Original Article :

Wound care perception and attitude. A school-related experience in Saudi Arabia

Salah Bakry [1], Sulten Misfer Alzahrani [1], Dai Zafer [1], Nawras Ali Alyamani [1], Waleed Alnemari [1], Suhayb Bakry [1], Mohamed A. Elhefny [2]

1. Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia

2. Department of Medical Genetics, Faculty of Medicine, Umm Al-Qura University, Al-Qunfudah, Saudi Arabia

Received on 04-03-2022 , accepted for publication on 08-11-2022, dx.doi.org/10.5455/mjhs.2023.01.004

Corresponding Author:

Sulten Misfer Alzahrani,

Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia.

E-mail: sultanop2016@gmail.com

Abstract

Background and Aims:

Wound care is a significant global health issue that's need medical and community attention. The perception of wound care is fundamental among students and teachers in schools to enhance the awareness level and prevents undesired consequences. This study aimed to evaluate students' and teachers' level of experience and attitude toward basic knowledge of wound care.

Methods:

The current study used an electronic survey distributed via online social media platforms among Makkah regions' schools between January and February 2022. The current study used a convenient sampling method for sampling selection. Then, the recorded data were subjected to statistical analysis.

Results:

A total of 674 students and teachers from Makkah region were surveyed. The mean (SD) were 22.12 (SD=13.23), female respondents were predominates representing 62.9%. A high level of experience between participants toward wound care were showed in this study 67.06%. A significant association were found between participants' level of wound care experience and occupational level (P-value, 0.001, 0.024, and 0.012, respectively).

Conclusion:

Excellent levels of knowledge and attitude towards wound care practice were recorded among most of the participants. However, the awareness of some wound delaying factors and the correct ways to deal with wound injuries, especially for serious cases such as diabetic wounds, is still a challenge for public health awareness.

Key words:

Wound care, students, teachers, attitude, perception, Saudi Arabia.

Introduction

A wound is defined as a disruption of continuity of the skin, which disrupts cellular and anatomic structures, thus, physiological functions are disrupted [1]. Normal wound healing is a complex and dynamic process that includes bleeding, coagulation, and the initiation of an acute inflammatory response in response to the initial injury [2].

Wound injury is a common occurrence, with up to 50 million people reported worldwide in 2015 alone [3, 4]. In the United States, over 6 million lacerations are treated in emergency departments (ED) each year [3, 5]. Road traffic accidents, systemic diseases such as Diabetes mellitus, and other factors are the most common causes of wound injury [3, 6]. Individuals' health can be jeopardized if wound injuries are not properly managed [3, 6]. Wound injuries have been linked to approximately 10% of deaths and 12% of morbidity worldwide [3, 6].

Wound care has been identified as a major challenge in the health-care system. One of the most serious problems in medical treatment is wound infection [3]. There is little information available about patients' knowledge and attitudes toward traumatic wound care [3].

Poor general health, smoking, and corticosteroid use are all etiological variables that contribute to wound infection [3]. Swelling, discomfort, fever, and purulent discharge are some of the signs and symptoms of wound infection [3, 7]. Patients with insufficient wound care expertise may face implications such as increased healthcare costs, financial hardship, and a lower quality of life. Patients' awareness of the effects of numerous factors on wound healing is growing because to social media. There are very few studies in the literature that examine the knowledge and attitude of patients who are caring for wound injuries [3, 8,9,10].

In order to avoid complications, health care facilities must provide proper wound care and treatment [11]. A recent systematic review shows a limitation of high-quality evidence to support practical training techniques and achieve an ultimate first-aid learning experience among schoolchildren [12]. In the light of the current literate, limited studies investigating the perception, attitude, and level of experience of wound care among students and teachers in Saudi Arabian schools. Therefore, the current study aimed to investigate school students and teachers level of knowledge and perceptions of wound care in western Saudi Arabia.

