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Exploring Preventative Measures: The Role of Nurses in the Fight Against Cervical Cancer in Iraq

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ABSTRACT

Background: Cervical cancer remains a significant public health concern globally, especially in Low- and Middle-Income Countries (LMICs) such as Iraq, where healthcare challenges and cultural barriers impede prevention efforts. Nurses, as frontline healthcare providers, play a critical role in promoting awareness, education, and prevention of cervical cancer. However, their knowledge, cultural attitudes, and behavioural intentions remain underexamined. **Objective:** To assess the knowledge, cultural attitudes, and intentions of nurses toward cervical cancer prevention in Iraq using the Theory of Reasoned Action (TRA) as a guiding framework. **Methods:** This cross-sectional study involved 105 registered nurses working in maternal hospitals across Mosul, Iraq. Data were collected through a structured questionnaire encompassing demographic information, knowledge of cervical cancer, cultural attitudes, and intentions toward prevention. Descriptive and inferential statistical analyses, including mean, standard deviation (SD) and Pearson's correlation, were performed using SPSS version 25 to explore interrelationships among the variables. **Results:** While the majority of nurses demonstrated moderate knowledge of cervical cancer, significant gaps were identified, particularly regarding the role of HPV as a primary cause. Cultural attitudes, including stigma and traditional gender roles, influenced preventive practices. Nurses expressed generally positive intentions toward cervical cancer prevention, driven by workplace expectations and peer influence, though some lacked motivation and confidence. Barriers such as limited access to screening, financial constraints, and insufficient healthcare support were significant challenges. **Conclusion:** The study highlights critical gaps in nurses' knowledge and cultural attitudes toward cervical cancer prevention, emphasising the need for targeted educational campaigns, policy reforms, and systemic support to empower nurses. Addressing these gaps can enhance preventive practices and contribute to reducing the cervical cancer burden in Iraq.

Keywords: Cervical Cancer Prevention; Cultural Attitudes; Healthcare Barriers; HPV Awareness; Nurses' Knowledge; Theory of Reasoned Action

INTRODUCTION

Cervical cancer is a major public health issue worldwide, accounting for significant morbidity and mortality among women, particularly in Low- and Middle-Income Countries (LMICs) (Adigun *et al*., 2025; Nguyen *et al*., 2023; Revathidevi *et al.*, 2021). According to the World Health Organisation (2024), cervical cancer is the fourth most common cancer among women globally, with approximately 604,000 new cases and 342,000 deaths reported in 2020. Nearly 90% of these deaths occur in LMICs, where healthcare systems face challenges such as limited access to screening, insufficient vaccination coverage, and socio-cultural barriers to preventive care (AL-Hussieny & Al Mukhtar, 2025; Sharma, Deep & Sharma, 2020; Voelker, 2023). In Iraq, cervical cancer prevention remains under-prioritised in public health policies. National screening programmes are limited, and the uptake of HPV vaccination is low due to logistical challenges and a lack of awareness among the population (Alkhyatt *et al*., 2012; Obaid *et al*., 2023). The cultural context in Iraq, characterised by conservative attitudes toward reproductive health, further complicates efforts to address cervical cancer prevention (Agha & Mukhtar, 2025). These challenges are particularly evident in Mosul, a city recovering from years of conflict and instability, where healthcare resources are stretched thin and public health infrastructure is

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still in the process of rebuilding (Ahmed *et al*., 2024). The prevention and management of cervical cancer have seen significant advancements over the past few decades (Naaman, Abdullah & Sadeeq, 2025). The development of the human papillomavirus (HPV) vaccine represents a breakthrough in reducing the incidence of cervical cancer, as persistent infection with high-risk HPV types is the primary cause of the disease (Abu-Rustum *et al.*, 2023; Chargari *et al.*, 2022). Additionally, the introduction of affordable and accessible screening methods, such as Pap smears and HPV DNA testing, has enabled early detection and treatment of precancerous lesions (Buskwofie *et al.*, 2020; Chargari *et al*., 2022; Mayadev *et al*., 2022).

