Cervical Cancer Screening Knowledge and Awareness in KSA: A Systematic Review

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Abstract:

Cervical cancer is a significant global health concern, and Saudi Arabia is facing its impact as

well. It ranks ninth in terms of the prevalence of cervical cancer among women globally. Early detection of cervical cancer is crucial as it is highly treatable in its early stages. Screening is recommended for newlywed women who are sexually active, but its implementation depends on individual preferences and healthcare professional advice. This study aims to summarize current evidences on the current level of awareness among women in Saudi Arabia regarding cervical cancer screening methods as well as highlight factors influencing awareness levels in different regions and identify knowledge and awareness gaps related to cervical cancer screening methods. By conducting a systematic review using the PubMed database, the study aims to gather a comprehensive understanding of cervical cancer and screening methods in Saudi Arabia. The findings of this study can guide targeted educational interventions to improve cervical cancer screening rates and promote women's health in the country.

Keywords: cervical cancer, screening, Human papilloma virus (HPV), Pap smear test, Saudi Arabia.

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Introduction

Cervical cancer is a significant public health issue in the Kingdom of Saudi Arabia (KSA), with high incidence and mortality rates. Screening for cervical cancer is an effective way to detect the disease at an early stage, when it is most treatable **[1]**. However, knowledge and awareness about cervical cancer screening in KSA are still low among the general population. This essay will explore the current status of cervical cancer screening knowledge and awareness in KSA, and discuss potential strategies to improve it **[2]**.

Cervical cancer is the fourth most common cancer among women globally, and it is estimated that over 500,000 new cases are diagnosed each year. In KSA, cervical cancer is the second most common cancer among women, with an estimated 1,000 new cases diagnosed annually **[3]**. The mortality rate for cervical cancer in KSA is also high, with over 400 deaths reported each year. These statistics highlight the urgent need for improved awareness and knowledge about cervical cancer screening in the country **[4]**.

Several factors contribute to the low level of knowledge and awareness about cervical cancer screening in KSA. These include cultural and religious barriers, lack of access to healthcare services, and limited education about the importance of screening. Additionally, there is a lack of public health campaigns and initiatives to raise awareness about cervical cancer and the importance of regular screening **[5]**.

Public health campaigns and initiatives should be launched to raise awareness about cervical cancer and the importance of screening. These campaigns can utilize various media platforms, such as television, radio, and social media, to reach a wide audience. They should also involve community leaders, religious figures, and healthcare professionals to help disseminate accurate information and encourage women to undergo regular screening **[6, 7]**. This review aims to overview the current knowledge and awareness of cervical cancer screening methods in KSA.

Methodology:

This Integrative Literature Review includes exploratory research with a quantitative approach (ILR). ILR is a technique for compiling previously published studies with the objective of synthesizing the evidence on

a topic; it is frequently used in the health sciences to identify health-care methods and determine innovations, enabling the application of evidence-based services, guaranteeing quality, and promoting patient safety. It consists of six steps that need to be finished in that order: The study problem is explained, the inclusion and exclusion criteria are listed, the sample is described, the included studies are assessed, the results are interpreted, and the ILR synthesis is presented.

Due to their reputation as reliable sources, PubMed and EBSCO Information Services were chosen as the search databases for the publications used in the study. One of the biggest online digital libraries, PubMed was created by the National Center for Biotechnology Information (NCBI), a division of the National Library of Medicine of the United States. In creating the paper, topics relating to study topics were utilized. The titles and abstracts of the founded articles were scrutinised.

The inclusion criteria for the systematic review on "Awareness of Cervical Cancer Screening Methods in Saudi Arabia" include studies conducted in Saudi Arabia that assess the awareness of cervical cancer screening methods among adult women aged 18 and above. Additionally, studies published in peer-reviewed journals in English or Arabic, with a clear methodology and data collection process, and that report on the knowledge and attitudes towards cervical cancer screening methods are included. Conversely, the exclusion criteria encompass studies conducted outside of Saudi Arabia, those not related to cervical cancer screening awareness, and studies in languages other than English or Arabic.

