

Knowledge, Attitude and Practices Regarding Cervical Cancer and Screening among Saudi Women in Ar Rass, Qassim

Arwa Ahmed Alrasheed, Uma M. Irfan

Department of Medical Laboratories, College of Applied Medical Sciences, Qassim University, Qassim, Kingdom of Saudi Arabia
Email: 391200379@qu.edu.sa

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Abstract

INTRODUCTION: Internationally, cervical cancer has been regarded as the third most common form of cancer among women after breast and colorectal cancer. However, it is considered one of the most preventable cancers. Research evidence has suggested that infection with human papilloma virus (HPV) significantly increases the relative risk for developing cervical cancer. Papanicolaou cytological testing (Pap smear) permits cervical lesions to be detected before they become cancerous, effectively reducing the incidence of cervical cancer by 75% - 90%. The cervical cancer is the thirteenth most frequent cancer in Saudi women although the health facilities and vaccination are available and can be detected early. The aim of this study was to determine the knowledge, attitudes and practices regarding cervical cancer screening among Saudi women in Qassim. **METHODS:** In this cross-sectional study, we recruited 85 Saudi Women attending 3 Primary Health Care centers which had been randomly selected by simple random sampling from a list of 4 health centers in Ar Rass city during October 2022. The respondents filled a structured questionnaire after giving informed consent. The data was entered in Excel and analyzed in EpiInfo7 statistical software. **RESULTS:** The prevalence of cervical cancer in the Qassim region was probably low as 91% of the participants did not have any relatives diagnosed with cervical cancer. About 24% of female participants had good knowledge about cervical cancer and knew the probability of detecting cervical cancer with the Pap smear test before symptoms appear. However, over 56% had never heard of cervical cancer and 48% had not heard about the Pap smear. Only 14% of respondents had a Pap smear test at least once and 82% claimed to have the test done if they were told that the procedure was painless and simple. **CONCLUSION:** The knowledge and practice regarding cervical screening was inadequate among Saudi women, particularly among women less than 30 years of age, recently

married, and with low education level. However, women in Ar Rass have a positive attitude towards cervical screening services although they need to have reassurances that can reduce the barriers to having a test. There is a need to create awareness about cervical cancer screening programs and to educate Saudi women about the symptoms for early diagnosis and treatment.

Keywords

Knowledge, Attitude, Practices, Cervical Cancer

1. Introduction

Internationally, cervical cancer has been regarded as the third most common form of cancer among women after breast and colorectal cancer. However, it is considered one of the most preventable cancers. Population-based cervical smear screening programs for cervical cancer have shown the effectiveness of screening in reducing mortality.

Research evidence has suggested that infection with human papilloma virus (HPV) significantly increases the relative risk for developing cervical cancer. Papanicolaou cytological testing (Pap smear) permits cervical lesions to be detected before they become cancerous, effectively reducing the incidence of cervical cancer by 75% - 90%.

The cervical cancer is the thirteenth most frequent cancer in Saudi women although the health facilities and vaccination are available and can be detected early. So, have we promoted awareness in Saudi society to prevent or reduce cervical cancer?

2. Review of Literature

Internationally, cervical cancer has been regarded as the third most common form of cancer among women after breast and colorectal cancer [1]. However, it is considered one of the most preventable cancers [2]. Population-based cervical smear screening programs for cervical cancer have shown the effectiveness of screening in reducing mortality [3] [4] [5] [6]. The risk factors for cervical cancer include early age at first intercourse and multiple sexual partners. A male consort who in turn has had intercourse with multiple women and smoking also confer significant risk. Research evidence has suggested that infection with human papilloma virus (HPV) significantly increases the relative risk for developing cervical cancer. HIV infection may also increase a woman's risk for cervical neoplasia [7]. Papanicolaou cytological testing (Pap smear) permits cervical lesions to be detected before they become cancerous, effectively reducing the incidence of cervical cancer by 75% - 90% [8]. It is claimed that the majority of cervical cancer (theoretically up 90%) could be prevented if all women were offered and complied with high quality cytological screening programs [9]. Several institutes have recommended Pap smear screening for every sexually active wom-

an, for instance, the American preventive services task force recommended Pap smears at least every 3 years for women who have been sexually active and have a cervix [9]. Although cervical cancer is the most common cancer of women in developing countries, it is estimated that only about 5% of women have been screened for the disease with Pap smears, compared to 40% - 50% in developed countries [10]. The poor uptake of the cervical cancer screening may be attributed to the lack of communication between healthcare workers and patients regarding availability and benefits of the screening. In many developing countries, women's knowledge of cervical cancer is very limited. It has been demonstrated that the vast majority of women in some African countries had not heard of cervical cancer and even more knew nothing about cervical screening [11] [12].