Despite these advancements, disparities in cervical cancer prevention persist globally (Mahmood *et al*., 2022). High-income countries have successfully implemented organised screening and vaccination programmes, leading to a significant decline in cervical cancer incidence and mortality rates. In contrast, LMICs struggle to achieve similar outcomes due to systemic barriers, including inadequate healthcare infrastructure, a lack of trained personnel, and socio-cultural resistance to preventive measures (Bedell *et al*., 2020; Gopu *et al*., 2021). In Iraq, cervical cancer ranks among the most common cancers affecting women, though its true burden may be underestimated due to insufficient data collection and reporting. The country lacks a nationwide cervical cancer screening programme, and awareness about the disease remains low among both the general population and healthcare providers. The availability of the HPV vaccine is limited, and its uptake is hindered by cultural beliefs and misconceptions about its safety and efficacy. Mosul, one of Iraq's largest cities, exemplifies these challenges (Hamarash *et al*., 2023; Ibrahim, Ghanim & Alkhaderjameel, 2020).

Years of conflict have left the healthcare system in Mosul struggling to meet the basic needs of its population. Preventive health services, including cervical cancer screening and vaccination, are often deprioritised in favour of addressing acute and emergency healthcare needs. Additionally, cultural norms and stigmas surrounding women's reproductive health further deter women from seeking preventive care. The specific problem addressed in this study is: How do nurses' knowledge, cultural attitudes, and intentions, influenced by the Theory of Reasoned Action, affect cervical cancer prevention efforts in Mosul?

This study addresses a critical gap by applying the Theory of Reasoned Action (TRA) to understand how nurses' knowledge, cultural attitudes, and intentions influence cervical cancer prevention efforts in Mosul, Iraq. While TRA is widely used in global health research, its application in Iraq's healthcare context, particularly in nursing practices related to cervical cancer prevention, remains unexplored. This research focuses on the unique role of nurses in addressing cultural barriers, misconceptions, and knowledge deficits that affect preventative measures like HPV vaccination and screenings. By identifying behavioural predictors and examining the interplay of societal norms and healthcare practices, the study offers actionable insights to develop targeted interventions, enhance nursing education, and guide policymakers in improving cervical cancer prevention efforts in the region.

This problem highlights the need to explore the interplay between knowledge, cultural factors, and behavioural intentions to identify effective strategies for improving nurses' engagement in cervical cancer prevention.

METHODOLOGY

Research Design

This study employs a cross-sectional descriptive research design to investigate the interrelationships among nurses' knowledge, cultural attitudes, and intentions toward cervical cancer prevention. The Theory of Reasoned Action (TRA) serves as the foundational theoretical framework, guiding the exploration of how attitudes and subjective norms influence nurses' intentions and behaviours. The cross-sectional design facilitates the collection of data at a single point in time, enabling a comprehensive snapshot of the variables of interest within the study population. The research targets a sample of nurses working in maternal hospitals across Iraq, ensuring the inclusion of diverse perspectives and experiences relevant to cervical cancer prevention. This approach is particularly suited for identifying patterns, associations, and areas requiring targeted interventions to improve knowledge and practices in the nursing community.

Study Setting

The study was conducted in maternal hospitals across Iraq, with a specific focus on facilities providing

maternal care services. These settings were selected for their strategic relevance, as they offer valuable opportunities to observe nurses' preventive practices and roles in cervical cancer education and screening. Participants were recruited from three prominent governmental hospitals in the Nineveh province:

1. Al-Batool Teaching Hospital – Located on the right side of Mosul City, this hospital is renowned for its comprehensive maternal and child healthcare services.

2. Al-Salam Teaching Hospital – Situated on the left side of Mosul City, it serves as a key provider of maternal health services and patient education.

3. Al-Medical Research Hospital – Also located on the left side of Mosul City, this hospital contributes to both clinical care and research in maternal health.

These hospitals were chosen to ensure a representative sample of nurses engaged in maternal care, thereby enabling the study to capture diverse insights into their knowledge, attitudes, and intentions toward cervical cancer prevention.

