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PERCEPTIONS OF KNOWLEDGE, ATTITUDES, AND SKILLS ABOUT NON-SUICIDAL SELF-INJURY: A SURVEY OF EMERGENCY AND MENTAL HEALTH NURSES

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ABSTRACT

Objective: *The purpose of the study is to assess emergency department and mental health nurses' knowledge, attitudes and skills related to non-suicidal self-injuries.* **Method:** *A descriptive cross-sectional research design was adopted in this study. The study used the convenient sampling method to recruit a sample of 195 emergency department and mental health nurses from three different settings; the psychiatric mental health hospital, King Fahad hospital, and King Khaled hospital in Tabuk city. To collect data, the study used the questionnaire that consisted of two parts: the socio-demographic part and the knowledge, attitudes, and skills related to non-suicidal self-injuries (27 statements).* **Result:** *The results of the study showed that emergency department and mental health nurses had a moderate level of knowledge about non-suicidal self-injuries (30.95±9.90), a high level of skills related to non-suicidal self-injuries (26.5±5.2), and neutral attitudes towards non-suicidal self-injuries (35.5±7.15). In addition, it was found that there was a significant statistical difference in knowledge about non-suicidal self-injuries referred to gender, unit/department, and receiving formal training about non-suicidal self-injuries. Moreover, it was found that there was a significant statistical difference in the mental health and emergency department nurses' skills related to non-suicidal self-injuries referred to participants' receiving formal training related to non-suicidal self-injuries, and there were significant statistical difference in attitudes towards non-suicidal self-injuries between nurses referred to unit/department, working institution, and receiving formal training related to non-suicidal self-injuries.* **Conclusion:** *The study concluded that emergency department and mental health nurses in Saudi Arabia have moderate level of knowledge, high level of skills and neutral attitudes towards non-suicidal Self-Injury.*

KEYWORDS: *non-suicidal self injury, NSSI, knowledge, attitudes, skills, Saudi Arabia*

INTRODUCTION

Self-injury is a problematic situation facing health professionals worldwide. Self-injury is a deliberate socially unacceptable damage to one's own body tissue without the intent to die [*De Riggi M E et al., 2017*]. This behavior is characterized by being intentional and deliberate, so individuals partaking this are doing it for a reason [*Gandhi A et al., 2016*]. However, the reason could be complex and sometimes hard to get to identify it as most of the time health professionals tend to focus on the injury rather than what the real reason behind the behavior is [*Grandclerc S et al., 2016*].

Self-injury is unacceptable in nature, meaning that society really considers this as not the norm [*Dhingra K, Ali P, 2016*]. Thinking about this behavior implies that there is much fear tied into it as

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people don't necessarily completely understand the behavior. So, when something is not really understood, fear from the behavior emerges [*Kim M, Yu J, 2017*].

The typical definition of self-injury involves self-inflicted damage to one's own body tissue that is done intentionally and without suicidal attempt [*Hornor G, 2016*]. There are different names of non-suicidal self-injuries (NSSI) such as self-mutilation, self-injurious behaviors, self-wounding, deliberate self-harm, parasuicide, and many others [*Tapola V, 2016*]. However, sometimes some of these terms are used for meanings that are broader than self-injury. For example, deliberate self-harm is often used to include all forms of self-harms that are intentional, including suicide attempts. In recent years, however, the field seems to be more or less blending around the term "Non-suicidal self-injury", or NSSI [*Hornor G, 2016*].

The kinds of methods involved in self-injury are many. Skin cutting is certainly a prototypical example, in addition to burning, scratching, rubbing skin against rough surfaces, interfering with wound healing, and needle sticking [*Huisman S et al., 2018*]. Typically, NSSI does not include behaviors such as overdosing (where the tissue damage is not direct), eating disorder behaviors (such as binging or purging), or alcohol or substance use [*Stafford M, Cavanna AE, 2020*]. Those activities can sometimes cause tissue damage, but the idea is that the tissue damage is more indirect. In addition, when it comes to body piercing or tattoos, these are usually excluded because they fit as more socially approved forms of self-harm [*Glenn CR et al., 2016*].

It is important to keep in mind that there is a tremendous variation in how self-injury manifests, and among people who engage in the behavior [*Silva EC et al., 2017*]. For example, people who self-injure can differ in how frequent, how often they self-injure and the kinds of methods they use, the number of methods they use, and how much medical damage is caused as a result of this self-injury [*Maciejewski DF et al., 2017*]. They can also differ in terms of the context in which they perform self-injury; for example, doing it only in private, as opposed to self-injuring in the presence of others *[Marco JH et al., 2020*]. The motivations as well can differ. So, people can differ substantially in their desire to stop. Most people who self-injure make frequent efforts to resist self-injurious urges, but there is certainly a subset of people who self-injure and could argue quite intelligently that self-injury works for them [*Silva EC et al., 2017*].

