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Review Article

KNOWLEDGE, ATTITUDES, AND PRACTICE REGARDING
CERVICAL CANCER SCREENING AMONG WOMEN IN
SAUDI ARABIA: A SYSTEMATIC REVIEW¹Maryam Almumtin, ² Saleha Ahmed El Eid, ¹ Mohammed Mahmoud Al Hadeeri¹OB/GYN Resident, Eastern Health Cluster, Saudi Arabia²Physician, E1 Cluster, Qatif Health Network, Saudi Arabia**Abstract:**

Background: Cervical cancer remains a significant public health challenge globally. All the early detection via Papanicolaou (pap) Mary testing and human papilloma virus (HPV) vaccination significantly reduces disease, burden, uptake rates in Saudi Arabia, remain among the lowest International.

Objective: to systemically review and synthesise existing empirical literature regarding the knowledge, attitudes, and practices (KAP) concerning cervical cancer and screening among women residing in Saudi Arabia.

Methods: Following PRISMA guidelines, systemic literature synthesis was conducted across major electronic databases (pub, cops, web of science, and directory of open Access journals). Study is published up to 2025 assessing KAP related to cervical cancer, Pap smear tests, and HPV among Saudi women were included. Data were extracted and evaluated using standardised quality assessment tools.

Results: Eleven primary studies encompassing diverse geographic regions across Saudi Arabia, were analysed. Overall knowledge regarding cervical cancer aetiology, HPV transmission, and the utility of Pap smear range from low to moderate (awareness of HPV as a positive agent: 14.4%-34.0%; Pap near awareness: 43.0%-67.6%). While general attitudes towards primary health were moderately favourable (47.0%-81.1% accepting the importance of screening), actual screening practice was striking poo, with historical pap near uptake reported between 5.7% and 25.8%. Primary barriers included lack of awareness/physician, recommendation, harassment/modesty, concerns, fear of procedural, discomfort, and misconceptions regarding cancer risk among unmarried or asymptomatic woman.. recommendation by primary healthcare physician was identified as the simple strongest driver for screening uptake.

Conclusion: a substantial disparity exists between favourable health attitudes and actual screening practice among women in Saudi Arabia. Strategic public health interventions, organised national screening programmes and physician lead education are urgently required to bridge this implementation gap.

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1. INTRODUCTION:

Cervical cancer is the fourth most common malignancy among women globally, accounting for over 600,000 new cases and more than 340,000 deaths annually (Alsbeih, 2014; Altom et al., 2024). In the Kingdom of Saudi Arabia (KSA), cervical cancer is ranked as the ninth most common cancer among women, with approximately 10.7 million women aged 15 and older at risk of developing the disease (Alanazi et al., 2024; Buaeshah et al., 2023). Persistent infection with high-risk human papillomavirus (HPV) genotypes—most notably HPV-16 and HPV-18—is established as the primary cause in over 90% of invasive cervical carcinoma cases in KSA (Alsbeih, 2014).

Despite the proven efficacy of cytological screening via the Papanicolaou (Pap) smear test and prophylactic HPV vaccination in reducing morbidity and mortality by up to 80% (Alshammiri, 2022), cervical cancer in Saudi Arabia is frequently diagnosed at advanced clinical stages (Alsbeih, 2014). Unlike high-income nations with organized national screening programs, cervical screening in Saudi Arabia has historically operated on an opportunistic basis (Al Ghamdi, 2022; Zahid et al., 2022).

This systematic review synthesizes published evidence on KAP levels regarding cervical cancer screening among women across Saudi Arabia.

2. METHODS

2.1 Protocol and Guidelines

This review was structured in alignment with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

2.2 Search Strategy & Eligibility Criteria

A comprehensive search was conducted across MEDLINE/PubMed, Scopus, and Google Scholar for studies published through 2025. Search strings combined MeSH terms and keywords: ("Cervical Cancer" OR "Pap Smear" OR "Human Papillomavirus") AND ("Knowledge" OR "Attitude" OR "Practice" OR "KAP") AND ("Saudi Arabia").

Inclusion Criteria:

- Original observational cross-sectional or cohort studies conducted in Saudi Arabia.
- Investigated knowledge, attitudes, or practice/uptake of cervical cancer screening (Pap smear) or HPV prevention among female populations.
- Published in peer-reviewed scientific journals in English.

Exclusion Criteria:

- Case reports, narrative reviews, editorials, or conference abstracts lacking full methodology.
- Studies conducted exclusively among non-resident populations without Saudi demographic representation.

2.3 Data Extraction & Quality Appraisal

Extracted variables included author, publication year, study region/setting, sample size, key demographic features, awareness/ knowledge metrics, attitude parameters, screening uptake rates, and identified predictors or barriers. Quality appraisal was performed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies.

RESULTS:

3.1 Overview of Included Studies

Eleven studies met all inclusion criteria, representing major regions of KSA, including Riyadh, Western Region (Jeddah, Makkah), Eastern Province, Qassim, Hail, Al-Madinah, and Asir/Southern Region.

