

PERCEPTION OF NURSES TOWARDS THE BARRIERS OF PRESSURE ULCER PREVENTION IN HERA GENERAL HOSPITAL, SAUDI ARABIA

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ABSTRACT

Background:

Pressure ulcers, also known as bedsores or pressure injuries, are localized damages to the skin and underlying tissue caused by prolonged pressure and shear forces. These injuries are a significant public health issue, particularly in immobile patients, and are increasingly seen as indicators of the quality of care in healthcare settings. Understanding the barriers to effective pressure ulcer prevention is essential for improving patient outcomes and nursing practices.

Purpose:

This study aimed to identify staff nurses' perceptions of the barriers to pressure injury prevention at Hera General Hospital in Mecca, Saudi Arabia, focusing on factors such as management, motivation, knowledge, staffing, and collaboration.

Methods:

A quantitative descriptive cross-sectional correlational design was used to explore the perceptions of 104 nurses working in inpatient and intensive care units at Hera General Hospital. Data were collected using the Pressure Injury Prevention Barriers Questionnaire (PIPB) developed by Lopez-Franco et al. (2020). The data were analyzed using descriptive statistics, correlation analysis, t-tests, and ANOVA with IBM SPSS software.

Results:

The findings revealed that management and organizational support are perceived as crucial for pressure injury prevention, strongly correlating with motivation and staff collaboration. The most significant barriers identified were high nursing staff turnover (28.3%) and the persistence of non-evidence-based care practices (26%). The study also highlighted the lack of preventive devices and multidisciplinary teams as critical barriers.

Conclusion:

The study concludes that effective management and organizational support are essential for successful pressure ulcer prevention. Addressing staffing instability, providing adequate resources, and promoting interdisciplinary collaboration are necessary to enhance the effectiveness of prevention strategies. These findings have important implications for nursing practices and policies, suggesting the need for targeted interventions to improve patient care.

Keywords:

Pressure ulcers; nursing perceptions; barriers; prevention; healthcare management.

1. Introduction

Pressure Ulcers are serious and has tormenting effect which reflects in the failure to render quality of care. Our general understanding that refers when an area of skin and the tissues below are damaged as a result of being placed under pressure sufficient to impair blood supply.

The effects are related to both the magnitude and the duration of the pressure and in some circumstance they can occur very rapidly, such as over exposed bony prominences like the heels or sacrum. Typically they occur in a person confined to bed or chair by an illness and as a result they are also sometimes known as ‘bedsores’, or ‘pressure sores’. Pressure ulcers develop primarily from *pressure and shear* and are progressive in nature.

Now days, pressure ulcers are recognized worldwide as one of the five most common causes of harm to patients and preventable patient safety problem. Also increasingly described as an indicator of the quality of care provided by health care institutions [7-9].

Preventing pressure ulcers has been a nursing concern for many years. In fact, Florence Nightingale in 1859 wrote, “If he has a bedsore, it’s generally not the fault of the disease, but of the nursing”¹ (p. 8). Others view pressure ulcers as a “visible mark of caregiver sin”² (p. 726) associated with poor or nonexistent nursing care.³ Many clinicians believe that pressure ulcer development is not simply the fault of the nursing care, but rather a failure of the entire health care system⁴ hence, a breakdown in the cooperation and skill of the entire health care team (nurses, physicians, physical therapists, dietitians, etc.).

Today, the development of bedsores remains a major public health problem, mainly for elderly patients. ⁵One alarming study found that 60% of elderly patients with a diagnosis of pressure ulcers die within one year of discharge from the hospital. Usually, the pressure sores develop after the decrease health status of the patient rather than it is a cause of death.

The challenge is more difficult when there is nursing staff turnover and shortages. Staff shortage is one of the factors associated to nurse’s practice in prevention of pressure ulcer. The poor practice can be explained by the fact that, shortage of nursing staff limits the working time available for each patient’s care. *Research* has demonstrated an association between more *nurses* and more qualified *nursing staff* in hospitals and better patient outcome. ¹⁰Study conducted in England showed that, majority of the nurses reported lack of staff and time as barrier to implement effective care practices related to prevention of pressure ulcer.

In the attempt to further understand and conduct such related study among Nurses in Hera General Hospital in Makkah Saudi Arabia, the methodology derived in this research is the use of Pressure Injury Prevention Barriers Questionnaire (PIPB) developed by Lopez-Franco ET. Al (2020).