STATISTICAL ANALYSIS

No software was utilized to analyze the data. The data was extracted based on specific form that contains (Title of the publication, author's name, objective, summary, results, and outcomes). Double revision of each member's outcomes was applied to ensure the validity and minimize the mistakes. During articles selection, studies were doubled-reviewed, and their results to assure that we enroll the studies related to the objective of our study, and to avoid or minimize errors in the results.

Results

After doing a rigorous search, we found 570 research publications; 150 were immediately eliminated. After reviewing the abstracts and titles of 420 publications, we determined that 190 research were not acceptable for publishing. Out of the 160 research that were

asked to be retrieved, only 230 papers were found. Sixty of the seventy papers that were screened for full-text review were turned down because their study designs or results weren't adequate. In the end, ten research publications were deemed eligible for this systematic review. Figure 1 provides specifics of the research selection procedure.

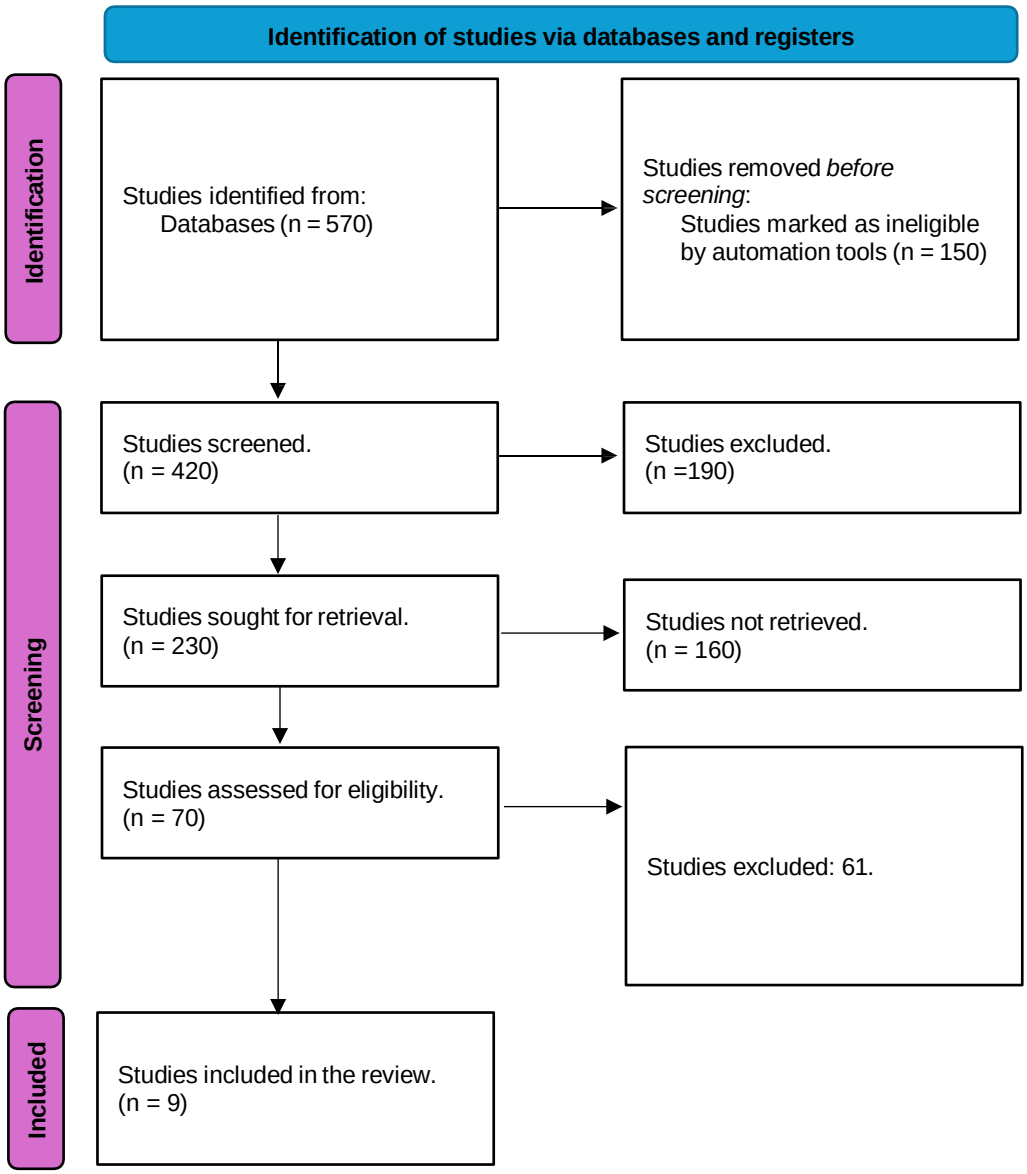

Figure (1): PRISMA flowchart summarizes the study selection process.

The socio-demographic data of participants from nine different research studies is presented in Table (1), outlining the number of participants from references [8-16]. These studies were carried out in various regions of Saudi Arabia, including Riyadh [8], Al Madinah Province [9], Hail city [10], the Qassim region[11], Abha[13], Jeddah[14], and throughout Saudi Arabia [12, 15, 16]. All of the reviewed studies utilized a cross-sectional design [8-16].

in their study, Algabr, Ghadah Abdulrahman et al. (2022) included 601 sexually active Saudi females, with a mean age of 34.0 ± 10.8 years, who were visiting the primary care center. Zahid, Heba M et al. (2022) stated that 1498 women were included in the study, with 51.4% aged between 18–25 years and 48.6% aged over 25 years. According to Alshammiri, Salma Merdhi et al. (2022), 386 female high school teachers participated in the study, with