Review Article

A Systematic Review of Knowledge and Attitude of Nurses Towards Substance Use or Users

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Abstract

Background: Substance use disorders (SUDs) pose substantial challenges to society, creating widespread negative effects. Given their frequent and direct contact with patients, nurses hold a vital position in managing and addressing these disorders. This systematic review aimed to examine nurses' understanding of substance use and their perceptions of individuals affected by these conditions.

Methods: This systematic review involved a comprehensive search of online databases such as PubMed, Web of Science, and Scopus, utilizing relevant keywords up to July 9, 2021. Only studies published in English and aligned with the review's objectives were considered. The quality of the included studies was evaluated using the AXIS tool.

Findings: A total of 3273 nurses participated across 12 studies. The results indicated that nurses' knowledge about substance use was moderate, and their attitudes toward substance users were generally positive. Knowledge-related factors included variables such as age, gender, and work experience. Similarly, age, gender, ethnicity, education level, job position, work experience, participation in workshops on substance use, interest in patient care, hours spent on substance use courses during education, and continuing education hours related to substance use were identified as potential factors influencing attitudes.

Conclusion: Therefore, holding workshops and improving guidelines for patient care with SUDs can enhance nurses' knowledge and attitudes and, ultimately, the quality of nursing care.

Keywords: Knowledge, Attitude, Nurses, Substance-related disorders, Systematic review

Introduction

A drug is a biological and artificial substance incorporated into a person to catalyze their action.[1] On the other hand, substance use disorders (SUDs) are complex disorders that have a significant impact on brain function and behavior. Ultimately, these disorders lead to adverse outcomes in society.[2-7] In the USA, the rate of drug overdose deaths in 2017 was 21.7 per 100 000 people and 20.7 per 100 000 people in 2018, which is the highest rate worldwide.[8] In addition, 67 367 opioid-related deaths were reported in the USA in 2018, which led to a loss of life expectancy of 0.36 years.[8,9]

Meanwhile, nurses' role is vital in managing patients with SUDs due to their more significant relationship with them than other healthcare providers.[10-12] Nurses need a high level of clinical competence, expertise, and skills to assess patients with SUDs.[13-15] Also, nurses need an appropriate level of knowledge and attitude toward substance use or users to manage patients with SUDs properly. However, the evidence in this area is contradictory.[16-18] Research conducted in Ireland found that nurses possessed a satisfactory level of knowledge about substance use.[16] In contrast, a study in Wales showed that nurses' level of knowledge is insufficient.[18] On the other hand,

nurses' attitudes can also be an essential factor in their performance in caring for patients with SUDs. Hence, a study in Ireland [16] that was inconsistent with a study in Nigeria[17] showed that nurses' attitudes were positive.

Given the critical role of nurses in caring for patients with SUDs and the conflicting findings from previous studies, a thorough review of the literature is essential to evaluate nurses' knowledge of substance use and their attitudes toward substance users. Accordingly, this systematic review aimed to examine these aspects comprehensively.

Methods

This systematic review followed the guidelines provided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.[19] Ethical approval was not applicable for this review.

Search strategy

As presented in Table 1, an extensive search was performed on online databases including PubMed, Web of Science, and Scopus using keywords such as "Knowledge", "Attitude", "Nurses", "Substance Use", "Substance Dependence", "Drug Users", and "Opium Dependence" from the earliest to July 9, 2021. For example, the search strategy in the PubMed/MEDLINE database was ("Knowledge" OR "Attitude") AND ("Nurses") AND ("Substance Use" OR "Substance Uses" OR "Use, Substance" OR "Drug Abuse" OR "Drug Dependence" OR "Dependence, Drug" OR "Drug Addiction" OR "Addiction, Drug" OR "Substance Use Disorders" OR "Disorder, Substance Use" OR "Substance Use Disorder" OR "Drug Use Disorders" OR "Addiction, Drug" OR "Disorder, Drug Use" OR "Drug Use Disorder" OR "Organic Mental Disorders, Substance-Induced" OR "Organic Mental Disorders, Substance Induced" OR "Addiction, Drug" OR "Substance Abuse" OR "Abuse, Substance" OR "Substance Abuses" OR "Substance Dependence" OR "Addiction, Drug" OR "Dependence, Substance" OR "Substance Addiction" OR "Addiction, Substance" OR "Prescription Drug Abuse" OR "Prescription Drug Abuse" OR "Abuse, Prescription Drug" OR "Drug Abuse, Prescription" OR "Drug Habituation" OR "Habituation, Drug" OR "Drug and Narcotic Control" OR "Psychoses, Alcoholic" OR "Psychoses, Alcoholic" OR "Psychoses, Alcoholic" OR "Illicit Drugs" OR "Designer Drugs" OR "Designer Drugs" OR "Codependency, Psychological" OR "Alcohol-Related Disorders" OR "Drug Overdose" OR "Alcohol-Induced Disorders" OR "Alcoholic Intoxication" OR "Alcoholism" OR "Amphetamine-Related Disorders" OR "Narcotic-Related Disorders" OR "Marijuana Abuse" OR "Tobacco Use Disorder" OR "Cocaine-Related Disorders" OR "Opium" OR "Opiate" OR "Marijuana Use"). Keywords were extracted via MeSH. The systematic review also investigated gray literature, which encompassed materials such as conference proceedings, expert opinions, dissertations, research and committee reports, and ongoing studies. Gray literature refers to documents not controlled by commercial publishers but accessible in both print and digital formats.[20]