Subjects and methods

Study design, inclusion, and exclusion criteria

This is a descriptive cross-sectional survey conducted during between January and February 2022. The study includes male and female high school students and teachers in the Makkah region, Saudi Arabia. We excluded the participants who've willingly disagreed to participate in this study, high school students and teachers from other Saudi' regions.

Sample size and techniques

The intended sample size in this study was determined by Epi Info™ 7.1.5 (Center for Disease Control and Prevention; Atlanta, Georgia, USA). Thus, the least possible sample size to achieve an accuracy of ± 5% with a 95% confidence interval (CI) is 384. However, the final sample size was 674 was targeted during data collection. Furthermore, a convenient sampling technique was used for sample selection.

Ethical consideration

The research ethics committee of Umm Al-Qura State provided their approval with the IRB number (HAPO-02-K-012-2022-02-963). The biomedical ethics committee of Umm Al-Qura University's ethical criteria and the 1964 Helsinki statement and its subsequent amendments will be followed in all operations involving human subjects in this study.

Questionnaire tool

A structured self-administered questionnaire, which its idea was driven from a validated questionnaire conducted by Jan M, 2021 [3]. We gathered participants' demography first included participants' age, gender, educational level (students or teacher), and nationality. Then, the second part of the questionnaire evaluated the participants' perception and attitude towards wound care. The second part of the questionnaire contains questions about the participants' experience level of various wound care classifications sites and indicates symptoms for a hospital requires, sterilization, and covering methods for wound care. Lastly, we evaluated participants' attitudes in the third part of the survey.

Statistical analysis

We used Microsoft Excel spreadsheets to input the information. Data were entered into a Statistical Package for the Social Sciences (SPSS) v.23 spreadsheet after verifying the correctness and minimal typographic inaccuracies (IBM, Armonk, NY). Descriptive statistics were described as percentages for categorical data and mean standard deviation for continuous data, with a p-value of less than 5% considered statistically significant. The independent Chi-square test was used to com-

pare categorical data.

Results

Overall, 674 were respondents in this survey study. Participants' mean were 22.12 (SD=13.23); most of participants' age group was (10-20) years old, followed by (40-50) years old (n=461, 68.4%), (n=77, 11.4%), respectively. (Table 1). Female respondents show predominant responses representing (n=424, 62.9%) (Table 1). About three-quarters of participants were students representing (n=509, 75.5%), whereas Saudi respondents were predominant representing (n=563, 83.5%) (Table 1).

Cuts wounds show a high level of responses among respondents representing (n=392, 58.2%), while the most experienced wound care managements were in thighs and legs (n=342, 50.7%) (Table 2). Most participants believe that deep wounds need hospital admission (n=460, 68.2%) (Table 2). Medical plasters, dry, and wet gauze demonstrated a substantial response between participants towards wound converge (n=410, 60.8%), (n=177, 26.3%), and (n=42, 6.2%) respectively, while most participants prefer to use prep pads for wound sterilization (n=495, 73.4%) (Table 2).

Moreover, most participants believe that

Table 1: Participants' demography (N. 674).

Category		N.	Responds (%)
Age groups	Less than 10 years	16	2.4
	10-20 years	461	68.4
	20-30 years	34	5.0
	30-40 years	47	7.0
	40-50 years	77	11.4
	More than 50	39	5.8
Occupation	Students	509	75.5
	Teachers	165	24.5
Gender	Male	250	37.1
	Female	424	62.9
Nationality	Saudi	563	83.5
	Non-Saudi	111	16.5
Age (Mean) (standard deviation)			22.12 (SD=13.23)

Table 2: Participants' responds of wound care related factors (N. 674).

