and private nursing schools in Jordan. It was determined that sample sizes between 5 and 10 subjects per item were adequate (Warner, 2013); On the basis of the number of items on the original scale (26 items), sample sizes between 130 and 260 students were deemed sufficient. Using convenience sampling, 217 students were recruited, the majority of whom were in their fourth year of study.

Ethical Consideration and Data Collection. Prior to data collection, ethical approval was obtained from the ethical committee at the School of Nursing University of Jordan. An online announcement was used to invite participants to participate. The questionnaire description included a comprehensive description of

the study and its purpose. Both privacy and anonymity were ensured. Permission to validate the APSQ-III was obtained from the original author.

No exclusion criteria were used in the collection of data using an online questionnaire sent to nursing students currently enrolled in a bachelor's degree program at one of the nursing schools in Jordan. The questionnaire includes a sociodemographic data sheet compiled by the researchers as well as a translated version of the APSQ-III. The sociodemographic sheet includes information about age, gender, academic year, management, and leadership in nursing courses studied or currently being studied, and patient safety training courses.

Data Analysis. The computer program, SPSS Windows (version 25) was used. The Cronbach's alpha coefficient was used to evaluate reliability, while factor analysis was used to evaluate construct validity.

In this study, a number of models were developed and evaluated based on the following criteria: the correlations between variables, also known as the loading factor, must be greater than 0.40. The eigenvalue, which refers to the weight of each factor, must have a minimum acceptable score of 1, and the clean loading, which refers to the absolute difference between variable loading, must >.20; final, the overall significance of variables within each dimension (Al-Dweik & Ahmad, 2019; Lloret-Segura et al., 2014). Measuring the sample adequacy, the applicability of the factor analysis was validated by the findings of the Kaiser-Meyer-Olkin (KMO) test (KMO = 0.789), as well as the results of the Bartlett's test of sphericity (p .001).

Results

Among the 217 students 67.3% (n = 146) were female and 32.7% (n = 71) were male. The average age of the people in the sample was 21.95 ± 2.6 years that ranged from 18 to 38 years. The majority (70%) were female, and 50% were in their fourth academic year, while the remaining were in their first (10%), second (20%), and third (20%) year. Lastly, the majority of students, 79.3% (n = 172), had never participated in workshops or extracurricular courses related to patient safety. However, 65.9% (n = 143) of the students had completed or were currently enrolled in a management and leadership in nursing course in which they become acquainted with patient safety issues. Regarding nursing experience, only 26.3% (n = 57) had it, with the majority of those working in government hospitals at 16.6% (n = 36) (Table 1). Cronbach's alpha for the translated instrument was .75 which is acceptable for the number of items and the sample size which suggests that the items may not be measuring a single construct.

To determine the stability of the original instrument structure, a factor analysis of the APSQ-III was conducted by forcing a nine-factor structure. The result revealed that the nine-factor model explains 67.7% of the total variance, but five of the nine factors do not meet the requirements to remain within the final structure; one of the nine factors had no retained variables with factor loading >.4, and the other four factors had only two retained variables with impure loading, indicating that the original structure must be modified (Han & Zhang, 2023).

On the APSQ-III, which had a total of 25 questions, a principal components analysis with equamax rotation was carried out (Item 12 "Human error is inevitable" was removed because its loading across factors was low, <.20). The analysis revealed that the six higher-order factors with respective eigenvalues of (5.9, 3.1, 2.0, 1.3, 1.2, and 1.1) account for 58.4% of the total variance. All resulting factors contained at least three variables with clean loadings (Table 2).

Discussion

The goal of factor analysis is to reduce a large

number of variables to a smaller number of factors (Rayan & Ahmad, 2018). This method takes the largest common variance from all the variables and awards each variable a single score. The current study evaluated the construct validity of the APSQ-III for nursing students in an Arabic context using factor analysis. In this study, the number of extracted factors depends on the strength and cleanliness of the variable's loading on the factors; if factor loading is greater than .4 and the absolute difference between loadings is greater than .20, the variable was deemed strong and clean (Ahmad et al., 2018; Nunnally & Bernstein, 1994).

The Arabic version of the APSQ-III for nursing students possesses appropriate psychometric features, such as adequate construct validity, adequate internal consistency, and adequate temporal stability. These psychometric properties are necessary for accurate assessment. However, one aspect of the questionnaire showed low internal consistency (α = .394), consequently, additional testing with alternative samples is required.

Factors affecting the reliability include sources of random errors, which may be attributable to the presence of atypical students who had never received training on patient safety concerns (Alammar et al., 2020; Ayasrah et al., 2024). In the APSQ-III validation in nursing students within a Spanish context, Cervera-Gasch et al. (2021) also reported low reliability in some dimensions. They hypothesized that the dependability results may have been improved with a transcultural adaptation, a more stringent content validity examination, and a bigger sample size.

A typical objective of Principal Components or factor analysis is to determine how few components or factors can be retained while still retaining sufficient information (Ahmad et al., 2024; Tailakh & Ahmad, 2023; Warner, 2013).

Table 1. Demographic Characteristics of the Participants

Variable	n (%)
Age	
Range: 18-38	
Mean (SD)	21.95 (2.6)
Sex	
Male	146 (67.3)
Female	71 (32.7)
Academic Year	
First	15 (6.9)
Second	18 (8.3)
Third	32 (14.7)
Fourth	152 (70)
Management and leadership course	
Yes	143 (65.9)
No	74 (34.1)
Working experience in nursing	
Yes	57 (26.3)
No	160 (73.7)
Working place (n = 57)	
Governmental hospital	36 (16.6)
Primary health care center	4 (1.8)
Nursing Home	9 (4.1)
Private hospital	8 (3.7)
Received training related to safety culture (n = 152)	
Yes	45 (20.7)
No	172 (79.3)

Table 2. Exploratory Factor Analysis as well as Maintaining Internal Consistency for the Selected Model

Item Number and Items	Confidence	Causes of Errors	Prevention of Errors	Professional Responsibility	Disclosure responsibility	Error inevitability
3- My training is preparing me to prevent medical errors	**.755**		.195			
1- My training is preparing me to understand the causes of medical errors	**.711**					
2- I have a good understanding of patient safety issues as a result of my undergraduate medical training	**.685**					
5- I would feel comfortable reporting any errors other people had made, no matter how serious the outcome had been for the patient	**.563**	.283	.202	-.434		
4- I would feel comfortable reporting any errors I had made, no matter how serious the outcome had been for the patient	**.546**		.290	-.459		
6- I am confident I could talk openly to my supervisor about an error I had made if it had resulted in potential or actual harm to my patient	**.457**	.221		-.324	.244	.318
19- All medical errors should be reported	**.433**		.344	-.196		
7- Shorter shifts for nurses will reduce medical errors		**.800**				
9- The number of hours nurses work increases the likelihood of making medical errors		**.782**				
8- By not taking regular breaks during shifts, nurses are at an increased risk of making errors		**.562**				.258
23- Encouraging patients to be more involved in their care can help to reduce the risk of medical errors occurring			**.772**			
22- Patients have an important role in preventing medical errors			**.761**			
21- Teaching teamwork skills will reduce medical errors		.487	**.588**			
24- Teaching students about patient safety should be an important priority in undergraduate training		.451	**.489**			.304
20- Better multi-disciplinary teamwork will reduce medical errors	.204	.443	**.444**			.293
26- Learning about patient safety issues before I qualify will enable me to become a more effective nurse		.356	**.409**			.367
16- Medical errors are a sign of incompetence				**.781**		

Table 2. Exploratory Factor Analysis as well as Maintaining Internal Consistency for the Selected Model

Item Number and Items	Confidence	Causes of Errors	Prevention of Errors	Professional Responsibility	Disclosure responsibility	Error inevitability
15- Most medical errors result from careless nurses				**.666**	.361	
13- Most medical errors result from careless doctors				**.622**	.368	
25- Patient safety issues cannot be taught and can only be learned by clinical experience when qualified					**.730**	
18- Nurses have a responsibility to disclose errors to patients only if they result in patient harm				.217	**.681**	
17- It is not necessary to report errors which do not result in adverse outcomes for the patient				.378	**.622**	
10- Even the most experienced and competent nurses make errors						**.765**
11- A true professional does not make mistakes or errors. (item reversed)			.221	.356	.343	**-.565**
14- If people paid more attention at work, medical errors would be avoided.		.387	.236			**.496**
Cronbach's alpha	**.799**	**.697**	**.787**	**.718**	**.742**	**.394**

In this study, substantial changes were made to the APSQ-structure III's relative to its original form (Carruthers et al., 2009) and the validated version in the Spanish context (Cervera-Gasch et al., 2021). The Arabic version of the APSQ-III for nursing students was reduced to 25 items organized into six dimensions (Confidence, Causes of errors, Prevention of errors, Professional responsibility, Disclosure responsibility, and Error inevitability). The original version, which was developed with medical students in England, consists of 26 items organized into nine dimensions using a 7-point Likert scale, and it was used in this study. Whereas the Spanish version, which was validated using exploratory factor analysis with nursing students, is comprised of 22 items organized into six dimensions using a 5-point Likert scale.

Comparing the APSQ-III structure obtained with that of Carruthers et al. (2009) and Cervera-Gasch et al. (2021) versions, it revealed a nearly identical structure, although it is closer to that of Carruthers and colleagues (the original version). As an illustration, items in this study's confidence dimension are generated from the "patient safety training received" and "error reporting confidence" dimensions included in the original version.

In addition, the "Source of errors" dimension in this study is comparable to the "Working hours as the source of errors" dimension in the original instrument. The "Prevention of errors" dimension includes items pertaining to "Team functioning," "Patient involvement in reducing errors," and "Importance of patient safety in the curriculum." All these factors pertaining to the attitude of students constitute potential methods for preventing medical errors. The items comprising the "Professional responsibility," "Disclosure responsibility," and "Error inevitability" dimensions in the current version and the original version are nearly identical. However, the low reliability score for the factor "Error inevitability" is considered a limitation for this study.

The achievement of adapting and validating the

APSQ-III for nursing students who speak Arabic signifies a substantial advancement in the integration of explicit patient safety instruction into the Arabic nursing curriculum. This research highlights the criticality of incurporating advanced, systemic patient safety principles into nursing education, surpassing implicit curriculum elements to properly fulfill competency standards. Through the implementation of meticulous psychometric evaluations, the research not only validates the APSQ-III practicality in gauging nursing students' attitudes towards patient safety, but also underscores the tool's capacity to facilitate constructive, decentralized collaborations in academic environments. The thorough examination of patient safety attitudes is evidenced by the identification of six higher-order components that account for a significant amount of variance; this reflects the multifaceted character of the patient safety competences that prospective nurses must possess. Consequently, this study enhances comprehension regarding the distinct educational requirements of nursing students in Jordan and potentially other Arabic-speaking areas; it highlights the influence of the APSQ-III in fostering a safety-oriented environment in the healthcare sector via instructional means.

Implications. The adaptation of APSQ-III for Arabic-speaking nursing students underscores the importance of explicit patient safety education. It suggests a shift towards incorporating patient safety as a distinct and measurable component of nursing curricula, potentially leading to better-prepared graduates who can contribute effectively to patient safety in healthcare settings. Furthermore, the translated tool highlights the significance of culturally and linguistically appropriate educational tools. This ensures that patient safety concepts are accurately understood and applied by nursing students, thereby improving the quality of care in diverse patient populations.

Conclusion

The framework of the APSQ-III has been simplified in this study's adapted form for Arabic nursing students. As a result, with one less dimension, the structure has become more coherent and succinct. The APSQ-III that has been developed for Jordanian and Arab nursing students is a valid and reliable instrument for measuring attitudes toward patient safety. Patient safety education is frequently included in undergraduate nursing programs as an implicit component, which may make it more difficult to meet competency requirements. For the purpose of testing attitudes toward patient safety in other Arab nations, the Arabic version of the APSQ—which was modified for use with nursing students in Jordan—is recommended.

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Coping Strategies for Nurses' Distress in Dealing with the COVID-19 Pandemic: A Scoping Review

Ika Nopa[1,2*], L. Meily Kurniawidjaja[3], Dadan Erwandi[3]

1. Doctoral Program in Public Health Science, Universitas Indonesia, Depok 16424, Indonesia
2. Department of Public Health, Universitas Muhammadiyah Sumatera Utara, Medan 20217, Indonesia
3. Department of Occupational Health and Safety, Universitas Indonesia, Depok 16424, Indonesia

*E-mail: ikanopa@umsu.ac.id

Abstract

It is a well-known fact that the COVID-19 pandemic exacerbated the work stressors of nurses, which were already a problem previously, causing great distress. Hence, the need for effective coping strategies has been realized to prevent such distress, especially if a pandemic recurs. Determining how the types of coping strategies used by nurses impact their distress level in COVID-19 Pandemic. This review was conducted using the PRISMA Statement Recommendations Checklist and PRISMA—Extension for Scoping Reviews (PRISMA-SCR). The databases used were Willey Library, Science Direct, SCOPUS, and Springer Link for the literature search. Nurse and ("coping type" or "brief cope") and COVID were the keywords used for search. The search was carried out using the following initial filters: "English and Indonesian," language, and "free full text" availability. Only original research articles with a sample of nurses and a focus on coping with the COVID-19 pandemic were synthesized. The review contained 21 articles in total. In the Brief-COPE framework, an instrument designed to measure the types of coping strategies, there are several ways of classifying the types of coping strategies: based on outcome, engagement, stressor management goals, and source of support. The top coping strategies were acceptance, active coping, planning, religion, positive reframing, and seeking emotional support. Avoidance coping strategies significantly increase one's depression and anxiety, while acceptance and positive reframing protect against anxiety and depression. This knowledge forms the basis of planning and designing a stress management program for dealing with extreme work stressors, such as pandemics. Future research should investigate how different types of stressors influence the use of coping strategies and distress in other situations.

Keywords: coping type, COVID-19, distress, nurse

Abstrak

Strategi Mengatasi Distress Perawat dalam Menghadapi Pandemi COVID-19: A Scoping Review. *Pandemi* COVID-19 *memperburuk stresor kerja perawat yang sebelumnya telah menjadi masalah. Koping yang efektif diperlukan untuk mempersiapkan manajemen stres dan mencegah* distress *jika pandemi terulang. Tinjauan ini bertujuan untuk mengetahui jenis koping yang digunakan perawat dalam menghadapi pandemi* COVID-19 *dan pengaruhnya terhadap* distress*. Tinjauan ini mengikuti panduan ceklis rekomendasi* PRISMA, *dan* PRISMA—Extension for Scoping Reviews (PRISMA-ScR). *Pencarian artikel dilakukan pada empat basis data yakni:* SCOPUS, Science Direct, Springer Link, and Willey Library. Nurse and ("coping type" or "brief cope") and COVID *adalah kata kunci yang digunakan untuk mencari literatur. Pencarian dibatasi pada artikel berbahasa Indonesia, Inggris, dan dapat diakses lengkap tidak berbayar. Artikel yang ditinjau terbatas pada artikel penelitian berfokus pada koping dalam menghadapi pandemi* COVID-19 *yang disintesis oleh penulis dengan perawat sebagai sampel. Sebanyak 21 artikel masuk dalam analisis. Terdapat beberapa cara untuk mengkategorikan jenis koping dalam kerangka* Brief-COPE *atau instrumen untuk mengukur jenis-jenis koping, yaitu berdasarkan hasil, keterlibatan, tujuan manajemen stres, dan sumber dukungan. Koping teratas yang digunakan perawat adalah penerimaan, koping aktif, perencanaan, agama, pembingkaian ulang positif, dan mencari dukungan emosional. Strategi koping* avoidance *secara signifikan dapat meningkatkan depresi dan kecemasan sedangkan penerimaan dan* positive reframing *dapat membentengi diri dari kecemasan dan depresi. Pengetahuan ini menjadi dasar perencanaan program manajemen stres untuk menghadapi stresor kerja ekstrem seperti pandemi. Penelitian di masa depan harus menyelidiki bagaimana berbagai jenis stresor memengaruhi penggunaan strategi koping dan distress dalam situasi lain.*

Kata Kunci: COVID-19, distress, *jenis koping, perawat*

Introduction

While severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was rapidly spreading across the world, the World Health Organization (WHO) was bound to classify the outbreak as a pandemic on March 11, 2020 (WHO, 2020) and declare a Public Health Emergency of International Concern on January 30, 2020. Before COVID-19 Pandemic, distress was already acknowledged as a work hazard for nurses (Arnetz et al., 2020), and the COVID-19 pandemic exacerbated their work stressors (Akrim et al., 2021; Arnetz et al., 2020). For nurses, stressors included long shifts, work overload, exposure to illness, close contact with COVID-19 patients, the stigma of potentially carrying the infection, social media demands, and an increase in the number of fatalities (Ahmadidarrehsima et al., 2022; Nopa et al., 2020; Siswadi et al., 2021). Epidemiologically, distress is described as an emotional disturbance characterized by symptoms of anxiety and depression (Belay et al., 2021). A person uses coping strategies in response to stressors, which help people deal with stressful, difficult, or burdensome circumstances (Algorani & Gupta, 2023). Different coping strategies emerge in response to different stressors. To prevent distress, effective coping strategies are needed (Ding et al., 2021).