a mean age of 41.4 years. Alnafisah, Rawan A et al. (2019) highlighted that 2220 women participated in their study, with 41.5% aged 15 to 30 years, 42.9% aged 31 to 45 years, and 15.6% aged 46 to 65 years. Alkhamis, Fatimah H et al. (2022) reported 2337 women as participants, with 31.90% aged 21-30 years, 34.90% aged 31-45 years, 26.80% aged 46-59 years, and 6.40% aged 60-65 years. Easwaran, Vigneshwaran et al. (2022) reported 185 Female Pharmacy Students at a Public University, with ages ranging from 18 to 28 years. Alsalmi et al. (2022) stated 385 women, aged between 18 and 65 years. Alsharif et al. (2022) reported 128 women, and Al Ghamdi et al. (2022) reported 755 women, with ages ranging from 18 to 72 years.

TABLE 2 shows studies provided detailed information on the level of cervical cancer (CC) knowledge, knowledge of CCS methods, and knowledge of CC risk factors. Algabr, Ghadah Abdulrahman et al. 2022 [8] reported in their study that three in four women had heard of CC, with 89.9% believing it is a preventable disease. 54.1% believed that a Pap smear helps diagnose and prevent CC, while 42.1% knew that it should be done every 3 years. Additionally, 50% of surveyed women believed that long-term use of contraceptive pills, smoking, HIV, multiple sexual partners, and HPV are risk factors for CC.

Zahid, Heba M et al. 2022 [9] highlighted in their study that 51.9% of the participants had heard about the Pap smear, while participants correctly identified virus transmitted sexually (34.8%), long-term use of contraceptives (25.0%), multiple births (4.30%), smoking

(15.0%), family history (53.5%), and bacteria transmitted sexually (28.4%) as risk factors for cervical cancer.

Alshammiri, Salma Merdhi et al. 2022 [10] reported in their study that 17% of the participants had knowledge about the virus and 42.3% had heard about the CCS methods. Alnafisah, Rawan A et al. 2019 [11] highlighted that 70% of participants had previous knowledge about cervical cancer, while half of the participants had heard about the Pap smear test and 12.9% believed that prolonged contraceptive use is a significant risk factor.