Inclusion and exclusion criteria

This systematic review focused on English-language studies that investigated nurses' knowledge of substance use and their attitudes toward individuals with SUDs. Case reports, experimental studies, letters to the editor, conference abstracts, and review articles were excluded. If relevant data were missing, the corresponding authors of the studies were contacted for further details.

Table 1. Search strategy terms

PICO	Keywords	#	Search Terms
Population/ Problem	Nurses/Knowledge/ Attitude/Nurses/ Substance use/ Substance users	1	(("Knowledge") OR ("Attitude")) AND (("Nurses")) AND (("Substance Use") OR ("Substance Uses") OR ("Use, Substance") OR ("Drug Abuse") OR ("Drug Dependence") OR ("Dependence, Drug") OR ("Drug Addiction") OR ("Addiction, Drug") OR ("Substance Use Disorders") OR ("Disorder, Substance Use") OR ("Substance Use Disorder") OR ("Drug Use Disorders") OR ("Addiction, Drug") OR ("Disorder, Drug Use") OR ("Drug Use Disorder") OR ("Organic Mental Disorders, Substance-Induced") OR ("Organic Mental Disorders, Substance Induced") OR ("Addiction, Drug") OR ("Substance Abuse") OR ("Abuse, Substance") OR ("Substance Abuses") OR ("Substance Dependence") OR ("Addiction, Drug") OR ("Dependence, Substance") OR ("Substance Addiction") OR ("Addiction, Substance") OR ("Prescription Drug Abuse") OR ("Prescription Drug Abuse") OR ("Abuse, Prescription Drug") OR ("Drug Abuse, Prescription") OR ("Drug Habituation") OR ("Habituation, Drug") OR ("Drug and Narcotic Control") OR ("Psychoses, Alcoholic") OR ("Psychoses, Alcoholic") OR ("Psychoses, Alcoholic") OR ("Illicit Drugs") OR ("Designer Drugs") OR ("Designer Drugs") OR ("Codependency, Psychological") OR ("Alcohol-Related Disorders") OR ("Drug Overdose") OR ("Alcohol-Induced Disorders") OR ("Alcoholic Intoxication") OR ("Alcoholism") OR ("Amphetamine-Related Disorders") OR ("Narcotic-Related Disorders") OR ("Marijuana Abuse") OR ("Tobacco Use Disorder") OR ("Cocaine-Related Disorders") OR ("Marijuana Use")).
Intervention	-	-	
Comparison	-	-	-
Outcome	Nurses' knowledge about substance use and their attitude towards substance users	-	-

Study selection

The study selection process was facilitated using EndNote X8 software. Two reviewers independently assessed the studies, removing duplicate articles through both electronic and manual methods. Titles and abstracts were then screened based on predefined inclusion and exclusion criteria. Full-text reviews were conducted for the shortlisted studies, and reference lists of eligible studies were examined to capture any additional relevant information. In cases where the reviewers disagreed, a third researcher was involved to reach a consensus.

Data extraction and quality assessment

The extracted data from the included studies consisted of the first author's name, year of publication, study location, sample size, gender ratio, participants' age, work experience, the questionnaire used for data collection, and key findings. The quality of the studies was assessed using the AXIS tool, specifically designed for cross-sectional studies. This tool evaluates 20 criteria grouped into three domains: reporting quality (7 items), study design quality (7 items), and potential biases (6 items). A two-point Likert scale was applied, assigning a score of 1 for "yes" and 0 for "no." Based on the AXIS tool, study quality was classified as high (70%–100%), fair (60%–69.9%), or low (0%–59.9%). [21, 22] Two reviewers independently assessed the quality of the included studies.