Carcinoma of the cervix ranks number 9 in its frequency in Saudi female with prevalence of 3.6% [13]. The pathogenesis of cervical cancer and precancerous lesions in Muslim countries might be different compare to Western societies because of different effects of different risk factors.

2.1. Causes

Infection with some types of human papilloma virus (HPV) is the greatest risk factor for cervical cancer, Human papillomavirus type 16 and 18 are the cause of 75% of cervical cancer globally while 31 and 45 are the cause of another 10% [14]. Women who have many sexual partners (or who have sex with men who have had many other partners) have a greater risk [15] [16]. Of the 150 - 200 types of HPV known [17] [18], 15 are classified as high-risk types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82), 3 as probable high-risk (26, 53, and 66), and 12 as low-risk (6, 11, 40, 42, 43, 44, 54, 61, 70, 72, 81, and CP6108) [19]. Genital warts, which are a form of benign tumor of epithelial cells, are also caused by various strains of HPV. However, these serotypes are usually not related to cervical cancer. It is common to have multiple strains at the same time, including those that can cause cervical cancer along with those that cause warts. Infection with HPV is generally believed to be required for cervical cancer to occur [20].

2.2. Staging

Cervical cancer is staged by the International Federation of Gynecology and Obstetrics (FIGO) staging system, which is based on clinical examination, rather than surgical findings (**Figure 1**). It allows only the following diagnostic tests to be used in determining the stage: palpation, inspection, colposcopy, endocervical curettage, hysteroscopy, cystoscopy, proctoscopy, intravenous urography, and X-ray examination of the lungs and skeleton, and cervical conization [21].

2.3. Prevention

2.3.1. Screening

Checking the cervix by the Papanicolaou test, or Pap smear, for cervical cancer has been credited with dramatically reducing the number of cases of and mortal-

ity from cervical cancer in developed countries [22]. Pap smear screening every 3 - 5 years with appropriate follow-up can reduce cervical cancer incidence by up to 80% [23]. Abnormal results may suggest the presence of pre cancerous changes allowing examination and possible preventive treatment. If precancerous disease or cervical cancer is detected early, it can be monitored or treated relatively non-invasively, with little impairment of fertility. Personal invitations encouraging women to get screened are effective at increasing the likelihood they will do so. Educational materials also help increase the likelihood women will go for screening, but they are not as effective as invitations [24].

According to the 2010 European guidelines, the age at which to start screening ranges between 20 - 30 years of age, “but preferentially not before age 25 or 30 years”, and depends on burden of the disease in the population and the available resources [23].