1.1. Statement of the Problem

Pressure ulcers are localised cellular damages to the skin which are caused by pressure, sheering, and frictional force (Berihu, Wubayehu, Teklu, Zeru, and Genensea, 2020; Russell-Goldman and Murphy, 2020; Cowan, Broderick, and Alderden, 2020; Broderick and Cowan, 2021). It is a preventable medical complication associated with long periods of physical immobility and treatment costs hospitals twice as much as prevention (Awoke, Tekalign, Arba, and Lenjebo, 2022; Ebi, Hirko, and Mijena, 2019). Pressure injury (PI) exist as a critical adverse event occurs in hospitals around the world. It remains a significant health issue, causing suffering for patients and healthcare providers. The figures incidence rate and prevalence of PI in hospitalised patients vary amongst countries. A recent systematic review about PI prevalence has estimated that global PI prevalence is 12.8% and occurs in an incidence of 5.4% per 10,000 patient-days (Li, Lin, Thalib, and Chaboyer, 2020). The presence or absence of pressure ulcers in patients is generally regarded as a performance measure of quality nursing care and overall patient health (Etafa, Argaw, Gennechu, and Melese, 2018; Lavalley et al., 2018; Kim and Lee, 2019; Padula et al., 2019). It is primarily nurses’ responsibility to prevent the occurrence of pressure ulcers in patients who are immobile for long periods of time (Mitchell, 2018; Ebi et al., 2019; Parisod et al., 2022). Thus, the prevention of pressure injuries is a significant point of care related to nursing and patient safety. Nurses also play a key role in PI prevention, making it important to assess their perception about barriers to PI Prevention in the hospital setting.

1.2. Aim of the Study

This study aims to identify staff nurses' perceptions about potential barriers toward pressure injury prevention in Hera General Hospital.

1.3. Research Questions

- What are staff nurses' perceptions of the importance of management, motivation, knowledge, staffing, and collaboration as related to pressure injury prevention?
- What are staff nurses' perceptions of the most important barriers to effective pressure injury prevention in their patients?

2. Methods

2.1. Research design

A quantitative descriptive cross - sectional correlational design was used in this study to describe the variables and examine relationships among these variables.

2.2. Setting and samples

2.2.1. Setting

Hera General Hospital, Mecca, Saudi Arabia

2.2.2. Population and Sample Size:

104 Nurses working at Hera General Hospital, Mecca, Saudi Arabia

- **Inclusion criteria:**
 - English speaker
 - More than 3 Months' nursing experience
 - Nurses providing direct nursing care to patients in inpatient and intensive care unit
- **Exclusion criteria:**
 - Non-English speaker
 - Less than 3 months' experience
 - Nurses providing direct nursing care to patients in outpatient and ambulatory units

2.3. Measurement and data collection;

Data will be collected via questionnaire distributed either in person or via online channels.

2.4. Data analysis;

Data collected were organized in Excel sheet and analyzed using IBM SPSS statistical software. Variables were presented in frequencies and percentages; the scale items were described by mean and SD. Correlation analysis was conducted to examine the relationship between groups barriers of pressure injury prevention. T test and ANOVA were conducted to examine significant differences in overall scale by characteristics of participants. A P-value of less than or equal to 0.05 considered significant.

2.5. Ethical considerations.

The agreement from Hera General Hospital to conduct the study are obtained before primary research begins by securing approval from the research committee. Permission to utilise the scale are obtained from the authors before data collection. Informed consent obtained from the participants. To this end, the purpose of the study will be explained to the participants, and they will be informed that participation is voluntary.

3. Results

Table 1 presents the basic characteristics of participants included in the study, out of 117 participants, the majority were females (95.7%). About half of nurses were aged 30-40 years, and most participants (82.1%) had BSN level of education. Most nurses (70.1%) had experience ranged from 5-10 years, nurses included in the study were distributed among different nationalities with Indian and Philippine represented 31.6 and 29.9% respectively. About 30% of nurses belonged to the FMW department.