Results

Study selection

A total of 2300 studies were initially identified through online database searches. After duplicates were removed, 2048 studies remained. Titles and abstracts were then screened, leading to the exclusion of 1836 studies that did not align with the review's objectives, and 163 studies that were not cross-sectional. The full texts of 41 articles were reviewed in detail, resulting in the exclusion of 16 studies due to inappropriate designs or outcomes and 13 studies due to a lack of relevant information. Finally, 12 studies[13,16-18,23-30] were included in this systematic review (Figure 1).

Study characteristics

A total of 3273 nurses participated across the twelve studies, with 76.99% of them being female. All the included studies employed a cross-sectional design.[13,16-18,23-30] Six studies[13,16,18,25,26,30] assessed knowledge, and eleven studies[13,16-18,23-29] assessed attitude. In five studies,[17,18,23,25,26] nurses working in the psychiatric ward were evaluated. Of the included studies, four studies[16,18,24,27] were assessed in Europe; two studies[13,23] were evaluated in Asia; two studies[17,26] was evaluated in Africa; three studies[25,29,30] was assessed in Australia, and one study[28] was evaluated in the USA. Table 2 provides a summary of the key characteristics of the studies included in this review.

Methodological quality of included studies

Figure 2 illustrates that all included studies justified their sample sizes. However, six studies failed to report their limitations, and four studies did not obtain informed consent from participants.

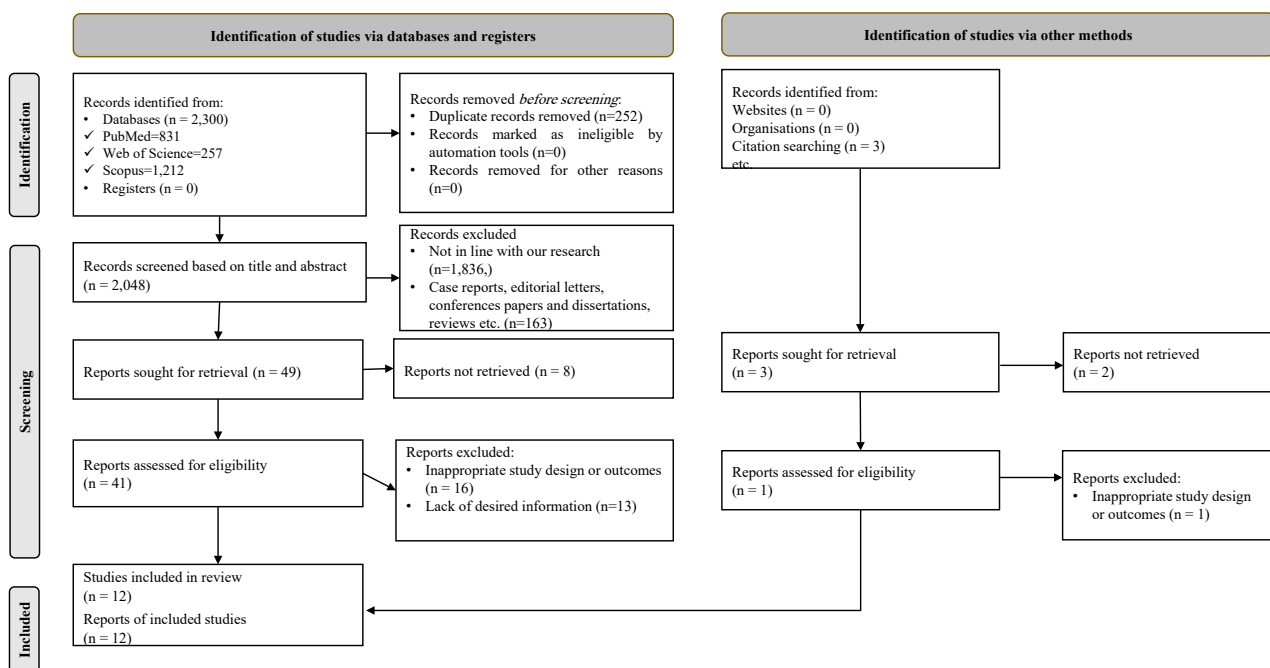### Nurses' knowledge about substance use and their attitude toward substance users