Category		.N	Responds (%)
Type of experienced wound care	No experience	165	24.5
	Cuts wound	392	58.2
	Diabetic wounds	21	3.1
	Surgical wounds	31	4.6
	Ulcers	19	2.8
	Burns	41	6.1

Category		.N	Responds (%)
Type of experienced wound care	Animal bites	5	.7
Sites of experienced wound care	No experience	133	19.7
	Thigh/Legs	342	50.7
	Abdomen	55	8.2
	Back	14	2.1
	Chest	12	1.8
	Face	24	3.6
	Shoulders/Hands	94	13.9
Indicated symptoms for hospitals	No experience	84	12.5
	Deep wounds	460	68.2
	Acute bleeding	61	9.1
	Foreign body at wound site	20	3.0
	Heads wound	17	2.5
	Animal bites	8	1.2
	Surgical wounds	9	1.3
	No need for hospital	15	2.2
Wounds covering	Medical plasters	410	60.8
	Dry gauze	177	26.3
	Wet gauze	42	6.2
	Towel	26	3.9
	Tissues	19	2.8
Wounds sterilization	Prep pads	495	73.4
	Tissues	56	8.3
	Pethidine	56	8.3
	Mercurochrome	35	5.2
	Perfumes	10	1.5
	Traditional herbs	7	1.0
	Nothing	6	.9
	Other	9	1.3

wound cleaning is the first action to take in wound care 34.27%, while wound coverage represents the least responded action among participants 9.94% (Figure 1).

More than 50% of the majority of respondents show a positive attitude towards the importance of healthy nutrition and wound coverage for promoting wound healing, hand washing before wound sterilization, and the consequences of bacteria

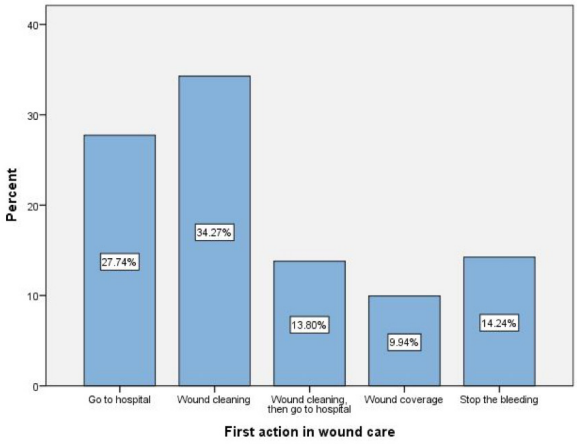

Figure 1: The attitude of first action to do during wound care among participants (N. 674).

in increased wound complications. However, other related promoting and delaying wound healing factors, including smoking, perfumes, honey, salt-water, air exposure, Vaseline application, tetanus vaccine, and coffee beans, show an unfavorable attitude among participants (Table 3).

The majority of participants show a rea-

Table 3: Participants' attitude towards wound care practice (N. 674).

Category		N.	Responds (%)
Importance of healthy nutrition in wounds healing	Agree	455	67.5%
	Disagree	66	9.8%
	Neutral	71	10.5%
	Don't know	82	12.2%
Importance of hands washing before wounds sterilization	Agree	511	75.8%
	Disagree	55	8.2%
	Neutral	59	8.8%
	Don't know	49	7.3%
Influence of bacteria in wounds complication	Agree	437	64.8%
	Disagree	64	9.5%
	Neutral	81	12.0%
	Don't know	92	13.6%
Importance of wound covering	Agree	365	54.2%
	Disagree	94	13.9%
	Neutral	114	16.9%
	Don't know	101	15.0%
Smoking caused wounds healing delay	Agree	281	41.7%
	Disagree	87	12.9%
	Neutral	99	14.7%
	Don't know	207	30.7%
Perfumes caused wounds healing delay	Agree	189	28.0%
	Disagree	148	22.0%
	Neutral	112	16.6%
	Don't know	225	33.4%
Honey accelerates wounds healing	Agree	270	40.1%
	Disagree	112	16.6%
	Neutral	132	19.6%
	Don't know	160	23.7%
Importance of salty water in decrease wounds inflammation	Agree	216	32.0%
	Disagree	159	23.6%
	Neutral	113	16.8%
	Don't know	186	27.6%
Air exposure accelerate wounds healing	Agree	206	30.6%
	Disagree	204	30.3%
	Neutral	140	20.8%
	Don't know	124	18.4%