Table 1. Basic characteristics of participants

Variable	N=117	%
Gender		
<i>Female</i>	<i>112</i>	<i>95.7</i>
<i>Male</i>	<i>5</i>	<i>4.3</i>
Age		
<i>20-25</i>	<i>6</i>	<i>5.1</i>
<i>25-30</i>	<i>30</i>	<i>25.6</i>
<i>30-40</i>	<i>59</i>	<i>50.4</i>
<i>Above 40</i>	<i>22</i>	<i>18.9</i>
Level of Education		
<i>Diploma</i>	<i>16</i>	<i>13.8</i>
<i>BSN</i>	<i>96</i>	<i>82.1</i>
<i>Master</i>	<i>5</i>	<i>4.1</i>
Experience		
<i>5-10 years</i>	<i>82</i>	<i>70.1</i>
<i>10-15 years</i>	<i>15</i>	<i>12.8</i>
<i>Above 15 years</i>	<i>20</i>	<i>17.1</i>
Nationality		
<i>Indian</i>	<i>37</i>	<i>31.6</i>
<i>Malaysian</i>	<i>10</i>	<i>8.5</i>
<i>Nigerian</i>	<i>5</i>	<i>4.3</i>
<i>Pakistani</i>	<i>8</i>	<i>6.8</i>
<i>Philippine</i>	<i>35</i>	<i>29.9</i>
<i>Saudi</i>	<i>14</i>	<i>12.0</i>
<i>Sudanese</i>	<i>8</i>	<i>6.8</i>
Department		
<i>FSW</i>	<i>21</i>	<i>17.9</i>
<i>FMW</i>	<i>35</i>	<i>29.9</i>
<i>MMW</i>	<i>20</i>	<i>17.1</i>
<i>ICU</i>	<i>20</i>	<i>17.1</i>
<i>Others</i>	<i>21</i>	<i>17.9</i>

Table 2 summarized the mean and percentage of items included in the scale of pressure injury prevention scale. The maximum possible score for each item is 3 indicating always occurring of the barrier. The item with the highest mean and percent was “High in-service turnover of nursing professionals” (28.3%), followed by the item of “Persistence of traditional, non-evidence-based, cares ("it has 3 been done this way")” (26.0%). The item with the lowest percentage was “Lack of knowledge about pressure injuries prevention.” (8.7%).

Table 2. Means and percentages of the means of scale items

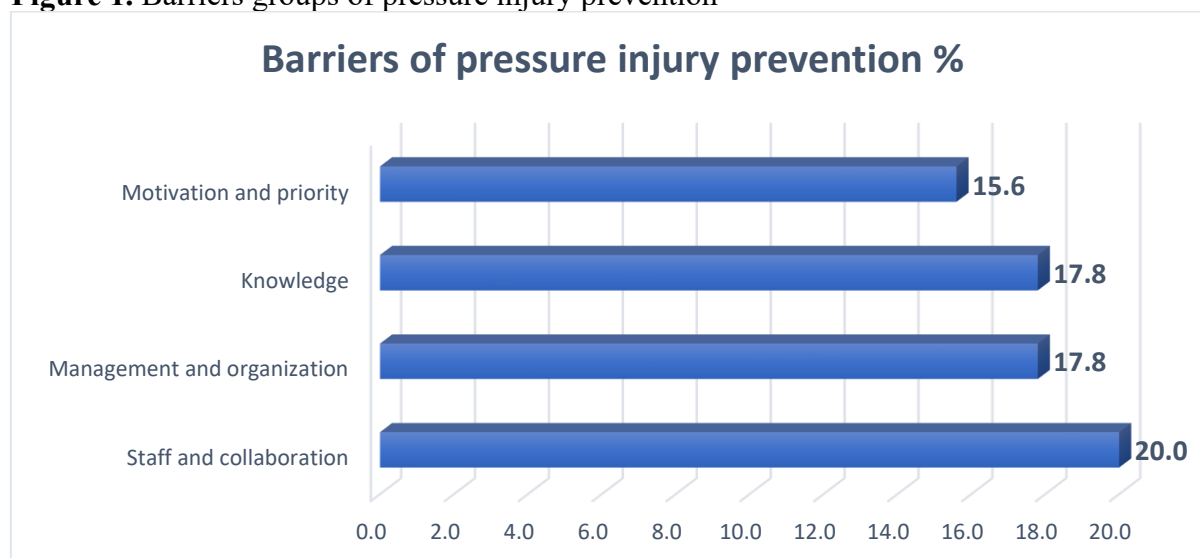
Item	Mean	%
<i>Difficulty to understand the recommendations and/or its level of evidence, from the guidelines or protocols.</i>	0.44	14.7
<i>Lack of motivation of nursing professionals</i>	0.37	12.3
<i>Difficulty to understand the findings from research</i>	0.54	18.0
<i>Low priority for prevention of pressure injuries by nursing professionals.</i>	0.31	10.3
<i>Lack of preventive devices (such as special mattresses, cushions, skin care products).</i>	0.85	28.3
<i>Lack of knowledge about pressure injuries prevention.</i>	0.26	8.7
<i>Lack of time to carry out preventive care.</i>	0.50	16.7
<i>Incorrect use of equipment and devices due to lack of staff training</i>	0.41	13.7
<i>Lack of evaluation by facility management of the preventive interventions provided by the nursing team.</i>	0.36	12.0
<i>Lack of job satisfaction.</i>	0.50	16.7
<i>Lack of patient cooperation in applying preventive measures.</i>	0.70	23.3
<i>Lack of multidisciplinary team for prevention.</i>	0.60	20.0
<i>Incomplete recording of the interventions provided to the patients.</i>	0.49	16.3
<i>Difficulty to understand the pressure injury risk assessment scales.</i>	0.31	10.3
<i>Lack of awareness of possible legal responsibility of the professionals when patients develop pressure injuries during the stay at the hospital.</i>	0.35	11.7
<i>Variability in implementation and poor adherence of care plans.</i>	0.49	16.3
<i>Lack of communication within the multidisciplinary team.</i>	0.45	15.0
<i>Difficulty to record the interventions in patients at risk of pressure injuries, due to the format of the form or register.</i>	0.40	13.3
<i>Lack of protocols or clinical guidelines for pressure injuries prevention, in the workplace.</i>	0.33	11.0
<i>Lack of availability of courses for specific training on pressure injuries prevention, at the workplace.</i>	0.48	16.0
<i>Lack of continuity of care across different settings (hospitals, nursing homes, primary care centers)</i>	0.65	21.7
<i>Persistence of traditional, non-evidence-based, cares ("it has 3 been done this way")</i>	0.78	26.0
<i>High in-service turnover of nursing professionals.</i>	0.85	28.3
<i>Lack of a clear definition of who are the professionals responsible for the prevention of pressure injuries.</i>	0.47	15.7