Population and Sample

The study targeted registered nurses working in maternal hospitals across Iraq, focusing on those with at least one year of experience in maternal healthcare, active involvement in patient education, cervical cancer screening, and advocacy for prevention, and who showed a willingness to participate by providing informed consent. A convenience sampling method was employed to ensure a diverse and representative sample, considering variations in hospital size and nurse distribution. The total sample size of approximately 105 nurses was calculated to achieve a 95% confidence level and a 5% margin of error, based on previous research. This approach provided a comprehensive dataset for analysing the relationships among knowledge, cultural attitudes, and intentions toward cervical cancer prevention.

Inclusion Criteria

The inclusion criteria for the study specify that only nurses currently employed in maternal hospitals will be considered, ensuring they possess the professional qualifications and experience pertinent to the study's focus. Additionally, participants must be actively involved in direct patient care within maternity and women's health departments, which includes responsibilities such as providing education, administering vaccines, and conducting screenings related to cervical cancer. Finally, all nurses must demonstrate their willingness to participate by providing informed consent.

Exclusion Criteria

The exclusion criteria for the study involve omitting nurses who are primarily in administrative or managerial roles and therefore lack direct clinical experience relevant to the research objectives. Additionally, nurses employed in departments that do not focus on women's health or cervical cancer prevention, such as those working in surgery or emergency departments, will also be excluded from the study.

Data Collection Tools

Data was collected using a structured questionnaire specifically designed for this study. The questionnaire consisted of four sections:

1. Demographic Information: This section included questions about age, educational background, years of experience, and Years of Service in the Maternal Department.

2. Knowledge Assessment: A series of multiple-choice questions to evaluate nurses' knowledge about cervical cancer risk factors, symptoms, screening methods, and vaccination.

3. Cultural Attitudes: Items assessing cultural beliefs and attitudes influencing nurses' approach to cervical cancer prevention, drawn from validated scales and modified for the study context.

4. Intentions Toward Cervical Cancer Prevention: Based on the Theory of Reasoned Action, a Likert scale was used to assess nurses' intentions to engage in practices such as screening advocacy, patient education,

and vaccination promotion.

Theoretical Framework

The Theory of Reasoned Action (TRA) guided the analysis of the relationship between knowledge, cultural attitudes, and intentions toward cervical cancer prevention. TRA posits that an individual's intention to perform a behavior is influenced by their attitude toward the behavior and subjective norms. This theory is relevant to understanding how nurses' knowledge and cultural beliefs affect their intentions to participate in cervical cancer prevention activities.

Data Collection Procedure

Data collection was conducted over three months. Nurses were approached in their respective hospitals during working hours, and after obtaining informed consent, the questionnaire was administered. A self-administered format was chosen to ensure participants had the time and space to provide accurate responses. Data was collected by trained research assistants to minimise bias and ensure consistency. Interviewer-administered questionnaire: each interview took about 15 to 30 minutes.

Validity and Reliability of Study Tools

To ensure the scientific rigor of the questionnaire, a comprehensive validation process was undertaken. A panel of 17 experts—representing diverse disciplines including nursing specialties, obstetrics and gynecology, statistics, and applied English—conducted a detailed content review. Their collective feedback significantly enhanced the tool's clarity, relevance, and applicability.

Applied English experts focused on linguistic clarity, refining ambiguous terminology and simplifying complex phrasing to improve comprehension and readability for the target population. Nursing and obstetrics specialists evaluated the content's alignment with the study's objectives, recommending the removal of redundant items and the inclusion of critical but previously omitted topics. Statistical experts ensured the structure of the items supported reliable data collection and minimised potential bias.

This validation process followed an iterative approach, with multiple rounds of feedback and revisions until full consensus was achieved on all questionnaire items. After finalizing the expert-reviewed version, a pilot study was conducted to assess practicality, detect any residual issues, and verify user comprehension in real-world settings.