"Brief Coping Orientation to Problems Experienced" (Brief-COPE) is one of the most common instruments used to measure the types of coping strategies used by nurses (Aryal & D'mello, 2020; Halcomb et al., 2022; Rahman et al., 2021). Brief-COPE represents 14 distinct coping strategies, namely denial, active coping, planning, use of emotional support, use of instrumental support, religion/spiritual beliefs, positive reframing, substance use, behavioral disengagement, self-distraction, humor, acceptance, venting, and self-blame (Halcomb et al., 2022).

To be better prepared for managing stress if the pandemic recurs, knowing the coping strategies used by nurses to deal with COVID-19 and its impact on distress is required. This review aims to determine the types of coping strategies used by nurses in dealing with the COVID-19 pandemic and their impact on their distress levels.

Methods

The following procedures were used in this scoping review: 1) defining the research question; 2) selecting keywords; 3) identifying relevant databases; 4) deciding on inclusion criteria; and 5) screening, examining, and analyzing the chosen articles. The research question was as follows: What types of coping strategies were used by nurses in dealing with COVID-19, and what were their effects on distress levels in nurses? The Joanna Briggs Institute's PCC formula formed the basis for the keywords used (Peters et al., 2017). "Nurse," "coping type," "Brief-COPE," and "COVID-19" were the keywords chosen in the SCOPUS and Springer Link databases. "Nurse," "Brief-COPE," and "COVID-19" were the keywords used in the Willey Library and Science Direct databases. The restrictions applied to the database search were text accessibility (free full text) and language (English and Bahasa). The inclusion criteria were original research articles utilizing a sample of nurses and concentrating on how to deal with the COVID-19 pandemic. The authors excluded duplicate articles and those that did not analyze coping strategy types using the Brief-COPE instrument.

Using the search method, 190 publications were found. After language (Indonesian and English) screening, 187 publications were available. Following access (open access) filtering, 97 items were available. After screening 97 articles for duplication, 78 remained.

The evaluation of the titles and abstracts resulted in the removal of 43 articles that did not meet all the inclusion criteria of the sample being nurse, usage of the Brief-COPE instrument, and analysis of the type of coping strategy. After reading 35 articles in their entirety, 21 arti-

cles were selected for the study. Figure 1 displays the flowchart of this study.

Results

Based on the variables analyzed, 21 articles examined the coping strategies employed by nurses in dealing with the COVID-19 pandemic, and 7 articles examined the impact of these strategies on nurses' distress. The articles are listed in Table 1.

Discussion

Coping strategies were most used. Thirteen (13) articles specifically analyzed 14 types of coping strategies and the most-used coping strategies. Of the 14 types of coping strategies, 6 of it, which are among the top copings were most used by nurses in dealing with the COVID-19 pandemic, namely, acceptance (AlJhani et al., 2021; Chui et al., 2021; Cook et al., 2021; Costa et al., 2022; Agsaoay et al., 2022; Gillen et al.,

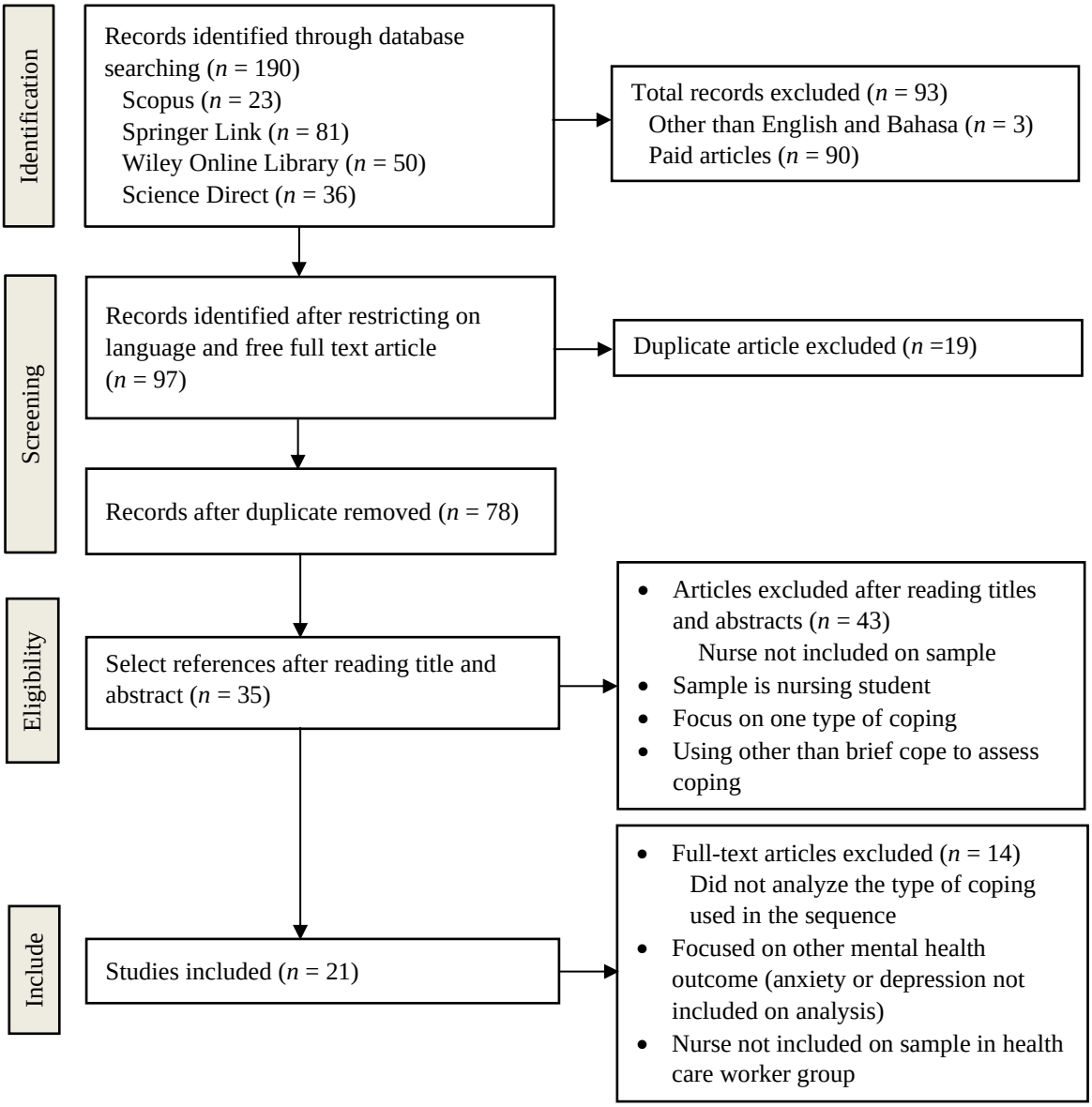

Figure 1. Flowchart for the Selection of Articles

Table 1. Articles Included in the Review

Article	Analysis	Design	Sample	Results
Alnazly and Hjazeen (2021)	Type of coping strategy	Cross-sectional	130 nurses	Nurses generally use maladaptive coping strategy (self-distraction, denial, substance use, behavioral disengagement, ventilation, and self-blame). The nature of a stressful event can influence the type of coping strategy used. According to the study's findings, nurses who looked after patients with suspected COVID-19 infections tended to use planning coping mechanisms, but those who looked after patients with confirmed COVID-19 infections tended to use behavioral disengagement and self-distraction. The mean differences were statistically significant for self-distraction. Nurses who worked longer shifts (more than 36 hours per week) showed higher mean self-distraction scores than those who worked 24 hours per week.
Cook et al. (2021)	Type of coping strategy	Cohort	• Cleaners (n = 2) • Managers (n = 4) • Ophthalmologists (n = 3) • Optometrists (n = 2) • Doctors (n = 1) • Nursing staff members (n = 9) • General employees (n = 10)	During Time 1 (June 1, 2020–July 31, 2020), the top three coping strategies used by participants were as follows: 1. Active coping 2. Planning 3. Religion During Time 2 (August 10, 2020–September 20, 2020), the top three coping strategies used by participants were as follows: 1. Acceptance 2. Positive reframing 3. Active coping
Stefanowicz-Bielska et al. (2022)	Type of coping strategy	Cross-sectional	130 nurses	Problem-focused coping strategy was most commonly used by Polish nurses during the COVID-19 pandemic.
Gillen et al. (2022)	Type of coping strategy	Cross-sectional	1410 nurses	The top three coping strategies used by participants were as follows: 1. Acceptance 2. Active coping 3. Planning
Jubin et al. (2022)	Type of coping strategy	Cross-sectional	9898 nurses	The top three coping strategies used by participants were as follows: 1. Active coping 2. Positive reframing 3. Planning
Lee et al. (2022)	Type of coping strategy	Cross-sectional	85 nurses from intensive care unit (ICU)	The top three coping strategies used by the nurses were as follows: 1. Active coping 2. Planning 3. Acceptance
AlJhani et al. (2021)	Type of coping strategy	Cross-sectional	• 318 (79%) nurses • 85 (21%) physicians	The top three coping strategies used by the participants were as follows: 1. Religious 2. Acceptance 3. Active coping

Table 1. Articles Included in the Review

Article	Analysis	Design	Sample	Results
Agsaoay et al. (2022)	Type of coping strategy	Cross-sectional	• 12 rehabilitation nurses • 12 resident doctors in rehabilitation medicine • 19 physical therapists • 10 occupational therapists • 1 psychologist • 3 prosthetists/orthotists	The top three coping strategies used by the participants were as follows: 1. Acceptance 2. Active coping 3. Planning
Salman et al. (2022)	Type of coping strategy and the impact on distress	Cross-sectional	• 133 (33.4%) nurses • 205 (51.5%) physicians • 60 (15.1%) pharmacists	The top three coping strategies used by the participants were as follows: 1. Religious coping 2. Acceptance 3. Planning Maladaptive coping had a moderately positive association with both depression and anxiety (r = 0.377, P < 0.001; r = 0.324, P < 0.001) Anxiety (r = 0.269, P < 0.003) and depression (r = 0.146; P < 0.003) were negatively correlated with adaptive coping.
Chan et al. (2021)	Type of coping strategy and the impact on distress	Cross-sectional	124 nurses	Approach coping strategy was most frequently adopted. The avoidance-coping strategy was significantly associated with GAD-7 (anxiety). The avoidance-coping strategy was significantly associated with PHQ-2 (depression).
Ji et al. (2021)	Type of coping strategy	Cross-sectional	• 314 (43.43%) nurses • 409 (56.57%) physicians	The top three coping strategies used by the nurses' group were as follows: 1. Active coping 2. Acceptance 3. Positive reframing
Fteropoulli et al. (2021)	Type of coping strategy and the impact on distress	Cross-sectional	• 974 (90.9%) nurses and midwives • 39 (3.7%) physicians • 58 (5.4%) nonmedical staff members	Approach coping strategy was most commonly used by nurses' group. Greater use of the avoidance coping strategy was linked to worse scores in anxiety (β = 0.44, P < 0.001) and depression (β = .48, P < 0.001)
Costa et al. (2022)	Type of coping strategy and the impact on distress	Cross-sectional	• 117 (68%) physicians • 55 (22%) nurses	The top three coping strategies used by the participants were as follows: 1. Planning 2. Active coping 3. Acceptance
Perego et al. (2022)	Type of coping strategy and the impact on distress	Cross-sectional	• 97 (33.3%) nurses • 91 (31.3%) physicians • 22 (7.6%) clerks • 81 (27.8%) other healthcare professionals	Problem-focused coping strategy was most commonly used by nurses' group. Avoidant coping strategy significantly increased depression and anxiety, while emotion-focused coping strategy significantly increas-ed depression. Problem-focused coping strat-egy significantly reduced both depression and anxiety.

Table 1. Articles Included in the Review

Article	Analysis	Design	Sample	Results
Mennicken et al. (2022)	Type of coping strategy and the impact on distress	Cross-sectional	• 393 (73%) nurses • 149 (27%) physicians	Approach coping strategy was most commonly used bythe participants. Avoidant coping strategy is a significant predictor ofanxiety, while approach coping strategy is a significant predictor of depression.
Chui et al. (2021)	Type of coping strategy	Cross-sectional	859 nurses	The top three coping strategies used by the participantswere as follows: 1. Religion 2. Acceptance 3. Positive reframing Highly stressed or depressed nurses often used avoidance coping strategy.
Cansız et al. (2021)	Type of coping strategy and the impact on distress	Cross-sectional	700 health workers	The top three coping strategies used by the participants were as follows: 1. Religious coping 2. Planning 3. Using emotional support Adaptive coping strategies protected against state anxiety, while maladaptive coping strategies increased the risk of anxiety.
Romero-García et al. (2022)	Type of coping strategy and the impact on distress	Cross-sectional	• 279 (64.3%) nurses • 75 (17.2%) physicians • 63 (14.5%) nursing assistant • 10 (2.3%) orderly • 6 (1.4%) physiotherapists • 1 (0.2%) psychologist	The top three coping strategies used by the participants were as follows: 1. Active coping 2. Acceptance 3. Using emotional support The model revealed several factors as potential predictors of anxiety, including self-distraction, substance use, low levels ofacceptance, self-blame, denial, the use of instrumental assistance, and behavioral disengagement. The model revealed several factors as potential predictors of depression, including self-blame, self-distraction, absence of positive reframing, denial, substance use, and behavioral disengagement.
Zaman et al. (2021)	Type of coping strategy	Cross-sectional	• 51 (59%) nurses • 36 (41%) physicians	Problem-focused coping strategy was most commonly used by nurses' group.
Tsouvelas et al. (2022)	Type of coping strategy	Cross-sectional	222 nurses	The top three coping strategies used by nurses were as follows: 1. Acceptance 2. Positive reframing 3. Planning
Brady et al. (2023)	Type of coping strategy	Cross-sectional	• 181 (48.0%) physicians • 166 (44.0%) nurses • 30 (8%) radiographers	In the nurses' group, approach coping strategy was used more frequently than avoidant coping strategy [Mean: Avoidant 22.4 (5.1), Approach 29.5 (6.7)]. Junior staff members were more likely to utilize avoidant coping mechanisms than senior staff members, while males were less likely to do so than females. Compared to doctors, nurses were far more likely to turn to religion as a coping mechanism.

2022; Ji et al., 2021; Lee et al., 2022; Romero-García et al., 2022; Salman et al., 2022; Tsouvelas et al., 2022), active coping (AlJhani et al., 2021; Cook et al., 2021; Costa et al., 2022; Agsaoay et al., 2022; Gillen et al., 2022; Ji et al., 2021; Jubin et al., 2022; Lee et al., 2022; Romero-García et al., 2022), planning (Cansız et al., 2021; Cook et al., 2021; Costa et al., 2022; Agsaoay et al., 2022; Gillen et al., 2022; Jubin et al., 2022; Lee et al., 2022; Salman et al., 2022; Tsouvelas et al., 2022), positive reframing (Chui et al., 2021; Cook et al., 2021; Ji et al., 2021; Jubin et al., 2022; Tsouvelas et al., 2022), religion (AlJhani et al., 2021; Cansız et al., 2021; Chui et al., 2021; Cook et al., 2021; Salman et al., 2022), and seeking emotional support (Cansız et al., 2021; Romero-García et al., 2022). The distribution of the top three coping strategies is presented in Figure 2.

The results show that nurses use four types of emotion-focused coping strategies (acceptance, positive reframing, religious, and seeking emotional support) and two types of problem-focused coping strategies (active coping and planning). A person tends to use problem-focused coping strategy when the stressor can be controlled; conversely, a person tends to use emotion-focused coping strategy when the stressor cannot be changed or controlled (Ding et al., 2021). Nurses faced unprecedented difficulties arising from the novel coronavirus illness (COVID-19) pandemic. The pandemic created a perfect storm of issues for nurses, endangering their health, well-being, and ability to perform their duties (Arnetz et al., 2020). During the COVID-19 Pandemic, nurses realized that they cannot and must not avoid work stressors. The nurses were prepared to complete their tasks in a pandemic crisis, feeling that they had a professional commitment to providing standard care to patients under any conditions (Costa et al., 2022).

Categorization of types of coping strategies. Fourteen articles categorized the types of coping strategies from Brief-COPE instruments, which categorize types of coping strategies in five ways (Table 2).

Four articles were categorized based on the outcome, namely maladaptive and adaptive coping strategies (AlJhani et al., 2021; Alnazly & Hjazeen, 2021; Cansız et al., 2021; Salman et al., 2022). Maladaptive coping strategy scales were linked to undesirable outcomes like depression and anxiety, whereas adaptive coping strategy scales were linked to desirable outcomes like eustress. Adaptive coping strategies work toward concrete solutions, seeking support, and looking for alternative solutions, while maladaptive strategies ignore stressful situations and do not seek solutions to problems (Cansız et al., 2021).

Three articles were categorized based on engagement, namely, approach, and avoidant coping strategies (Brady et al., 2023; Chan et al., 2021; Mennicken et al., 2022). Approach coping strategy seeks to cope with the threat and its associated emotions, whereas avoidant coping strategy seeks to avoid the threat and the emotions associated with it (Hofmann & Hay, 2018). Avoidant coping strategy is not ideal for managing stress, while approach coping is better at managing stress. This categorization excludes the humor and religion subscales because they do not exclusively cover any of the aforementioned categories (Salman et al., 2022). One article categorized it as more specific, namely, approach, support seeking, and avoidant (Fteropoulli et al., 2021). Approach refers to making an active attempt to address the issue, support seeking refers to looking for environmental support, and avoidance refers to not addressing the issue at all (Fteropoulli et al., 2021).