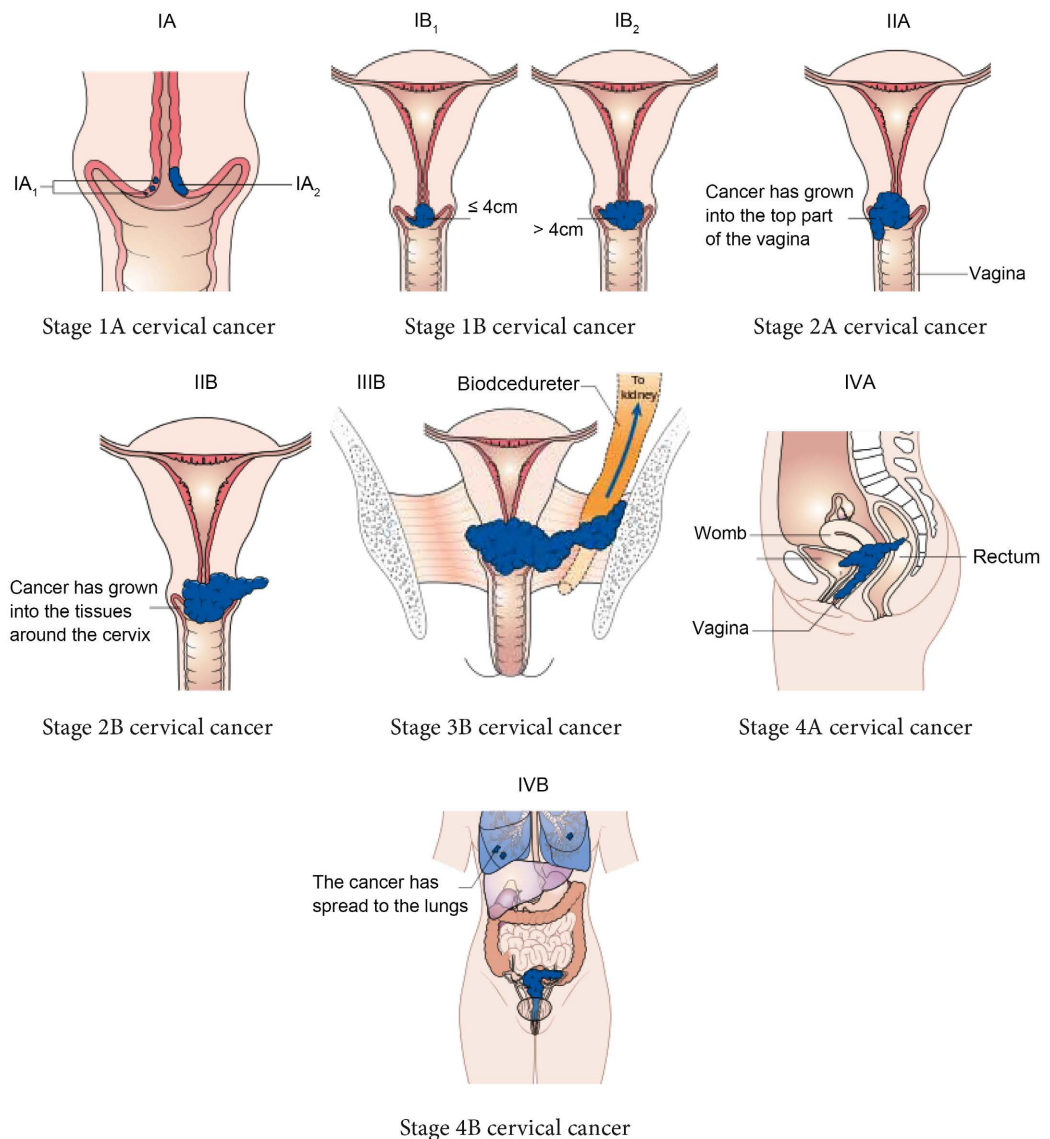


Figure 1. Cervical cancer staging.

In the United States it is recommended that screening begin at age 21, regardless of age at which a woman began having sex or other risk factors [25]. Pap tests should be done every three years between the ages of 21 and 65 [25]. In women over the age of 65, screening may be discontinued if there was no abnormal screening results within the previous 10 years and no history of CIN 2 or higher [25] [26] [27]. HPV vaccination status does not change screening rates [26]. Screening can occur every 5 years between aged 30 - 65 when a combination of cervical cytology screening and HPV testing is used and this is preferred [26]. However, it is acceptable to screen this age group with a Pap smear alone every 3 years [26].

Liquid-based cytology is another potential screening method [28] [29]. Although it was probably intended to improve on the accuracy of the Pap test, its main advantage has been to reduce the number of inadequate smears from around 9% to around 1% [30]. This reduces the need to recall women for a further smear. The United States Preventive Services Task Force supports screening every 5 years in those who are between 30 and 65 years when cytology is used in combination with HPV testing [31].

2.3.2. Vaccination

There are two HPV vaccines (Gardasil and Cervarix) which reduce the risk of cancerous or precancerous changes of the cervix and perineum by about 93% and 62%, respectively [32].