The prevalence rates of NSSI varies across studies. In young adolescents, the lifetime prevalence rate was 8% [*Marshall E et al., 2016*]. That rate increases to 14%-15% in the high school students, and approximately 17% in the university students. These rates are for people who have ever self-injured [*Kiekens G et al., 2019*]. So, if we were to focus only on people who self-injure or habitually do it, the numbers will be lower. Still, even with this more liberal definition, these rates might be higher than some people might anticipate [*Brown RC, Plener PL, 2017*]. Best estimates of NSSI in general adult population are about 4-6% [*Klonsky ED et al., 2015*]. What is interesting about NSSI is that it might indicate a cohort effect, which mean that it could be a collective of different psychological and social factors. In other words, previous generations engage in self-injury less than the current generation of adolescents and young adults [*Ose SO et al., 2021*]. At the same time, this lower rate in adults (compared to younger age groups) might simply be a memory or recall effect. It might be that for many people who self-injure a few times in their teens, they might not remember if they were asked 30 or 40 years later [*Gonzalez-Blanks A et al., 2020*]. However, what is clear from the reported data is that rates are the highest in adolescent clinical samples, especially adolescent psychiatric inpatients, where routinely about half, or sometimes more than half, has histories of self-injury [*Lenkiewicz K et al., 2017*]. Within the regional context, Hanania J.W. and co-authors (2015) conducted a study to explore the preva-

To overcome it is possible, due to the uniting the knowledge and will of all doctors in the world

lence of NSSIs among the Jordanian adolescents. It was found that overall lifetime prevalence of NSSI was 22.6%. The study reported that males (26.98%) had higher prevalence rates compared to females (18.14%). In Saudi Arabia, the prevalence of NSSI was explored by Bahamdan A. & Aldhawyan A. (2022) who reported that the prevalence rates of NSSIs in Saudi cities ranged between 0.47% and 10.2%, which was in Alkhobar city.

Turning to the psychological characteristics of people who self-injure, researchers were fortunate enough to be able to draw from the available studies on this topic [*Hasking P et al., 2017*]. The one theme is the presence of negative emotions or emotionless regulation. People who self-injure experiencing more intense and more frequent negative emotions than other people [*Power et al., 2016*]. Negative emotions include depression, anxiety, anger at themselves and others. In particular, there seems to be pronounced self-directed flavor to the negative emotion, including self-directed anger, for example. There is also a large overlap between NSSI with suicidal ideation and attempts [*Hasking P et al., 2017*].

Intense self-directed negative emotions could be one of the identifiers of those who self-injure [*Garisch JA et al., 2017*]. Within the past decade, there has been a number of research showing that many different populations, including an indirect self-harm population, such as substance use individuals, are high on negative emotionality. Thereafter, individuals tend to self-injure their bodies [*Hasking P et al., 2017*]. Variables such as self-criticism, self-directed anger, and self-degradation seem to be particularly pronounced in unique ways in people who self-injure. So that might be, in some way, a gateway variable to choosing self-injury, as opposed to many other methods to cope with negative emotions [*Garisch JA et al., 2017*].

There is certainly a long tradition in the theoretical literature, going back several decades to implicate childhood abuse and the etiology, for the development or the maintenance of self-injury [*Guérin-Marion C et al., 2021*]. A number of studies reported that self-injury is described as a form of reforming abuse perpetrated on people as a manifestation (sexual abuse, for example). In the meantime, other studies reported that abuse contributes heavily to the initiation of self-destructive behaviors in victims [*Zetterqvist M et al., 2018*].

A search in the literature revealed the significant lack of both local, regional and international studies exploring the levels of knowledge, attitudes, and skills of nurses in general, and mental health nurses or emergency department nurses in particular, towards NSSIs. For example, it was reported that there is a clear lack in cross-sectional studies exploring the levels of knowledge, attitudes, or skills of mental health nurses or emergency department nurses regarding NSSIs [*Vine J et al., 2017; Pintar Babič M et al., 2020; Ngune I et al., 2021*]. As a result, the focus of this study is to fill this gap of literature and explore the level of Saudi mental health nurses and emergency department nurses' knowledge, attitudes and skills related to NSSIs. Therefore, the aim of the current study is to assess the level of knowledge, attitudes, and skills of Saudi mental health nurses and emergency department nurses regarding non-suicidal self-injuries (NSSIs).

Material and Methods

Research Design: A descriptive cross-sectional survey was used to assess knowledge, attitudes, and skills of emergency and psychiatric nurses about NSSI. Descriptive cross-sectional studies can assess phenomenon not previously assessed. Descriptive studies describe and explain existing condition without necessarily clarifying the underlying casual factors. There are benefits to performing a cross-sectional research study: it can be done relatively quickly [*Loring M, 2017*], as the research data is all gathered at the same point in time; it can estimate the prevalence of the outcome of interest, because the sample is usually taken from the whole population; many outcomes and risk factors can be assessed; and that there is no loss to follow-up. However, the disadvantages of cross-sectional study are; it is difficult to make causal inferences; it provides only a snapshot, as it may provide differing results, if another time-frame had been chosen; and that generalizability is limited.

Study Participants and Sample: The study employed non-probability sampling technique, namely convenience sampling. Convenience sampling is a simple and easy way of data collection. Further, convenience sampling facilitates data collection in a reasonable time period. Furthermore, the economic benefit to implement that alternative sampling methods facilitated use of convenience sampling technique. Out of 400 nurses working in the above-mentioned selected hospital, 187 nurses are needed to participate in this study. The sample size is calculated by RaoSoft program with confidence interval equal to 95% and error margin 5%. The sample consisted of nurses, either emergency department or mental health department nurses from the below described settings.

