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Research Article

Wound Care Knowledge and Perceptions among the General Population in Makkah Region, Saudi Arabia

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ABSTRACT

Background: Appropriate wound care can optimize healing and prevent infection and complications. Various factors influence proper wound healing, which might result in non-healing chronic wounds. Thus, controlling and assessing risk factors is important to avoid wound healing complications. Studies showed that people with insufficient knowledge about wound care can negatively impact their quality of life, financial burden, and healthcare expenses. So, we aimed in this study to assess the perspective and knowledge of wound care among the Makkah region' general population.

Methods: A cross-sectional questionnaire was distributed to the General public of the Makkah region in January 2023 through social media platforms.

Results: The study survey was completed by 1005 eligible respondents. The participants' ages ranged from 18 to 65. While 544 (54%) of the participants were between the ages of 20 and 30. 585 (58.2%) participants in total were female. Most participants had an average level of knowledge (54%), followed by poor and high levels of knowledge (27.5%, and 18.5%, respectively).

Conclusion: The average degree of wound care-related knowledge and perception was demonstrated by nearly half of the participants, and about 27.5% had a low knowledge level. This fact emphasizes the need for health-related programs to raise awareness about wound care management among patients and healthcare providers.

1. INTRODUCTION

Wounds are defined as breaks in normal skin continuity that affect the functioning of the skin by disrupting cellular and anatomic structures (Elzayat et al., 2018). Wounds can be distinguished as acute or chronic wounds (Elzayat et al., 2018; Malaekah et al., 2021). Acute wounds include surgical intervention wounds and burns, while chronic wounds include diabetic foot, leg, and pressure ulcers (Elzayat et al., 2018; Malaekah et al., 2021). Wound healing involves four overlapping phases: hemostasis, inflammation, proliferation, and tissue remodelling (Guo & DiPietro, 2010). However, various factors affect proper wound healing, potentially causing chronic non-healing wounds or surgical site infections. These factors include age, nutrition, improper wound cleaning, and chronic diseases like diabetes and hypertension (Kromuszczyńska et al., 2018).

Wound healing complications such as infection can be avoided by assessing and controlling for these risk factors, which in turn improves the quality of life by preventing pain and psychological distress and maximizing the wound healing process (Guo & DiPietro, 2010; Malaekah et al., 2021; Posnett et al., 2009; Powers et al., 2016).
The most important principle when managing a wound is to keep it as clean of infections and foreign bodies as possible(Schultz et al., 2003). Additionally, a healthy granulating base and applying the proper occlusive dressing to keep the wound moist can accelerate the healing process by 50% compared to exposure to air (Schultz et al., 2003).

According to studies conducted in the United Kingdom and Denmark, up to 4 out of every 1,000 people have at

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least one wound (Lindholm & Searle, 2016). The incidence of wound injury is high, with 20–50 million cases reported globally until 2018 (Jan et al., 2021). Up to 6 million Americans suffer from non-healing wounds leads to enormous healthcare costs estimated at more than $3 billion annually (Guo & DiPietro, 2010). This makes wound management one of the most significant challenges for healthcare systems, as it is estimated to account for 3% of all healthcare expenditures (Elzayat et al., 2018; Schultz et al., 2003). People with inadequate wound care knowledge can also adversely affect their quality of life, economic burden, and healthcare costs (Global Status Report on Road Safety 2018, n.d.). Evidence of the prevalence of wound injuries in Saudi Arabia is limited. One 2021 study from Riyadh involving 414 individuals showed that 71.7% of the 78.0% of participants who completed a bachelor's degree had an average level of knowledge regarding wound care; additionally, the majority of the participants sought wound care information from non-medical sources like social media, family, and friends (42.8%, 40.6% respectively) (Malaekah et al., 2021).

We hypothesized that wound care knowledge among medical and non-medical populations affects wound outcomes regardless of wound type or severity. Furthermore, according to the literature, no other studies have estimated the knowledge and perceptions of wound care among the general population of Saudi Arabia of a specific region in the country. Thus, this article aims to assess the perceptions and knowledge of wound care among people living in the Makkah region of Saudi Arabia.