Five articles were categorized based on stressor management goals, namely problem-focused, emotion-focused, and avoidance/dysfunctional/ineffective coping strategies (Agsaoay et al., 2022; Lee et al., 2022; Perego et al., 2022; Stefanowicz-Bielska et al., 2022; Zaman et al., 2021). Problem-focused strategies aimed at changing a stressful situation, emotion-focused strategies aimed to regulate emotions associated with a stressful situation, and avoidance coping strategy involved physical or cognitive

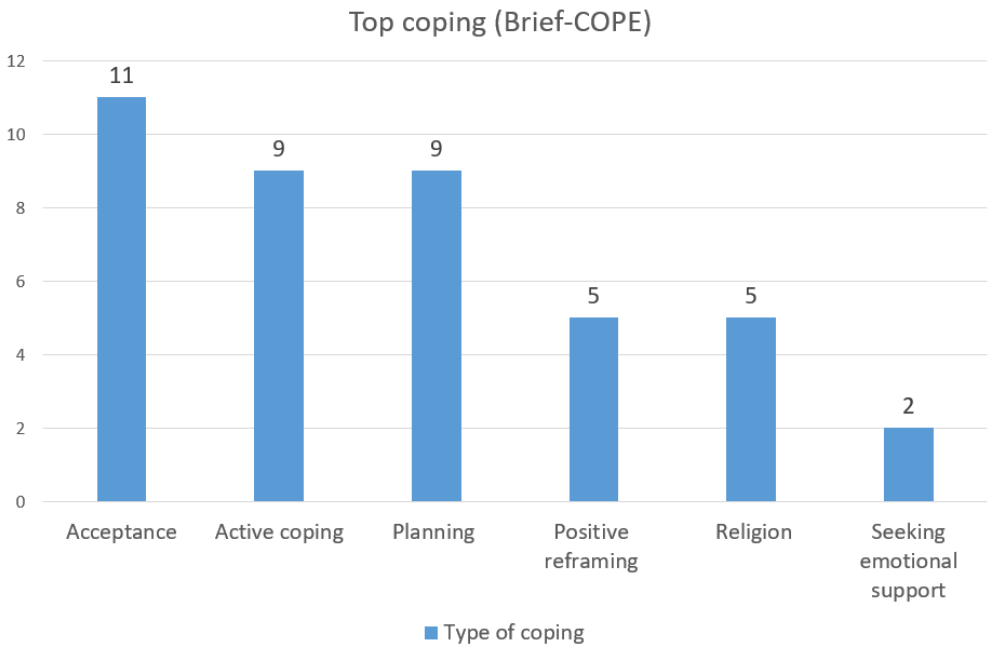

Figure 2. Distribution of the Top Coping Strategies

Table 2. Categorization of Types of Coping Strategies

Coping categorization	Articles
• Maladaptive coping strategy (self-distraction, denial, substance use, behavioral disengagement, venting, and self-blame) • Adaptive coping strategy (active coping, use of emotional support, use of instrumental support, positive reframing, planning, humor, acceptance, and religion)	AlJhani et al. (2021); Alnazly and Hjazeen (2021); Cansız et al. (2021); Salman et al. (2022)
• Avoidance coping strategy (denial, substance use, venting, behavioral disengagement, self-distraction and self-blame) • Approach coping strategy (active coping, positive reframing, planning, acceptance, seeking emotional support, and seeking informational support; humor and religion types are excluded)	Brady et al. (2023); Chan et al. (2021); Mennicken et al. (2022)
• Approach coping strategy (active efforts to deal with the problem) • Support-seeking coping strategy (seeking support from the environment) • Avoidance coping strategy (avoiding dealing with the problem, excluding humor and religion types)	Fteropoulli et al. (2021)
• Problem-focused coping strategy (active coping, planning, and use of instrumental support) • Emotion-focused coping strategy (positive reframing, use of emotional support, acceptance, sense of humor, and turning to religion) • Avoidance/dysfunctional/ineffective coping strategy (self-distraction, denial, venting, substance use, behavior disengagement, and self-blame)	Agsaoay et al. (2022); Lee et al. (2022); Perego et al. (2022); Stefanowicz- Bielska et al. (2022); Zaman et al. (2021)
• Self-sufficient coping strategy (active, positive reframing, planning, humor, and acceptance) • Socially supported coping strategy (emotional support, instrumental support, venting, and religion) • Avoidant coping strategy (self-distraction, substance use, denial, disengagement, and self-blame).	Costa et al. (2022)

Table 3. Relationship between Coping and Distress

Type of coping	Article
Avoidant/Maladaptive coping strategy significantly increases anxiety	Cansız et al. (2021); Chan et al. (2021); Fteropoulli et al. (2021); Mennicken et al. (2022); Perego et al. (2022); Romero-García et al. (2022)
Avoidant/Maladaptive coping strategy significantly increases depression	Chan et al. (2021); Fteropoulli et al. (2021); Perego et al. (2022); Romero-García et al. (2022)
Adaptive coping strategies are protective against anxiety	Cansız et al. (2021)
Problem-focused coping strategy significantly reduces both depression and anxiety	Perego et al. (2022)
Low levels of acceptance and absence of positive reframing are potential predictors of anxiety	Romero-García et al. (2022)

efforts to disengage from the stressor (Perego et al., 2022).

One article categorized strategies into self-sufficient, socially supported, and avoidant (Costa et al., 2022). Self-sufficient coping strategies focus on problem and emotions that lessen feelings of threat, socially supported coping mechanisms are social environment oriented, and avoidance coping tends to use behaviors toward rejection (Costa et al., 2022).

Coping type and distress. Six articles conducted multivariate analysis to determine the relationship between coping type and distress. The results are presented in Table 3.

Avoidance coping strategy was found to be a significant predictor of depression and anxiety (Cansız et al., 2021; Chan et al., 2021; Fteropoulli et al., 2021; Mennicken et al., 2022; Perego et al., 2022; Romero-García et al., 2022). Instead of dealing with stressors, avoidance coping involves trying to avoid them. People actively involved in stressful situations are more likely to be able to control and change them, whereas those who avoid them experience less possibility of dealing with stressors (Dijkstra & Homan, 2016). Avoidance strategy is ineffective as it provides short-term relief; however, this same strategy can sustain stress in the long term and prevent the processing necessary for recovery (Tipsword et al., 2023).

Adaptive coping strategy protects against anxiety (Cansız et al., 2021). Adaptive coping strategies focus on problems and emotions. Both problem-focused and emotion-focused coping strategies can support one another. Successfully reducing threats through problem-focused coping strategies will cause fewer emotional reactions. Similarly, an emotion-focused coping strategy lessens emotional distress, enables one to approach a problem calmly, and improves one's problem-focused coping ability (Hofmann & Hay, 2018).

Problem-focused coping strategy significantly reduces both depression and anxiety (Perego et al., 2022). Acceptance and positive reframing, which can be categorized as emotion-focused or approach coping strategies, are protective predictors of anxiety and depression (Mennicken et al., 2022; Romero-García et al., 2022). Finding the good parts of what happened is known as a positive-reframing coping strategy. Reframing the stressor in a more positive way helps a person accept what has happened. Finding positive aspects of stressful events may create pathways to resilience (Ji et al., 2022). Hence, an acceptance coping strategy is characterized by the recognition that the situation is unchangeable, and it effectively helps one control emotions generated from stressful situations (Popa et al., 2020).

This review shows the types of coping strategies

that are effective for dealing with a situation such as a pandemic. This review also shows that nurses do not use social coping strategies. They rarely use emotional or instrumental support. If a pandemic recurs, social support should be provided to help nurses fight distress.

Conclusion

In dealing with the COVID-19 pandemic, nurses often used emotion-focused coping strategies. They must avoid using avoidant coping strategy to prevent distress. Nurses develop various coping mechanisms in response to various stressors. Future studies should examine how different types of stressors affect coping and distress.

The review has some limitations. First, articles published in other languages may have been omitted because the articles had to be limited to only two languages: English and Bahasa. Second, it is possible that certain papers indexed in other databases were not included because the assessment involved only four databases (Scopus, Springer Link, Willey Library, and Science Direct).

This information forms the basis for planning a stress management program for nurses dealing with extreme work stressors such as a pandemic. With effective coping, nurses may manage stressors, reduce their stress levels, and have fulfilling careers. This review helps nurses make wise decisions about how to cope with a situation involving a pandemic.

Providing training to nurses for improving their knowledge of potential workplace stressors, controllable, and uncontrollable stressors, strategies for positive reframing, acceptance, engagement in active coping, and prevention of avoidance coping remains essential. Counseling services and buddy system can be used to make sure that social support is available to them, as it can help them manage their work-related stress effectively and improve their health and quality of the services they deliver.

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Efficacy of Programs Designed to Reduce the Incidence of Premarital Sexual Behavior Among Adolescents: A Systematic Review

Desy Ayu Wardani[1,2], Siti Khuzaimah Ahmad Sharoni[1*], Endang Triyanto[3]

1. Centre for Nursing Studies, Faculty of Health Sciences, Universiti Teknologi MARA Selangor, Puncak Alam Campus, 42300 Selangor, Malaysia
2. Nursing Study Program, Institute of Health Technology and Science Wiyata Husada Samarinda, Samarinda 75243, East Kalimantan, Indonesia
3. Nursing Department, Faculty of Health Science, Universitas Jenderal Soedirman, Purwokerto 53122, Central Java, Indonesia

*E-mail: sitik123@uitm.edu.my

Abstract

The incidence of premarital sexual behavior worldwide is increasing despite the fact that it is known that it may cause health and psychological problems. Hence, interventions are needed to reduce the incidence of premarital sexual behavior. The aim of this study was to provide an overview of the reported interventions used to reduce the incidence of premarital sexual behavior in adolescents and identify the implications for nursing practice. A systematic review was conducted using The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. The Scopus, Science Direct, Web of Science, and ProQuest databases were searched using the keywords "premarital sexual behavior" and "sexual," and three researchers independently examined the resultant selected full-text articles. Articles published between 2020 and 2022 that described studies with a randomized controlled trial (RCT) design and that were published in English and had the full text available were included. The quality of each article was assessed using the Joanna Briggs Institute Critical Appraisal Checklist. Seven articles met the inclusion criteria and were subsequently analyzed. Our study showed that different types of interventions have been tested to variously enhance education, motivation, skills, and empowerment. The findings of our study have implications for nursing practice in terms of the creation of intervention-based programs and standard operating procedures for implementing programs designed to reduce the prevalence of premarital sexual behavior.

Keywords: adolescent, incidence, randomized controlled trial, sexual behavior

Abstrak

Program Efikasi yang Dirancang untuk Menurunkan Kejadian Perilaku Seksual Pranikah pada Remaja: Tinjauan Sistematis. *Angka kejadian perilaku seksual pranikah di seluruh dunia semakin meningkat meskipun diketahui dapat menimbulkan permasalahan kesehatan dan psikologis. Oleh karena itu, diperlukan intervensi untuk mengurangi kejadian perilaku seksual pranikah. Tujuan dari penelitian ini adalah untuk memberikan gambaran tentang intervensi yang digunakan untuk mengurangi kejadian perilaku seksual pranikah pada remaja dan mengidentifikasi implikasinya terhadap praktik keperawatan. Tinjauan sistematis dilakukan dengan menggunakan pedoman* PRISMA. *Basis data* Scopus, Science Direct, Web of Science, *dan* ProQuest *dicari menggunakan kata kunci "perilaku seksual pranikah" dan "seksual", dan tiga peneliti secara independen memeriksa artikel teks lengkap pilihan yang dihasilkan. Artikel yang diterbitkan antara tahun 2020 dan 2022 yang menjelaskan penelitian dengan desain* randomized controlled trial *(RCT) dan diterbitkan dalam bahasa Inggris serta teks lengkapnya disertakan. Kualitas setiap artikel dinilai menggunakan* Joanna Briggs Institute Critical Appraisal Checklist. *Tujuh artikel memenuhi kriteria inklusi dan kemudian dianalisis. Penelitian kami menunjukkan bahwa berbagai jenis intervensi telah diuji untuk meningkatkan pendidikan, motivasi, keterampilan, dan pemberdayaan. Temuan penelitian kami memiliki implikasi terhadap praktik keperawatan dalam hal penciptaan program berbasis intervensi dan prosedur operasi standar untuk implementasi program yang dirancang untuk mengurangi prevalensi perilaku seksual pranikah.*

Kata Kunci: *kejadian, perilaku seksual, remaja, uji coba terkontrol secara acak*

Introduction

Adolescence is a transitional developmental stage during which individuals move from childhood to adulthood and experience considerable growth and development. Psychosexual development occurs during adolescence, and adolescents begin to like others the opposite sex (França & Frio, 2018; Saliares et al., 2017). Even though adolescents know the consequences that may arise from having sexual relations with those of opposite sex, the incidence of premarital sexual behavior is increasing (Gebreyesus et al., 2019; Koray et al., 2017; Mundhiro et al., 2021). Data were recorded in the Indonesia Demographic and Health Survey (IDHS) 2017, with up 6,750 women and 7,713 men reporting premarital sexual behavior (National Population and Family Planning Board [BKKBN] et al., 2018). Premarital sexual behavior includes going on a date, kissing (on the lips, forehead, cheek, and/or chin), hugging, holding hands, wanting to be close, and having a sexual relationship. The consequences of undertaking risky premarital sexual behavior include health and psychological problems, such as contracting sexually transmitted infections (e. g., human immunodeficiency virus [HIV]), unwanted pregnancy, managing shame associated with unwanted pregnancy and dropping out of school (Watofa et al., 2019).

In this global era, an enabling factor that is influencing adolescent premarital sexual behavior is the presence of technology which has both positive and negative impacts. On the one hand, technology eases adolescents' access to information about sexuality through printed material, television, the internet and social media (Liu et al., 2020). In addition, an adolescent's internal self-efficacy can influence their engagement in premarital sexual behavior. Factors that make it difficult to say "no" to unwanted sex include low self-esteem and an underlying desire to maintain a relationship (Tomašević et al., 2022). It is also worth nothing that adolescents who have high self-esteem have an increased risk of having more than one sexual partner (Tegegne, 2022).

The Indonesian government has made several efforts to reduce the incidence of premarital sexual behavior, however, premarital sexual behavior among adolescents has been found to be increasing (Nurfurqoni & Hastuti, 2022). Despite facilities in urban and rural areas that provide access to good and correct information, the abovementioned factors continue to result in adolescents considering premarital sexual activity to be normal. Therefore, the aim of this research was to provide an overview of the reported interventions used to reduce the incidence of premarital sexual behavior among adolescents and information that the Indonesian government and cross-sector organizations can use to reduce premarital sexual activity.

Methods

In this systematic review, the preferred reporting items for systematic reviews and meta-analysis (PRISMA) statement criteria were applied. All authors critically appraised all the abstracts and reviewed the full-text articles. The search strategy utilized in this study is shown in the flowchart in Figure 1.

A literature search was performed, and articles published in prominent health, nursing, and psychology journals were found. The following databases were searched: ProQuest, SCOPUS, Science Direct, and Web of Science. The keywords used to conduct the literature search were "premarital sexual behavior" and "sexual programs." The inclusion criteria set for articles to be analyzed in this study were as follows: 1) the described study included an intervention program, 2) article was published in English and had the full text available, 3) article was published between 2020 and 2022, and 4) the described study was a randomized controlled trial (RCT). The following types of articles were excluded: duplicate articles, articles published in predatory journals, and systematic review articles.

The selected articles were examined independently by three researchers. Data on each ar-

ticle's characteristics (author, country, year, program type, sample size, intervention, control, and outcome) and reported results were extracted. The articles were assessed using the Joanna Briggs Institute Critical Appraisal Checklist (Munn, 2020). The items used were: Q1) clearly defined criteria for inclusion, Q2) detailed description of study subjects and setting, Q3) valid and reliable measurement of exposure, Q4) standard criteria used for measurement of condition, Q5) confounding variables identified, Q6) strategies to deal with confounding variables, Q7) valid and reliable measurement of outcomes, and Q8) appropriate statistical analysis used. A total of seven articles were selected for review.