Alkhamis, Fatimah H et al. 2022 [12] stated that 51.3% of the participants were knowledgeable about cervical cancer, while 14.8% reported a lack of knowledge about cervical cancer screening and its importance. Easwaran, Vigneshwaran et al. 2022 [13] reported that 13% of participants had not heard about cervical cancer, while 71.5% stated that cervical cancer screening helps prevent the disease. Alsalmi et al. 2022 [14] reported that 79.7% had heard of cervical cancer and 33.4% had already been screened for it (had a Pap test). Alsharif et al. 2022 [15] concluded that 74% of the samples have good knowledge that a Pap smear is an early screening measure for cervical cancer and have a good understanding of smoking as a risk factor for breast cancer. Furthermore, 73% have good knowledge of age > 45 years as a risk factor for breast cancer. Al Ghamdi et al. 2022 [16] reported that 52.1% of participants recognized that CC is a preventable disease, and more than half of them knew about Pap smear.

TABLE 1: Socio-demographic characteristics of the participants

Study	Area	Study design	No of participants	Type	Age	Duration of study
Algabr, Ghadah Abdulrahman et al. 2022 [8]	Riyadh	a cross-sectional study	601 women	sexually active Saudi females who were visiting the primary care center	mean age of 34.0 ± 10.8 years	between July and December 2020
Zahid, Heba M et al. 2022 [9]	Al Madinah Province	A cross-sectional study	1498 women	NA	51.4% were between 18–25 years 48.6% were more than 25 years	NA
Alshammiri, Salma Merdhi	Hail city	cross-sectional study	386 women	female high school teachers	mean age being 41.4	between June 1,

et al. 2022 [10]					years	2021 to October 1, 2021
Alnafisah, Rawan A et al. 2019 [11]	the Qassim region	cross-sectional study	2,220 women	NA	15 - 30 41.5% 31 – 45 42.9% 46 – 65 15.6%	NA
Alkhamis, Fatimah H et al. 2022 [12]	Saudi Arabia	cross-sectional design	2,337 women	NA	31.90% were 21-30 years 34.90% were 31-45 years 26.80% were 46-59 years 6.40% were 60-65 years	between September 2022 and November 2022
Easwaran, Vigneshwaran et al. 2022 [13]	Abha, in the southern region of Saudi Arabia	cross-sectional study	185 women	Female Pharmacy Students at a Public University	from 18 years to 28 years.	between April 2022 to September 2022
Alsalmi et al. 2022 [14]	Jeddah	cross-sectional study	385 women	NA	21-65 years	between May to November 2021
Alsharif et al. 2022 [15]	Saudi arabia	A quantitative, descriptive, cross-sectional study	128 women	NA	NA	from March 2020 to April 2020
Al Ghamdi et al. 2022 [16]	Saudi arabia	cross-sectional study	755 women	NA	18-72 years	NA

TABLE 2: level of CC knowledge, knowledge level of CCS methods, knowledge level of CC risk factors

Study	Level of knowledge about CC	Level of knowledge about CCS methods	Level of knowledge about CC risk factors
Algabr, Ghadah Abdulrahman et al. 2022 [8]	Three in four women (75.7%) heard of CC	54.1% believed that doing a Paps smear helps them diagnose and prevent CC	50% of women surveyed who believed that the use of contraceptive pills for a long time, smoking, HIV, multiple sexual partners, smoking, and HPV are risk factors for CC
	89.9%) thought that it is a preventable disease	42.1% knew that a Paps smear should be done every 3 years	