2. MATERIALS AND METHODS

2.1 Study design and population:

A cross-sectional study was conducted on the general population of Makkah region, Saudi Arabia, in 2023. We included those who live in the Makkah region and are over 18 years old. We excluded those who were unwilling to participate in the survey.

Sample Size and Ethical Considerations

The sample size was calculated according to Epi Info™ 7.1.5 (Center for Disease Control and Prevention; Atlanta, Georgia, USA) (Sullivan et al., n.d.). A minimum of 384 people from the Makkah region were required for a 95% confidence interval. After receiving ethical approval from the Umm Al-Qura University research ethics committee (approval number: HAPO-02-K-012-2023-01-1383), we successfully distributed our survey to 1005 participants using convenience sampling.

2.2 Study tool:

The validated questionnaire that was utilized in this study to evaluate the participants' perceptions and knowledge of wound care was obtained from a recent study (Malaekah et al., 2021). The survey was divided into three parts. The first part included demographic characteristics questions. The second part assessed respondents' experience with wound care. The third part evaluated the knowledge and perception of wounds and wound care. The English version of the questionnaire was used in the study's statistics, and we used the Arabic version for data collection. The survey was distributed through WhatsApp and Telegram groups using a Google platform. All participants were required to provide online written informed consent to complete the questionnaire. We attached the WhatsApp account number of the corresponding author at the beginning of the questionnaire to receive any questions from the respondents.

2.3 Data analysis:

The data were collected, reviewed, and then fed into the Statistical Package for Social Sciences version 21 (SPSS: An IBM Company). All statistical methods were two-tailed, with a Cronbach's alpha value of 0.05 considered significant if the P-value was less than or equal to 0.05. Regarding wound care awareness, each correct survey answer was given a score of 1 point. Overall knowledge and perceptions of wound care were assessed by summing the discrete scores for different correct knowledge items. The participants' overall knowledge and perceptions were categorized as poor if they scored less than 7 points total, average if they scored 7–13 points, and good if they scored above 13 points. Descriptive analysis was done by prescribing frequency distributions and percentages for the study variables, including participant personal data. The participants' perceptions and knowledge of wound care were tabulated, while their overall knowledge level was graphed. Cross-tabulation showed the participants' overall knowledge and perceptions distribution according to their personal data and other factors using either Pearson's chi-square test for significance or the exact probability test for small frequency distributions.

3. RESULTS

A total of 1005 eligible respondents completed the study survey. The participants' ages ranged from 18 to 65 years old, with 544 (54%) participants between the ages of 20 and 30. In total, 585 (58.2%) participants were females. Single and married participants showed a significant variation in number of responses (70% and 30%, respectively). Regarding nationality, 959 (95%) participants were Saudis. As for education, 745 (74.1%) had a university degree, while 250 (25.9%) had a secondary education level or below. Furthermore, 81% were non-smokers, while the remaining were smokers or ex-smokers (14% and 5%, respectively).

Additionally, 803 (79.9%) participants had different comorbidities (Table 1)

Table 1. Participant demographics

Characteristics	Number (%)(n=1005)
Age	
Less than 20	200(20)
20-30	544(54)
31-40	136(14)
41-50	73(7)
More than 50	45(5)
Gender	
Male	420(42)
Female	585(58)

Marital status	
Married	305(30)
Not married	700(70)
Nationality	
Saudi	959(95)
Non-Saudi	46(5)
Educational level	
High school and below	260(26)
Higher education	745(74)
Monthly income	
Less than 10000	660(66)
10000-19000	239(24)
More than 19000	106(10)
City	
Makkah	326(32)
Jeddah	255(25)
Taif	199(20)
Other cities in the Makkah region	225(22)
Smoking	
Yes	136(14)
No	813(81)
Ex-smoker	56(5)
Comorbidities	
Hypertension	96(10)
Diabetes	108(11)
Cardiac disease	56(6)
Arthritis	76(8)
Asthma	108(11)
Allergy	230(23)
Others	129(13)