Results

Description of Studies. The literature search returned 15,986 articles. Among these articles, 14,187 were obtained from ProQuest, 1,233 were obtained from Science Direct, 400 were obtained from Scopus, and 166 were obtained from Web of Science. As shown in Figure 1, seven articles were selected for analysis. These articles were published between 2020 and 2022, and all the described studies were RCTs. The research described in the articles was conducted in several countries, namely Colombia (Gómez-Lugo et al., 2022), Indonesia (Herdiman et al., 2022), Norway (Hegdahl et al., 2022), Peru (Perez-Lu et al., 2022), Tanzania (Millanzi et al., 2022), the USA (Bourdeau et al., 2021), and Zambia (Austrian et al., 2020). The participants in the selected studies were all adolescents, and one study involved adolescents and their parents or guardians (Bourdeau et al., 2021). Four of the studies were conducted in school settings (Gómez-Lugo et al., 2022; Hegdahl et al., 2022;

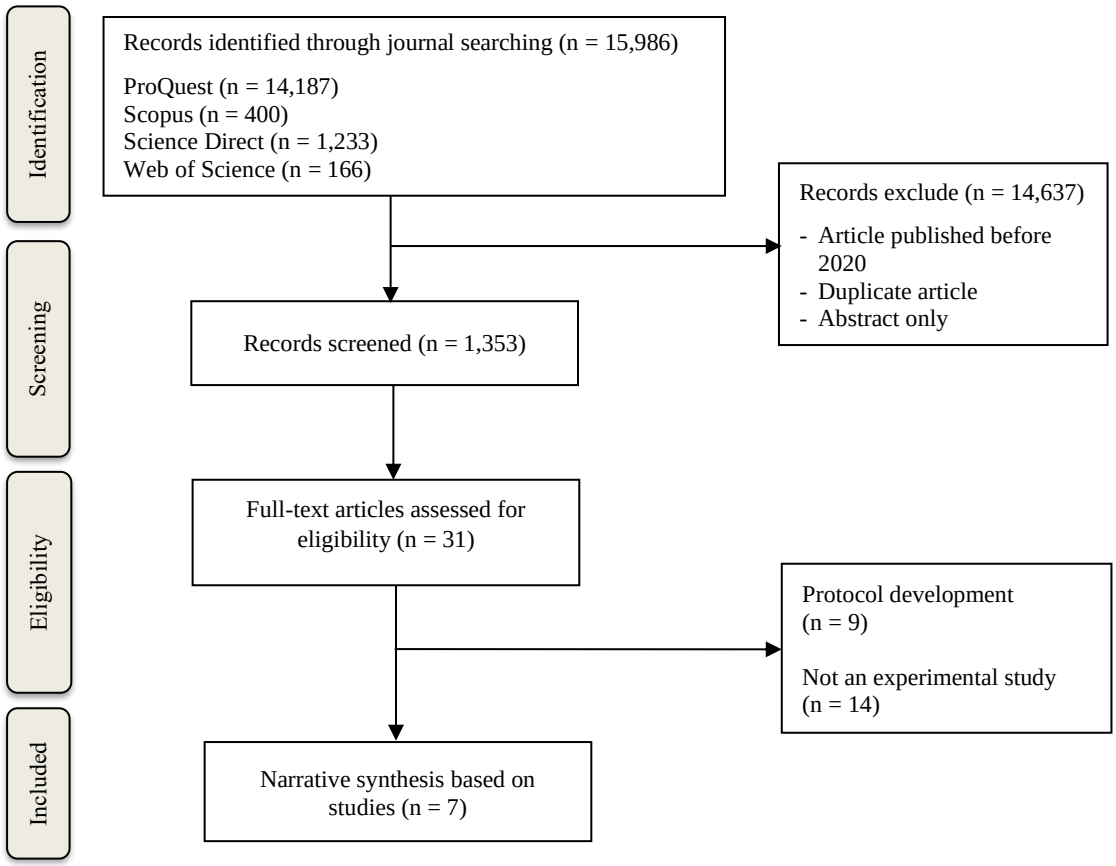

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Flowchart for The Study Selection Process

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Millanzi et al. (2022) Tanzania	Skills-based intervention	N = 647 - Pure problem-based pedagogy (PBP) group (N = 142 adolescents - Hybrid PBP group (N = 188 adolescents) - Lecture-based pedagogy (LBP) group (N = 317)	Arm 1 = pure problem-based pedagogy (PBP). Arm 2 = hybird PBP.	Arm 3 = LBP	A considerable intention to refrain from sexual activity, postpone relationships, negotiate the use of condoms, and resist sexual coercions was shown by individuals with improved soft skills for safe sexual behavior.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Gómez-Lugo et al. (2022) Colombia	Skills-based intervention	N = 2,047 - Intervention group (N = 891) - Control group (N = 1,156)	Competencies for Adolescents with a Healthy Sexuality (COMPAS). Educating about sexual and reproductive health.	No intervention	Lowering of the mediating and behavioral factors linked to sexual risk reduction.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Unclear Q6: Unclear Q7: Yes Q8: Yes
Bourdeau et al. (2021) USA	Education	N = 411 - Intervention group (N = 206) - Control group (N = 205)	Smart Choices 4 Teens - Acknowledging how difficult parent-adolescent communication is about relationships and sexuality. - Reflecting on a healthy relationship and signs of emotional and verbal abuse. - Sex expectations, responsible use of social media, and the ability to resist unwanted health effects (e.g., pregnancy and sexually transmitted infections, and values and guidelines.	Not mentioned	Long-term increase in the quantity of sexual communication between parents and adolescents.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Austrian et al. (2020) Zambia	Empowerment	N = 4661 - 120 intervention clusters (N = 3,515 girls) - 40 control clusters (N = 1,146 girls)	Adolescent Girls Empowerment Program (AGEP) - Arm 1 = weekly meetings alone, plus the added effect of the "add-on components". - Arm 2 = weekly meeting and health voucher. - Arm 3 = weekly meeting, health voucher and the savings account.	No interventions offered	Impact on understanding of sexual and reproductive health, financial literacy, saving behavior, self-efficacy, and transactional sex is modestly good.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes
Perez-Lu et al. (2022) Peru	Education	Contraception myths and misconceptions index score (N = 469) - Arm 1 (N = 28) - Arm 2 (N = 213) - Arm 3 (N = 228) Retention outcome (N = 428) - Arm 1 (N = 28) - Arm 2 (N = 213) - Arm 3 (N = 228)	ARMADILLO SMS Arm 1 = on-demand information about sexual reproductive health. Arm 2 = SMS-delivered with content related to seven sexual and reproductive health domains or topics.	Arm 3 = Received routine care,	Significant effect on participant's knowledge of contraception	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Hegdahl et al. (2022) Norway	Skills-based intervention	Control group (N = 999 girls) Economic support group (N = 2004 girls) Combined support group (N = 1919 girls)	Economic support Combined support: Economic support and received training in life skills with the objective of improving students' capacity.	Standard school and health services	Can be enhanced by skills-based intervention.	Q1: Yes Q2: Yes Q3: Yes Q4: Yes Q5: Yes Q6: Yes Q7: Yes Q8: Yes
Herdiman &	Motivational Interviewing (MI)	Intervention group (N = 78)	Therapists videotaped all MI sessions and meet	No treatment	Significant effect between of MI on	Q1: Yes Q2: Yes Q3: Yes

Table 1. Summary of the Articles and Associated Studies Examined in This Review

Author & Country	Program Type	Sample	Intervention	Control	Outcome	Quality Assessment
Lindayani (2022) Indonesia		Control group (N = 78)	for supervision every other week to review the recordings and talk about any implementation concerns that had arisen.		awareness of and behavior toward HIV prevention.	Q4: Yes Q5: Yes Q6: Unclear Q7: Yes Q8: Yes

Herdiman et al., 2022; Millanzi et al., 2022), two studies were technology based (web-based and SMS) (Bourdeau et al., 2021; Perez-Lu et al., 2022), and one study was conducted in a community setting (Austrian et al., 2020).

Programs and Interventions. Several types of programs were examined in the selected articles. The programs and interventions were variously based on educating participants, motivational interviewing (MI), counseling, providing emotional support, skill development, and empowering participants. Two studies used education-based interventions (Bourdeau et al., 2021; Perez-Lu et al., 2022), and one study used MI (Herdiman et al., 2022). Four studies used interventions that were designed to develop the skills of participants (Gómez-Lugo et al., 2022; Hegdahl et al., 2022; Millanzi et al., 2022). One study focused on empowering participants (Austrian et al., 2020).

Outcomes of the Studies. The outcomes of the studies described in the seven selected articles included increased abstinence, safer sexual behavior (condom use), increased self-efficacy, more self-awareness skills related to sexual risk, increased knowledge, more frequent sexual communication, HIV prevention, and improved sexual and reproductive health. One study focused on promoting abstinence among young men and having one partner, delaying sexual interactions, negotiating condom use, and resisting sexual coercion (Millanzi et al., 2022). Another study focused on increasing the amount of communication between parents and adolescents about sexual health in the long term (Bourdeau et al., 2021). Knowledge of sexual and reproductive health, financial literacy, saving behavior, self-efficacy, and transactional sex were the tested outcomes in two studies (Austrian et al., 2020; Perez-Lu et al., 2022). In addition, enhancing sexual and reproductive health and HIV prevention behaviors among adolescent girls were the targeted outcomes in three studies (Gómez-Lugo et al., 2022; Hegdahl et al., 2022; Herdiman et al., 2022). The search outcome in this study is shown in Table 1.

Discussion

This review was conducted to provide an overview of the interventions that have been used to reduce the incidence of premarital sexual behavior among adolescents and to identify the implications for nursing practice. Seven articles were found that met the inclusion criteria, and these articles described studies that tested a range of interventions and that varied in terms of the number of participants and their outcomes. Interventions were based on educating participants, MI, skill development, and empowering participants.

Education is a key component of strategies designed to reduce the incidence of premarital sexual behavior. Bourdeau et al. (2021) showed that using technology to provide parents and

adolescents with educational material about relationships and sexuality and then about intelligent decision-making and sex expectations increased the frequency of parent–adolescent sexual communication but did not reduce the frequency of courtship or delay sexual behavior.

It has been shown that communication between parents and adolescents about sexuality alone is not enough; it must be combined with supervision and implementation of appropriate parenting patterns that help adolescents develop self-control and self-defense skills that they can utilize when they receive offers to engage in premarital sexual behavior (Bourdeau et al., 2021). Sometimes teenagers promise their parents that they will not engage in such behavior; however, when parents give them leeway in their relationships, there is a risk of premarital sexual behavior (Bourdeau et al., 2021). In the study conducted by Perez-Lu et al. (2022), providing participants with educational material about sexual reproductive health via SMS affected their misperceptions about sexual reproductive health, but the effect was small. According to our analysis, in the digitalization era, while education via SMS has had a small impact on reducing incidents of premarital sexual behavior, it is necessary to examine the media used to deliver information to adolescents about premarital sexual behavior because adolescents are more interested in accessing such information via websites and social media platforms (e.g., WhatsApp, Instagram, and Facebook). It is hoped that programs will be developed in the future that provide educational material via social media platforms that is attractive and not perceived as boring by adolescents.

From the results of two studies (Bourdeau et al., 2021; Perez-Lu et al., 2022), it can be concluded that education can increase knowledge, sexual abstinence, and the frequency of parent–adolescent communication and that it is more effective to provide information directly to adolescents rather than to tell them to study information independently using technology. Using a direct approach can allow adolescents to ask and further explore any questions they may have about the constraints or problems they face in preventing premarital sexual behavior. Utilizing technology-based educational methods can result in a lack of enthusiasm among young people toward participating in programs because they may not trust information providers they have not met. In addition, according to the technology-based study (Perez-Lu et al., 2022) and parent–adolescent communication (Bourdeau et al., 2021) increased knowledge, sexual abstinence, and the frequency of parent–adolescent communication after the intervention; however, sexual behavior was not delayed. Nevertheless, it is a positive outcome when parent–adolescent communication increases, because the more that parents talk and provide guidance, the greater the chance that sexual behavior will be reduced, provided that the parents also listen and provide appropriate information. According to Bleakley et al. (2018), frequent parent–adolescent communication is strongly associated with adolescents practicing safer sexual behaviors, regardless of the subjects discussed or other factors.

MI is a rarely used intervention technique that is attracting increasing interest among researchers. In the study conducted by Herdiman et al. (2022), it was found that adolescents who attended four MI sessions had increased awareness of and behavior toward HIV prevention. In Herdiman et al.'s (2022) study, the MI sessions were conducted in an open, strength-based, affirming, non-judgmental, and compassionate manner. The findings of their study indicate that participating in MI sessions can increase sexual abstinence among adolescents. It is hoped that counseling and MI can be combined in future programs, as this would allow an initial examination of the problems or obstacles experienced by teenagers that prevent them from practicing premarital sexual behavior and motivation to be subsequently provided that is in accordance with the needs of the adolescent.

Other studies examined the effect of skills development on reducing premarital sexual beha-

vior. Millanzi et al. (2022) analyzed the effect of providing groups of five to eight adolescents with problem-based pedagogy and reproductive health lesson materials. The participants demonstrated enhanced soft skills for safe sexual behavior and clear intentions to avoid sexual activity, postpone relationships, negotiate the use of condoms, and resist sexual activity after being given at least 30 minutes to explore and identify potential solutions. Gómez-Lugo et al. (2022) found that holding conversations with the project coordinator after each training session to clarify information and address questions reduced mediating and behavioral variables related to sexual risk reduction. Hegdahl et al. (2022) found that adolescents who received financial assistance and instruction in life skills with the intention of improving their capacity to withstand peer pressure, resolve problems, create goals, and make decisions experienced an improvement in their sexual and reproductive health. Hence, to prevent premarital sexual behavior, skill-based interventions that strengthen the ability to behave appropriately under pressure and reduce the fear of being dumped by a girlfriend and of discussing relationships and sexual relations with parents should be implemented. Such interventions may be more attractive to adolescents because they can be tailored to address the problems experienced by each adolescent. It is hoped that in the future, Indonesian adolescents can be provided with financial assistance so that economic deprivation does not lead to them having premarital sexual relations. It is also hoped that additional funding will be provided in the future to support interventions performed by nurses in the form of education, counseling, providing motivation, and improving skills.

One of the examined articles described an intervention that was designed to empower adolescent girls: Austrian et al. (2020) studied the Adolescent Girls Empowerment Program (AGEP). The intervention involved attending a weekly gathering of girls that was sponsored by a female mentor in the area. The mentors ranged in age from 20 to 35 years and were chosen through an interview-based process. They participated in a 10-day introductory training program on mentoring techniques and content, a five-day refresher training program midway through the intervention, and monthly supervision meetings with the program administrators. The participants attended sessions on HIV, life skills, financial literacy, and sexual and reproductive health. They were assigned to groups that were stratified based on age and marital status. Early research on the AGEP revealed that these gatherings of girls, led by female mentors, included conversations on sexual and reproductive health, life skills, and economic empowerment and that the weekly meetings (also known as "safe spaces") were the cornerstone of the AGEP (Austrian et al., 2020). The findings of Hewett et al. (2017) showed that participating in the program reduced the attendees' vulnerability and allowed them to take advantage of opportunities to improve their long-term outcomes in terms of health, fertility, and education, which were aims of this program (it was designed to empower teenage girls by strengthening their social, health, and economic assets). Empowerment program was more complete than only education, skills-based intervention and motivational-interviewing which consisted of providing education, skills, and economic support to empower girls to prevent premarital sexual behavior. However, a mentor of the AGEP was that the participants were girls and that the mentors were 20–35 years old. It is hoped that further research will be conducted to examine the effect of participating in the AGEP on adolescents aged 10–19 years, which is the World Health Organization's (2018) age classification for adolescents.

The findings of this review have implications for nursing practice in terms of the creation and implementation of programs designed to reduce the prevalence of premarital sexual behavior among adolescents. The findings indicate that such programs should include a combination of different types of interventions based on education, MI, skill development, and empower-

ment delivered via social media platforms. The findings also suggest that the Indonesian government should provide financial assistance to adolescents to reduce the risk of them engaging in premarital sexual behavior due to economic factors.

This review has some limitations. First, the search for original articles was limited to those published within a three-year period (2020–2022). Second, the search was limited to original articles published in English. Thus, potentially relevant, high-quality articles published before 2020 or after 2022 were excluded. Future studies are needed to explore programs that involve counseling and empowerment, as research in this area has shown that counseling and empowerment can significantly reduce the incidence of premarital sexuality in adolescents.

Conclusion

Despite multiple attempts by the government to lower the prevalence of premarital sexual behavior, teenagers are more likely to engage in such activities today than ever before. The findings of this review indicate that programs delivered via social media platforms that equip adolescents with skills, a sense of empowerment, motivation, and information may be effective, and this has implications for nursing practice. Our findings can serve as a foundation for developing standard operating procedures for implementing programs to lower the prevalence of premarital sexual behavior among adolescents. Governmental financial support is also an important factor in lowering the likelihood of adolescents engaging in premarital sexual activity because of financial concerns.

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Heavy Burdens of Family Caregivers Caring for Persons with Severe Mental Disorders

Kissa Bahari[1*], Arief Bachtiar[1], Gracia Herni Pertiwi[2], Ahmad Syahlani[3]

1. Department of Nursing, Malang State Health Polytechnic, Malang 65119, Indonesia
2. School of Nursing, STIKES Dirgahayu Samarinda, Samarinda 75122, Indonesia
3. Faculty of Health, Sari Mulia University, Banjarmasin 70238, Indonesia

*E-mail: kissabahari@yahoo.com

Abstract

Family caregivers who live with and care for individuals with severe mental disorders face serious issues. This study aimed to investigate the burdens of these family caregivers. This descriptive phenomenological study involved 15 family caregivers who looked after persons with mental disorders in Malang City, Indonesia; the participants were selected using a purposive sampling technique. Data were gathered using individual in-depth interviews and observations, and then analyzed inductively. Based on the findings, the burdens of family caregivers can be grouped into four main themes: 1) families encountered challenges and stigma in caring for persons with severe mental disorders, 2) there was a lack of support from the community and healthcare providers, 3) family caregivers reported experiencing various negative emotions and interpreting negative implications from their caregiving experiences, and 4) family caregivers employed coping strategies to alleviate their burdens. The researchers conclude that family caregivers experience complex burdens when caring for persons with severe mental disorders; hence, family caregivers need the support of healthcare personnel and community presence in situations of caring for persons with chronic mental disorders.