Category		N.	Responds (%)
Importance of Vaseline in wounds healing	Agree	178	26.4%
	Disagree	216	32.0%
	Neutral	103	15.3%
	Don't know	177	26.3%
Importance of tetanus vaccine in wound injury	Agree	152	22.6%
	Disagree	115	17.1%
	Neutral	94	13.9%
	Don't know	313	46.4%
Coffee beans decrease bleeding	Agree	237	35.2%
	Disagree	124	18.4%
	Neutral	100	14.8%
	Don't know	213	31.6%

sonable level of experience towards wound care 67.06% (Figure 2). In addition, the student population reveals an adequate level of experience concerning wound care (n=359, 53.26%), compared with the teacher population (n=150, 22.26%) (Figure 3).

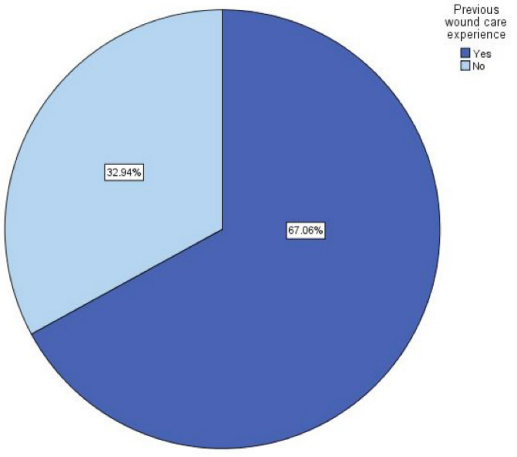

Figure 2: Previous wound care experience among respondents (N. 674).

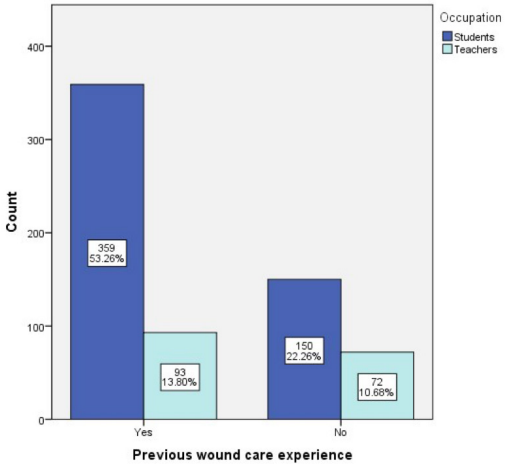

Figure 3: the frequency of previous wound care experience among students and teachers (N. 674).

Medical researches, ambulance calls, and healthcare providers (30.42%, 23.89%, and 18.55%, respectively) were the most utilized knowledge sources that participants frequently used for wound care-related knowledge and practice (Figure 4).

The vast majority of the students correspond significantly towered burn and cuts wound, while most teachers correspond to-

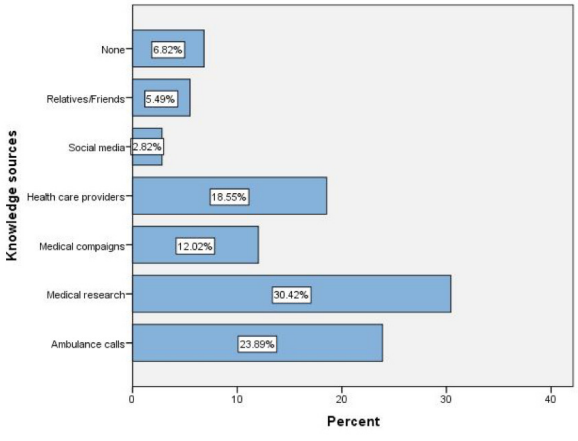

Figure 4: Information sources of respondents (N. 674).

wards surgical and diabetic wounds (P-value, 0.013). Additionally, most students show an exceptionally high level of experience towards thigh/legs and back wound care. At the same time, teachers reveal a good experience level with chest and face wounds (P-value, 0.003) (Table 4).

