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Research Article

Knowledge, Attitudes, and Practices Regarding Wound Care in the General Population of Saudi Arabia: A Cross-Sectional Study

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Abstract

Background: For trauma patients recovering at home, wound management presents a major difficulty. It is imperative to comprehend patients' perspectives, dispositions, and proficiency with wound care to enhance results. Therefore, the purpose of this study was to investigate the perceptions, attitudes, and levels of knowledge regarding wound care of the Saudi population. The study also identified key variables that impact patients' perceptions.
Methods: For data collection an online, self-administered questionnaire was used and disseminated through social media platforms. In addition to demographic data, the questionnaire consisted of 28 questions designed to assess general public knowledge, attitudes, and wound care practices. The SPSS software was employed for the data analysis.
Results: A total of 950 individuals have participated in the study, 54.1% were aged 18 to 25, and 50.8% were female. Most were unmarried (56.9%), with 44.9% being students. Previous wound care experience was reported by 57.9%, primarily involving burns (44.9%) and cuts (29.8%). The hand (48.1%) was the most affected body area. A significant majority (64.7%) of participants sought immediate medical care when injured. The primary sources of wound care information were the Ministry of Health hotline (39.8%), the internet (33.2%), and relatives/friends (30%). While most participants recognized the importance of proper nutrition and hygiene for wound healing, substantial discrepancies were observed regarding the efficacy of various home remedies and wound management practices. For instance, a significant portion believed that specific practices, such as applying honey or salted water, positively impacted healing, while others disagreed.
Conclusion: In this study, we reported an unusual presentation of AC as an obstructed umbilical hernia. This highlights the diverse clinical manifestations of the disease.

INTRODUCTION

A wound is defined as the loss of the skin's normal integrity, structure, and functions caused by a physical, chemical, or mechanical factor (Criollo-Mendoza et al., 2023). Skin injuries throughout the body continue to affect daily life for millions of people, resulting in protracted hospital admissions, infection, and death (Freedman et al., 2023).Approximately 6 million lacerations are treated annually in American emergency departments (Nawar et al., 2007). Many factors can be used to categorize wounds, including the location, cause of the damage, and depth or tissue loss (M, 1994). In addition, wounds can be classified as either acute or chronic. Burns and surgical wounds are

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acute wounds, whereas diabetes-related foot and pressure ulcers are chronic wounds (Lindholm & Searle, 2016). W ounds can occur due to different factors, such as trauma, vascular insufficiency , and preexisting medical disorders. such as diabetes, hypertension, rheumatologic, and inflammatory disorders (Herman & Bordoni, 2023). Wound care is the core management method in patient care that has a direct impact on treatment outcomes (Dealey, 2008; Meaume et al., 2012). Poor wound management can lead to many consequences, including gangrene, amputation, inflammation, and, in extreme circumstances, even death (Yousef Aldousari , 2021). Promoting tissue regeneration and healing to restore skin integrity is the aim of wound care (Yousef Aldousari , 2021). According to a previous study conducted in 2020 in Aseer, the knowledge, attitudes, and practices followed by the patients in the study were unsatisfactory (Jan et al., 2021). Another study conducted in 2023 in Makkah revealed that half of 1005 participants had average understanding and perceptions of wound treatment and 27.5% had inadequate knowledge (Alsufyani et al., 2023). In addition, another previous study in Riyadh showed discrepancies in educational level and knowledge of and attitudes toward wounds and wound treatment that might have significantly impacted patients' quality of life and clinical results (Malaekah et al., 2021). A previous study was conducted in different cities in Saudi Arabia, but no previous comprehensive study has been conducted in Saudi Arabia. Thus, our objective in this study was to investigate the general Saudi population's perception of, attitudes toward, and knowledge of wound care.

MATERIALS AND METHODS

Study Design, Setting, and Time

A study utilizing a cross-sectional design with descriptive characteristics was performed in Saudi Arabia from March to April 2024.

Study Participants

The inclusion criteria for participation in the study were adults of both genders who were older than 18 years. The exclusion criteria were those not eligible for the study or who refused to participate in the study and health-care providers.