Keywords: burden of disease, caregiver, family, Indonesia, severe mental disorders

Abstrak

Beban Berat Caregiver Keluarga dalam Merawat Orang dengan Gangguan Jiwa Berat. Caregiver *keluarga yang hidup bersama orang dengan gangguan jiwa berat menghadapi masalah yang serius. Penelitian ini bertujuan untuk mengetahui secara mendalam beban para* caregiver *keluarga. Penelitian fenomenologi deskriptif ini melibatkan 15* caregiver *keluarga yang merawat orang dengan gangguan jiwa di Kota Malang, Indonesia; partisipan dipilih dengan teknik* purposive sampling. *Pengumpulan data menggunakan metode wawancara mendalam secara individual dan observasi, serta selanjutnya dianalisis secara induktif. Hasil penelitian menunjukkan bahwa beban* caregiver *keluarga dapat dikelompokkan ke dalam empat tema utama: 1) keluarga menghadapi tantangan dan stigma dalam merawat orang dengan gangguan jiwa berat, 2) kurangnya dukungan masyarakat dan penyedia layanan kesehatan keluarga, 3)* caregiver *keluarga mengalami berbagai perasaan negatif dan memaknai secara negatif pengalamannya, dan 4)* caregiver *keluarga menggunakan strategi koping untuk meringankan beban keluarga. Peneliti menyimpulkan bahwa* caregiver *keluarga mengalami beban yang kompleks saat merawat orang dengan gangguan jiwa berat; oleh karena itu,* caregiver *keluarga sangat membutuhkan dukungan dari tenaga kesehatan dan kehadiran masyarakat sekitar dalam situasi menghadapi situasi perawatan kronis bagi orang-orang dengan gangguan jiwa berat.*

Kata Kunci: *beban penyakit,* caregiver, *gangguan jiwa berat, Indonesia, keluarga*

Introduction

Various studies have highlighted the magnitude of severe mental disorders worldwide. The World Health Organization (WHO) (2020) reported that mental health problems rose by 13% in the decade ending in 2017. Meanwhile, the number of persons with severe mental disorders (PSMD) in Indonesia, where this study was conducted, is also increasing. The prevalence of PSMD in the Indonesian population was 1.7 per thousand people in 2013 (Ministry of Health of

the Republic of Indonesia, 2013), which increased to 6.7 per thousand people in 2018 (Ministry of Health of the Republic of Indonesia, 2018). Certainly, this high number translates to a burden for their families, the community, and the country in taking care of PSMD. The Institute for Health Metrics and Evaluation (IHME) (2018) claimed that severe mental disorders contributed to an increase in the years lived with disability (YLD) metric in 2017, while the WHO (2020) stated that mental health problems were one of five causes of rising YLD.

Various treatment options are available for PSMD, but not all recover optimally. Therefore, this situation generates many problems for families and communities. PSMD generates a huge burden for their families (WHO, 2020) because PSMD suffer from various disorders that may affect an array of mental functions. Gupta et al. (2014) mentioned that some mental function problems of PSMD included blunting effects, such as limited facial expressions, vocal intonations, and gestures; a lack of expression; reduced fluency or content of speech and reduced verbal response (alogia); emotional and social withdrawal and a lack of intimacy or relationships (asociality); the inability to feel happy (anhedonia); and reduced personal interest and desire in activities (avolition). These complex problems of PSMD can cause them to be unproductive for long periods and depend on their families, on which they pose a great burden. As a consequence, families can experience embarrassment, annoyance, awkwardness, discomfort, agitation, or frustration (Wankiiri et al., 2013). It is intuitively evident that these great burdens have the potential to reduce families' motivation to care for PSMD.

Previous studies have shown that the burdens of family caregivers caring for PSMD can be highly complex. Asher et al. (2015) revealed that families living with PSMD experienced conflict, difficulty in participating in work and community life, and stigma (e.g., being laughed at and gossiped about, losing friends, and being mistrusted in the workplace or other settings). Yin et al. (2014) found that family caregivers experienced considerable stigma related to social support, patients' educational levels, kinship, and regional or local factors, such as sociocultural conditions. Furthermore, families felt compelled to shoulder an overwhelming burden. Their obligation to care for individuals with PSMD became excessively demanding. Additionally, they grappled with the anguish stemming from disrupted relationships and endured societal stigma and distress (Wirsén et al., 2020). However, prior research delineates these phenomena solely within particular locales in distinct countries, each with differing mental health care systems and diverse sociocultural contexts.

Hence, there is a pressing need for a comprehensive descriptive phenomenological study to delve into the burdens faced by family caregivers of PSMD in Indonesia. Indonesia presents a unique landscape in terms of its mental healthcare system compared to the settings explored in prior research. Notably, Indonesia's mental healthcare infrastructure lags behind other countries in the Asia-Pacific region, characterized by limited funding and technical resources hindering the full implementation of mental health initiatives (Ng, 2018). Most mental health services in Indonesia are provided in tertiary settings, mainly public psychiatric hospitals. However, such hospitals are not evenly distributed in Indonesia (Praharso et al., 2020). Based on our observations, the community mental healthcare system in which the study was conducted has not developed optimally, and as might be expected, this situation has influenced the quality of the community mental healthcare delivery system. In this regard, Samartzis and Talias (2019) stated that the high burden of family caregivers caring for PSMD can be influenced by the quality of the mental healthcare system.

Methods

Design. This qualitative study used a descriptive phenomenological design based on Husserlian phenomenology (Polit & Beck, 2018). This ap-

proach is used to formulate a detailed description of a phenomenon, describe the essential structure of the experience involved, and interpret the meaning of the experience according to the participants' perspectives and their impacts on behaviors and beliefs (Polit & Beck, 2018).

Setting and Participants. The participants in this study were 15 (fifteen) family caregivers caring for PSMD (e.g., schizophrenia) in Malang City, Indonesia. The participants were selected using a purposive sampling technique with the following inclusion criteria: 1) family caregivers involved in taking care of PSMD for at least one year, 2) families living together with PSMD, and 3) families willing to participate fully in this study. Recruitment of participants was stopped when data saturation was achieved, that is, when no new categories were identified. This occurred when the 11th participant was interviewed about coping strategies implemented by family caregivers to reduce their burdens. When data saturation was achieved, the researchers recruited four additional participants to confirm the data saturation.

Data Collection. Data collection was conducted by researchers from May to July 2018 through individual in-depth interviews and observations. The in-depth interviews were guided by the following research questions: 1) What challenges are faced by family caregivers in taking care of PSMD?; 2) How do family caregivers attempt to treat PSMD?; 3) How does the community behave toward PSMD and their family caregivers?; 4) How do healthcare providers support PSMD and their families?; 5) What is the meaning of caring for PSMD from the family caregivers' perspective?; and 6) What coping strategies are implemented by family caregivers to reduce their burdens?

Additional questions were asked to add clarity, depth, and quality to the information gathered during the interview and deeply probe the participants' answers. Interviews were conducted with family caregivers without the presence of PSMD. The researchers conducted data collection via the following steps: 1) The participants gave consent for their data to be used in the study by signing a consent sheet; 2) The aims, benefits, risks, processes, and other relevant information about the study were explained; 3) The researchers conducted face-to-face interviews with the participants in the latter's homes. Participants were interviewed for 1–2 hours using the locally spoken Javanese language. Throughout the interviews, besides documenting participants' verbal responses, the researchers also noted their non-verbal cues, recording them in field notes. Additionally, the researchers observed the conditions of both the individuals with PSMD and the environments in which they were cared for. Supplementary information was obtained from participants' neighbors or healthcare volunteers to corroborate their accounts.

The researchers also gathered socio-demographic information from participants, including sex, age, level of education, socio-economic status based on family occupation and income per month according to Statistics Indonesia (*Badan Pusat Statistik* [BPS]), family relations, duration of family experience in caring for PSMD, and major problems in connection with PSMD.

Data Analysis. Data were analyzed using thematic analysis according to the seven steps of Colaizzi's process: 1) listening to the audio recordings, writing transcripts, verifying and correcting inaccuracies; 2) identifying significant statements of participants in the transcripts; 3) formulating restatement of significant statements in general terms; 4) formulating derived meanings of the significant statements; 5) developing themes and organizing them into clusters and categories; 6) generating a detailed description of the experiences; and 7) describing the essential structure of participant's experiences (Polit & Beck, 2018). All researchers participated in interpreting themes based on the participants' statements.

Lincoln and Guba's criteria of trustworthiness,

which include credibility, dependability, confirmability, transferability, and authenticity, were fulfilled in this study (Polit & Beck, 2018). To fulfill the credibility criterion, the researchers interviewed and observed participants, submitted notes from these interviews and observations for member checking, examined evidence several times, and explored the data in depth. To fulfill the dependability criterion, the researchers maintained an audit trail of process logs and peer debriefings with colleagues. To establish the confirmability criterion, the researchers kept detailed notes on all decisions and progress analysis. These notes were returned to participants for member checking and reviewed by two experts. The opinions of the experts were integrated into the findings and evaluated in the presentation of the final analysis. To fulfill the transferability criterion, the researchers gave a detailed description of the setting in which each interview was conducted and each participant in the study. Finally, to fulfill the authenticity criterion, the researchers presented the participants' experiences realistically.

Ethical Considerations. The study protocol and informed consent sheet were approved by the University Research Ethics Committee (No. LB.02.01/1.2/2224/2018). This study was also approved by the Malang City Government (No. 072/507.04.P/35.73.406/2018).

Results

Table 1 shows that the age of participants ranged from 32 to 69 years. Most participants had an education level equivalent to an elementary school level. Most were of lower socioeconomic status. Most families had been taking care of a person with a severe mental disorder for more than 10 years. Furthermore, the most frequent major problems of the PSMD were aggressive behavior and hallucination.

Thematic analysis identified four themes regarding the burdens of family caregivers caring for PSMD. Details are presented in Table 2.

Theme 1: The Families Faced Challenges and Stigma in Caring for PSMD. The families faced many challenges and stigma associated with mental illnesses. This theme was developed from the following four subthemes:

The families invested much effort in treating the PSMD. The families' challenges in treating the PSMD included investing much effort in obtaining treatment for them, including referring them to priests, traditional healers, or shamans. When the condition of PSMD did not improve, their families referred them to primary healthcare centers, general hospitals, or mental health hospitals. This is exemplified by the following participant's statement:

> *"We went to an alternative therapist; we took him to a 'Kyai' (an Islamic priest). But for now, they need medicines only from Public Health Services."* (P1)

The families had to fulfill the psychological needs of the PSMD. The families' challenges in caring for the PSMD included fulfilling the latter's psychological needs, such as remaining patient, paying more attention, and fulfilling all of their requests. As one participant said,

> *"We attempted to persuade him when we requested him to take a bath; we had to give him a cigarette first. We had to be calm, not angry; we had to be patient."* (P14)

The families had to fulfill the physical needs of the PSMD. The families' challenges in caring for the PSMD included fulfilling the physical needs of the PSMD, such as providing and preparing food, water, clothes, bathing, sanitation, and addressing other physical needs. As one participant stated:

> *"We built a toilet in his room so our son could take a bath by himself. Besides this, we prepared his food and [made him wear] clothes. We gave him meals three times a day. We prepared a chamber pot and cleaned up his feces."* (P3)

The families faced stigma from the people around them. Another burden in caring for PSMD for families was facing stigma from the people around them. People isolated and avoided them. According to one participant:

> *"People ridiculed him; as his parent, sometimes, I wanted to die. Oftentimes, people said that my son was an abnormal person."* (P1)

Theme 2: Lack of Community and Healthcare Provider Support for Family Caregivers. Most family caregivers encountered a lack of support from the community and healthcare providers in facing chronic care situations. This theme was generated from the following two subthemes:

Lack of community support. The family caregivers experienced a lack of community support. Few people supported family caregivers in facing severe care situations. Only some neighbors understood the condition of the PSMD. Several people avoided interacting with the PSMD, as is evident from the following statement by a family member:

> *"Only several people feel pity ... only some neighbors understood and realized our situation. Several people avoided interacting with my son; they felt afraid."* (P15)

Table 1. Characteristics of Participants

	Sex	Age (years)	Level of Education	Socio-economic status	Family relation	Years of caring experience	Major problems of PSMD
P1	Female	33	Elementary School	Middle	Sister	25	Aggressive behavior
P2	Female	54	Elementary School	Middle	Mother	25	Aggressive behavior
P3	Male	63	Elementary School	Lower	Father	16	Social isolation
P4	Female	57	Elementary School	Lower	Mother	14	Delusion of control
P5	Female	65	Elementary School	Lower	Mother	13	Aggressive behavior
P6	Male	32	Elementary School	Lower	Brother	3	Aggressive behavior
P7	Male	55	Elementary School	Lower	Husband	20	Social isolation
P8	Male	45	Senior High School	Lower	Son	28	Social isolation
P9	Female	60	Elementary School	Lower	Mother	18	Hallucination
P10	Male	65	Junior high School	Lower	Father	18	Hallucination
P11	Female	69	Elementary School	Lower	Mother	25	Hallucination
P12	Male	50	Senior High School	Lower	Brother	25	Hallucination
P13	Female	53	Elementary School	Lower	Wife	28	Aggressive behavior
P14	Female	56	Elementary School	Lower	Wife	5	Aggressive behavior
P15	Female	32	Senior High School	Lower	Daughter	5	Aggressive behavior

Table 2. Thematic Analysis of Findings

Themes	Subthemes	Keywords of the participants' statements
The families faced challenges and stigma in caring for PSMD.	The families invested much effort in obtaining treatment for the PSMD.	We brought him to an alternative therapist. We referred him to a traditional healer. We referred her to a shaman. We referred him to the hospital.
	The families had to fulfill PSMD's psychological needs	We tried to persuade him. We had to be calm. We should not be angry. We had to be patient. We should understand him. The family should pay attention. The family should do their best.
	The families had to fulfill PSMD's physical needs.	Building a special toilet. Preparing foods. Preparing clothes. Preparing a chamber pot. Cleaning feces.
	The families witnessed the PSMD facing stigma from people around.	The people ridiculed him. People oftentimes said "abnormal." My neighbors lack understanding. People avoided him.
Lack of community & healthcare provider support for family caregivers	Lack of community support	Only several people felt pity. Only several neighbors realized. Only some neighbors understood us. Several people avoided him.
	Healthcare providers did not support the PSMD optimally	In the hospital, my son almost died. Healthcare providers never visit here. My son never gets treatment from a primary health center.
Family caregivers experienced various negative feelings and inferred negative meanings in caring for the PSMD	The families experienced negative feelings.	It is hard. Feeling tired. Feeling sad. Feeling up and down. Feeling desperate. Feeling angry. Feeling bored. Feeling embarrassed.
	The families inferred negative meanings from their experiences	We have committed a lot of sins. He was under the influence of witchcraft. An evil spirit possessed my son. Black magic is involved. He is under the control of magic power.
Families coping strategies to reduce their burdens	Maladaptive coping	We brought him to a shaman. We never give him medicine. We secluded him. We restrained him.
	Adaptive coping	It is a test from God. We still have an optimistic feeling. It is a training of patience. It is a fate from God. We return to "almighty God."