Barriers groups of pressure injury prevention distribution shown in (Table 3) and (figure 1) , the highest group of barriers was staff and collaboration (20.0%), followed by management and organization and knowledge (17.8%), and the least group of barriers was motivation and priority (15.6%).

Table 3. Barriers groups of pressure injury prevention

Barrier	Number of items	Maximum score	Mean Score	%
<i>Management and organization</i>	12	36	6.4	17.8
<i>Motivation and priority</i>	6	18	2.8	15.6
<i>Knowledge</i>	3	9	1.6	17.8
<i>Staff and collaboration</i>	3	9	1.8	20.0
Overall	24	72	12.0	16.7

Figure 1. Barriers groups of pressure injury prevention



The results showed significant and positive correlation between the barriers groups of pressure injury prevention. Management and organization were strongly correlated with motivation and priority and staff and collaboration (Table 4).

Table 4. Correlation between barriers groups of pressure injury prevention

	Management and organization	Motivation and priority	Knowledge	Staff and collaboration
Management and organization	-			
Motivation and priority	0.794*	-		
Knowledge	0.665*	0.752*	-	
Staff and collaboration	0.791*	0.696*	0.500*	-

**Significant Correlation*

(Table 5) reported the results of testing significant differences in overall barriers score by the basic characteristics of nurses included in the study. The results depicted significant differences in overall score by the nationality and department of participants ($P < 0.05$), Nigerian nurses and those belong to FSW department had the lowest mean score of barriers.