Table 2 shows the participants' experience with wound care. The most experienced wound types among the participants were cuts (65%), burns (63%), and surgical wounds (26%). The least experienced wound types were ulcers (14%), episiotomies (11%), and diabetic wounds (5%). Of the participants, 487 (49%) sought primary medical care within a month of incurring a wound, 108 (11%) sought it after one month, and 410 (41%) did not seek primary medical care at all. The most common non-medical home wound care source of information was relatives and friends (67%), followed by social media applications (53%) and newspapers and television (34%). The most frequent medical home wound care source of information were healthcare workers (71%) and health awareness campaigns (35%).

Table 2, participants' experiences with wound care (N=1005)

Variable	**N(%)**
Wound type	
Burn	636(63)
Surgical wound	262(26)
Ulcer	145(14)
Others	218(22)
Cut	649(65)
Episiotomy	107(11)
Diabetic wound	48(5)
Accident	241(24)
Time elapsed between the incidence of the wound and receipt of primary medical care	
Within a month	487(49)
After one month	108(11)
No response	410(41)
Source of home wound care information	
Non-medical	
Media (newspaper and TV)	
Relatives and friends	340(34)
Social media	668(67)
applications	531(53)
Medical sources	
Healthcare workers	
Health awareness campaign	709(71)
Brochure	351(35)
937 MOH hotline	270(27)
	229(23)

Table 3 reports the participants' knowledge and general perceptions of wounds and wound care. Most participants had insufficient knowledge and general perceptions of wound care, as shown in items 3 and 7–24, having 20–40% correct responses. However, the participants' responses to items 1, 2, and 4–6 were correct at 51% and 86% rates.

Table 3. Participant knowledge and general perceptions of wounds and wound care (N = 1005)

Questionnaire	**Correct answer n(%)**
Good nutrition is necessary for wound healing (true)	814(81)
Hands should be washed before changing wound dressing (actual)	865(86)
Wounds may prevent individuals from leaving the house (false)	297(30)
The foul odour observed in infected wounds is caused by bacteria (actual)	732(73)
It is best to pull the tape off the skin (false) quickly	514(51)
Smoking may negatively affect wound healing (true)	621(62)
Antibiotics are essential for wound healing (false)	314(31)
Simple (superficial) wounds do not require treatment (false)	483(48)
Tape should be stretched tight across a dressing (false)	337(34)
Perfumes are considered as wound disinfectants (false)	474(47)
Wound care is best performed by someone other than the wounded individual (false)	206(21)
Topical application of honey is beneficial for wound care (true)	435(43)

Taking a shower may delay wound healing (false)	279(28)
Salted water has an anti-inflammatory effect (true)	418(42)
Exposure of wounds to fresh air aids in the healing process (false)	273(27)
Butter has a moisturizing effect that may help in soothing burns (actual)	148(15)
Topical application of toothpaste has a soothing effect on burn pain (false)	479(48)
Sugar sprinkle application on burns, followed by washing with cold water, may have a beneficial effect (false)	459(46)
Incense may delay wound healing (false)	336(33)
Topical application of home remedies such as mixed dough (Sabkha) has an anti-inflammatory effect (false)	376(37)
Vaseline is beneficial for reducing burn scars (false)	272(27)
Coffee beans are beneficial for bleeding control (false)	344(34)
Perfumes may worsen wounds (false)	211(21)
Using Zamzam water to wash wounds may shorten the recovery time (false)	237(24)

Table 4 presents the association between the participants' knowledge scores and demographics. Participants aged 20–30 years old and those living in Makkah corresponded significantly with all knowledge scores (P = 0.008 and 0.002, respectively). In contrast, the participants' gender, marital status, nationality, education level, and monthly income showed insignificant associations with knowledge scores (P = 0.349, 0.127, 0.031, 0.703%, and 0.947, respectively).