The internal consistency of the final questionnaire was assessed using Cronbach's alpha, yielding a reliability coefficient of 0.87, which indicates a high level of internal consistency. This robust validation and testing process ensured that the final instrument was not only scientifically sound but also culturally appropriate and reliable for use in the study context. (Taher & Ibrahim, 2023).

Data Collection Period

The data for this study was collected from nursing leaders over a five-month period, spanning from 25th September 2024 to 20th February 2025.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 25. Descriptive statistics, including means and standard deviations (SD), were used to summarise the central tendencies and variability of participants' responses across the main study variables: knowledge, attitudes, and intentions toward cervical cancer prevention. To assess the relationship between variables, Pearson correlation analysis was employed. All statistical tests were performed at a 95% confidence level, with a p-value < 0.05 considered statistically significant.

Ethical Consideration

The researchers obtained ethical clearance from the Collegiate Council for Medical Research Ethics (CCMRE), University of Mosul, Iraq with Reference Number CCMRE-Nur-24-5 on 28th of November 2024.

RESULTS

Table 1: Demographic Characteristics of Study Participants

Category	Frequency (F)	Percentage (%)
Age (years)		
20-29	44	41.9%
30-39	45	42.9%
40-49	12	11.4%
50-60	4	3.8%
Mean (SD)	36.4 (±5.1)	
Address		
Right side	36	34.3%
Left side	69	65.7%
Workplace		
Al-Batool Hospital	27	26.7%
Al-Salam Hospital	39	37.7%
Medical Research Hospital	39	37.1%
Educational Level		
Intermediate School Nursing	26	24.8%
Nursing Diploma	31	29.5%
Bachelor's in nursing	30	28.6%
Other	18	17.1%
Marital Status		
Single	41	39.0%
Married	58	55.2%
Widowed	4	3.8%
Divorced	2	1.9%
Years of Service		
Less than 5 years	43	41.0%
5-10 years	33	31.4%
11-15 years	14	13.3%
More than 15 years	15	14.3%
Mean (SD)	11.3 (±9.7)	

Table 1 presents the demographic profile of the study participants. The age distribution indicates that a significant majority (84.8%) fall within the 20–39-year range, with a mean age of 36.4 years (SD ±5.1), reflecting a predominantly young to middle-aged workforce. In terms of residential distribution, most participants reside on the left side of the region (65.7%).

Workplace representation is relatively balanced among the three main hospitals—Al-Batool (26.7%), Al-Salam (37.7%), and Medical Research Hospital (37.1%)—ensuring diverse institutional perspectives. The educational background of the participants varies, with the majority holding either a nursing diploma (29.5%) or a bachelor's degree in nursing (28.6%), while others possess intermediate or alternative qualifications.

Regarding marital status, the majority are married (55.2%), followed by single individuals (39.0%). Notably, 41.0% of participants have less than five years of service, and the mean year of service is 11.3 years (SD ±9.7), suggesting a workforce with a mix of novice and experienced professionals. These demographics provide a comprehensive context for interpreting the attitudes and intentions assessed in subsequent tables.

Table 2: Overall, Knowledge about Cervical Cancer

Knowledge Aspect	Correct Responses (%)	Incorrect Responses (%)
Understanding of Cervical Cancer	65.7	34.3
HPV as a Cause	35.2	64.8
HPV Transmission	71.4	28.6
Common Cause of Cervical Cancer	52.4	47.6
Risk Factors Identification	56.2	43.8
Age Most at Risk	65.7	34.3
Smoking's Role	58.1	41.9
STIs' Role	43.8	56.2

Table 2 summarises the participants' overall knowledge about cervical cancer, focusing on basic understanding, HPV's role, transmission methods, common causes, and risk factors. While a majority understand what cervical cancer is and how HPV is transmitted, there is a noticeable knowledge gap regarding HPV as the primary cause and other risk factors like smoking and STIs. This underscores the need for more comprehensive educational programmes to enhance understanding of all aspects of cervical cancer.