Table 5. Basic characteristics of participants by overall scale

Variable	Mean ±SD	P-value
Gender		0.395
<i>Female</i>	12.1± 9.5	
<i>Male</i>	11.5± 5.1	
Age		0.203
<i>20-25</i>	6.7± 3.8	
<i>25-30</i>	10.8± 1.7	
<i>30-40</i>	13.6± 1.2	
<i>Above 40</i>	10.4± 2.0	
Level of Education		0.303
<i>Diploma</i>	15.1± 8.1	
<i>BSN</i>	11.6± 9.7	
<i>Master</i>	8.8± 4.1	
Experience		0.895
<i>5-10 years</i>	12.2± 10.1	
<i>10-15 years</i>	10.9± 8.4	
<i>Above 15 years</i>	11.8± 8.2	
Nationality		0.001*
<i>Indian</i>	7.2± 4.2	
<i>Malaysian</i>	16.1± 8.6	
<i>Nigerian</i>	4.2± 2.8	
<i>Pakistani</i>	10.5± 5.1	
<i>Philippine</i>	15.0± 10.1	
<i>Saudi</i>	19.9± 9.3	
<i>Sudanese</i>	7.5± 6.7	
Department		0.050*
<i>FSW</i>	9.7± 5.7	
<i>FMW</i>	15.6± 10.1	
<i>MMW</i>	11.2± 9.4	
<i>ICU</i>	11.4± 6.9	
<i>Others</i>	9.4± 6.8	

*Significant differences

4. Discussion

Regarding the perception of the most important factor in preventing pressure injuries, the results revealed that management and organizational support are crucial. Management and organization are strongly correlated with motivation ($r = 0.794$) and staff collaboration ($r = 0.791$). According to Kitsios & Kamariotou (2021), effective management is critical for staff motivation and collaboration among nursing staff. Therefore, the study relates to research question 1 by highlighting the importance of management in fostering an environment that prioritizes injury prevention and intervention. Motivation is also identified as an important factor that correlates to knowledge ($r = 0.752$). As mentioned by Niskala et al. (2020), motivation among nursing staff members can be enhanced through effective knowledge dissemination and training. Therefore, management plays a critical role in educating and motivating staff members to collaboratively implement preventive measures to reduce the cases of pressure injury among patients.

Another research question explored the significant barriers to preventing pressure injuries. In this context, staffing and collaboration are identified as the most significant barrier group,

with a 20% value and high in-service turnover of nursing professionals with a 28.3% value. As mentioned by Shore et al. (2022), staffing stability is critical to consistent care as it enables efficient task delegation according to the skills and areas of expertise. A high turnover rate can reduce consistency in care as the roles and responsibilities of nursing staff change frequently. Additionally, non-evidence-based care practices appeared as another significant barrier to preventing pressure injuries, with a 26% value. Engle et al. (2021) suggested that evidence-based practice is essential to ensure that medical care providers incorporate the latest research and findings into their practices. Due to outdated approaches and inconsistencies, errors related to the delivery of care may increase, which affects patient outcomes (Manias et al., 2020). Lack of knowledge was not a significant barrier to others as nurses generally felt knowledgeable, although the application of knowledge was tied to management effectiveness.

The mean score of 17.8% for management and organization-related barriers reflects that these barriers are considered significant for the prevention of pressure injuries. Lack of Preventive Devices and Equipment (28.3%) and Lack of Multidisciplinary Team for Prevention (20%) are significant among these barriers besides non-evidence-based practices and in-service turnovers. According to organizational behavioral theories, management practices and work culture are foundational to the performance of staff and their ability to adhere to the protocols (Alqudah et al., 2022). Therefore, effective management is identified as a crucial factor for preventing pressure injuries. According to Maslow's Hierarchy of Needs, motivation and job satisfaction are closely related to managerial support (Deng, 2020). While higher turnover indicates a degree of deficiency in management performance, nurses provided lesser priority to motivation as a predictor of effective preventive practices.

According to Brown et al. (2023), interdisciplinary teamwork is important for the exchange of knowledge and for making informed decisions. Staffing and collaboration are identified to be highly correlated with ($r = 0.696$) P value. Here, lack of communication was also identified as an important factor, with a value of 15%. This indicates that besides inadequate staffing, insufficient communication among the staff members negatively affects decision-making. However, knowledge is not considered as the primary concern. According to Alshammari (2020), the availability of resources and organizational support are prerequisites for effective implementation of knowledge and skills. As identified earlier, besides a lack of appropriate practice protocols, devices, and equipment, there is a lack of communication among staff members, which causes significant barriers to preventing pressure injuries. Therefore, to effectively utilize the knowledge and skills of staff members, adequate resources and management support will be crucial.

A study by Etafa et al. (2018) revealed that heavy workloads, inadequate staff, and an absence of resources are closely linked to staff turnover, leading to poor patient care. The findings of the current study align with this claim as it highlights how management practices are influencing the care practices of staff nurses and creating barriers to pressure injury prevention. Ebi et al. (2019) identified that lack of training and pressure-relieving devices are the major reasons for ineffective pressure ulcer prevention practices. This is also evident from the current research, where a dearth of required devices and equipment is identified as a significant barrier to the prevention of pressure injuries. Previous researches acknowledge the relationship between management practices and staff motivation (Ali & Anwar, 2021). However, there is a lack of evidence regarding how motivation can influence nurses' practices, especially in the context of preventing pressure injuries.