Surprisingly, most students prefer to use

Table 4: The association between participants' occupation and wound care related factors (N. 674).

Category		Occupation		P-value
		Student (N.)	Teacher (N.)	
Type of experienced wound care	No experience	115	50	0.013*
	Cuts wound	312	80	
	Diabetic wounds	13	8	
	Surgical wounds	19	12	
	Ulcers	15	4	
	Burns	33	8	
	Animal bites	2	3	
Sites of experienced wound care	No experience	97	36	0.003*
	Thigh/Legs	281	61	
	Abdomen	37	18	
	Back	10	4	
	Chest	7	5	
	Face	15	9	
	Shoulders/Hands	62	32	
Indicated symptoms for hospitals	No experience	62	22	0.611
	Deep wounds	352	108	
	Acute bleeding	46	15	
	Foreign body at wound site	16	4	
	Heads wound	13	4	
	Animal bites	4	4	
	Surgical wounds	5	4	
	No need for hospital	11	4	
Wounds covering	Medical plasters	315	95	0.096
	Dry gauze	133	44	
	Wet gauze	34	8	
	Towel	17	9	
	Tissues	10	9	
Wounds sterilization	Prep pads	374	121	0.028*
	Tissues	50	6	
	Pethidine	43	13	
	Mercurochrome	20	15	
	Perfumes	8	2	
	Traditional herbs	4	3	

Category		Occupation		P-value
		Student (N.)	Teacher (N.)	
Wounds sterilization	Nothing	5	1	0.028*
	Other	5	4	

tissues and perfumes for wound sterilizations, while teachers would mostly prefer mercurochrome and traditional herbs in managing wound injuries (P-value, 0.028).

On the other hand, the presence of foreign bodies at the site of wounds and utilizing gauze in wound coverage were remarkably demonstrated a high level of experience among students rather than teachers, who prefer to use tissues to sterilize wounds. However, no significant statistical associations were found between (indicated symptoms for going to hospital and wound coverage methods) and participants' occupation (P-value, 0.611, 0.096, respectively) (Table 4).

Discussion

The current study evaluated students' and teachers' levels of experience and attitudes toward basic wound care knowledge. Unfortunately, we found very few research studies that assessed the school population's attitude and knowledge regarding this topic.

This study has 674 high school students and teachers in the Makkah region surveyed and analyzed. The majority of participants' age group was (10-20) years old 68.4%. Moreover, 62.9% of participants were female. Results showed that more than half of the participants positively towards wound care practice. In addition, it revealed that female gender and students have a satisfactory level of knowledge towards wound care, wound healing accelerated factors, and delaying factors.

In our study, the most common type of wound was cuts wound, and the wound site was thigh/leg. In compression with another study by Jan M [3], the most common wound site was the abdomen, while in Kuan [9], the knee was the most common wound site, followed by arms. In this study, deep wounds were the most symptoms that indicated seeking medical advice, while Jan M [3] was excessive bleeding 58.5%.

It was observed that study medical plasters were the most common use of wound dressing followed by dry gauze; in Jan M study [3], the majority used Dry gauze 65.5% to cover the wound followed by plaster. Alcohol swab was most commonly used to sterilize the wound, followed by betadine. In line with Malaekah [11], Alcohol swab was followed by tap water.

To the best of the authors' knowledge, the

following study is the first study conducted in Makkah city, Saudi Arabia, to assess the level of knowledge and attitude toward basic knowledge of wound care among students and teachers. Furthermore, our study highlighted the cultural factors and misconceptions used in treating wounds. However, this study has some limitations. The majority of responders were students. Therefore, our results may not apply to the teachers' population. Moreover, as self-report was adopted to understand the wound care knowledge, attitudes, and practices, participants may adhere to perceived social norms.