Data Collection

Data were collected through an online self-administered questionnaire in Google Forms which was directed to the general population. The tool was a previously validated questionnaire used in a previous study (Jan et al., 2021). The questionnaire was distributed among our target population through social media platforms. It was divided into 2 sections, one including demographic information and the other including 28 questions to investigate the knowledge, attitudes, and practices of the general population about wound care. By using multiple-choice questions, general details on wound care, such as the type, site, source, and symptoms, were obtained. Three options (“agree,” “disagree,” and “don't know”) were used to pose questions about various aspects that affected wound care.

Patient Consent and Ethical Approval

Ethical approval for this study was secured from the Institutional Research Board (IRB) of Umm Al-Qura University in Saudi Arabia (approval No. HAPO-02-K-012-2024-02-2016).

Data Analysis

The data were underwent statistical analysis using SPSS version 26. Qualitative data were represented using numerical values and percentages.

RESULTS

Of the 950 study participants, 54.1% had ages ranging from 18 to 25 years, 50.8% were female, 56.9% were unmarried, 44.9% were students, 64.5% were from the Western region of Saudi Arabia, and 33.1% were college students, and 34.4% were bachelor's degree holders. Most (62.6%) of the participants had a monthly income lower than 5000 SR, 17.4% were current smokers, and 24.3% had chronic diseases (Table 1).

Of the participants, 550 (57.9%) had a previous experience with wound care (Figure 1). The most common types of wound were burns (44.9%), cuts (29.8%), and surgical wounds (26.7%). The most common wound sites were the hand (48.1%), thigh/leg (32.7%), and abdomen (21.8%). Of those with a previous wound care experience, 64.7% immediately received primary medical care after the onset of the wound (Table 2).

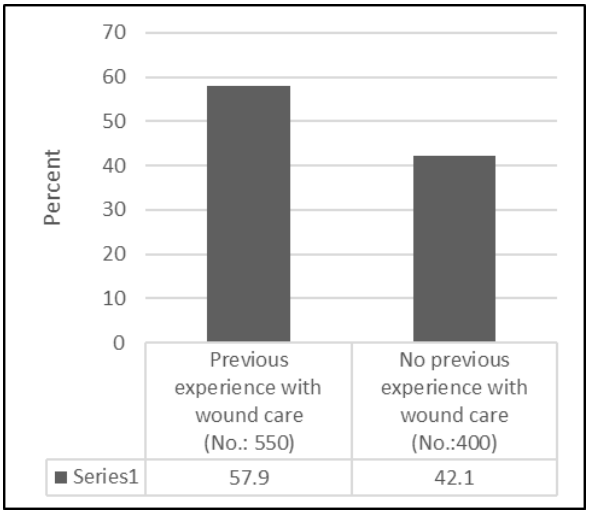

Figure 1: Percentage distribution of the participants according to Previous experience with wound care (No.: 950)

Table 3 and Figures 2–4 show that the most common signs or symptoms that caused the participants to seek medical advice after their injuries were broad or deep

Table 1: Distribution of participants based on their demographic characteristics, smoking status and chronic conditions. (No.: 950)

Variable	No. (%)
Age (years)	
18-25	514 (54.1)
26-40	205 (21.6)
41-60	206 (21.7)
>60	25 (2.6)
Gender	
Female	467 (49.2)
Male	483 (50.8)
Marital status	
Widow	7 (0.7)
Single	541 (56.9)
Married	372 (39.2)
Divorced	30 (3.2)
Employment status	
student	427 (44.9)
unemployed	165 (17.4)
retired	68 (7.2)
employee	290 (30.5)
Residence region in KSA	
Western region	613 (64.5)
Southern region	103 (10.8)
Eastern region	82 (8.6)
Northern region	98 (10.3)
Central region	54 (5.7)
Educational level	
Secondary school or less	210 (22.1)
College student	314 (33.1)
Bachelor's	327 (34.4)
diploma	66 (6.9)
Master's	23 (2.4)
Ph.D	10 (1.1)
Monthly income	
<5000 SR	595 (62.6)
5000-10000 SR	215 (22.6)
>10000 SR	140 (14.7)
Smoking status	
Never smoker	710 (74.7)
Ex-smoker	75 (7.9)
Current smoker	165 (17.4)
Chronic diseases	
No	719 (75.7)
Yes	231 (24.3)

wounds (55.8%), excessive bleeding (55.5%), and the occurrence of symptoms of infection (52.2%). The most common source of home wound care information was the Ministry of Health (MOH) hotline (937; 39.8%), the Internet (33.2%), and relatives and friends (30%). If injured at home, 34.5% of the participants covered the wound before going to the hospital, and 39.9% dressed the wound at home using plaster and dry gauze (30.8%). As for the solutions used to clean the wound at home, 57.5% used alcohol swabs.