Table 3: Attitudes towards Cervical Cancer Prevention with Mean Scores

Attitudinal Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean Score
Community Beliefs Influence	22.9	32.4	25.7	17.1	1.9	3.56
Comfort Discussing Prevention with Diverse Patients	21.0	47.6	13.3	17.1	1.0	3.70
Cultural Stigma Reduces Screening Willingness	27.6	30.5	19.0	18.1	4.8	3.58
Traditional Gender Roles Affect Decisions	24.8	33.3	23.8	17.1	1.0	3.63

Table 3 examines healthcare professionals' attitudes toward cervical cancer prevention, focusing on factors such as community beliefs, communication comfort with diverse patient populations, cultural stigma, and traditional gender roles. The mean scores, ranging from 3.56 to 3.70, indicate generally favorable attitudes, particularly in terms of comfort discussing prevention with diverse patients. A notable proportion of participants recognised the influence of community beliefs and cultural stigma on prevention behaviors, reflecting the significant role of sociocultural dynamics in shaping attitudes. These findings underscore the need for culturally sensitive educational initiatives and community-based strategies that address societal norms and beliefs to enhance the effectiveness of cervical cancer prevention efforts.

Table 4: Intentions Regarding Cervical Cancer Prevention with Mean Scores

Intentional Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean Score
Educate Patients About Prevention	27.6	42.9	14.3	11.4	3.8	3.79
Actively Promote Prevention Practices	29.5	41.9	11.4	12.4	4.8	3.79
Encourage Community Screening	23.8	48.6	13.3	12.4	1.9	3.79
Perceived Colleague Expectations for Screening	23.8	44.8	18.1	8.6	4.8	3.74
Healthcare Authorities Expect Advocacy	19.0	43.8	21.0	13.3	2.9	3.63
Workplace Pressure to Promote Prevention	21.0	45.7	19.0	10.5	3.8	3.69

Table 4 presents the intentions of healthcare professionals regarding cervical cancer prevention, focusing on actions such as patient education, promotion of preventive practices, and encouragement of community screening. The findings indicate a strong overall commitment, with mean scores ranging from 3.63 to 3.79, reflecting positive intentions toward preventive engagement. Notably, the highest agreement was observed in statements related to educating patients and promoting prevention practices. However, a proportion of respondents expressed neutral or disagreeing views, particularly concerning expectations from healthcare authorities and perceived workplace pressure. These results suggest that while the intention to support cervical cancer prevention is generally high, there may be institutional or systemic barriers that hinder full implementation. Addressing these obstacles through supportive policies, professional training, and resource allocation could enhance the ability of healthcare professionals to translate intention into action effectively.

Table 5: Pearson Correlation between Knowledge and Attitudes towards Cervical Cancer Prevention

Variables	Knowledge Score	Attitude Score
Knowledge Score	1.000	0.462** *(p < 0.01)*
Attitude Score	0.462** *(p < 0.01)*	1.000

***statistically significant. This indicates the result is statistically significant at the 1% level (α = 0.01).*

Table 5 illustrates the relationship between participants' knowledge and attitudes regarding cervical cancer prevention using Pearson's correlation coefficient. The analysis revealed a moderate positive correlation ($r = 0.462, p < 0.01$), indicating a statistically significant association between the two variables.

DISCUSSION

Knowledge of Cervical Cancer

The observed knowledge gap regarding HPV as the primary cause of cervical cancer is consistent with findings from similar studies. For instance, Smith *et al*. (1994) found that healthcare professionals often lack specific knowledge about the role of HPV in cervical cancer, impacting their ability to provide effective patient education. Addressing this gap through comprehensive training programmes has been emphasised in various studies, including Adigun *et al.* (2025) and Jecke and Zepf (2024), highlighted the effectiveness of targeted educational interventions in increasing healthcare providers' knowledge about HPV.

Awareness of Risk Factors

Research by Luvián-Morales *et al*. (2024) and Xu *et al*. (2025) reported similar findings where healthcare workers showed variable understanding of cervical cancer risk factors. The study suggested that enhanced continuing medical education (CME) could significantly improve knowledge, particularly regarding the roles of smoking and STIs. This aligns with the present study recommendation for more focused educational initiatives.