In the current research, motivation could be identified as an important factor influencing adherence to preventive measures. Preventive care requires organization-wide robust approaches where staff members at each level need to make decisions collaboratively (Vogel et al., 2021; Mazzucca et al., 2020). However, in the current scenario, inadequate staffing is identified as an important barrier to such collaboration. While discussing this, Saleh et al.

(2019) suggested that education and experiences are highly important factors that equip nurses with the required knowledge and skills to deliver preventive care. The current study added to this by highlighting that nurses may not effectively use knowledge when there is a lack of adequate support from the management and a scarcity of resources.

5. Implication and limitations

The findings of this study have significant implications for nursing practices and policies, particularly in the prevention of pressure ulcers. The study highlights the crucial role of management and organizational support in fostering an environment that prioritizes pressure ulcer prevention. Effective management not only enhances motivation and collaboration among nursing staff but also ensures that evidence-based practices are consistently applied. This indicates a need for healthcare organizations to invest in managerial training and support systems that promote staff collaboration and adherence to prevention protocols.

Furthermore, the study underscores the importance of stable staffing and low turnover rates in maintaining the consistency of care. High turnover disrupts the continuity of care and hinders the effective implementation of pressure ulcer prevention measures. Therefore, policies aimed at improving staff retention and reducing turnover should be prioritized to enhance patient outcomes.

Additionally, the lack of preventive devices and multidisciplinary teams was identified as a significant barrier, suggesting that healthcare facilities should prioritize resource allocation for these areas. Ensuring the availability of adequate equipment and fostering interdisciplinary collaboration could significantly improve the effectiveness of pressure ulcer prevention strategies.

Limitations of the Study:

While this study provides valuable insights, it did not explore the impact of patient-related factors, such as comorbidities, mobility levels, or overall health status, which are critical in pressure injury prevention. These factors could significantly influence the outcomes of prevention strategies, as patients with higher risks may require more intensive interventions. For example, a study by Cox (2017) highlighted that patient-specific factors such as nutritional status, skin integrity, and underlying health conditions play a significant role in pressure injury development and should be considered when designing prevention strategies.

6. Conclusion

This study explores the perceptions of staff nurses regarding factors influencing pressure injury prevention, emphasizing the roles of management, motivation, knowledge, staffing, and collaboration. The findings highlight that management and organizational support are crucial for effective prevention practices, with motivation and collaboration also playing significant roles. However, the study identifies staffing instability, high turnover rates, and a lack of preventive devices and multidisciplinary teams as major barriers to successful pressure injury prevention.

The research advances understanding by detailing the interplay between these factors, emphasizing the need for a holistic approach that aligns management, resources, and staff collaboration. The study's findings offer a strong scientific basis for publication, with potential applications in policy changes to enhance pressure injury prevention in healthcare settings.

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Author contribution

1. Khaleda B. Altunbakti: Conceptualization and design of the study, supervision of the research project, and critical revision of the manuscript.
2. Taya M. Abdalsalam: Assisted in drafting the discussion section and reviewing the conclusions for clarity and relevance.
3. Rawan J. Maglia: Data analysis and interpretation, statistical review, and final approval of the manuscript.
4. Shaima M. Altantawi: Literature review, manuscript writing, and critical review for intellectual content.
5. Areej E. Qadah: Assisted in data collection and organization of research materials.
6. Shaykhah A. Alhatimi: Assisted in drafting the manuscript, including writing the background and methodology sections.
7. Majeda R. Khayri: Supervised data entry, quality control, and ensured the accuracy of the results.
8. Reham B. Alshengiti: Contributed to the development of the research questionnaire and participant engagement.
9. Eman R. Alharbi: Assisted in statistical analysis and interpretation of the findings.
10. Huda A. Altakroni: Provided critical feedback during the data analysis process and helped revise the final manuscript.
11. Asra Fathima M. Karimuddin: Reviewed and edited the manuscript for grammatical accuracy and coherence.
12. Jehan E. Usman: Data collection, recruitment of participants, and drafting of the manuscript.

Conflict of interest

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

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