HPV vaccines are typically given to women age 9 to 26 as the vaccine is only effective if given before infection occurs. The vaccines have been shown to be effective for at least 4 [33] to 6 [34] years, and it is believed they will be effective for longer [35]; however, the duration of effectiveness and whether a booster will be needed is unknown. The high cost of this vaccine has been a cause for concern. Several countries have considered (or are considering) programs to fund HPV vaccination.

Since 2010, young women in Japan have been eligible to receive the cervical cancer vaccination for free [36]. In June 2013, the Japanese Welfare mandated that, before administering the vaccine, medical institutions must inform women that the Ministry does not recommend it [36]. However, the vaccine is still available at no cost to Japanese women who choose to accept the vaccination [36].

2.3.3. Nutrition

Vitamin A is associated with a lower risk [37] as is vitamin B12, vitamin C, vitamin E, and beta-carotene [38].

2.4. Treatment

The treatment of cervical cancer varies worldwide, largely due to large variances in disease burden in developed and developing nations, access to surgeons skilled in radical pelvic surgery, and the emergence of “fertility sparing therapy”

in developed nations. Because cervical cancers are radiosensitive, radiation may be used in all stages where surgical options do not exist. Microinvasive cancer (stage IA) may be treated by hysterectomy (removal of the whole uterus including part of the vagina). For stage IA2, the lymph nodes are removed as well. Alternatives include local surgical procedures such as a loop electrical excision procedure (LEEP) or cone biopsy [39]. For IA1 disease, a cone biopsy (akacervical conization) is considered curative. If a cone biopsy does not produce clear margins [40] (findings on biopsy showing that the tumor is surrounded by cancer free tissue, suggesting all of the tumor is removed), one more possible treatment option for women who want to preserve their fertility is a trachelectomy [41]. This attempts to surgically remove the cancer while preserving the ovaries and uterus, providing for a more conservative operation than a hysterectomy. It is a viable option for those in stage I cervical cancer which has not spread; however, it is not yet considered a standard of care [42], as few doctors are skilled in this procedure. Even the most experienced surgeon cannot promise that a trachelectomy can be performed until after surgical microscopic examination, as the extent of the spread of cancer is unknown. If the surgeon is not able to microscopically confirm clear margins of cervical tissue once the woman is under general anesthesia in the operating room, a hysterectomy may still be needed. This can only be done during the same operation if the woman has given prior consent. Due to the possible risk of cancer spread to the lymph nodes in stage 1b cancers and some stage 1a cancers, the surgeon may also need to remove some lymph nodes from around the uterus for pathologic evaluation. A radical trachelectomy can be performed abdominally [43] or vaginally [44] and there are conflicting opinions as to which is better [45]. A radical abdominal trachelectomy with lymphadenectomy usually only requires a two to three day hospital stay, and most women recover very quickly (approximately six weeks). Complications are uncommon, although women who are able to conceive after surgery are susceptible to preterm labor and possible late miscarriage [46]. It is generally recommended to wait at least one year before attempting to become pregnant after surgery [47]. Recurrence in the residual cervix is very rare if the cancer has been cleared with the trachelectomy [42]. Yet, it is recommended for women to practice vigilant prevention and follow up care including pap screenings/colposcopy, with biopsies of the remaining lower uterine segment as needed (every 3 - 4 months for at least 5 years) to monitor for any recurrence in addition to minimizing any new exposures to HPV through safe sex practices until one is actively trying to conceive. Early stages (IB1 and IIA less than 4 cm) can be treated with radical hysterectomy with removal of the lymph nodes or radiation therapy. Radiation therapy is given as external beam radiotherapy to the pelvis and brachytherapy (internal radiation). Women treated with surgery who have high risk features found on pathologic examination are given radiation therapy with or without chemotherapy in order to reduce the risk of relapse. Larger early stage tumors (IB2 and IIA more than 4 cm) may be treated with radiation therapy and

cisplatin-based chemotherapy, hysterectomy (which then usually requires adjuvant radiation therapy), or cisplatin chemotherapy followed by hysterectomy. When cisplatin is present, it is thought to be the most active single agent in periodic diseases [48]. Advanced stage tumors (IIB-IVA) are treated with radiation therapy and cisplatin-based chemotherapy. On June 15, 2006, the US Food and Drug Administration approved the use of a combination of two chemotherapy drugs, hycamtin and cisplatin for women with late-stage (IVB) cervical cancer treatment [49]. Combination treatment has significant risk of neutropenia, anemia, and thrombocytopenia side effects. Hycamtin is manufactured by GlaxoSmithKline.