Zahid, Heba M et al. 2022 [9]	**NA**	51.9% had heard about the pap smear	articipants correctly selected the following as risk factors of cervical cancer: virus transmitted sexually (34.8%, n = 522), long-term use of contraceptives (25.0%, n = 374), multiple births (4.30%, n = 64), smoking (15.0%, n = 225), family history (53.5%, n = 801), and bacteria transmitted sexually (28.4%, n = 426).
Alshammiri, Salma Merdhi et al. 2022 [10]	17% had knowledge about the virus	42.3 % had heard about the CCS methods	NA
Alnafisah, Rawan A et al. 2019 [11]	(70%) of participants had previous knowledge about cervical cancer	half of the participants had heard about the pap smear test	12.9% believe that The most selected risk factor was prolonged contraceptive
Alkhamis, Fatimah H et al. 2022 [12]	51.3% of the participants knew that cervical cancer, to a high degree	14.8% reported a lack of knowledge about cervical cancer screening and its importance	NA
Easwaran, Vigneshwaran et al. 2022 [13]	13%) participants had not heard about cervical cancer	71.5% stated that cervical cancer screening helps prevent cervical cancer	NA
Alsalmi et al. 2022 [14]	79.7% had heard of cervical cancer	33.4% had been already screened for cervical cancer (have had a Pap test)	NA
Alsharif et al. 2022 [15]	**NA**	74%) of the studied samples have good knowledge that a Pap smear is considered as an early screening measure for cervical cancer	a good knowledge of smoking as a risk factor for breast cancer, followed by age > 45 years (74% and 73%, respectively). However, the majority of the studied samples (93%) did not know that hormone replacement therapy (HRT) is a risk factor for breast cancer.
Al Ghamdi et al. 2022 [16]	(52.1%) could recognize that CC is a preventable disease	More than half of them knew Pap smear (59.9%	NA

Discussion

Early screening can help detect premalignant types of CC and avoid disease. The current study assessed the attitudes and knowledge of adult Saudi women regarding CC in general and its screening and prevention in particular. Awareness and information regarding early identification of CC by Pap smear tests are highly helpful for women.

The American Cancer Society recommends

that CC screening be done annually, while the gap may be prolonged to three years. (17) In a 2017 survey conducted in Saudi Arabia, 46.2% of the women claimed never having heard of Pap smears, 75.5% said their doctors had never recommended getting one, and the majority (75.2%) said they had never performed a Pap test. Furthermore, with respect to Pap smear knowledge, 82% of respondents were unsure of when to begin Pap smears, 92.9% were unsure of how often Pap smears should be performed, and 93.9% were unsure of when to discontinue Pap smears. (18)

Furthermore, Sait found in prior research of the general Saudi population (2009) that the primary reason women had not had a Pap test was ignorance, and 18.3% of those who had not had a PAP screening before said that their doctor had not recommended it. (19)

According to Alharbi et al. (2015)(20) in Saudi Arabia, women in Makkah had a high level of understanding on CC. Of the participants, just thirteen percent knew about screening. Women made up just 21.4% of those surveyed, yet 79.5% of them had a favourable opinion of screening.

Al Khudairi et al. (2017) (21) looked at the attitudes, awareness, and knowledge of Saudi women regarding Pap smears. A Pap smear was not known to almost half of women. Others learned about it during gynecologic and obstetric appointments. More than 75% had never performed a Pap smear before, 82% were unaware of the test's timing, and 92.9% were unaware of its frequency. Alsous et al. (22) conducted a multinational cross-sectional survey in four Arabic-speaking countries to examine the knowledge of around 3000 women.

There was a lack of awareness and information regarding HPV and its vaccination. Women who are younger, better educated, who work in the medical field and have had a Pap smear within the previous three years are more likely to be aware of HPV. Numerous studies on knowledge and attitudes towards CC and CC screening were conducted both locally and internationally, with largely positive outcomes.

According to Alwahaibi et al. (23) in Oman, patients, faculty members, and students had Pap smear awareness rates of 56.9%, 56.4%, and 23.6%, respectively. Patients, workers, and students had Pap smear uptake rates of 36.8%, 23.3%, and 0%, respectively, among informed women. The most prevalent objection to Pap smears was found to be the belief in leading a healthy lifestyle. Bahri et al. (24) discovered in Iran that 59.4% of individuals had weak knowledge and 14.6% had extremely weak knowledge. Still, the

majority of the females (87.3%) had a favourable opinion of the Pap smear test. Just 37.6% of women said they had received the vaccination. Atoof et al. (25) found that college of nursing personnel in Iraq had little expertise of Pap smears. Of the teaching staff, 40.5% possessed sufficient information, 35% were aware of CC, and 7.2% had at least one Pap smear test; only 26.8% of the women desired to get a Pap smear, and 50% did not do so because of fear.