Figure 1. Flow diagram of the study selection process

Table 2. Basic characteristics of the included studies in this systematic review

First Author/ year	Location	Ward	Sample Size	History of participating in workshops about substance use or users	M/F ratio	Age (mean ± SD)	Work experience (mean ± SD)	Knowledge/ Attitude	Questionnaire of Knowledge/ Attitude	Key results
Allen, 1993 [28]	USA	Emergency Department/ ICU/CCU/ Surgical/ operating room/ orthopedic/	66	N/A	N/A	N/A	N/A	Attitude	Marcus Alcoholism Questionnaire	The attitude of the nurses toward alcoholic patients was strong positive.
Barry et al, 2002 [18]	Wales	Psychiatry	64	N/A	N/A	N/A	N/A	Knowledge/ Attitude	Drug Knowledge Questionnaire/ A researcher-made questionnaire	The knowledge and attitude of the nurses were insufficient and positive, respectively.
Happell et al, 2002 [25]	Australia	Psychiatry	134	N/A	47.76/52.34	N/A	N/A	Knowledge/ Attitude	CATT	The knowledge and attitude of the nurses were desirable and positive, respectively. Nurses' knowledge was insufficient in the assessment and management of alcohol and drug problems.
Foster et al, 2003 [24]	England	Forensic	63	N/A	60.32/39.68	N/A	N/A	Attitude	SAAS	The attitude of the forensic nurses was positive.
Mutunga, 2006 [26]	Kenya	Psychiatry	155	27.74%	34.19/65.81	N/A	15.00	Knowledge/ Attitudes	A researcher-made questionnaire	The knowledge and attitude of the nurses were insufficient and negative, respectively.
Ford et al, 2008 [29]	Australia	N/A	1605	66.14%	6.00/94.00	44.00 (SD = 9.00)	21.00 (SD = 10.00)	Attitude	AAPPQ	The attitude of the nurses toward alcoholic patients was negative.
Kelleher et al, 2009 [16]	Ireland	Emergency department	58	25.76%	13.64/86.36	N/A	N/A	Knowledge/ Attitudes	A researcher-made questionnaire/ SAAS	The knowledge and attitude of the nurses were desirable and positive, respectively. In addition, the nurses' knowledge about alcohol and drug misuse was desirable. Nurses' knowledge of treatment strategies was insufficient.
Norberg et al, 2012 [30]	Australia	N/A	161	59.01%	N/A	49.93 (SD = 8.04)	N/A	Knowledge	A researcher-made questionnaire	66.67% of nurses had insufficient knowledge about Cannabis use.
Chang et al, 2013 [23]	Taiwan	Psychiatry and Non-psychiatry	489	5.93%	0.41/99.59	28.20 (SD = 4.90)	6.40 (SD = 4.50)	Attitude	Nurses' attitudes toward clients with substance use	The attitude of the nurses was moderately positive.
Raistrick et al, 2014 [27]	England	General	300	N/A	N/A	N/A	N/A	Attitude	AAPPQ	The attitude of the nurses was negative.
Adayonfo et al, 2017 [17]	Nigeria	Psychiatry	28	60.71%	17.86/82.14	N/A	N/A	Attitude	DDPPQ	53.57% of nurses had a negative attitude.
Tarafdar et al, 2018 [13]	India	General/ Emergency Department/ ICU/ Paediatrics/ Surgical	150	32.00%	0/100	N/A	N/A	Knowledge/ Attitude	A researcher-made questionnaire	The knowledge and attitude of the nurses were moderate and negative, respectively.

ICU: Intensive care unit; CCU: Cardiac care unit; CATT: Crisis assessment and treatment teams; SAAS: Substance Abuse Attitude Survey; AAPPQ: Alcohol and Alcohol Problems Perception Questionnaire; DDPPQ: Drug and Drug Problems Perceptions Questionnaire.