Setting and Recruitment: The researcher planned to conduct the study in the governmental hospitals Tabuk province. The psychiatric mental health hospital, King Fahad hospital and King Khaled hospital in Tabuk city were chosen as a study setting as these hospitals include both emergency and mental health departments which ensures accessing the highest number of study subjects and allows the researcher to collect a representative study sample. In addition, based on the observation of the researcher, it was found that these three hospitals receive a significant number of NSSIs cases compared to other healthcare facilities in Tabuk city. For example, The psychiatric mental health hospital receives three to 5 cases monthly, whereas King Fahad hospital received 128 cases within the last 4 months, and King Khaled hospital received 65 cases in the period between January and June 2022.

Inclusion and exclusion criteria:

The inclusion criteria included: Psychiatric nurses and emergency nurses; only psychiatric and emergency department nurses were chosen to participate in the study. The rationale of choosing mental health and emergency department nurses in this study is that nurses who work in these two departments are the most groups of nurses who deal with cases related to NSSIs. As reported in literature, NSSIs are most commonly handled in emergency departments or psychiatric departments [*Ngune I et al., 2021*].

1. A minimum of six months of experience in emergency nursing or as a psychiatric nurse;
2. Willingness to participate in the research.

Exclusion Criteria: Nurses with less than six months of experience; working in departments other than emergency departments or psychiatric departments; and unwilling to participate in the study were excluded from participating in the study and providing related data.

Data collection procedure: The present study was conducted during the period between January 2022 and April 2022. To recruit the study participants, the researcher calculated the sample size and determined the targeted population. Then, the researcher obtained the ethical approvals to start the data collection process. To collect data, the researcher contacted head nurses in the mental health and emergency departments at the selected settings and asked them kindly to determine an appropriate time (non-peak time) to distribute the study questionnaire to the mental health and emergency department nurses.

The questionnaire was already prepared as a hyperlink that is generated through Google Forms service. The researcher met the mental health nurses and emergency department nurses, provided a brief illustration about the objectives of the study, its significance and the expected outcome of the study. Then, the researcher asked them kindly to provide their phone numbers in order to be able to submit the electronic form of the study questionnaire. The phone numbers were kept confidential and they were used only to send the questionnaire link.

After sending the questionnaire to the possible participants, they were asked to read it carefully and provide a consent for participation in the study to ensure their voluntary participation. In addition, to avoid multiple responses, the researcher limited the responses to participants' e-mail addresses.

The questionnaire was opened for a period of 3 weeks in order to collect the highest number of participants. After three weeks, the questionnaire was closed and an Excel file of the responses was generated for analysis purposes.

Outcome Measures (Scales / Instruments): To assess emergency and psychiatric mental health nurses' level of knowledge, attitudes, and skill towards NSSI, three scales were used and adopted from previous studies. Each of these scales was developed by reviewing related literature about NSSI. Further, the adopted scale went through psychometric evaluation including examining its reliability (via Cronbach's alpha value) and content validity through being examined using Pearson's correlation coefficients between the three different scales used in the study.

1. The knowledge scale developed by Jeffery D. & Warm A. (2002) consisted of 10 items. Each item was rated on a 5-point rating scale ranging from (1 = strongly disagree) to (5 = strongly agree) [*Jeffery D, Warm A, 2002*]. The total scale score ranged between 10 and 50 where higher scores indicated higher nurses' knowledge about NSSI. The Skills scale towards NSSI was developed by Muehlenkamp J.J. and co-authors (2013) after reviewing related literature. The scale was validated in the original study and had a reliability score of (0.79). Categorizing the participants' knowledge level was based on the interval calculations as the lowest score is 10 and the highest is 50, therefore, the interval length is calculated through dividing 40 on 3, which are the three categories of knowledge (poor, moderate, and high). The length of the interval was found to be 13.3, thus: a score between 10 and 23.3 was considered a poor knowledge level, a score between 23.4 and 36.7 was considered a moderate knowledge level, and a score over 36.7 up to 50 was considered as a high knowledge level.
2. The skills scale consisted of 7 items. Each item lists one of the skills required to deal with patients encountered with NSSI incidents. Each of the scale items was rated on 5-point Likert scale ranging from (1 = strongly disagree) to (5 = strongly agree) [*Muehlenkamp JJ, 2013*]. The scale was subjected to psychometric analysis and principal components factor analysis with varimax rotation. The total scale score range between 7 and 35 where higher score were indicated of higher skills demonstrated by nurses dealing with patients suffering NSSI. The scale was validated in the original study and had a reliability score of (0.81). Categorizing the participants' skills level was based on the interval calculations as the lowest score is 7 and the highest is 35, therefore, the interval length is calculated through dividing 28 on 3, which are the three categories of attitudes (poor, moderate, and high level of skills). The length of the interval was found to be 9.3, thus: a score between 7 and 16.3 was considered a poor level of skills, a score between 16.4 and 25.7 was considered a moderate level of skills, and a score over 25.7 up to 50 was considered as a high level of skills.
3. The Attitudes of nurses towards NSSI was measured using 10 items also derived from related literature [*Jeffery D, Warm A, 2002*]. Each of the items assessed one attitude of the nurse significant in dealing with NSSI clients. Contradictory with the knowledge scale, items of the attitudes scale were negatively stated indicating negative attitudes towards dealing with NSSI patients. Each of the attitudes scale was rated on a 5-poing rating scale ranging from (5 = strongly disagree) to (1 = strongly agree) [*Jeffery D, Warm A, 2002*]. The total attitudes scale score ranges between 10 and 50 where higher scores indicated positive attitudes towards NSSI patients. The scale was validated in the original study and had a reliability score of (0.83). Categorizing the participants' attitudes level was based on the interval calculations as the lowest score is 10 and the highest is 50, therefore, the interval length is calculated through dividing 40 on 3, which are the three categories of attitudes (negative, neutral, and positive). The length of the interval was found to be 13.3, thus: a score between 10 and 23.3 was considered a negative attitude score, a score between 23.4 and 36.7 was considered a neutral attitude score, and a score over 36.7 up to 50 was considered as a positive attitude score.