2.5. Prognosis

Prognosis depends on the stage of the cancer. There is a high chance of a survival rate around 100% for women with microscopic forms of cervical cancer [50]. With treatment, the 5-year relative survival rate for the earliest stage of invasive cervical cancer is 92%, and the overall (all stages combined) 5-year survival rate is about 72%. These statistics may be improved when applied to women newly diagnosed, bearing in mind that these outcomes may be partly based on the state of treatment five years ago when the women studied were first diagnosed [51]. With treatment, 80% to 90% of women with stage I cancer and 60% to 75% of those with stage II cancer are alive 5 years after diagnosis. Survival rates decrease to 30% to 40% for women with stage III cancer and 15% or fewer of those with stage IV cancer 5 years after diagnosis [52]. According to the International Federation of Gynecology and Obstetrics, survival improves when radiotherapy is combined with cisplatin-based chemotherapy [53].

As the cancer metastasizes to other parts of the body, prognosis drops dramatically because treatment of local lesions is generally more effective than whole body treatments such as chemotherapy. Interval evaluation of the woman after therapy is imperative. Recurrent cervical cancer detected at its earliest stages might be successfully treated with surgery, radiation, chemotherapy, or a combination of the three. Thirty-five percent of women with invasive cervical cancer have persistent or recurrent disease after treatment [54]. Average years of potential life lost from cervical cancer are 25.3 (SEER Cancer Statistics Review 1975-2000, National Cancer Institute (NCI)). Approximately 4600 women were projected to die in 2001 in the US of cervical cancer (DSTD), and the annual incidence was 13,000 in 2002 in the US, as calculated by SEER. Thus the ratio of deaths to incidence is approximately 35.4%. Regular screening has meant that pre cancerous changes and early stage cervical cancers have been detected and treated early. Figures suggest that cervical screening is saving 5000 lives each year in the UK by preventing cervical cancer [55]. About 1000 women per year die of cervical cancer in the UK. All of the Nordic countries have cervical cancer screening programs in place [56]. Pap smear was integrated into clinical practice in the Nordic countries in the 1960s [56].

The knowledge of the human papilloma virus (HPV) as an etiological agent

for cervical cancer was expressed by 72 (14.4%), and the HPV vaccine by 49 (9.8%) of the respondents. Whereas, 338 (67.6%) of the respondents were aware of the Pap smear, however, only 84 (16.8%) had undergone the test. The main reason for not having a Pap smear was the lack of awareness [57].

Of the 300 women, complete information was collected from 281 (93.7%), the knowledge about the test was adequate in 147 (52.3%) women, while 86 (30.6%) had adequate attitude towards the test and only 67 (23.8%) had an adequate practice. The main reason given for not having had a Papanicolaou smear was that it was not suggested by the doctor. Among all the respondents 220 (78.7%) would prefer a female doctor to conduct the test. The level of education was the only significant factor independently associated with inadequate knowledge and attitude towards Papanicolaou smear test ($p = 0.006$ and $p = 0.001$, respectively) when adjusted for the effect of other factors in multivariate logistic regression analysis. However, age ($p = 0.001$), level of education ($p = 0.028$), and number of years since last visit with a gynaecologist ($p = 0.005$) were significant factors independently associated with inadequate practice of the test. Conclusion: Our findings showed that a well-designed health education program on cervical cancer and benefits of screening would increase the awareness among Kuwaiti women [58].

As for the source of information about papanicolaou smear. The Gynecologist doctor ranks first (53.55) Followed by family and friends which represent 22.7%, then newspaper, television and internet which represent 18% and family physician and nurses are ranked last with percentages of 3.6% and 2.1% respectively [59].