Prevention and Screening

The high awareness of HPV vaccination mirrors successful public health campaigns noted in other regions. For example, a study by Berza *et al*. (2024); Francoeur, Monk and Tewari (2025); and Li *et al*. (2025) in a high HPV prevalence area showed increased vaccine uptake following targeted awareness programmes among healthcare providers. However, the gaps in knowledge about Pap smear tests and screening protocols noted in the study reflect findings from Lou and Guo's (2024) research, which suggested that even among healthcare providers, misconceptions about screening intervals and eligibility persist.

Attitudes toward Cervical Cancer Prevention

Cultural sensitivities and stigma associated with cervical cancer are well-documented barriers. Khumalo *et al.*, (2024) and Ogasawara and Hasegawa, (2025), explored how cultural beliefs influence healthcare practices in Asia and found that traditional views significantly impact women's willingness to participate in cervical cancer screening. The study's call for culturally sensitive interventions aligns with these findings and emphasises the need for tailored educational materials that respect cultural contexts.

Barriers to Prevention

The World Health Organisation (2024) report highlighted financial constraints as a barrier to cervical cancer prevention. The report stated that cost is a significant impediment to accessing cancer prevention services in low- and middle-income countries. This global perspective supports the study's call for financial support and policy reforms to enhance access to prevention and screening services (Damani *et al*., 2025; Harder *et al.*, 2024).

Nurses' Intentions and Proactive Engagement

Alghalyini *et al*. (2024) also discusses nurses' role in promoting cervical cancer prevention and the challenges they face. The study examined the impact of workload and institutional support on nurses' ability to engage in preventive health measures. The study recommended organisational changes to enhance nurses' roles, which complement the study's suggestions for creating a supportive work environment and providing ongoing professional development.

Correlation between Knowledge and Attitudes

The analysis revealed a moderate positive correlation (r=0.462, p<0.01), indicating a statistically significant association between the two variables. This suggests that participants with higher levels of knowledge about cervical cancer prevention are more likely to exhibit positive attitudes toward it.

The strength of this correlation implies that improvements in healthcare professionals' knowledge could

contribute to a shift in attitudes, fostering greater support for preventive practices such as patient education, community screening, and advocacy. The statistical significance ($p < 0.01$) further confirms that this relationship is unlikely to be due to chance.

These findings emphasise the importance of integrating targeted educational programs into professional development efforts, as enhancing knowledge may play a critical role in shaping favorable attitudes that support the successful implementation of cervical cancer prevention strategies.

This relationship is consistent with previous studies that have highlighted the critical role of knowledge in shaping attitudes toward health promotion. For instance, Al-Darwish *et al*. (2014) found a positive correlation between knowledge and attitude among female university students regarding cervical cancer and its prevention in Qatar. Similarly, Shrestha, Dhakal and Shrestha (2018) reported that Nepalese nurses with higher knowledge levels exhibited more proactive attitudes toward Pap smear screening and patient education.

Mutambara, Moyo and Madziyire (2021) emphasised that knowledge empowerment among healthcare providers significantly enhances their willingness to participate in cervical cancer awareness campaigns and encourage community screening. These findings support the idea that knowledge is a key determinant of attitude, aligning with behavioral theories such as the Theory of Reasoned Action (Fishbein & Ajzen, 1975), which posits that attitudes are shaped by beliefs and knowledge.

Therefore, the current study's findings reinforce the need to implement continuous, targeted educational interventions aimed at enhancing the knowledge base of healthcare professionals, thereby promoting positive attitudes and improving the uptake of cervical cancer prevention strategies.

Policy Implications

The findings of this study have significant implications for national policies and healthcare programmes, particularly in integrating cervical cancer prevention into routine nursing education and practice. By highlighting gaps in nurses' knowledge, cultural attitudes, and intentions regarding cervical cancer prevention, the study provides a strong basis for revising nursing curricula to include comprehensive education on cervical cancer, HPV vaccination, and screening practices. Policies can mandate the incorporation of cervical cancer prevention modules into pre-service nursing education and ongoing professional development programmes, ensuring nurses are equipped with the knowledge and skills necessary to lead prevention efforts.