This study showed that medical research was the most source of information while social media was the least, so we recommend concerned institutions to join efforts to raise public awareness of the use of social media, as it is more accessible to the general population. We also recommend conducting an essential annual awareness campaign about wound care in schools. Furthermore, a recent studies reveals that wound care simulation and demonstration methods have a good impact on students' level of knowledge and practice concerning wound care injuries [13-14]. Finally, more studies with a larger sample size, including more teachers, are needed to confirm our results.

Conclusion

In conclusion, most of the participants recorded excellent levels of knowledge and attitude towards wound care practice. However, the awareness of some wound delaying factors and the correct ways to deal with wound injuries, especially for serious cases such as diabetic wounds, is still a challenge for public health awareness.

References

1. Nunan R, Harding KG, Martin P. Clinical challenges of chronic wounds: Searching for an optimal animal model to recapitulate their complexity. Dis Model Mech. 2014;7(11):1205–13.
2. Velnar T, Bailey T, Smrkolj V. The wound healing process: An overview of the cellular and molecular mechanisms. J Int Med Res. 2009;37(5):1528–42.
3. Jan M, Almutairi KH, Aldugman MA, Althomali RN, Almujary FM, Abu Mughaedh NA, et al. Knowledge, attitudes, and practices regarding wound care among general population in Aseer region. Journal of family medicine and primary care. 2021;10(4):1731-6.
4. World Health Organization. 2015. (2020-01-22). Global status report on road safety. 2015. 323 p.
5. Nawar EW, Niska RW, Xu J. National Hospital Ambulatory Medical Care Sur-

vey: 2005 emergency department summary. Advance data. 2007(386):1-32.

6. Bhalla K, Harrison JE, Shahraz S, Fingerhut LA. Availability and quality of cause-of-death data for estimating the global burden of injuries. Bulletin of the World Health Organization. 2010;88(11):831-8c.
7. Lewis SL, Bucher L, Heitkemper MM, Harding MM, Kwong J, Roberts D. Medical-Surgical Nursing-E-Book: Assessment and Management of Clinical Problems, Single Volume: Elsevier Health Sciences; 2016.
8. Pieper B, Sieggreen M, Nordstrom CK, Freeland B, Kulwicki P, Frattaroli M, et al. Discharge knowledge and concerns of patients going home with a wound. Journal of wound, ostomy, and continence nursing : official publication of The Wound, Ostomy and Continence Nurses Society. 2007;34(3):245-53; quiz 54-5.
9. Kuan YT, Wang TF, Guo CY, Tang FI, Hou IC. Wound Care Knowledge, Attitudes, and Practices and Mobile Health Technology Use in the Home Environment: Cross-Sectional Survey of Social Network Users. JMIR mHealth and uHealth. 2020;8(3):e15678.
10. Chen YC, Wang YC, Chen WK, Smith M, Huang HM, Huang LC. The effectiveness of a health education intervention on self-care of traumatic wounds. Journal of clinical nursing. 2013;22(17-18):2499-508.
11. Malaekah HM, Alotaibi AE, Alsebail RA, Alelawi GT, Alsarrani RH, Banjar WM. Wound Care Knowledge and Perception of the Saudi General Population in Riyadh Region. Advances in wound care. 2021;10(6):293-300.
12. Lenson S, Mills J. First aid knowledge retention in school children: A review of the literature. Australasian Journal of Paramedicine. 2016;13(1).
13. Usman GJP, Pradika J, Wuriani LM, Sari MP. WOUND CARE SIMULATION'S EFFECT TO INCREASE KNOWLEDGE AND SKILL TO STUDENT IN ELEMENTARY SCHOOL. The 2nd Borneo international nursing conference. Page 426.
14. Novi IHN. THE EFFECT OF DEMONSTRATION METHOD TO IMPROVE KNOWLEDGE AND PSYCHOMOTOR FIRST AID FOR OPEN WOUND ON SCHOOL-AGE CHILDREN. Fakultas Keperawatan Universitas Airlangga.