Mutambara et al. (26) revealed that the majority of women in Zimbabwe (89%) had good sentiments regarding Pap smear testing. Just 16.8% of people used active screening. The biggest obstacles preventing these women from obtaining medical attention were ignorance, the notion that cancer was incurable, and their religious convictions. Yu et al. (27) examined 1578 Chinese moms with daughters aged 9 to 17. Of them, hardly one fifth (19.3%) knew anything about HPV. The general degree of HPV awareness was low. Mothers with more education levels scored best on knowledge. A significant portion of mothers (26.5%) agreed to their daughters receiving vaccinations, and this percentage rose as the daughters' age, family income, and degree of HPV awareness increased. The women who were not employed as housewives showed the highest level of approval. The three most prevalent barriers were vaccination safety (23%), vaccine non-use (24.9%), and mothers' perceptions that their girls are still too young to have CC (31%).

Zhang et al. (28) conducted a meta-analysis revealing that the combined rates of HPV awareness and knowledge were 16% and 17.6%, respectively. Notably, women (17.4%) were far more informed about the HPV vaccination than males (1.8%). Sixty-three percent of individuals accepted immunization for themselves, and the same percentage accepted vaccination for their daughters. Adult vaccination acceptance was largely driven by vaccine safety, while readiness to vaccinate daughters was primarily motivated by vaccine effectiveness and safety.

In their 2014 analysis, Ranabhat et al. (29) discovered a strong correlation between CC, positive test attitudes, age groups between 36 and 50, and urban residency among Nepalese women knowledgeable about the Pap smear test. Age at first childbirth, parity, and marriage age were unrelated to Pap smear use. A positive attitude towards the Pap smear test was the sole predictor significantly affecting Pap smear uptake, even when considering all other variables simultaneously.

A cross-sectional assessment of 200 female healthcare professionals in India found that

26.5% performed clinical breast exams, and 7% performed mammograms. Over 90% of respondents were familiar with the symptoms, risk factors, and screening tools for breast and cervical cancer. However, adequate screening for cervical and breast cancers demanded more than just a thorough awareness of screening protocols and avoidable cancers. (30)

In another study conducted in India, women aged 25 to 60 in five rural villages in the Vellore region of Tamil Nadu were surveyed. Results indicated that 43.8% and 57.9% of respondents knew that cervical and breast cancer screenings were available, respectively. Only 5.9% and 27.2%, respectively, had sufficient knowledge about breast cancer and cervical cancer (scoring 50% or above). (31)

Beni-Suef University in Egypt conducted research involving 500 students, revealing a lack of knowledge about breast and cervical cancers; students' understanding of these cancer screening methods was notably deficient. (32) In a separate study in Turkey, 668 women had insufficiently high screening test frequencies. (33) Increasing awareness about the importance of yearly breast cancer screening beyond the age of 45 is considered a top priority.

Conclusion

Cervical cancer, a condition preventable through proper immunization and early screening, was observed to have a moderate level of awareness in the present study. Lack of knowledge and understanding about the disease are common barriers to receiving cervical cancer screening services and related care. However, it's important to acknowledge that solving all public health issues cannot be accomplished in isolation. The primary obstacles to receiving cervical cancer screening services and associated care are lack of knowledge and understanding about the disease.

Individuals who had undergone a pap smear or received immunization exhibited significantly higher overall awareness. To enhance awareness of cervical cancer and its screening methods, availability, and vaccine, a comprehensive awareness campaign should be initiated in schools, colleges, shopping malls, and healthcare facilities. It is crucial to promote a culture of proactive health management and empower women to take charge of their well-being through informed decision-making.

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