		Allen et al., 1993	Barry et al., 2002	Happell et al., 2002	Foster et al., 2003	Mutunga et al., 2006	Ford et al., 2008	Kelleher et al., 2009	Norberg et al., 2012	Chang et al., 2013	Raistrick et al., 2014	Adayonfo et al., 2017	Tarafdar et al., 2018
Introduction	Clear aims	*	*	*	*	*	*	*	*	*	*	*	*
	Appropriate design	*	*	*	*	*	*	*	*	*	*	*	*
Methods	Sample size justified	*	*	*	*	*	*	*	*	*	*	*	*
	Population defined	*	-	*	*	*	*	*	*	*	*	*	*
	Sample representative of population	*	-	*	*	*	*	*	*	*	*	*	*
	Selection process representative	*	*	*	*	*	*	*	*	*	*	*	*
	Measures to address non-responders	-	-	-	-	-	*	-	-	-	-	-	-
	Appropriate outcome variables	-	*	*	-	*	*	*	*	*	*	*	*
	Valid measures	*	*	*	*	*	*	*	*	*	*	*	*
	Defined statistical significance	*	*	*	*	*	*	*	*	*	*	*	*
	Methods described	*	*	*	*	*	*	*	*	*	*	*	*
Results	Results data described	*	*	*	*	*	*	*	*	-	*	*	*
	Concerns about non-response bias	-	-	-	-	-	-	-	-	-	-	-	-
	Non-responder information described	-	-	-	-	-	-	-	-	-	-	-	-
	Results internally consistent	*	*	*	*	*	*	*	*	*	*	*	*
	Results presented for analyses	*	*	*	*	*	*	*	*	*	*	*	*
Discussion	Conclusions justified	*	*	*	*	*	*	*	*	*	*	*	*
	Limitations identified	-	-	-	*	-	*	*	*	*	-	*	-
Others	Funding sources or conflicts of interests	-	-	-	*	-	-	-	-	*	-	-	-
	Ethical approval/consent attained	-	-	-	*	-	*	*	*	*	*	*	*

Figure 2. Assessment of the quality of the included articles

a. Knowledge

The knowledge of nurses about substance use was assessed in six studies.[13,16,18,25,26,30] The results were contradictory. Nurses' knowledge was desirable in two studies,[16,25] three studies[18,26,30] insufficient, and one study[13] moderate. In seven studies,[13,16,17,23,26,29,30] participations in previous nurses' workshops varied from 5.93% to 66.14%.

b. Attitude

The attitude of nurses toward substance users was assessed in eleven studies.[13,16-18,23-29] The results were contradictory. Nurses' attitude was positive in five studies,[16,18,24,25,28] five studies[13,17,26,27,29] negative, and one study[23] moderately positive.

Factors associated with nurses' knowledge about substance use and their attitude toward substance users

As presented in Table 3, factors associated with nurses' knowledge about substance use and their attitude towards substance users were assessed in two[13,25] and six studies,[13,17,23-25,29] respectively. In the included studies, the relationship between knowledge or attitude with variables such as age, sex, ethnicity, level of education, organizational position, work experience, a history of participating in workshops about substance use or users, interest in the care, total hours of substance use courses in school, and total hours of continuing education related to substance use was assessed.

a. Knowledge

Factors associated with knowledge included age, sex, and work experience.[25] In contrast, another study found that there was no significant relationship between nurses'

knowledge and individual and occupational variables.[13]

b. Attitude

Factors associated with attitude included age,[23,25] sex,[24,25] ethnicities,[24] levels of education,[13] organizational positions,[24] work experience,[23,25] a history of participating in workshops about substance use or users, interest in the care,[17] total hours of substance use courses in school, and total hours of continuing education related to substance use.[23] A study by Chang et al, found that nurses working in psychiatry, managers, higher education, and the experience of caring for patients with substance abuse had a more positive attitude.[23] Also, another study by Foster et al, showed that bedside nurses, females, and blacks had a more positive attitude.[24]

Discussion

The study findings indicated that nurses had a moderately sufficient level of knowledge about substance use, while their attitudes toward substance users were mostly positive. Factors affecting knowledge included age, gender, and work experience. Moreover, attitudes were influenced by factors such as age, gender, ethnicity, educational attainment, job position, work experience, participation in substance use-related workshops, interest in providing care for individuals with SUDs, the total hours of formal education on substance use, and the hours of continuing education on the topic.

As shown in the present study, the knowledge of nurses toward substance use was moderate. However, the findings of the studies included in this systematic review were contradictory. An adequate level of knowledge can be a good predictor of nurses' better attitude in caring

Table 3. Factors associated with nurses' knowledge about substance use and their attitude towards substance users