Table 4 shows that most participants (91.2%) agreed that proper nutrition and hand washing are essential for the management of wounds. Many participants agreed that smoking (66.6%), perfume use (59.2%), applying the wound with honey (40.6%) or salted water (48.5%), and intake of antibiotics (66%) can affect wound healing. However, only 24.1% and 30.4% agreed on the effects of incense and tetanus toxoids on wound healing, respectively. The participants expressed doubts regarding the efficacy of Sabkha (26.5%), Vaseline (25.1%), coffee beans (24.7%), and Zamzam water (21.6%) in promoting wound healing. The majority of participants (63.1%) believed that having a wound exposed to fresh

Table 2: Distribution of the participants with previous experience with wound care according to wound type, site and time between wound incidence and receiving primary medical care (No.: 550)

Variable	No. (%)
If you possess prior knowledge in wound treatment, please specify the type of wound? (More than one answer was allowed)	
Accident	62 (11.2)
Cut	164 (29.8)
Episiotomy	28 (5)
Diabetic wound	38 (6.9)
Surgical wound	147 (26.7)
Ulcer	43 (7.8)
Burn	247 (44.9)
Site of wound (More than one answer was allowed)	
Abdomen	120 (21.8)
Thigh/leg	180 (32.7)
Back	38 (6.9)
Bikini area	52 (9.4)
Face	34 (6.1)
Neck	32 (5.8)
Hand	265 (48.1)
When was medical care received after the injury?	
Immediately	356 (64.7)
Within 1-3 days	90 (16.3)
Within 4-7 days	28 (5)
After 1 week	49 (8.9)
No response	27 (4.9)

air promotes healing and that wound management is better handled by someone other than the person who has the wound. (49.1%). Meanwhile, 57.4% of the participants disagreed that it is best to quickly remove the wound tape, that simple (superficial) wounds do not require treatment (49.5%), and that taking showers may delay wound healing (24.7%).

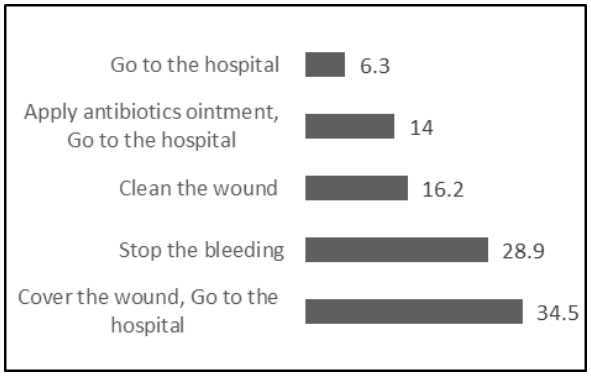

Figure 2: Percentage distribution of the participants according to their first action if get injured at home (No.: 950)

DISCUSSION

A wound is defined as a disrupted or damaged anatomical structure that impairs physiological processes (Nunan et al., 2014). Acute inflammatory response due to the initial injury, coagulation, bleeding, and other processes are all part of the complicated and dynamic process of normal wound healing (Velnar et al., 2009). Extracellular matrix protein synthesis is triggered by an inflammatory response, which also causes connective tissues and parenchyma cells to proliferate, migrate, and regenerate (Velnar et al., 2009). New parenchymal and connective tissues then begin to reorganize and deposit collagen (Velnar et al., 2009). In our study, we aimed to assess knowledge, attitudes, and practices regarding wound care among the general population in Saudi Arabia.