Study	Region	Sample Size (n)	Pap Smear Awareness (%)	Ever Had Pap Smear (%)	HPV Knowledge (%)
Dhaheer (2019)	Southern Region	255	43.0%	< 1.0%	Low
Alnafisah et al. (2019)	Qassim	2,220	Moderate	15.3%	Low
Alissa (2021)	National / Riyadh	Variable	Moderate	Low Intent	Low–Moderate
Zahid et al. (2022)	Al-Madinah	1,489	44.6%	Low	12.6%
Al Ghamdi (2022)	National	755	64.5%	21.1%	21.2%
Algabr et al. (2022)	Primary Care (KSA)	601	54.1%	20.3%	18.1%
Alshammiri (2022)	Hail	387	42.0%	5.7%	Low
Buaeshah et al. (2023)	Eastern Province	400	61.3%	Suboptimal	Moderate
Alanazi et al. (2024)	Central / Northern	114	Low (Students)	Low	13.9%
Altom et al. (2024)	Al-Madinah	General Pop.	Moderate	Low	29.8%
Alsbeih (2014)	Epidemiological Review	N/A	Variable	Low	Variable

1.5 Phytochemicals in *Ocimum tenuiflorum*

3.2 Domain-Specific Synthesis

A. Knowledge & Awareness

- **Etiology & HPV:** Knowledge regarding HPV as the primary causative agent of cervical cancer remains poor across most sub-populations. Only 12.6% to 34.0% of participants recognized the viral etiology of cervical carcinoma (Zahid et al., 2022; Dhaheer, 2019).
- **Screening Test Awareness:** Awareness of the Pap smear as a diagnostic and preventive tool ranged between 42.0% and 67.6% (Alshammiri, 2022; Algabr et al., 2022). High-school teachers and

university-educated respondents exhibited higher awareness, yet comprehensive knowledge regarding screening frequency and eligible age groups remained limited (Alshammiri, 2022; Buaeshah et al., 2023).

- **Information Sources:** Social media platforms and general internet search engines were reported as the primary information sources for over 60% of women, with direct communication from healthcare providers accounting for less than 30% (Al Ghamdi, 2022; Dhaheer, 2019).

B. Attitudes & Perceptions

- **Positive Receptivity:** A high proportion of women demonstrated positive attitudes toward preventive health when properly informed. Acceptance rates for future screening ranged from 47.0% to 81.1% following educational briefing (Alshammiri, 2022; Al Ghamdi, 2022).
- **Misconceptions & Stigmas:** Substantial socio-cultural misconceptions were identified: 78.8% of participants in one cohort believed screening was necessary only for women experiencing active symptoms or those with multiple marital partners (Buaeshah et al., 2023).
- Misconceptions regarding HPV vaccines were common, with 47.8% incorrectly believing the vaccine functions as a curative treatment for active cervical cancer (Buaeshah et al., 2023).

C. Screening Practice & Uptake Rate

Actual lifetime uptake of Pap smear testing is extremely low across Saudi Arabia, ranging from 5.7% among female educators in Hail (Alshammiri, 2022) to 25.8% in national online samples (Al Ghamdi, 2022). Routine, opportunistic screening without explicit physician referral was virtually absent (< 2% of screened cases) (Dhaher, 2019).

D. Predictors & Determinants of Screening

Primary Facilitators: Direct recommendation by a family physician or gynecologist, higher educational attainment, older age group (35–50 years), and previous history of obstetric/gynecological examinations (Algabr et al., 2022; Alissa, 2021).

Primary Barriers:

- **Lack of Physician Recommendation:** Cited as the leading systemic barrier.
- **Low Risk Perception:** Feeling "healthy and asymptomatic" (Dhaher, 2019; Algabr et al., 2022).
- **Embarrassment & Modesty Concerns:** Reported by up to 58.8% of respondents (Buaeshah et al., 2023).
- **Fear of Pain / Procedural Discomfort.**

DISCUSSION:

This systematic review highlights a structural discordance between Saudi women's health attitudes and their actual clinical practices. While the majority of Saudi women display favorable attitudes toward preventive medicine once educated, actual Pap smear testing rates (~5.7%–25.8%) lag far behind international benchmarks (e.g., >70% in organized screening systems in North America and Western Europe) (Alsbeih, 2014; Zahid et al., 2022).

Systemic and Cultural Considerations

- **Opportunistic vs. Organized Screening:** Saudi Arabia's reliance on opportunistic screening means tests are performed primarily when patients present with unrelated gynecological complaints or explicit symptoms (Al Ghamdi, 2022).
- **Role of Primary Care Physicians:** Evidence underscores that physician recommendation is the single most powerful predictor of screening uptake (Algabr et al., 2022). Primary healthcare centers represent an underutilized avenue for routine health counseling.
- **Information Channels:** Social media dominates as the main information source, leading to widespread misconceptions regarding disease transmission, vaccine scope, and eligibility (Al Ghamdi, 2022; Buaeshah et al., 2023).