Validity and Reliability of the data collection tool: The validity of the study questionnaire was ensured in the original research article by the original authors. However, the researcher performed a

pilot study in order to assess the reliability of the study questionnaire. A pilot sample of 30 mental health and emergency department nurses, who were excluded from the original study sample, were recruited in this pilot study. The reliability was verified using Cronbach's Alpha method and it was 0.83 for the knowledge scale, 0.77 for the attitudes scale, 0.71 for the skills' scale, and 0.76 for the total scale. In addition, the Pearson's correlation coefficient was used to calculate the inter-correlation matrix between the scale's items and it was found that the Pearson's correlation coefficient values were ranging between 0.569 and 0.741, which indicated a good reliability of the study scale.

Data Analysis: Data collected from the participants in this study was organized, tabulated and imported into the Excel sheets to check for completeness. Completed and valid data for analysis was analyzed using the Statistical Package of Social Sciences (SPSS) (v. 26, IBM Corp. New York city, USA).

Descriptive statistics (frequencies, percentages, means and standard deviations) were used to identify the sociodemographic profile of the participating mental health and emergency department nurses, and assess their levels of knowledge, attitudes and skills related to NSSIs. In addition, Independent samples t-test and ANOVA test was used to investigate if there are any significant statistical differences in the mental health and emergency department nurses' knowledge, attitudes, or skills related to NSSIs based on their demographic characteristics. A significance level of 0.05 was used as a statistical significance threshold.

Results

The demographic characteristics of the study participants:

A total of 213 participants were approached in the present study. However, a total of 195 mental health and emergency department nurses filled the online study questionnaire, with a response rate of 91.5%. The results in table 1 represent the sociodemographic characteristics of the study participants. The results showed that the mean age of the study participants was (33.2±6.95). Male nurses constituted 55.4% (n=108), whereas female nurses represented 44.6% (n=87). In addition, it was found that 58.5% (n=114) of the participants were emergency department nurses and 41.5% (n=81) were mental health nurses.

Table 1.

Enrolled Nurses' Socio Demographic Characteristics.

Variable	N (%)
Gender	
Female	87 (44.6%)
Male	108 (55.4%)
Practicing Unit/Department	
Mental Health	81 (41.5%)
Emergency	114 (58.5%)
Working Institution	
Eradah Hospital	79 (40.5%)
King Fahad Hospital	73 (37.4%)
King Khalid Hospital	43 (22.1%)
Marital Status	
Single	60 (30.8%)
Married	120 (61.5%)
Divorced or Widowed	15 (7.7%)
Shift Work	
A shift (7 am to 3 pm)	98 (50.3%)
B-shift (3 pm to 11 pm)	62 (31.8%)
Night shift (11 pm to 7 am)	35 (17.9%)
Educational Level	
Diploma	40 (20.5%)
Bachelor degree	146 (74.9%)
Master or PhD	9 (4.6%)
Years of Experience	
Less than 5 years	85 (43.6%)
5 – less than 10 years	49 (25.1%)
10 years or more	61 (31.3%)
Received formal training related to NSSIs	
Yes	150 (76.9%)
No	45 (23.1%)

Moreover, it was found that 40.5% (n=79) were from Eradahh mental health complex, whereas 37.4% (n=73) and 22.1% (n=43) were from King Fahad Hospital and King Khalid Hospital, respectively. Moreover, the results showed that 61.5% (n=120) of the enrolled nurses were married, 30.8% (n=60) were single, and 7.7% (n=15) were either divorced or widowed.

The results showed that 50.3% (n=98) were working in the A-shift (7 am to 3 pm), whereas 31.8% (n=62) were at the B-shift (3 pm to 11 pm) and about 17.9% (n=35) were working at the night shift (11 pm to 7 am). In addition, it was found that

Table 2:

Enrolled emergency departments' and mental health nurses' of knowledge about non-suicidal self-injury.