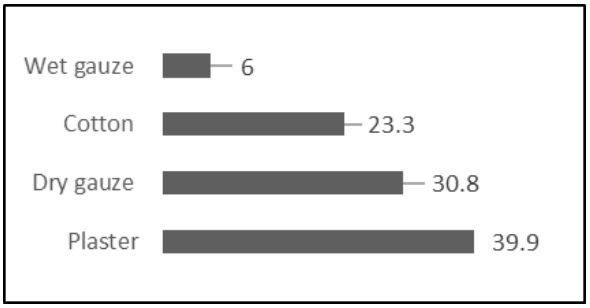

Figure 3: Percentage distribution of the participants according to wound dressing used at home (No.: 950)

In this study, burns were most prevalent, followed by cut wounds and surgical wounds, and the most common wound site was the hands, followed by the thigh-/leg and abdomen. Similar to the finding from earlier research in the Eastern region, the most common type of wound in Saudi Arabia was burns, followed by injuries, wounds, and surgical incisions, and the

Table 3: Participants' responses to circumstances of wound care (No.: 950)

Variable	No. (%)
Which indications or symptoms would prompt you to seek medical care following an injury?	
Extensive or serious wounds	530 (55.8)
Massive bleeding	527 (55.5)
The presence of a foreign body at the site of the wound	455 (47.9)
Head trauma	434 (45.7)
When signs of infection appear	502 (52.8)
If the wound was inflicted by a bite or an injury from a contaminated or rusted object, and if there are visible indications of infection	474 (49.9)
Surgery	426 (44.8)
From where do you obtain information regarding home wound care?	
937-Minstry of Health (MOH) hotline	378 (39.8)
Health awareness campaign	276 (29.1)
Healthcare workers	237 (24.9)
Internet	315 (33.2)
Media (newspaper, TV)	29 (3.1)
Relatives and friends	285 (30)
Social media (Head book, WhatsApp)	265 (27.9)
Study curriculum	191 (20.1)
How would you respond at first if you were hurt at home?	
Put on antibiotic cream and visit the hospital	133 (14)
Clean the wound	154 (16.2)
Apply a bandage to the wound and immediately get medical care at a hospital.	328 (34.5)
Present to the hospital	60 (6.3)
Try to stop the bleeding	275 (28.9)
What type of wound dressing do you typically use at home?	
Cotton	221 (23.3)
Wound plaster	397 (39.9)
Dry gauze	293 (30.8)
Wet gauze	57 (6)
What are the solutions do you use for wound cleaning at home?	
Alcohol	546 (57.5)
Baby wipes	86 (9.1)
Betadine	243 (25.6)
Merbromin	188 (19.8)
Perfume	59 (6.2)
Water	342 (36)
Traditional treatments (e.g. Almor)	242 (25.5)
Hydrogen peroxide	64 (6.7)

most common wound site was the upper extremities (Buhalim et al., 2023). Additionally, another study done in the Riyadh region showed that the most prevalent type of wound was burns, followed by surgical wounds and ulcers (Malaekah et al., 2021).

Our findings regarding the source of home wound care information revealed that the participants obtained information from various channels. The MOH hotline was the most commonly cited source, followed by the Internet, healthcare workers, and health awareness campaigns, consistent with the findings of a relevant study among the public in Eastern Province, Saudi Arabia (Buhalim et al., 2023). These findings highlight the importance of accessible and reliable information sources and the role of healthcare professionals and public health initiatives in disseminating accurate wound care guidance.

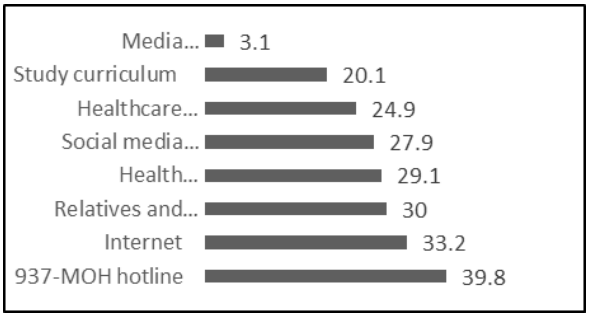

Figure 4: Sources of home wound care information

When the participants were asked about their initial actions when injured at home, covering the wound before

Table 4: Participants' responses to factors affecting wound care (No.: 950)