Healthcare providers did not support PSMD optimally. Some of the families felt that healthcare providers had not optimally supported PSMD in the community. There were some PSMD who never received medication or healthcare services during the period that they suffered from mental illness, and families complained that the hospitals had not treated them well. A participant said:

> *"Healthcare personnel from the public health center never visit here, so my family [member] never gets medicines. In the hospital, my husband almost died; we requested to be picked up from the hospital. He went back home in bad condition: he was very thin, with only skin and bones left."* (P10)

Theme 3: Family Caregivers Experienced Various Negative Feelings and Inferred Negative Meanings from Caring for PSMD. Various negative feelings and meanings were expressed by family caregivers regarding caring for PSMD. This theme was developed from the following subthemes:

The families experienced negative feelings. Some of the families experienced negative feelings when caring for PSMD, such as feeling tired, bored, sad, etc. A participant said:

> *"My feelings [fluctuate]; sometimes, I despair... It is a long journey; there are many bad feelings, such as despair, anger, boredom, and tiredness; maybe anyone else would also feel the same."* (P4)

The families inferred negative meanings from their experiences. Several family caregivers inferred negative meanings associated with their experiences in caring for PSMD, including believing that they were suffering because they had committed a lot of sins or that the PSMD was under the spell of witchcraft or influenced by black magic. Two participants said:

> *"Maybe he is under [the spell of] witchcraft because his father married again."* (P9)

> *"My husband had [been under the influence of] black magic... sometimes he was good, and sometimes he was bad; he was powerlessly in control of this magic power."* (P11)

Theme 4: Family Caregivers Employed Coping Strategies to Reduce Their Burdens. There were two types of coping strategies employed by family caregivers to reduce their burdens. This theme was developed from two subthemes:

Maladaptive coping strategies. Some of the family caregivers demonstrated maladaptive coping strategies, such as referring the PSMD to traditional healers or religious leaders. Most families did not provide medicine and secluded or restrained the individual. As one participant said:

> *"We went to an alternative therapist; we took him to a 'Kyai' (an Islamic priest). We also secluded or restrained him, like in jail, because we were afraid my brother would run away."* (P1)

Adaptive coping strategies. As a positive response, some of the family caregivers showed adaptive coping strategies to reduce their burdens by viewing their problem as a test from God, feeling optimistic, and believing that their family members with mental disorders would be able to recover. Some also viewed their experience as training in maintaining patience or as a fate sent from God, while others surrendered their problems to "almighty God." In addition, some attempted to seek help from other family members and neighbors. These findings are exemplified in the following participant's statement:

> *"This is my test to serve my parents. I do not complain, feel bored, or feel burdened; I think it must be treated by love... I return it to almighty God."* (P7)

Discussion

The current study found that family caregivers

caring for PSMD had complicated burdens. This finding is congruent with the study by Fekadu et al. (2019), who revealed that the multidimensional impacts on family caregivers included physical health problems (e.g., sleeplessness, headache, and extreme tiredness), psychological difficulties (e.g., depression), and socioeconomic problems (e.g., reduced likelihood of marrying, a higher divorce rate, and greater food insecurity). Ntsayagae et al. (2019) reported that family caregivers experienced the burden of the responsibility of caregiving, emotional effects, the hardship of administering support needs, and changed perspectives. Additionally, Akbari et al. (2018) discovered that family caregivers reported lacking support for their own needs, receiving no assistance when they experienced burnout, experiencing low levels of social support, and bearing the burden of care alone. Wirsén et al. (2020) found that family caregivers were burdened by their family members' illnesses, disrupted relationships, distress, and social stigma. Yu et al. (2017) stated that the most significant burden on families was the financial burden. Similarly, Chen et al. (2019) found that family caregivers experienced the imposition of a heavy financial burden in caring for family members. This burden has reportedly increased for families dealing with low incomes or unemployment, making it difficult for them to meet basic daily needs, such as clothing and food. In addition, Rezaei et al. (2020) found that caregivers faced interpersonal problems, role conflicts, stress, and constant anxiety in life.

The current study also found that families faced social stigma, resulting in isolation and avoidance. Yin et al. (2014) found that families with a member with a serious mental disorder faced stigma and discriminatory experiences in daily life related to social support, kinship, the educational level of the person with the disorder, and regional factors. Furthermore, Akbari et al. (2018), Lautenbach et al. (2012), and Wirsén et al. (2020) reported that family caregivers experienced high levels of social stigma, which significantly contributed to reducing families' participation in social interactions. Ngubane et al. (2019) found that families living with PSMD were rejected and segregated from society, discriminated against at work, and experienced discriminatory professional attitudes and seclusion.

The findings of this research revealed a lack of community support in terms of understanding chronic care situations. Few individuals felt empathy, understanding, insight, or acceptance toward individuals with PSMD; thus, their integration into social activities was hindered. This absence of community support places the responsibility on families to facilitate the reintegration of PSMD into mainstream society. This finding is congruent with the study by Lautenbach et al. (2012), who revealed that families with children with mental illnesses experienced a lack of acceptance and support from the community. Moreover, Clibbens et al. (2019) found that caregivers struggled to cope with their emotional conflicts and people's behavior toward them. In this regard, prior research has posited that the community can play a greater role. Chen et al. (2019) stated that health education and mutual support groups can be organized by the community, thereby creating opportunities for family caregivers to communicate with others, to increase their own knowledge, and to alleviate the psychological pressure on themselves.

The study found that some families felt that healthcare providers had not optimally handled PSMD, resulting in ineffective treatments arranged by families for PSMD that tended toward maltreatment. Families failed to provide regular medication, and most tried to obtain treatment for PSMD via traditional or alternative therapists. Similarly, Knaak et al. (2017) found that healthcare providers tend to take a pessimistic view of reality and the possibility of recovery; this attitude, which was found to be caused by the inadequate skills and training of healthcare providers, was a potential source of stigma and a barrier to the recovery of mentally ill people. This perspective results in anxiety or

fear and a desire for social distancing toward mentally ill people. Clibbens et al. (2019) asserted that family caregivers need professional continuity across service transitions and that there is a requirement for delivering training to family caregivers concerning information sharing and a clearer understanding of the barriers to the implementation of family and other interventions to address family caregivers' emotional needs.

This study's findings show that most of the family caregivers experienced negative feelings and inferred negative meanings from their experiences in caring for PSMD. Most earlier studies have also similarly reported that family caregivers experienced negative feelings and inferred negative meanings. Chang et al. (2018) found that the experience of family caregivers with PSMD included encountering sorrow, conversing with sorrow, and living with sorrow. The study showed that the coping strategies of family caregivers to reduce their burdens were of two types: maladaptive and adaptive. Similarly, Rahmani et al. (2019) found that family caregivers of PSMD used more maladaptive coping strategies, including avoidance, coercion, and resignation. Adaptive coping strategies used by family caregivers include gathering information, seeking social support, and trying to implement problem-solving approaches are adaptive (Pompeo et al., 2016).

Limitation. The researchers were unable to observe the family caregivers' experiences of caring for PSMD for a whole day and were therefore unable to comprehend the lived situation in detail. However, to address this limitation, the researchers obtained additional information to confirm other lived experiences of participants, in particular, from their neighbors and health field volunteers around the participants.

Conclusion

This study found that the burdens of family caregivers caring for PSMD in Indonesia are highly complex and include four themes: 1) the families faced many challenges and stigma associated with mental illness, 2) there was a lack of community and healthcare provider support for family caregivers, 3) the family caregivers experienced various negative feelings and inferred negative meanings while caring for PSMD, and 4) the family caregivers employed coping strategies to reduce their burden. These findings suggest a growing need to strengthen mental health services in Indonesia. Families need healthcare personnel to train and educate them on caring for PSMD. This would help reduce caregivers' burdens and the social stigma related to mental illness. PSMD need to be treated with respect and dignity so they may eventually be reintegrated into mainstream society. Finally, there is a need to enhance community empowerment and participation in this context, and the quality of community mental health services must be re-evaluated.

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Nurses' Job Satisfaction Regarding the Use of Health Technology: A Survey Study

Diah Arruum[1,2], Setyowati[1*], Hanny Handiyani[1], Raldi Artono Koestoer[3]

1. Faculty of Nursing, Universitas Indonesia, Depok 16424, Indonesia
2. Faculty of Nursing, Universitas Sumatera Utara, Medan 20155, Indonesia
3. Faculty of Engineering, Universitas Indonesia, Depok 16424, Indonesia

*E-mail: wati123@ui.ac.id

Abstract

The development of innovative health technology is continuously needed by health workers, including nurses in hospitals. Nurses need to adapt and are required to be able to use various current technological innovations. However, the demand for quality care in maintaining patient safety through the use of technology is still an issue, thereby affecting the achievement of nurse job satisfaction. This study aims to describe the job satisfaction of nurses regarding the use of health technology. It is a descriptive study with a cross-sectional design that included 172 hospital nurses. The sample was selected using the purposive sampling method, and the data were collected through questionnaires. Of the nurses in the sample, 33.1% were between the ages of 26 and 31 years old, while 90.1% were female. Furthermore, regarding educational background, a majority of the nurses (54.1%) held diplomas in nursing, and 23.8% had professional nursing degrees. The maximum length of work experience taking care of patients was over 10 years. The results of this study showed that 40.1% of the nurses were satisfied with the use of health technology, while 59.9% were not satisfied. A significant relationship was found between education level, work position, and nurse satisfaction ($p < 0.05$). The recommendation of this study is that the manager's role should include supporting, motivating, and providing self-awareness for the nurses regarding technology in order to save time, make communication more effective, facilitate nursing care, and improve patient safety. The manager should also be in charge of implementing easy-to-use technological innovations.

Keywords: health technology, job satisfaction, nurse

Abstrak

Kepuasan Kerja Perawat melalui Pemanfaatan Teknologi Kesehatan: Sebuah Penelitian Survei. *Perkembangan inovasi teknologi kesehatan terus dibutuhkan oleh tenaga kesehatan, termasuk perawat. Namun tuntutan terhadap kualitas pelayanan dalam menjaga keselamatan pasien melalui pemanfaatan teknologi masih menjadi isu sehingga memengaruhi pencapaian kepuasan kerja perawat. Penelitian ini bertujuan untuk mendeskripsikan kepuasan kerja perawat melalui pemanfaatan teknologi kesehatan. Penelitian ini merupakan penelitian deskriptif dengan desain* cross-sectional *yang mengobservasi melalui kuesioner pada 172 perawat rumah sakit, dipilih dengan menggunakan metode* purposive sampling. *Data yang dikumpulkan meliputi 33,1% perawat berusia antara 26–31 tahun, 90,1% adalah perempuan, 54,1% perawat berpendidikan diploma keperawatan, 23,1% adalah perawat professional. Lama bekerja maksimal 10 tahun lebih merawat pasien. Sebanyak 40,1% perawat merasa puas dengan penggunaan teknologi kesehatan, sedangkan 59,9% kurang puas. Analisis data menunjukan hubungan yang signifikan antara tingkat pendidikan, posisi kerja, dan kepuasan perawat ($p < 0,05$). Berdasarkan hasil penelitian, mayoritas perawat masih merasa tidak puas dengan penggunaan teknologi kesehatan. Peran perawat manajer ruangan seperti memberi dukungan, motivasi, dan edukasi dapat menumbuhkan kesadaran diri bagi perawat tentang manfaat teknologi untuk menghemat waktu, berkomunikasi yang lebih efektif, mendukung asuhan keperawatan, dan meningkatkan keselamatan pasien. Manajer juga bertugas menerapkan inovasi teknologi yang mudah digunakan.*

Kata Kunci: *kepuasan kerja, perawat, teknologi kesehatan*

Introduction

Technology in nursing is an important aspect of improving innovations for maintaining patient safety. The World Health Organization (WHO) (2021a) stated that human-centered technology

using the Internet of Things (IoT) approach, robots, and artificial intelligence was created to find, monitor, and evaluate the interoperability, need, and performance of health services. These innovations are also expected to reduce and avoid risks in the health sector (WHO, 2021b). The IoT is a platform that uses implanted network connections to collect and share data automatically without any human help (Aminizadeh et al., 2023). Its applications are mostly used in the medical environment (at a rate of 45%), such as for image analysis and detecting COVID-19, and include medical deep learning systems that have improved medical decision-making (Aminizadeh et al., 2023; Heidari et al., 2022).

Technology provides benefits to job satisfaction, and rapid advances in technology, along with self-efficacy and previous experience, can influence job satisfaction and nurse competency (Alshammari & Alenezi, 2023). Nursing services with a digital approach are important because they play a role in the competence of nurses (Hack-Polay et al., 2023; Razavi et al., 2022). Therefore, nurses need to adapt to the new environment surrounding these innovations (Zadvinskis et al., 2018). New technologies challenge nurses' sense of professionalism and competence and may negatively influence their use due to past negative experiences with new technologies (Batt-Rawden et al., 2021). However, they are needed to improve and increase staff and patient safety during treatment, as well as to allow communication to become more effective (Batt-Rawden et al., 2021).

Most nurses' expectations of the technology system are not met in any hospital. Various positive and negative impacts can be felt by nurses when applying the technology, with some nurses having negative perceptions and others feeling satisfied, for example, when using an alarm device for safety (Thilo et al., 2020). A previous study revealed that, in terms of patient safety, 65% of the respondents depended on a good alarm system, while 44% of nurses stated that damage to the system could affect the patients and lead to wasted time and stress. Furthermore, 50% of nurses said that they do not believe that the IoT can have a big impact on health (Alsuyayfi & Alanazi, 2022; Taryudi et al., 2022). Negative perceptions can affect nurses' workloads, communication, and management due to the inappropriate use of technology (Golay et al., 2021). However, other studies have found that health information technology (HIT), such as assistive devices, information and communication technologies, sensors, and robotics, has a positive impact of 74% in care since it reduces length of stay, time to patients, workload, and allows nurses to participate in quality design, implementation, and electronic documentation (Drexler, 2020; Huter et al., 2020).

Technology's impact on job satisfaction or dissatisfaction has caused some frustrations for health workers. A previous study reported that 32.7% of health workers were frustrated, leading to emotional exhaustion due to excessive work demands and unbalanced resources (Tawfik et al., 2021). The application of information technology is perceived negatively by nurses, and this causes frustration, moral pressure, isolation, psychological distress, anxiety, and confusion (Golay et al., 2021). The study's results by Zadvinskis et al. (2018) showed that participants were dissatisfied with HIT due to equipment, systems, functionality, and inefficient documentation. Meanwhile, some were satisfied because of workflow simplification, patient protection, better care, complete documentation, and reminders (Zadvinskis et al., 2018).

Nurses stated that monitoring vital signs using technology, such as wearable wireless devices, may support the timely early detection of clinical deteriorations, making it easier to work with inpatients (Leenen et al., 2022). Furthermore, in the digital care setting, the use of video consultations was said to be interesting, as it provides patient interactions with a short preparation time and allows for gathering enough information about the patient. The process was said to be a fun activity that is easy to use, allows for effective communication, and provides leadership support. Nurses' experience increased their

level of satisfaction with their work in a digital care setting. However, the nurses did experience some situations in which they lacked direct social interaction with coworkers or faced patients who had misunderstandings in the consultation (Razavi et al., 2022). Thus, despite the benefits and satisfaction, technology problems are still felt by nurses and patients due to various factors.

Some types of technological innovations have been used to provide patient nursing care and have become a part of nurses' competencies. One study found that 53% of nurses said that, when they experience setbacks in using nursing process systems and do not receive help from senior staff, this can affect job satisfaction, as they can only rely on their own knowledge, skills, and experience (Ho et al., 2019). Nurses have been found to lack knowledge in the use of new computers (Tsarfati & Cojocaru, 2022). Therefore, computer technology is more easily accepted if nurses receive training from the computer team (Tsarfati & Cojocaru, 2022). Those who use technology such as nursing process systems are influenced by the information quality, service quality, and system quality, all of which depend on the nurse's perceptions during use and impact job satisfaction (Ho et al., 2019). Therefore, this study aims to describe the job satisfaction of nurses regarding the use of health technology in Indonesia, especially during the COVID-19 pandemic.

Methods

The data were obtained from a descriptive survey with a cross-sectional design. The data were collected from November 2021 to January 2022, and this study was carried out with 172 nurses.

Setting. This study used the purposive sampling method, and the inclusion criteria were a minimum of one year of working experience in an inpatient department.

Some questions were adapted from previous research by Fadel et al. (2020), Orhan and Serin (2019), and Ozan and Duman (2020). A questionnaire on nurses' job satisfaction with the use of health technology was used for data collection. The questionnaire consisted of 43 questions answered on a five-point Likert scale ranging from strongly agree to strongly disagree (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree). A total of 21 positive and 22 negative statements were obtained. For the positive questionnaire items, the highest number on the Likert scale meant that the nurse strongly agreed with the questionnaire items and was in the "very satisfied" category, while the lowest number meant that the nurse strongly disagreed and was in the "very dissatisfied" category. The opposite was true for the negative questionnaire statement items. Items with negative sentences were first converted to positive by the researcher; then, the data were interpreted, with the minimum score in the category being strongly disagree and agree and the maximum in the cate-gory being strongly agree. The range of scores for overall satisfaction is as follows: low 43–100, medium 101–158, and high 159–215. Based on these scores, overall satisfaction was classified into three classes: dissatisfied, satisfied, and very satisfied. However, the results did not include the very satisfied category; instead, satisfaction was determined in the categories of satisfied and dissatisfied. The questionnaire was in the Bahasa language and was thus easy for the nurses to understand. The questionnaire was tested for validity and reliability using 30 nurses. The reliability coefficient of the tool was 0.953, based on Cronbach's alpha value, and the content validity was determined using Pearson's product moment. After the two tests were carried out, the process continued with the data collection.

This study discussed nurses' job satisfaction regarding the use of health technology. Data were collected through an electronic Google form that was sent through WhatsApp, as the study was carried out during the COVID-19 pande-

mic. The Google form included a telephone number for the researcher, who could be contacted if any item was not understood. The procedure for this study was to collect the data from nurses in direct patient care, with the assistance of five nurse managers to motivate them to fill out the questionnaire. Nurse managers were given incentives at the end of the study. This study was spread across several cities in Indonesia. The size of the study sample had determined using the Lemeshow formula. The population of this study included nurses in direct patient care working in inpatient settings. The researchers distributed the questionnaires with the assistance of nurse managers to include nurses who fit the inclusion criteria. After the data were obtained, the information was automatically transferred to the sheet application.