The reasons for refusing a pap smear include that the women who believe it might be painful (representing 42% of the studied population), followed by embarrassment which represents 36.1%, then the belief they are healthy (17%), and the last reason that their husband refuses (representing 5.5% of the studied population) [59].

3. Research Question

What is the knowledge, attitudes, and practices regarding cervical cancer screening among Saudi's women in Qassim?

4. Objectives

4.1. General Objective

- To determine the knowledge, attitudes, and practices of cervical cancer screening among Saudi's women in Qassim.

4.2. Specific Objectives

- 1) To assess the knowledge, attitude and practices regarding cervical cancer among Qassim's females of reproductive age.
- 2) To determine the attitude towards screening for cervical cancer among

Qassim's females.

3) To find out the practice of women in Qassim on cervical cancer screening.

4) To estimate the association between knowledge, attitudes, and practices regarding cervical cancer screening among females.

5. Methodology

5.1. Study Design

In this cross-sectional study was invited 85 females attending 3 primary health care centers which has been randomly select by multi-stage random sampling from a list of 4 health centers in Ar Rass.

5.2. Study Sample

The participants were selected by systematic random sampling by choosing every 10th adult female visiting the health center for any reason, medical or non-medical during September and October 2022.

5.3. Data Collection

Data collection was done during October 2022 using a validated questionnaire that is adopted from previous studies [12] [59] [60]. The questionnaire was translated into Arabic and then translated back to English by a different person to assess validity. It is pilot-tested in a sample of 6 women who were not part of the study sample to ensure cultural acceptance and level of validity and degree of repeatability ($\kappa = 0.85$).

The questionnaire consists of 20 items that address personal data and question about knowledge, attitudes and practices with regard to cervical cancer screening. Personal data included age, education level, marital status, parity, number of miscarriages, occupation status, husband's education and duration of marriage (Table 1, Table 2).

5.4. Operational Definitions

Knowledge is defined as: The understanding the respondents have about carcinoma of the cervix with respects to symptoms, risk factors, prevention and treatment, screening method.

- Knowledge and beliefs about cervical cancer and screening was tested with the following items: whether the respondent has ever heard of cervical cancer, has ever heard that Pap smear is used to detect cervical cancer, know the risk factors that may lead to cervical cancer, know the early detection of cervical cancer leads to better treatment and whether is it possible to cure this cancer (Table 3) (Figure 2).

Practice is defined as: The action taken by individual respondents to go for screening.

- The practice was tested with the following items: whether they ever have a Pap smear test (Table 4) (Figure 2).

Table 1. Demographic characteristics of the women participants in the study.

Demographic Characteristics	Frequency (%)
Age in years (Mean \pm SD)	31.8 \pm 8.32
Education level:	
No Education	1 (1.18)
Primary	4 (4.71)
Secondary	12 (14.12)
University	68 (80.00)
Husband's Education:	
No Education	2 (3.39)
Primary	3 (5.08)
Secondary	27 (28.81)
University	37 (62.71)
Marital status:	
Never married	25 (29.41)
Married	56 (65.88)
Divorced	3 (3.53)
widowed	1 (1.18)
Duration of marriage in years:	
1 - 18	46 (80.70)
19 - 38	11 (19.30)
Employment status:	
Employed	63 (74.12)
Unemployed	22 (25.88)

Table 2. Gynecological history of the women participating in the survey.

Gynecological History	Frequency (%)
Parity	
0	31 (36.47)
1	7 (8.24)
2	13 (15.29)
3	14 (16.47)
More than 4	20 (23.53)
Number of miscarriages.	
0	62 (72.94)
1	15 (17.65)
2	5 (5.88)
3	2 (2.35)
More than 4	1 (1.18)
You have any gynecological problems in the past.	
Yes	71 (83.53)
No	14 (16.47)
You or any other female family member ever diagnosed with cervical cancer.	
Yes	8 (9.41)
No	77 (90.59)

Table 3. Respondents knowledge about cervical cancer.