Variable	Agree	Disagree	Do not know
	No. (%)	No. (%)	No. (%)
Optimal nutrition is essential for the process of wound healing.	866 (91.2)	27 (2.8)	57 (6)
Prior to changing wound dressing, it is necessary to wash hands.	866 (91.2)	43 (4.5)	41 (4.3)
Injuries can hinder individuals from leaving their home.	485 (51.1)	376 (39.6)	89 (9.4)
The presence of bacteria in infected wounds is responsible for the unpleasant odor.	703 (74)	48 (5.1)	199 (20.9)
Pulling the tape from the skin fast is the best method.	199 (20.9)	545 (57.4)	206 (21.7)
Smoking may adversely impact the healing of wounds.	633 (66.6)	1134 (11.9)	204 (21.5)
Antibiotics are necessary for the healing of wounds.	627 (66)	156 (16.4)	167 (17.6)
Treatment is not necessary for simple (superficial) wounds.	397 (41.8)	470 (49.5)	83 (8.7)
Fragrances might make the wounds worse.	562 (59.2)	179 (18.8)	209 (22)
It is advisable for someone else to provide wound care rather than the injured person.	599 (63.1)	195 (20.5)	156 (16.4)
Honey used topically is helpful for wound treatment.	386 (40.6)	203 (21.4)	361 (38)
Bathing might delay the healing of wounds.	374 (39.4)	235 (24.7)	341 (35.9)
There is an anti-inflammatory effect of salted water.	461 (48.5)	126 (13.3)	363 (38.2)
Wounds that are exposed to fresh air help to heal.	466 (49.1)	176 (18.5)	308 (32.4)
Incense may prevent a wound from healing properly.	229 (24.1)	233 (24.5)	488 (51.4)
Applying homemade medicines topically, such mixed dough (Sabkha), provides anti-inflammatory properties.	209 (21.9)	252 (26.5)	490 (51.6)
Vaseline is useful in minimizing scars from wounds.	343 (36.1)	238 (25.1)	369 (38.8)
An administration of tetanus toxoid injection is important following an injury.	289 (30.4)	103 (10.8)	558 (58.7)
Coffee beans are beneficial for bleeding control	228 (24)	235 (24.7)	487 (51.3)
Washing wounds with Zamzam water could reduce the healing period.	237 (24.9)	205 (21.6)	508 (53.5)

going to the hospital was the most common response. This indicates a recognition of the need for immediate medical attention. However, a significant proportion of the participants reported applying antibiotic ointment or stopping the bleeding as their first response. Furthermore, it can be noticed that the results of the research done before in the Aseer region are similar to this because the greatest reaction of the people who get injured at home is to stop the bleeding, then clean the wound with water, and hereafter they go to the hospitals (Jan et al., 2021). These findings indicate a potential lack of knowledge regarding the importance of wound cleaning as an initial step in wound care.

Regarding the factors that affect wound care, it is encouraging to know that most participants agreed with statements on, for example, the necessity of good nutrition for wound healing and the importance of hand hygiene prior to changing wound dressings, consistent with the findings of a relevant study conducted among the public in the Jazan region (Mashbari et al., 2023). These responses align with the established principles of wound care and reflect a positive understanding of these factors among the participants.

Appropriate statistical techniques and analyses ensured the validity and reliability of our results. Adequate control of confounding variables, appropriate inferential tests, and transparent reporting of statistical findings enhanced the strength of our study.

This study has limitations. First, the questionnaire responses were self-reported, which introduced the possibility of recall or social desirability bias. Second, the study did not examine the reasons behind the participants' responses, which could provide valuable insights into their knowledge gaps or misconceptions.

These findings shed light on several practical implications for wound care practices. Health-care providers should focus on education and awareness campaigns to address the identified knowledge gaps and misconceptions. This may involve disseminating accurate information through accessible channels such as the MOH hotline, the Internet, and health-care workers. Furthermore, efforts should be made to promote early recognition and appropriate responses to various types of injury, including head injuries, and signs of infection.

CONCLUSION AND RECOMMENDATION

A wound is a disrupted or injured anatomical structure that affects physiological processes. The goal of this study was to investigate the general Saudi Arabian community's perceptions of, attitudes toward, and understanding about wound care. This study provides valuable insights into the participants' perceptions and practices related to wound care. The results emphasize the necessity of focused education, awareness

initiatives, and easily accessible information channels to encourage evidence-based wound care practices.. By addressing the identified gaps and misconceptions, health-care providers and policymakers can contribute to improved wound care and health outcomes.

ETHICS APPROVAL

Ethical approval for this research was waived by the Biomedical Research Ethics Committee of Umm Al-Qura University (Approval No. HAPO-02-K-012-2024-02-2016)

CONSENT TO PARTICIPATE

Informed consent was obtained from all participants included in the study.

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DECLARATIONS

Conflict of interest: The authors have no relevant financial or non-financial interests to disclose. The authors declare no conflict of interest.

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