For the obtained data, a Chi-square test was used to determine the relationship between the nurses' characteristics and satisfaction with the use of health technology, where a p-value of 0.05 was considered significant. Furthermore, the characteristics examined included age, gender, education level, working experience, work position, and job satisfaction. The nurses involved in the research were given rewards in the form of souvenirs from the researchers. The target population, namely, nurses in several cities in Indonesia, was unlimited, as the total number of nurses is uncertain; thus, the number limit was determined based on the time spent conducting the research. The sample size was calculated as 185 nurses (including the dropout value). The study used univariate and bivariate analyses in the form of categorical data for nurse demographic variables for the questionnaire on nurse job satisfaction in using technology. The analysis process was carried out by the researchers using computer processing systems. This study tested the normality of the data first through the Kolmogorov–Smirnov test.

The study ethics, which included respecting principles based on the Belmont Report–namely, beneficence, nonmaleficence, respect for human dignity, and justice—were properly followed. This study was ethically approved by the Faculty of Nursing, Universitas Indonesia, reference number 215/UN2.F12.D1.2.1/PPM.00.02/2021.

Table 1. Demographic Characteristics of Nurses (N = 172)

Variable	Frequency	%
Age		
20–25	28	16.3
26–31	57	33.1
32–37	43	25.0
> 38	44	25.6
Gender		
Male	17	9.9
Female	155	90.1
Education degree		
Diploma	93	54.1
Bachelor of nursing	38	22.1
Professional nurses	41	23.8
Length of working		
< 5 years	74	43.0
6–10 years	36	21.0
> 10 years	62	36.0
Work position		
Team leader	46	26.7
Direct patient care	126	73.3

Results

The results were obtained from 172 nurses based on the population distribution at the time of the hospital data survey described in the nurses' demographic data, the satisfaction and dissatisfaction variables, and items related to nurses' satisfaction or dissatisfaction with the use of health technology. Table 1 presents the nurses' demographic characteristics, while Table 2 and Table 3 present the data on nurses' job satisfaction regarding the use of health technology.

Based on the results, most of the participants were nurses with long working hours who were also very experienced in providing nursing care directly to patients. Apart from that, it can be seen in Table 1 that many of the nurses were over 30 years old and had worked in inpatient settings for more than 10 years.

The nurses also revealed that it is not easy to overcome the obstacles associated with the use of technology and that they need motivation from a leader. Based on the whole questionnaire, 9.9–26.2% of nurses chose the "neither" option, indicating that they still doubt that technology can provide job satisfaction, as shown in Table 3.

Based on the nurses' characteristics, the significant demographic data were education degree ($p = 0.012$) and work position ($p = 0.001$). The data show that the level of nurses' education can influence the level of job satisfaction regarding the use of health technology and that the work position can influence nurses' job satisfaction. Nurses with a diploma level of background education had the highest level of dissatisfaction, while those with bachelor's degrees were the most satisfied. Participants who worked in a direct patient care team had the highest level of dissatisfaction, as shown in Table 2. Based on the results, education level and work position have a significant relationship with nurse satisfaction with using technology, as shown in Table 4.

Discussion

The technology used by nurses can influence job satisfaction in hospitals. Those who feel satisfied can improve the quality of their self-development and achieve an increased level of professional work. Technology plays a role in supporting and assisting nursing care to improve patient safety, but changes and innovations are needed in health systems technology. The use of new technology during the COVID-19 pandemic was necessary for various health and information technology sectors to prevent deaths and reduce the burden on patients in hospitals. For example, the use of computers through artificial intelligence was a top priority for health workers (Zaman et al., 2023). The results of this study reveal that more nurses feel dissatisfied with using technology in hospitals. The results also showed that the nurses expressed negative feelings about using information technology due to the resulting psychological problems (Golay et al., 2021). Lewandowska et al. (2020) found that nurses feel dissatisfied that they lack time to learn new technology, do not receive support from other medical staff in the use of alarm systems, and are unable to prevent alarm fatigue. Suprapto et al. (2023) revealed that nurses who receive training for self-development have greater feelings of happiness and increased competence in achieving nursing care standards.

Depending on their experience, nurses often feel burdened due to the simultaneous use of se-

Table 2. Nurse's Job Satisfaction Regarding the Use of Health Technology (N = 172)

Variable	Frequency	%
Less satisfied	103	59.9
Satisfied	69	40.1

Table 3. Data on Nurses' Job Satisfaction regarding the Use of Health Technology (N = 172)

Variable	Statement Frequency (%)				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Technology saves time.	6 (3.5)	10 (5.8)	30 (17.4)	80 (46.5)	46 (26.7)
Technology improves the quality of care.	4 (2.3)	9 (5.2)	33 (19.2)	74 (43.0)	52 (30.2)
The use of technology makes nursing care easier.	3 (1.7)	7 (4.1)	29 (16.9)	75 (43.6)	58 (33.7)
Nurses avoid using technology in providing care to patients.	14 (8.1)	23 (13.4)	22 (12.8)	57 (33.1)	56 (32.6)
Nurses are not able to use technological devices properly.	9 (5.2)	24 (14.0)	17 (9.9)	60 (34.9)	62 (36.0)
The technology used by patients often interferes with nursing care.	7 (4.1)	27 (15.7)	27 (15.7)	55 (32.0)	56 (32.6)
Technology reduces the nurse's workload.	5 (2.9)	16 (9.3)	29 (16.9)	85 (49.4)	37 (21.5)
Nurses need motivation from a leader.	12 (7.0)	22 (12.8)	35 (20.3)	73 (42.4)	30 (17.4)
My supervisor does not directly monitor the care carried out by nurses.	49 (28.5)	48 (27.9)	25 (14.5)	41 (23.8)	9 (5.2)
The use of technology does not make it easy to overcome the obstacles.	22 (12.8)	31 (18.0)	45 (26.2)	60 (34.9)	14 (8.1)
Nurses need the help of an innovation tool to make it easier to work.	9 (5.2)	21 (12.2)	35 (20.3)	75 (43.6)	32 (18.6)
Nurses need the help of an innovative tool to be able to detect the risk of infection in patients with medical devices installed.	8 (4.7)	15 (8.7)	35 (20.3)	80 (46.5)	34 (19.8)
Involving technology in care means nurses are required to spend more time caring for patients.	30 (17.4)	73 (42.4)	28 (16.3)	27 (15.7)	14 (8.1)

Table 4. Nurses' Job Satisfaction Regarding the Use of Health Technology Based on Their Characteristics (N = 172)

Nurses' Characteristics	Nurse' Job Satisfaction				Total		p
	Less Satisfied		Satisfied				
	Frequency	(%)	Frequency	(%)	Frequency	(%)	
Age							
20–25 years old	17	(60.7)	11	(39.3)	28	(100)	0.793
26–31 years old	36	(63.2)	21	(36.8)	57	(100)	
32–37 years old	23	(53.5)	20	(46.5)	43	(100)	
> 38 years old	27	(61.4)	17	(38.6)	44	(100)	
Gender							
Male	9	(52.9)	8	(47.1)	17	(100)	0.538
Female	94	(60.6)	61	(39.4)	155	(100)	
Education degree							
Diploma	65	(69.9)	28	(30.1)	93	(100)	0.012*
Bachelor of nursing	17	(44.7)	21	(55.3)	38	(100)	(0.002)
Professional nurses	21	(51.2)	20	(48.8)	41	(100)	
Length of working							
< 5 years	45	(60.8)	29	(39.2)	74	(100)	0.752
6–10 years	23	(63.9)	13	(36.1)	36	(100)	
> 10 years	35	(56.5)	27	(43.5)	62	(100)	
Work position							
Direct patient care	85	(67.5)	41	(32.5)	126	(100)	0.001*
Team leader	18	(39.1)	28	(60.9)	46	(100)	(0.00025)

veral electronic medical record systems, lack of workflow, time consumption, and unreliability (Wynter et al., 2022). The results of the current study are consistent with several studies by Krel et al. (2022), Nakano et al. (2021), and Ozan and Duman (2020) findings that some nurses believe technology does not make it easy to overcome obstacles and to work efficiently. They also doubt that the use of technology creates more care time for patients. However, this is not in line with other studies finding that technology can be used to meet patient needs and place the patient at the center of care.

Technology was created to make it easy and comfortable for nurses to complete tasks without feeling burdened while providing healthcare. Costa et al. (2020) stated that nursing technology was created to support knowledge, as well as nursing management and nursing care in various fields of science. Health technology innovation during digital transformation has an impact on health efficiency, quality, and performance (Akinwale & AboAlsamh, 2023; Stoumpos et al., 2023). According to the results of the current research study, although technology saves time, improves the quality of care, and makes nursing care easier, nurses need the help of an innovative tool to make it easier for them to work.

Based on the results of this study, almost half of the nurses were satisfied with technology. This is not in line with a previous study finding that 69% were satisfied with the quality of the information system, while 88% believed it could reduce medical errors (Baghini & Baniasadi, 2020). An innovative workplace and leadership support has been found to encourage nurses to recommend the workplace and technology to others, while a sense of needing innovation and being happy and willing to use it have been found to be forms of job satisfaction (Leenen et al., 2022; Vainieri et al., 2021). Innovative leadership is needed by nurses to achieve job satisfaction. Job satisfaction has a relationship with innovative organizational performance, thereby increasing effectiveness and efficiency in the competitiveness of the digital era (Putriyadi et al., 2020; Riana et al., 2020). Digital technology in nursing is intended to support accepted, effective, and efficient (AEE) nursing care, such as sensors, monitoring, and other technologies (Krick et al., 2019). AEE is the outcome dimension of digital technology for measuring whether a technology has a realistic chance of being transferred to nursing practice (Krick et al., 2019). This is in line with the current study's result that most nurses believe that the use of technology can make nursing care easier and nurses more satisfied.

Nurses have performance expectations, social influence, facilitating conditions, self-efficacy, and perceived incentives that affect their job satisfaction in monitoring patient conditions with mobile nursing applications (Pan & Gao, 2021). Workflow, work satisfaction, and workloads have an impact on the intention to use digital applications, as nurses' performance depends on several performance expectancies regarding the new technology (Hasebrook et al., 2023). In addition, new technology can reduce nurses' workloads (Fadel et al., 2020; Huter et al., 2020). Furthermore, this is in line with several studies finding that the use of technological innovations can save time and provide convenience in patient care. Nurses who use digital technology feel that they have the skills and competencies in using the platform to access data, the point of care, and medical records (Brown et al., 2020). This finding is consistent with another study finding that nurses have a positive response to the use of new technology, as it saves the time needed to provide care to patients and reduces the length of stay (Brown et al., 2020).

The results of this study showed that nurses' level of education and work position have more effect on job satisfaction than age, gender, and length of work ($p < 0.05$). This is in line with previous study finding that level of education affects awareness about the use of technology, although findings regarding other characteristics were inconsistent (Orhan & Serin, 2019).

Furthermore, in the current study, nurses with diploma degrees were more dissatisfied than those with bachelor's and professional degrees. This is in line with other study finding that the majority of nurses with diploma education did not follow technological developments, and only half believed that technology is beneficial for health services (Taryudi et al., 2022). In addition, the results of the current study differ from other study finding that having an undergraduate level of education influences nurses' job satisfaction more than other levels of education (Chapman et al., 2016).

Work position also affects nurse satisfaction, and the current study revealed that team leaders were more satisfied than implementing nurses. This finding is consistent with previous findings that organizational innovations are created from the characteristics and cohesion of leaders (do Adro & Leitão, 2020) and that staff perceive satisfaction at work due to the organizational support and supervision from leaders (Hegarty et al., 2019; Lee et al., 2018; Wnuk, 2017).

The current study's results are inconsistent with previous studies finding that the most influencing factors for patient-centered technology are gender and age (Ozan & Duman, 2020). Furthermore, in the current study, participants aged 26–31 years and females had the highest level of dissatisfaction with the use of the innovations compared to others aged 32–37 years. This finding is supported by Chapman et al.'s (2016) study, which found that nurses aged 20–29 years tend to have low satisfaction with technology and that the older they are, the higher the job satisfaction, while younger people tend to have negative perceptions of technology, reflecting their dissatisfaction. Based on the statistical data, most of the current study's respondents were female; hence, a higher level of job dissatisfaction was observed among them.

The results also revealed that job satisfaction is influenced by the efficiency and effectiveness of the technology, as well as internal factors. The higher the nurse's job satisfaction, the more effective and efficient their efforts will be and the more they will improve performance, which will have an impact on work safety and productivity (Thiagaraj & Thangaswamy, 2017). In addition, the work environment, service quality, innovation, work commitment, and other factors have been found to affect satisfaction (Al Maqbali, 2015). Furthermore, the use of technology was accepted because it is easy to use, reduces workload, saves time in completing patient care, provides support from leadership, and increases nurses' competence and job satisfaction.

This study was carried out in the nursing unit only, not in the entire hospital, and thus did not obtain a complete picture from other units. The sample size needs to be increased in several areas, especially in hospitals that have large human resources. This study also only discussed several technologies in general and did not cover specific ones that are often used by nurses in hospitals.

Conclusion

This study found that nurses feel more dissatisfied with the use of technology due to incomeplete completion of tasks, lack of training in using the tools, and management, causing increases in nurses' workloads. However, some nurses feel satisfied when using health technology, as they have knowledge of using health technology and thus feel they are easy to use, efficient, and effective in completing tasks, leading to a less heavy workload. Level of education and work position were found to be associated with job satisfaction. Appropriate management, such as providing education and training, support, and motivation, is needed for the use of health technology for nurses.

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AUTHOR INDEX

All article authors published in Jurnal Keperawatan Indonesia Volume 26 of 2023 are listed below alphabetically, complete with numbers and pages.

SUBJECT INDEX

JURNAL KEPERAWATAN INDONESIA
SUBMISSION GUIDE

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Abstrak *(10 pt, bold, italic)*
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Judul Artikel*. Abstrak ditulis menggunakan bahasa Indonesia dan Inggris, dengan jumlah kata sekitar 100–250 kata. Menggunakan tipe abstrak satu paragraf tidak berstruktur, huruf 10 pt, cetak miring, spasi tunggal, rata kanan-kiri, tidak ada kutipan dan singkatan/ akronim. Abstrak harus berisi pendahuluan atau masalah yang diteliti termasuk tujuan penelitian, jika memungkinkan buat dalam satu kalimat. Desain penelitian, cara pengambilan dan besar sampel, cara dan pengumpulan data, serta analisis data. Penemuan utama (OR/ RR, CI atau tema dalam riset kualitatif). Tuliskan satu atau dua kalimat untuk mendiskusikan hasil dan kesimpulan. Rekomendasi dan implikasi hasil penelitian dituliskan dengan jelas.*

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AUTHOR GUIDELINES: ORIGINAL RESEARCH

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Methods (14 point font, boldface, cap in the first letter of headings)

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Method contains the design, the size, criteria and method of sampling, instruments used, and procedures collecting, processing, and analysis of the data. When using a questionnaire as instrument, explain the contents briefly and to measure which variables. Validity and reliability of instruments should also be explained. In the experimental or intervention studies need to be explained interventional procedure or treatment is given. In this section it should explain how research ethics approval was obtained and the protection of the rights of the respondents imposed. Analysis of data using computer programs needs not be written details of the software if not original. Place/location of the study is only mentioned when it comes to study. If only as a research location, the location details not worth mentioning, just mentioned vague, for example, "... at a hospital in Tasikmalaya."

For the qualitative study, in this section needs to explain how the study maintain the validity (trustworthiness) data obtained. The methods section written brief in two to three paragraphs.
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Results

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The findings are sorted by the objectives of the study or the research hypothesis. The results do not display the same data in two forms namely tables/ images /graphics and narration. No citations in the

results section. The average value (mean) must be accompanied by a standard deviation. Writing tables using the following conditions.
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Table and image are not integrated with the contents of the manuscript, put after reference or at the end of the manuscript.

For the qualitative study, the findings commonly are written in the form of participants quotes. Table format is rarely used except to describe the characteristics of the participants, or recapitulation of the themes or categories. If the quote is not more than 40 words, then use quotation marks (") at the beginning and at the end of a sentence and include participants/ informants which give statements without the need to create separate paragraphs. Ellipsis (...) is only used to change a word that is not shown, instead of a stop sign/pause. See the following example.

Due to the ongoing process, the women experiencing moderate to severe pain in the knees, ankles, legs, back, shoulders, elbows, and/or their fingers, and they are struggling to eliminate the pain. To alleviate pain, they look for the cause of the pain. One participant stated that, "... I decided to visit a doctor to determine the cause of the pain is. Now I'm taking medication from the doctor in an attempt to reduce this pain" (participant 3)
Here is an excerpt example of using block quotations if the sentences are 40 or more. Use indentation 0.3"

As discussed earlier, once the participants had recovered from the shock of the diagnosis of the disease, all participants decided to fight for their life. For most of them, the motivation for life is a function of their love for their children; namely child welfare, which being characteristic the pressure in their world. Here is an example of an expression of one of the participants:

I tried to suicide, but when I think of my children, I cannot do that [crying]. I thought, if I die, no one will take care of my children. Therefore, I decided to fight for my life and my future. They (children) were the hope of my life (participant 2).

Discussion

Describe the discussion by comparing the data obtained at this time with the data obtained in the previous study. No more statistical or other mathematical symbols in the discussion. The discussion is directed at an answer to the research hypothesis. Emphasis was placed on similarities, differences, or the uniqueness of the findings obtained. It is need to discuss the reason of the findings. The implications of the results are written to clarify the impact of the results the advancement of science are studied. The discussion ended with the various limitations of the study.