Self-harm	M ±SD	Rank
is a form of communication	3.06±1.18	6
provides a way of staying in control	2.93±1.24	10
provides distraction from thinking	3.01±1.21	8
can obtain feelings of euphoria	3.11±1.25	5
is a release for anger	3.29±1.24	1
expresses emotional pain	3.24±1.30	2
is a coping strategy	3.19±1.20	3
helps a person maintain a sense of identity	2.96±1.28	9
provides escape from depression	3.12±1.29	4
helps to deal with problems	3.03±1.30	7
Total	30.95±9.90	

Table 3.

Enrolled emergency departments' and mental health nurses' skills related to non-suicidal self-injury.

Statement	M ±SD	Rank
I demonstrate warmth & understanding to self-injuring clients	3.58±1.05	7
I feel concern for the self-injuring client	3.87±0.99	2
I listen fully to self-injuring client's problems and experiences	3.81±1.04	3
I am highly supportive to clients who self-injure	3.74±1.05	6
I help self-injuring clients feel positive about themselves	3.79±0.99	4
I acknowledge self-injuring clients' qualities	3.75±0.97	5
I can really help self-injuring clients	3.92±0.93	1
Total	26.5±5.2	

74.9% (n=146) were nurses holding bachelor degree, 20.5% (n=40) had a diploma degree and 4.6% (n=9) had either masters or PhD degree.

Categorizing the enrolled nurses based on the years of experience revealed that 43.6% (n=85) of the enrolled nurses had less than 5 years of experience, whereas 31.3% (n=61) and 25.1% (n=49) had 10 years or more of experience and 5 to less than 10 years of experience, respectively.

Finally, it was found that 76.9% (n=150) of the enrolled mental health and emergency department nurses received formal training related to NSSIs, whereas 23.1% (n=45) did not receive any formal training related to NSSIs.

Level of emergency departments' and mental health nurses' skills related to non-suicidal self-injury: The results presented in table 2 show the means, standard deviations and ranks of the statements measuring emergency department and mental health nurses' knowledge about NSSIs. The results showed that enrolled nurses had a moderate level of knowledge about NSSIs (30.95±9.90). The highest knowledge score was for the item stating that "Self-harm is a release for anger" that got a mean score of (3.29±1.24), whereas the lowest knowledge mean score was for the item stating that "Self-harm provides a way of staying in control" that got a mean score of (2.93±1.24).

Level of emergency departments' and mental health nurses' attitudes towards non-suicidal self-injury: The results presented in table 3 show the means, standard deviations and ranks of the

Table 4:

Enrolled emergency departments' and mental health nurses' attitudes towards non-suicidal self-injury.

Statement	M ±SD	Rank
Self-harm is a sign of madness	3.44±1.07	9
People who self-harm will 'grow out of it' eventually	3.57±1.00	6
Self-harm is a manipulative act	3.62±0.98	5
Self-harm is a 'woman's problem'	3.16±1.22	10
The best way to deal with people who self-harm is to make them stop	3.63±1.02	4
People who self-harm have been sexually abused	3.54±1.14	7
Self-harm is a failed suicide attempt	3.64±1.02	3
Self-harm is attention-seeking	3.66±0.95	2
Everybody who self-harms suffers from Munchausens Disease (self-inflicted injuries which are calculated to produce specific symptoms that will lead to medical hospital admission	3.52±0.95	8
People who self-harm should be kept in psychiatric hospitals	3.71±0.91	1
Total	35.5±7.15	

statements measuring emergency department and mental health nurses' skills related to NSSIs. The results showed that the enrolled mental health and emergency department nurses had a high level of skills related to NSSIs (26.5±5.2). The highest level of skills was demonstrated in the statement "I can really help self-injuring clients" that got a mean score of (3.92±0.93), whereas the lowest skills' score was for the item stating that "I demonstrate warmth & understanding to self-injuring clients" that got a mean score of (3.58±1.05).

***Differences in Knowledge based on nurses' Socio-demographic characteristics*:** The results presented in table 4 show the means, standard deviations and ranks of the statements measuring emergency department and mental health nurses' attitudes towards NSSIs. The results showed that the enrolled mental health and emergency department nurses had neutral attitudes towards NSSIs (35.5±7.15). The highest attitude mean score was for the statement stating that "People who self-harm should be kept in psychiatric hospitals" that got a mean score of (3.71±0.91) whereas the lowest attitudes mean score was for the statement stating that "Self-harm is a 'woman's problem'" that got a mean score of (3.16±1.22).

Differences in Knowledge based on nurses' Socio-demographic characteristics:

The results presented in table 5 show the independent samples t-test and One-Way Analysis of Variance (ANOVA) to identify any significant differences in mental health and emergency department nurses' knowledge about NSSIs referred to their socio-demographic characteristics. The results revealed that:

- There was a significant statistical difference in knowledge about NSSIs between males (28.43±10.3) and females (34.1±8.4), (t= -4.096, p=0.000).
- There was a significant statistical difference in knowledge about NSSIs between mental health nurses (26.90±10.3) and emergency department nurses (33.81±8.6), (t= -5.102, p=0.000).
- There were significant statistical difference in knowledge about NSSIs between nurses in Eradahh hospital (26.32±9.7), King Fahad Hospital (33.2±9.06), and King Khalid Hospital (35.5±8.09), (F=17.840, t=0.000).
- There was a significant statistical difference in knowledge about NSSIs between mental health nurses and emergency department who received formal training related to NSSIs (32.12±10.12) and those who did not receive any training (27.00±8.05), (t=3.111, p=0.002). It is clear from table 5 that the sample size significantly affected the significance level and the correction of these values was achieved through ensuring the normality of the data. The data was found to be normally distributed and no changes were made to the sample size.