CONCLUSION:

Saudi Arabian women demonstrate low-to-moderate knowledge and exceptionally low practice rates regarding cervical cancer screening, despite maintaining generally positive attitudes toward health preservation.

RECOMMENDATIONS FOR PUBLIC HEALTH ACTION:

- **Establish Organized National Screening:** Transition from opportunistic testing to an organized national registry-based cervical screening program integrated into primary healthcare.
- **Empower Primary Healthcare Providers:** Mandate routine screening counseling and Pap smear referrals by primary care physicians during routine adult female health visits.
- **Targeted Health Education Campaigns:** Launch culturally sensitive public awareness campaigns leveraging social media and primary healthcare clinics to dispel modesty fears, highlight asymptomatic prevention, and clarify HPV vaccine efficacy.

REFERENCES:

1. Alanazi, A. K., Kayal, E., Alanzi, S., Al Hodian, H., & Bin Rusayes, A. (2024). Knowledge and awareness toward human papillomavirus vaccination among Saudi female nursing students. *Frontiers in Global Women's Health*, 5, Article 1470048. <https://doi.org/10.3389/fgwh.2024.1470048> (Citations: 10)
2. Al Ghamdi, N. H. (2022). Knowledge of human papilloma virus (HPV), HPV-vaccine and pap

- smear among adult Saudi women. *Journal of Family Medicine and Primary Care*, 11(6), 2989–2999.
https://doi.org/10.4103/jfmmpc.jfmmpc_2094_21
(Citations: 26)
3. Algabr, G. A., AlSaud, L., & Ismail, A. A. S. (2022). Knowledge, attitudes and practices toward cervical cancer and screening among sexually active Saudi females visiting a primary care center in Saudi Arabia. *Journal of Family Medicine and Primary Care*, 11(10), 6121–6126.
https://doi.org/10.4103/jfmmpc.jfmmpc_141_22
(Citations: 10)
 4. Alissa, N. A. (2021). Knowledge and intentions regarding the Pap smear test among Saudi Arabian women. *PLOS ONE*, 16(6), e0253850.
<https://doi.org/10.1371/journal.pone.0253850>
(Citations: 28)
 5. Alnafisah, R. A., Alsuhaibani, R., Alharbi, M. A., Alsohaibani, A. A., & Ismail, A. A. (2019). Saudi women's knowledge and attitude toward cervical cancer screening, treatment, and prevention: A cross-sectional study in Qassim region (2018-2019). *Asian Pacific Journal of Cancer Prevention*, 20(10), 2965–2969.
<https://doi.org/10.31557/apjcp.2019.20.10.2965>
(Citations: 60)
 6. Alshammiri, S. M. (2022). Knowledge and attitudes of cervical cancer screening among female high school teachers in Hail city: A cross-sectional study. *Journal of Family Medicine and Primary Care*, 11(10), 6390–6394.
https://doi.org/10.4103/jfmmpc.jfmmpc_917_22
(Citations: 17)
 7. Alsbeih, G. (2014). HPV infection in cervical and other cancers in Saudi Arabia: Implication for prevention and vaccination. *Frontiers in Oncology*, 4, Article 65.
<https://doi.org/10.3389/fonc.2014.00065>
(Citations: 92)
 8. Altom, F., Khawaji, N. Y., Almalki, M. M., Almohammadi, W. A., Al-Enezi, H. S., & Al-Khalil, S. Y. (2024). Knowledge, attitude, and perception regarding the Human Papillomavirus (HPV) vaccine among parents at Al-Madinah Al-Munawwar: A cross-sectional study. *Cureus*, 16(7), e65850.
<https://doi.org/10.7759/cureus.65850>
(Citations: 6)
 9. Buaeshah, M., Medany, Y. E., Naim, M. A., Alharfi, S., Alkhaldi, R. D., Almoaibed, G., Alkhayyal, A. K., Al-Malki, M., Al-Taweel, M., Almulhim, A., Aldossary, F. R., & Althuwayqib, A. K. (2023). Knowledge, attitude and practice of cervical cancer screening in the Eastern Province of Saudi Arabia. *Saudi Journal of Medical and Pharmaceutical Sciences*, 9(7), 477–484.
<https://doi.org/10.36348/sjmps.2023.v09i07.017>
(Citations: 1)
 10. Dhaher, E. A. (2019). Knowledge, attitudes and practices of women in the southern region of Saudi Arabia regarding cervical cancer and the Pap smear test. *Asian Pacific Journal of Cancer Prevention*, 20(4), 1177–1184.
<https://doi.org/10.31557/apjcp.2019.20.4.1177>
(Citations: 74)
 11. Zahid, H. M., Qarah, A. B., Alharbi, A. M., Alomar, A. E., & Almubarak, S. A. (2022). Awareness and practices related to cervical cancer among females in Saudi Arabia. *International Journal of Environmental Research and Public Health*, 19(3), Article 1455. <https://doi.org/10.3390/ijerph19031455>
(Citations: 46)