First Author/year	Factors associated with nurses' knowledge about substance use and their attitude towards substance users
Happell et al, 2002 [25]	✓ *Knowledge:* there was a significant relationship between nurses' knowledge and variables such as age, sex, and work experience. ✓ *Attitude:* there was a significant relationship between nurses' attitude and variables such as age, sex, and work experience.
Foster et al, 2003 [24]	✓ *Attitude:* there was a significant relationship between nurses' attitude and variables such as sex, organizational position, and ethnicity. Bedside nurses, females, and blacks had a more positive attitude.
Ford et al, 2008 [29]	✓ *Attitude:* there was no significant relationship between nurses' attitudes and individual and occupational characteristics such as age, sex, level of education, work experience, and history of participating in workshops about substance use or users.
Chang et al, 2013 [23]	✓ *Attitude:* there was a significant relationship between nurses' attitude and variables such as age, work experience, total hours of substance use courses in school, and total hours of continuing education related to substance use. Also, nurses working in psychiatry, managers, higher education, the experience of caring for patients with substance abuse had a more positive attitude.
Adayonfo et al, 2017 [17]	✓ *Attitude:* there was a significant relationship between nurses' attitudes and variables such as a history of participating in workshops about substance use or users and interest in caring for patients with substance use.
Tarafdar et al, 2018 [13]	✓ *Knowledge:* there was no significant relationship between nurses' knowledge and study variables. ✓ *Attitude:* there was a significant relationship between nurses' attitude and level of education.

for patients with SUDs, which can ultimately lead to better patient management.[16] However, most nurses in the present study did not receive adequate specialized training on substance use or users, which could be one of the reasons for their lack of knowledge. There is a significant shortage of substance use or user training in nursing college curricula and clinical settings for nurses.[16,31] Therefore, it is recommended that workshops about substance use or users be highlighted for nurses. On the other hand, limited studies in this field suggest that further studies be designed to obtain more robust results.

The findings of this study showed that the attitude of nurses toward substance users was relatively positive. However, the conclusions regarding nurses' attitudes were contradictory. These contradictions can be due to individual and occupational differences. A positive attitude of nurses towards substance users can enhance the perception of caring behaviors and their practice.[32] Therefore, it is suggested that nurses' attitudes towards substance users be considered more in future studies.

The present study showed that knowledge-related factors included age, sex, and work experience. However, this relationship was investigated in only two studies[13,25] which could not be generalized to all nurses. Therefore, it is suggested that future studies focus more on factors associated with nurses' knowledge of patients with SUDs.

The findings of this study showed that age, sex, ethnicity, level of education, organizational position, work experience, history of participating in workshops about substance use or users, interest in the care, total hours of substance use courses in school, and total hours of continuing education related to substance use were possible factors related to nurses' attitude. Despite the importance of demographic and occupational variables on nurses' attitudes toward substance users, limited studies have assessed these. In addition, the relationship between the knowledge and attitude of nurses was not assessed in any study. The gaps between nurses 'knowledge and practice in caring for patients with SUDs are reduced by a more accurate assessment of the relationship between nurses' attitudes and their individual and occupational variables.[16] Also, educational interventions should be

based on the status of these variables.[24] Therefore, it is suggested that with more accurate assessments of the level of attitude and its relationship with individual and occupational variables, educational interventions should be designed based on the characteristics of different populations to be more effective.

Limitations
This study had several limitations. Due to the heterogeneity of the study's data and tools, a meta-analysis was impossible. The present systematic review showed that not enough data is available to generalize about nurses' knowledge about substance use and their attitudes towards substance users.

Recommendations for Future Research
The findings from published studies on nurses' knowledge of substance use and their attitudes toward substance users were inconsistent. Furthermore, none of the studies examined the relationship between these two variables. Therefore, it is recommended that future research focus on well-designed studies to assess nurses' knowledge and attitudes comprehensively and explore the potential relationship between these key factors.

Implications for nursing managers and policymakers
Nurses generally exhibited a moderate understanding of substance use and relatively positive attitudes toward individuals with SUDs. A lack of adequate knowledge can adversely affect the quality of care provided. Conducting workshops and creating comprehensive guidelines on substance use and its management can significantly improve nurses' knowledge. Enhanced knowledge, in turn, may lead to more positive attitudes. It is suggested that nursing managers and policymakers apply the insights from this systematic review to improve the quality of nursing care for patients with SUDs.

Conclusion
Overall, nurses exhibited moderate knowledge about substance use and relatively positive attitudes toward substance users. Achieving optimal knowledge and

fostering a positive attitude are essential for improving the quality of nursing care for patients with SUDs. Thus, conducting targeted workshops and refining care guidelines for SUD patients can effectively enhance nurses' knowledge and attitudes, ultimately leading to better nursing care outcomes.

Authors' Contribution
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Competing Interests
None declared.

Ethical Approval
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