Differences in Skills based on nurses' Socio-

Table 5.

Statistical Differences in nurses' knowledge about of non-suicidal self-injuries

Variable	M ±SD	t	F	Sig
Gender				
Female	34.1±8.4	-4.096	-	0.000*
Male	28.43±10.3			
Practicing Unit/Department				
Mental Health	26.90±10.3	-5.102	-	0.000*
Emergency	33.81±8.6			
Working Institution				
Eradah Hospital	26.32±9.7	-	17.840	0.000*
King Fahad Hospital	33.2±9.06			
King Khalid Hospital	35.5±8.09			
Marital Status				
Single	29.15±9.9	-	1.436	0.240
Married	31.8±10.1			
Divorced or Widowed	31.4±7.5			
Shift Work				
A shift (7 am to 3 pm)	31.7±10.4	-	0.740	0.479
B-shift (3 pm to 11 pm)	30.5±9.1			
Night shift (11 pm to 7 am)	29.5±9.9			
Educational Level				
Diploma	29.95±9.9	-	1.227	0.296
Bachelor degree	30.9±10.00			
Master or PhD	35.7±9.9			
Years of Experience				
Less than 5 years	29.81±10.3	-	1.044	0.354
5 – less than 10 years	32.18±10.2			
10 years or more	30.9±10.00			
Received formal training related to NSSIs				
Yes	32.1±10.1	3.111	-	0.002*
No	27.00±8.05			

Note: **Significant at significance level (α≤0.05)*

demographic characteristics: The results presented in table 6 show the independent samples t-test and ANOVA to identify any significant differences in mental health and emergency department nurses' skills about NSSIs referred to their socio-demographic characteristics. The results revealed that:

There was a significant statistical difference in the mental health and emergency department nurses' skills related to NSSIs between nurses who received formal training related to NSSI (26.9±5.00) and those who received no training related to NSSI (24.8±5.8), (t=2.385, p=0.018)

Differences in Attitudes based on nurses' Socio-demographic characteristics:

The results presented in table 7 show the independent samples t-test and ANOVA to identify any significant differences in mental health and emergency department nurses' attitudes towards NSSIs referred to their socio-demographic characteristics. The results revealed that:

There was significant statistical difference in the attitudes towards NSSI between mental health nurses (33.8±7.5) and emergency department nurses (36.7±6.7), (t=-2.827, p=0.000).

There were significant statistical difference in attitudes towards NSSIs between nurses in Eradahh hospital (33.7±7.2), King Fahad Hospital (36.1±6.6), and King Khalid Hospital (37.8±7.2), (F=5.097, t=0.007).

There was a significant statistical difference in

Table 6.

Statistical Differences in nurses' skills about of non-suicidal self-injuries

Variable	M ±SD	t	F	Sig
Gender				
Female	26.81±4.4	-0.861	-	0.390
Male	26.17±5.8			
Practicing Unit/Department				
Mental Health	26.5±5.8	0.029	-	0.977
Emergency	26.4±4.8			
Working Institution				
Eradah Hospital	26.5±5.7	-	0.007	0.993
King Fahad Hospital	26.4±5.02			
King Khalid Hospital	26.5±4.7			
Marital Status				
Single	26.2±5.2	-	0.082	0.921
Married	26.5±5.3			
Divorced or Widowed	26.7±5.4			
Shift Work				
A shift (7 am to 3 pm)	26.8±5.4	-	0.703	0.496
B-shift (3 pm to 11 pm)	25.8±5.4			
Night shift (11 pm to 7 am)	26.5±4.4			
Educational Level				
Diploma	26.1±5.9	-	0.995	0.372
Bachelor degree	26.7±5.1			
Master or PhD	24.3±1.4			
Years of Experience				
Less than 5 years	26.8±5.04	-	0.636	0.531
5 – less than 10 years	25.8±6.11			
10 years or more	26.5±4.7			
Received formal training related to NSSIs				
Yes	26.9±5.00	2.385	-	0.018*
No	24.8±5.8			

Note: **Significant at significance level (α≤0.05)*

Table 7.