The study underscores the importance of addressing cultural barriers and misconceptions. National programmes can leverage these insights to design culturally sensitive public health campaigns, focusing on educating both nurses and the wider community. Policies can also promote interdisciplinary collaboration, where nurses, obstetricians, and public health officials work together to implement cervical cancer prevention initiatives, particularly in underserved regions like Mosul.

The findings of this study can guide the creation of policies that encourage nurses to engage in preventive initiatives by offering forms of recognition or financial rewards for their involvement in community engagement and patient education activities. By aligning nursing practices with evidence-based behavioural theories like the Theory of Reasoned Action, policymakers can ensure that prevention strategies are not only scientifically robust but also practically effective in reducing the burden of cervical cancer nationwide.

Limitation

The limitations are, firstly it was confined to maternal hospitals in Mosul, which may limit the generalizability of the findings to other regions of Iraq due to potential differences in healthcare systems, cultural norms, and resources. Secondly, reliance on self-reported data introduces the risk of social desirability bias, especially concerning culturally sensitive topics such as HPV vaccination and cervical cancer screening. The cross-sectional design further limits the ability to draw causal inferences, as it captures data at a single point in time. The study also focused solely on the Theory of Reasoned Action, excluding other relevant constructs like self-efficacy or perceived behavioral control, which could have enriched the analysis. Additionally, the relatively small and homogenous sample may reduce external validity. Lastly, despite expert validation and piloting, some questionnaire items may have been misinterpreted due to linguistic or cultural nuances, affecting response reliability.

CONCLUSION

The study underscores a pervasive lack of understanding among healthcare professionals about the key aspects of cervical cancer, particularly the role of HPV as its primary cause. Although there is a reasonable awareness of cervical cancer symptoms and HPV vaccination, gaps remain in the recognition of sexually transmitted infections (STIs) as risk factors and the specifics of routine screening practices like Pap smear tests. Cultural factors such as stigma and traditional gender roles also heavily influence attitudes toward prevention, presenting additional challenges to effective screening and vaccination efforts. The study further identifies systemic barriers, including limited access to healthcare services, financial constraints, and insufficient support for healthcare providers, which hinder comprehensive cervical cancer prevention strategies.

Future research should expand beyond Mosul to include a broader geographic representation across Iraq, incorporating rural and underserved areas to better understand regional disparities in knowledge, access, and preventive practices. Longitudinal studies could offer deeper insights into how attitudes and behaviours evolve over time and in response to targeted interventions. Furthermore, future studies may benefit from integrating other behavioural theories, such as the Health Belief Model or Theory of Planned Behavior, to capture additional psychosocial and contextual variables influencing prevention efforts. There is also a need to explore the impact of nurse-led community outreach programmes, digital health interventions, and policy changes on improving cervical cancer awareness and screening rates. Such efforts could play a pivotal role in building a sustainable, culturally competent cervical cancer prevention infrastructure in Iraq.

Recommendation

To improve cervical cancer prevention, targeted and culturally relevant educational programmes should be provided for nurses and healthcare workers, using platforms like workshops and webinars. Community leaders and influencers should be engaged to promote open discussions and reduce stigma around screening and HPV vaccination. Expanding access through mobile clinics and outreach initiatives, especially in underserved areas, is essential and can be supported through public-private partnerships and international aid.

Strengthening healthcare infrastructure by ensuring the availability of vaccines, screening tools, and proper maintenance is crucial. Financial strategies such as subsidies and cost-sharing models should be introduced to make services affordable. Continuous professional development, including certified training and career incentives, will enhance healthcare workers' advocacy and skills. Policy integration is also key – cervical cancer prevention must be included in national health protocols and medical education. Finally, robust monitoring systems and the use of digital tools like apps and SMS reminders will support programme effectiveness, sustainability, and public awareness.

Conflict of Interest

The authors affirm that there are no conflicting objectives.

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