Table 4. Associations between Participant Knowledge scores and demographics

Characteristics	Knowledge level Number (%)			p-value*
	Poor <7	Average 7-13	High >13	
Age				
Less than 20	60(30)	114(56)	29(14)	0.008
20-30	151(28)	274(50)	119(22)	
31-40	42(31)	81(60)	13(9)	
41-50	18(25)	42(58)	13(18)	
More than 50	6(12)	31(63)	12(25)	
Gender				
Male	120(29)	231(55)	69(16)	0.349
Female	157(27)	311(53)	117(20)	
Marital status				
Married	89(29)	171(56)	45(15)	0.127
Not married	188(27)	371(53)	141(20)	
Nationality				
Saudi	260(27)	515(54)	184(19)	0.031
Non-Saudi	17(37)	27(59)	2(4)	
Educational level				
High school and below	71(27)	145(56)	44(17)	0.703
Higher education	206(28)	397(53)	142(19)	
Monthly income				
Less than 10000 SAR	182(28)	357(54)	121(18)	0.947
10000-19000 SAR	63(26)	129(54)	47(20)	
More than 19000 SAR	32(30)	56(53)	18(17)	
City				
Makkah	86(26)	170(52)	70(22)	0.002
Jeddah	59(23)	162(64)	34(13)	
Taif	52(26)	102(51)	45(23)	
Other cities within Makkah region	80(36)	108(48)	37(16)	

*Chi-square test

4. DISCUSSION

In this cross-sectional study, the authors assessed the knowledge and perceptions of wound care among the general population of Makkah. The aim of this study was established according to the hypothesis that wound care knowledge among medical and non-medical populations affects wound outcomes regardless of wound type or severity. The World Health Organization has stated that 34% of reported nosocomial infections are associated with wound infections (Mayon-White et al., 1988). A study conducted in Saudi Arabia in 2016 reported an incidence of 11.4% for surgical site infections at a university hospital (Rawabdeh et al., 2016). At the same time, another study showed a surgical site infection rate of 3.4% across patients who underwent ankle and foot surgeries between 2011 and 2014 (Al-Kenani et al., 2017). Moreover, wound infection is a common cause of mortality and morbidity(Velnar et al., 2009). Therefore, proper wound management is required to heal adequately and avoid mortality and morbidity.

Majority most of our survey respondents demonstrated average knowledge of wound care, which is consistent with the results of another study conducted in Riyadh (Malaekah et al., 2021). As well as one conducted in Sri Lanka (R A C & M B, 2017). In contrast, a study of the general population in the Aseer region of Saudi Arabia showed a lack of knowledge regarding adequate wound care and management (Jan et al., 2021). Different regions in Saudi Arabia demonstrate different levels of knowledge regarding wound care, which might require a closer look at the overall population's education level or another factor that could affect wound care knowledge and perceptions.

Most of the study participants were highly educated (74%), but this is inconsistent with their knowledge level, likely because they rely on unreliable sources for wound care information, with the majority of participants (67%) receiving most of their information from friends and relatives. Therefore, we strongly recommend awareness programs conducted by healthcare workers and medical specialists to increase the availability of reliable information about wound care in the Makkah region.

4.1 Strength and limitations:

This study is one of the few that investigates the wound care knowledge of the Makkah region's general population; however, it still has some limitations. Notably, the variation in the participants' demographic categories should be minimized to increase the results' generalization. Furthermore, selection and recall bias are possible since this study was conducted using an online self-reported questionnaire that was distributed via convenience sampling. However, our study marks the beginning of further wound care studies in Saudi Arabia.

5. CONCLUSION AND RECOMMENDATION

Sufficient knowledge about wound care and management is vital to wound healing. In the current study, we found that about half of our 1005 participants had average knowledge and perceptions regarding wound care. However, 27.5% showed poor knowledge, necessitating community-based education campaigns that raise awareness of the precise knowledge and appropriate management of wound care. Further studies estimating the countrywide knowledge and perceptions of wound care in Saudi Arabia would allow more significant and more accurate insight in this regard.

AUTHOR CONTRIBUTION

The authors participated equally in each step of the research.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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