Statistical Differences in nurses' attitudes about of non-suicidal self-injuries

Variable	M ±SD	t	F	Sig
Gender				
Female	36.7±7.2	-1.521	-	0.130
Male	34.8±7.1			
Practicing Unit/Department				
Mental Health	33.8±7.5	-2.827	-	0.000*
Emergency	36.7±6.7			
Working Institution				
Eradah Hospital	33.7±7.2	-	5.097	0.007*
King Fahad Hospital	36.1±6.6			
King Khalid Hospital	37.8±7.2			
Marital Status				
Single	34.00±7.3	-	2.212	0.112
Married	36.3±7.04			
Divorced or Widowed	35.00±6.7			
Shift Work				
A shift (7 am to 3 pm)	36.5±6.8	-	2.156	0.119
B-shift (3 pm to 11 pm)	34.2±7.6			
Night shift (11 pm to 7 am)	34.9±7.00			
Educational Level				
Diploma	35.8±6.7	-	0.051	0.950
Bachelor degree	35.4±7.3			
Master or PhD	35.3±8.4			
Years of Experience				
Less than 5 years	35.8±7.1	-	1.262	0.285
5 – less than 10 years	34.1±8.1			
10 years or more	36.2±6.4			
Received formal training related to NSSIs				
Yes	36.5±6.9	3.563	-	0.000*
No	32.3±7.00			

Note: **Significant at significance level (α≤0.05)*

the mental health and emergency department nurses' attitudes towards NSSIs between nurses who received formal training related to NSSI (36.5±6.9) and those who received no training related to NSSI (32.3±7.00), (t=3.563, p=0.000)

Discussion

Self-harm or self-injury is direct, intentional injury to one's skin tissue, usually without suicidal intent. Other terms such as cutting and self-mutilation have been used for any self-injurious behavior regardless of intent to suicide. The most common form of self-injury is the use of a sharp object to cut the skin. Other forms include scratching, hitting, or burning parts of the body. While early use involved interference with wound healing, excessive skin picking, hair pulling, and ingestion of toxins, current use distinguishes these behaviors from self-harm. Likewise, tissue damage from drug abuse or eating disorders is not considered self-harm because it is usually an unintended side effect.

During teen years we develop coping mechanisms to handle stressful events and emotions. Increasingly, cutting and other types of self-mutilation are being seen as a way of coping for adolescent girls and boys, this may mean cutting the arm, legs or stomach, burning the skin, scratching or hitting oneself or even intentionally breaking bones. While these behaviors are alarming and cause for concern, they are generally meant to make the person feel better not to cause death. The term used to describe this type of behavior is Non-Suicidal Self-Injury or NSSI. The most common type of NSSI is cutting to inflict injury, and people who do this are sometimes called "cutters". The NSSI is exhibited by 12 to 14% of adolescents and can continue into adulthood if left untreated. People who self-injure feel a sense of relief and calm after harming themselves, possibly due to the endorphins released by the body in response to pain. Trauma or intense stress might also leave a person feeling numb or empty and the pain of self-injury can feel like a welcome reminder that they still can feel anything. These feelings often become habit-forming leading to a compulsion of self-injure that can be difficult to resist, but it is important to find more effective, less dangerous coping strategies.

Our findings revealed that both emergency department and mental health nurses have a moderate level of knowledge about NSSIs. This result might be attributed to that emergency department and mental health nurses are among the most healthcare workers categories that are exposed to NSSI cases and deal with similar cases frequently as the NSSI patients primarily either attend to the emergency department or might be hospitalized in a mental healthcare facility or even referred to consultation or cognitive behavioral therapy sessions in a mental healthcare facility. In addition, this result might be attributed to the intensive courses and workshops offered by the Ministry of Health in Saudi Arabia and aim to increase Saudi nurses' knowledge, attitudes and practices related to different healthcare issues including NSSIs. The results of the present study are consistent with the findings reported by Ngune I. and co-authors (2021) who found that nurses had a moderate level of knowledge about NSSIs. However, these results are inconsistent with the findings reported by Ghaedi Heidari F. and co-authors (2019) who found that Iranian nurses had a lack of knowledge and insufficient knowledge about NSSI. Moreover, these findings are not in line with the findings reported by Vine J. and co-authors (2017) who found that Australian mental health nurses had a high level of knowledge about NSSIs.

The findings of the present study showed that both emergency department and mental health nurses enrolled in this study had a high level of skills related to NSSIs. This result might be attributed to that both emergency department nurses and mental health nurses are among the frontline nurses dealing with NSSI cases. Therefore, they acquire the skills needed to deal with those cases. In addition, this result might be attributed to the professional development programs offered in the study settings as it was observed that there is a specific program in all three settings that aims to strengthen healthcare workers' skills, especially emergency department nurses, related to NSSIs. These findings are consistent with the findings reported by Ngune I and co-authors (2021) who found that

mental health nurses had a high level of skills related to NSSIs. Consequently, the high level of skills related to NSSIs should be an indicator of solid knowledge background. However, it was mentioned previously that there is a moderate level of knowledge among emergency department and mental health nurses about NSSI, which could highlight that factors other than knowledge are affecting the nurses' skills. A possible factor is acquiring skills through dealing with different cases, which is most effective than acquiring theoretical knowledge and apply it in the professional field.

The findings of the present study revealed that emergency department and mental health nurses' had neutral attitudes towards NSSIs. This might be referred to the moderate level of knowledge about NSSI detected among the enrolled emergency department and mental health nurses. This is evidenced by the findings reported by Boukouvalas E. and co-authors (2019) who indicated the significant effect of knowledge on attitudes among healthcare workers. In addition, This result might be attributed to that despite dealing with significant number of NSSIs in the investigated settings, the frequency of dealing with those cases is distributed over long time periods, an issue that does not allow the nurses to develop positive attitudes towards NSSIs compared to health issues encountered in emergency departments or psychiatric departments such as chronic diseases. The findings of the present study are inconsistent with the findings reported by Pintar Babič M. and co-authors (2020) who found that Slovenian nurses had positive attitudes towards NSSI. In addition, these findings are not in line with the results reported by Shaw D.G. & Sandy P.T. (2016) who found that British mental health nurses had negative attitudes towards NSSIs. Moreover, the findings of our study are not similar to the findings reported by Wall C. (2019) who found that school staff in New Zealand have positive attitudes towards NSSI. However, the context of our study is different from Wall C. (2019) study context that was school settings.