Conclusion

Conclusions section is written in narrative form. The conclusion is the answer of the hypothesis that leads to the main purpose of the study. In this section is not allowed to write other authors work, as well as information or new terms in the previous section did not exist. Recommendation for further research can be written in this section.

Acknowledgement (if any)

Acknowledgement is given to the funding sources of study (donor agency, the contract number, the year of accepting) and those who support that funding. The names of those who support or assist the study are written clearly. Names that have been mentioned as the authors of the manuscripts are not allowed here.

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Journal

Author, A.A., Author, B.B., & Author, C.C. (year). Article title: Sub-title. *Journal Title*, *volume* (issue number), page numbers.

Wu, S.F.V., Courtney, M., Edward, H., McDowell, J., Shortridge-Baggett, L.M., & Chang, P.J. (2007). Self-efficacy, outcome expectation, and self-care behavior in people with type diabetes in Taiwan. *Journal of Clinical Nursing, 16* (11), 250–257.

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Wolchik, S.A., West, S.G., Sandler, I.N., Tein, J., Coatsworth, D., Lengua, L., Johnson, A., Ito, H., Ramirez, J., Jones, H., Anderson, P., Winkle, S., Short, A., Bergen, W., Wentworth, J., Ramos, P., Woo, L., Martin, B., Josephs, M., … Brown, Z. (2005). *Study of the brain. Psychology Journal, 32* (1), 1–15. doi: 10.1037/1061-4087.45.1.11.

Conference Proceeding

Schnase, J.L., & Cunnius, E.L. (Eds.). (1995). Proceedings from CSCL '95: *The First International Conference on Computer Support for Collaborative Learning*. Erlbaum.

Newspaper (no author's name)

Generic Prozac debuts. (2001, August 3). The Washington Post, pp. E1, E4.

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Book

Author, A.A. (Year). *Source title: Capital letter in the beginning of the subtitle*. Publisher.

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Hybron, D.M. (2008). Philosophy and the science of subjective well-being. In M. Eid & R.J. Larsen (Eds.), *The science of subjective well-being* (pp.17–43). Guilford Press.

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Thesis/Dissertation

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Borman, W.C., Hanson, M.A., Oppler, S.H., Pulakos, E.D., & White, L.A. (1993). Role of early supervisory experience in supervisor performance. *Journal of Applied Psychology, 78* (8), 443–449. Retrieved from http://www.eric.com/jdlsiejls/ supervisor/early937d

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Online article

Becker, E. (2001, August 27). Prairie farmers reap conservation's rewards. *The New York Times*, pp. 12–90. Retrieved from http://www.nytimes.com

Appendices

Appendices are only used when absolutely necessary, placed after the references. If there is more than one attachment/appendix then sorted alphabetically.

Here is an example of a table

Table 1. The Characteristics of the Respondents (capital letters at the beginning of the word 11 pt, left justify)

(One blank single space line, 10 pt)

Client's Initial	Age	Major Problem
Mr. BN	56	Aggressiveness
Mr. MA	40	Withdrawal
Mr. AS	45	Swing Mood

*table footnotes (if necessary)

Here is an example of an image

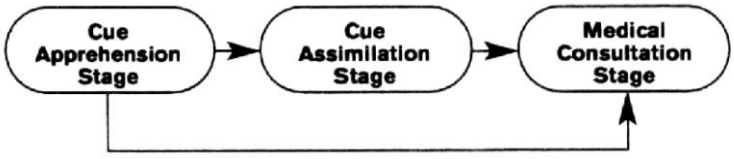

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Figure 1. The Process of Cardiac Sensitivity Cues (Capital Letters in the Beginning of the Words, 11pt)

AUTHOR GUIDELINES: CASE REPORT

ARTICLE TITLE (all caps, 14-point font, boldface, centered, Maximum 16 words)

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Abstract (10-pt, bold, italics)

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Keywords: This section consists of three to six keywords/phrases representing the main content of the article. It is important for indexing the manuscript and easy online retrieval. It is written in English, alphabetical order (10-point font), and gives commas between words/phrases.

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Abstrak *(10 pt, bold, senter)*

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Judul Artikel. Abstrak harus ditulis menggunakan huruf Times New Roman, ukuran 10pt, huruf miring, rata kanan, dan satu paragraf-tidak terstruktur dengan spasi tunggal. Abstrak harus "pendek dan manis". Seharusnya sekitar 100–250 kata. Singkatan atau referensi dalam Abstrak tidak boleh digunakan. Abstrak harus mencakup latar belakang, ilustrasi kasus, dan kesimpulan. Latar belakang mencakup pengantar tentang mengapa kasus ini penting dan perlu dilaporkan. Harap sertakan informasi tentang apakah ini adalah laporan pertama dari jenis ini dalam literatur. Ilustrasi kasus mencakup rincian singkat tentang apa yang pasien sajikan, termasuk usia pasien, jenis kelamin dan latar belakang etnis. Kesimpulan merupakan kesimpulan singkat dari apa yang pembaca harus pelajari dari laporan kasus dan dampak klinisnya. Apakah laporan kasus asli yang menarik bagi area spesialis keperawatan tertentu atau apakah itu berdampak klinis yang lebih luas?

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Kata Kunci*: Bagian ini terdiri dari tiga sampai enam kata kunci/frase yang mewakili konten utama artikel. Kata kunci ini penting untuk indeksasi manuskrip dan pencarian daring dengan mudah. Itu ditulis dalam bahasa Inggris, diurutkan berdasarkan abjad (font 10 huruf, huruf miring), memberikan koma di antara kata-kata/frasa.*

(Three blank single space lines, 12-point font)

Introduction (14-point font, boldface, cap in the first letter of headings)

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The manuscript is written with Times New Roman font size 12pt, single-spaced, left and right justified, on one-sided pages, paper in one column and on A4 paper (210 mm x 297 mm) with the upper margin of 3.5 cm, lower 2.5 cm, left and right each 2 cm. The manuscript including the graphic contents and tables should be around 3500–4500 words (exclude references). If it far exceeds the prescribed length, it is recommended to break it into two separate manuscripts. Standard English grammar must be observed. The title of the article should be brief and informative and it should not exceed 16 words. The keywords are written after the abstract.

(Between paragraphs are spaced one blank, single spaced, without indentation)

The title should contain the main keyword and do not use abbreviations, numbering around 16 words. Authors need to write a short title is also desirable to be written as a page header on each journal page. Authors should not just write words such as study/ relationship/ influence in the title because the title should indicate the results of the study, for example, "Reduction of blood sugar through exercises diabetes in the elderly".

AUTHOR GUIDELINES: CASE REPORT

The information about the author(s) such as full name (without academic title), affiliates, and address are wrote on the separate file (tittle page). Affiliates and address of the authors. Give the number according to the name of the author, for example 1. Department of Maternal and Women's Health Nursing, Faculty of Nursing, Universitas Indonesia, Prof. Dr. Bahder Djohan Street, Depok, West Java – 16424. Correspondence address is email address of the one of the author, for example anandita12@ui.ac.id.

The use of abbreviations is permitted, but the abbreviation must be written in full and complete when it is mentioned for the first time and it should be written between parentheses. Terms/Foreign words or regional words should be written in italics. Notations should be brief and clear and written according to the standardized writing style. Symbols/signs should be clear and distinguishable, such as the use of number 1 and letter l (also number 0 and letter O). Avoid using parentheses to clarify or explain a definition. The organization of the manuscript includes **Introduction, Case Illustration, Discussion, Conclusions,** and **References**. **Acknowledgement** (if any) is written after **Conclusion** and before **References** and narratively, not numbered. The use of subheadings is discouraged. Between paragraphs, the distance is one space. Footnote is avoided.

This manuscript uses *American Psychological Association (APA*) manual style as citation. When using APA format, follow the author-date method of in-text citation. This means that the author's last name and the year of publication for the source should appear in the text, for example, (Jones, 1998), and a complete reference should appear in the reference list at the end of the paper. Citation can be put at the beginning of the sentence, for example Johnson (2005) states that … or the source put at the end of a sentence for examples … (Purwanto, 2004). See the complete format on this link https://owl.english.purdue.edu/owl/resource/560/02/

The Introduction or Background section should explain the background of the case, including the disorder or nursing problems, usual presentation and progression, and an explanation of the presentation if it is a new disease or disorder. If it is a case discussing an adverse intervention the Introduction should give details of intervention's common use and any previously reported side effects. It should also include a brief literature review. This should introduce to the case report from the stand point of those without specialist knowledge in the area, clearly explaining the background of the topic. It should end with a very brief statement of what is being reported in the article.

The Introduction should be in brief, stating the purpose of the study. Provide background that puts the manuscript into context and allows readers outside the field to understand the significance of the study. Define the problem addressed and why it is important and include a brief review of the key literature. Note any relevant controversies or disagreements in the field. Conclude with a statement of the aim of the work and a comment stating whether that aim was achieved.
(One blank single space line, 12-point font)

Case Illustration (14-point font, boldface, cap in the first letter of headings)

(One blank single space line, 10-point font)

This should present all relevant details concerning the case. This section can be divided into separate sections presented with appropriate subheading, such as history and presenting conditions, intervention, outcome, etc. This should provide concerned details of the case with relevant demographic information of the patient concealing their identification (without adding any details that could lead to the identification of the patient), medical history, observed symptoms and describe any tests or treatments done on the patient. If it is a case series, then details must be included for all patients. Discuss the significance and rarity of findings with referencing to the previous studies.

If it is need to present table(s) and or image(s), some rules should be followed. Table only uses 3 (three) row lines (do not use a column line), the line heading, and the end of the table (see example). Table is written with Times New Roman size 10-pt and placed within a single space below the title table. Table titles is written with font size 9-point bold, capital letters at the beginning of the word and placed on the table with the format as shown in the examples that do not use the column lines.

Numbering tables are using Arabic numerals. The distance between table and the paragraph is a single space. The table framework is using lines size 1 pt. If the table has many columns, it can use one column format at half or full page. If the title in each table column is long and complex, the columns are numbered and its description given at the bottom of the table. The table is placed in the highest or the very bottom of each page and do not flanked by sentence. Avoid interrupted the table by page.

Images are using a single space of a paragraph. If the size of the image passes through the column width then the image can be placed with a single column format. Pictures are numbered and sorted by Arabic numerals. Captions placed below the image and within one single space of the image. Captions are written by using 10pt font size, bold, capital letters at the beginning of the word, and placed as in the example. The distance between the captions and paragraphs are two single spaced.

Images which have been published by other authors should obtain written permission from the author and publisher. Include a printed image with good quality in a full page or scanned with a good resolution in the format {file name}.jpeg or {file name}. tiff. When the images are in the photograph format, include the original photographs. The image will be printed in black and white, unless it needs to be shown in color. The author will be charged extra for color print if more than one page. The font used in the picture or graphic should be commonly owned by each word processor and the operating system such as Symbol, Times New Roman, and Arial with size not less than 9-pt. Image files which are from applications such as Corel Draw, Adobe Illustrator and Aldus Freehand can give better results and can be reduced without changing the resolution.

Table and image are not integrated with the contents of the manuscript, put after reference or at the end of the manuscript.

Discussion

The discussion section should contain major interpretations from the findings and results in comparison to past studies. The significance of the findings and case presentation should be emphasized in this section against previous findings in the subject area.

This section should evaluate the patient case for accuracy, validity, and uniqueness and compare or contrast the case report with the published literature. The authors should briefly summarize the published literature with contemporary references.

Conclusion

Conclusions section is written in narrative form. This section should conclude the Case reports and how it adds value to the available information. Explain the relevance and significance of their findings to the respective field in a summary briefly. This section is not allowed to write other authors work, as well as information or new terms in the previous section did not exist. Recommendation for further study can be written in this section.

Acknowledgements

Acknowledgement is given to the funding sources of study (donor agency, the contract number, the year of accepting) and those who support that funding. The names of those who support or assist the study are written clearly. Names that have been mentioned as the authors of the manuscripts are not allowed here.

References (14pt, boldface, Capital letter in the beginning of the Word)

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Examples:

Journal

Author, A.A., Author, B.B., & Author, C.C. (year). Article title: Sub-title. *Journal Title*, *volume* (issue number), page numbers.

Wu, S.F.V., Courtney, M., Edward, H., McDowell, J., Shortridge-Baggett, L.M., & Chang, P.J. (2007). Self-efficacy, outcome expectation, and self-care behavior in people with type diabetes in Taiwan. *Journal of Clinical Nursing, 16* (11), 250–257.

References with two or more authors (up to 20 authors) write all author's names. If an article has 21 authors or more, list the first 19 authors, then insert an ellipsis (…) and then the last name and first initials of the last author. Example:

Wolchik, S.A., West, S.G., Sandler, I.N., Tein, J., Coatsworth, D., Lengua, L., Johnson, A., Ito, H., Ramirez, J., Jones, H., Anderson, P., Winkle, S., Short, A., Bergen, W., Wentworth, J., Ramos, P., Woo, L., Martin, B., Josephs, M., … Brown, Z. (2005). *Study of the brain. Psychology Journal, 32* (1), 1–15. doi: 10.1037/1061-4087.45.1.11.

Conference Proceeding

Schnase, J.L., & Cunnius, E.L. (Eds.). (1995). Proceedings from CSCL '95: *The First International Conference on Computer Support for Collaborative Learning*. Erlbaum.

Newspaper (no author's name)

Generic Prozac debuts. (2001, August 3). The Washington Post, pp. E1, E4.

It's subpoena time. (2007, June 8). New York Times. https://www.nytimes.com/2007/06/08/opinion/08fri1.html

Book

Author, A.A. (Year). *Source title: Capital letter in the beginning of the subtitle*. Publisher.

Peterson, S.J., & Bredow, T.S. (2004). *Middle range theories: Application to nursing research*. Lippincott Williams & Wilkins.

Book chapter

Author, A.A. (Year). Chapter title*:* Capital letter in the beginning of the subtitle. In Initial, Surname (Author's name/book editor) (eds), *Book title*. Publisher.

Hybron, D.M. (2008). Philosophy and the science of subjective well-being. In M. Eid & R.J. Larsen (Eds.), *The science of subjective well-being* (pp.17–43). Guilford Press.

Translated book

Ganong, W.F. (2008). *Fisiologi kedokteran* (Ed ke-22). (Petrus A., trans). McGraw Hill Medical. (Original book published 2005).

Thesis/Dissertation

If available in the database

Rockey, R. (2008). An observational study of pre-service teachers' classroom management strategies (Publication No. 3303545) [Doctoral dissertation, Indiana University of Pennsylvania]. ProQuest Dissertations and Theses Global.

Gerena, C. (2015). Positive thinking in dance: The benefits of positive self-talk practice in conjunction with somatic exercises for collegiate dancers [Master's thesis, University of California Irvine]. University of California, Scholarship. https://escholarship.org/uc/item/1t39b6g3

If not published

Last-name, A.A. (year). *Dissertation/thesis title.* (Unpublished doctoral dissertation/master thesis). Institution Name, Location.

Considine, M. (1986). *Australian insurance politics in the 1970s: Two case studies*. (Unpublished doctoral dissertation). University of Melbourne, Melbourne, Australia.

Database Article

Author, A.A., Author, B.B., & Author, C.C. (Year pub). Title of article. *Title of Journal*, Volume (Issue), pp–pp. doi: xx.xxxxxxxx [OR] Retrieved from URL of publication's home page

Borman, W.C., Hanson, M.A., Oppler, S.H., Pulakos, E.D., & White, L.A. (1993). Role of early supervisory experience in supervisor performance. *Journal of Applied Psychology, 78* (8), 443–449. Retrieved from http://www.eric.com/jdlsiejls/ supervisor/early937d

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Brownlie, D. (2007). Toward effective poster presentations: An annotated bibliography. *European Journal of Marketing, 41* (11/12), 1245–1283. doi: 10.1108/03090560710821161.

Other online source

Author, A.A. (year). Title of source. Retrieved from URL of publication's home page

Article from website

Exploring Linguistics. (1999, August 9). Retrieved from http://logos.uoregon.edu/explore/orthography/ chinese.html#tsang

Online article

Becker, E. (2001, August 27). Prairie farmers reap conservation's rewards. *The New York Times*, pp. 12–90. Retrieved from http://www.nytimes.com

Appendices

Appendices are only used when absolutely necessary, placed after the references. If there is more than one attachment/appendix then sorted alphabetically.

Here is an example of a table

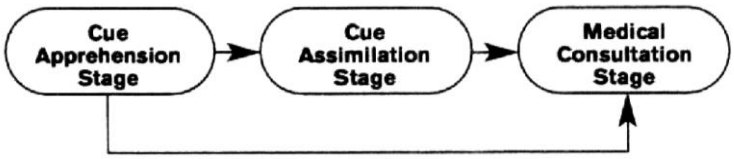
Table 1. The Characteristics of the Respondents (capital letters at the beginning of the word 11 pt, left justify)

(One blank single space line, 10 pt)

Client's Initial	Age	Major Problem
Mr. BN	56	Aggressiveness
Mr. MA	40	Withdrawal
Mr. AS	45	Swing Mood

*table footnotes (if necessary)

Here is an example of an image



(One blank single space line, 10 pt)

Figure 1. The Process of Cardiac Sensitivity Cues (Capital Letters in the Beginning of the Words, 11pt)

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