The results of the present study showed that there was a significant difference in mental health and emergency department nurses' knowledge based on gender, practicing unit or department, working institution, and whether receiving a previous training related to NSSI or not. These results might be referred to that most NSSI cases as the researcher observed in the investigated settings were for females, which required healthcare assistance from female healthcare workers. This increased the level of knowledge among female nurses compared to males. In addition, the differences of knowledge referred to the department revealed that emergency department nurses had higher level of knowledge, which could be interpreted as they are the first line of healthcare workers dealing with NSSI cases and this significantly affected their knowledge about NSSI health issue, its causes, motivations and other related aspects. Further, the significant differences in knowledge about NSSI referred to difference in the working institution might be referred to the difference in the number and frequency of professional development programs related to NSSI and offered for the nursing staff, which caused variation in the amount of knowledge delivered to the nursing staff about NSSI. Moreover, the difference in the knowledge about NSSI due to receiving previous training about NSSI or not might be revealed to that the formal training programs offer a theoretical background and information about NSSIs to the enrolled participants, which increases their knowledge about NSSIs.

Our findings suggested that there is a significant difference in emergency department and mental health nurses' skills related to NSSI due to receiving or not receiving formal training related to NSSIs. The results showed that nurses who had received previous training had higher level of skills. This result might be attributed to the reported immediate and delayed positive effect of training programs on nurses' skills as evidenced by the findings reported by Williams K. and co-authors (2018) who found that training nurses on NSSIs significantly improves their skills and practices.

The findings of the present study indicated that there were significant differences in mental health and emergency department nurses' attitudes towards NSSI referred to their practicing unit/department, working institution, and receiving previous formal training. This difference might be referred to the differences in their knowledge levels

that affected their attitudes. This is evidenced by the reported findings by Campbell K. and co-authors (2019), which indicated that the level of nurses' knowledge significantly affect their attitudes and clinical decision practices.

According the suggested framework of the present study, the results ensured that there was a significant interaction between nurses' knowledge, attitudes and skills related to NSSI. In addition, the results proved that demographic characteristics of the enrolled emergency department nurses and mental health nurses were mediating their levels of knowledge, skill, and attitudes, especially the variable related to receiving formal training regarding of non-suicidal self-injuries

The strengths of the present study include that it addresses an issue that is barely discussed in literature, especially within the Saudi context. The present study focused on emergency department and mental health nurses' knowledge, attitudes and skills related to NSSIs. Moreover, one of the strength points in this study is diversification of the study participants, as this study included nurses from different department and healthcare settings, which added significant diversification of the study findings.

On the other hand, the present study had a number of weaknesses and limitations that could limit the generalization of the study findings. These included the low sample size recruited in this study compared to the population size in the studied settings. Another limitation is the lack of variation in the data collection tools that are valid and reliable in the Saudi context, which imposed that the psychometric properties of the data collection tool used in this study is limiting the generalization of the study findings. Further, this study did not assess predictors of knowledge, attitudes and skills related to NSSIs among the participating nurses, which requires further research to address and fill this gap.

Conclusion, limitations and recommendations

The present study concluded that emergency department and mental health nurses in Saudi Arabia have moderate level of knowledge, high level of skills and neutral attitudes towards non-suicidal self-injury (NSSIs). In addition, the study concluded that there were significant statistical differences in emergency department and mental health nurses' knowledge about NSSI based on their demographic characteristics (gender, practicing unit/department, working institution, and being trained on NSSIs), there were significant statistical differences in emergency department and mental health nurses' skills related to NSSI referred to whether received formal training related to NSSI or not, and there were significant statistical differences in emergency department and mental health nurses' attitudes toward NSSI referred to their characteristics (practicing unit/department, working institution, and whether received formal training related to NSSI or not).

A number of limitations might prevent the generalization of the findings retrieved from the present study. These limitations include the geographical limitations, as this study was performed in Tabuk city and might not be applicable for other geographical zones. In addition, the present study focused on mental health nurses and emergency department nurses. Therefore, the findings are not applicable to nursing staff from other departments. Moreover, the psychometric properties of the study questionnaire might be a significant limitation of the present study as the English version was distributed to collect data from the study participants. Using the Arabic version might provide different findings.

Based on the findings of the present study, we recommend improving emergency department and mental health nurses' knowledge about NSSIs through providing them with sufficient and comprehensive educational sessions and lectures that clarifies the definition, causes, symptoms, motivations, and treatment of NSSI, especially among adolescents and youth category. In addition, this study recommends activating the role of social media and other communication channels to increase community awareness about NSSI and how to avoid these practices among most vulnerable categories such as adolescents and youth.

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