Questions	Response	Frequency (%)
Have you ever heard about the Pap smear test?	1 Yes	44 (51.76)
	0 No	41 (48.24)
Where did you hear about the Pap smear test for the first time?	1 Relatives, friends	22 (25.88)
	1 Gynaecologist	20 (23.53)
	1 Mass media	21 (24.71)
	1 Other	9 (10.59)
Do you know about the cervical cancer?	1 Yes	37 (43.53)
	0 No	48 (56.47)
What do you think are the risk factors that can lead to cervical cancer?	1 Sexually transmitted disease	34 (40.00)
	1 Early age of marriage, <18 years	5 (5.88)
	1 Marriage to man with other women	18 (21.18)
Is it possible to detect cervical cancer with the Pap smear test before symptoms appear?	1 Yes	62 (72.94)
	0 No	23 (27.06)
Is early detection of cervical cancer good for treatment outcome?	1 Yes	83 (97.65)
	0 No	2 (2.35)
Is it possible to cure cervical cancer?	1 Yes	74 (87.06)
	0 No	11 (12.94)
Is there a vaccine to protect you from cervical cancer	1 Yes	20 (23.53)
	0 No	65 (76.47)
If yes, name the vaccine	1	0

Table 4. Respondents practice toward Pap smear test.

Questions	Response	Frequency (%)
Have you ever had a Pap smear test done?	1 Yes	12 (14.12)
	0 No	73 (85.88)

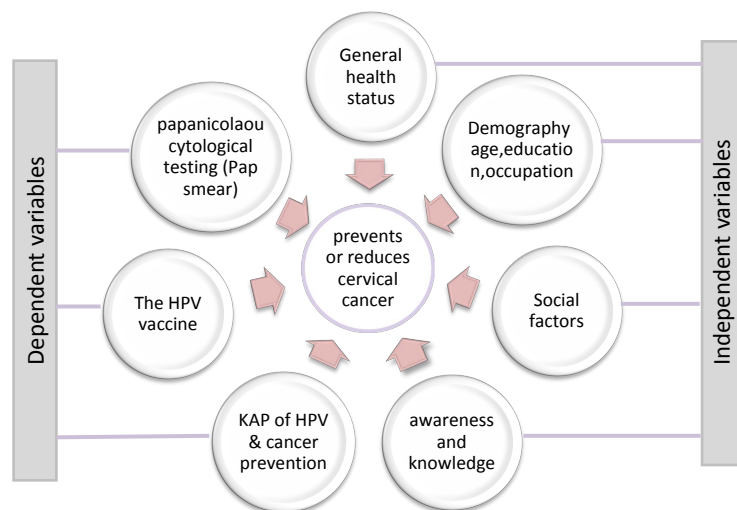


Figure 2. Conceptual model of the study.

Attitude is defined as: The belief and feeling of the respondents about screening for cervical cancer.

- The respondent's attitude is ascertained with the following items: would they like to have smear test, if they are told that the smear test is a simple, painless procedure and could lead to early detection and treatment of cervical cancer (**Table 5**) (**Figure 2**).

The questionnaire was administrate through face-to-face interviews with females assigned to the study and with the support of a receptionist, a patient care assistant and a physician for explanation, especially for illiterate women and for any unclear questions.

5.5. Data Analysis

A random sample of 85 female patients attending a private primary health center provided the data that was entered in Microsoft Excel spreadsheets and analyzed using the EPIINFO 7 statistical software. Analysis was done by using the Chi-square test of significance, to identify the associations among variables with a p-value less than 0.05 considered significant. Descriptive statistics including mean and standard deviations for continuous variables and frequency and percent for categorical variables used to describe the characteristics of study subjects.

5.6. Ethical Issues

Permission to do this study was taken from applied medical science department and primary health center that are whiling to participate in the study. To obtain the informed consent form of patients prior to data collection, a detailed explanation on the aim and objectives of the study was given; and confidentiality was ensured. The study subjects were informed that the information collected would be anonymous; and participation would be totally voluntary.

6. Results

A total of 85 females participated in this survey, with a mean age in years of 31.8 ± 8.32 . A majority (65.88%) of the women in the study sample was married for 1 - 8 years in and 80% of then had a university level of education (**Table 1**). Other details of the demographic profile of the respondents are shown in **Table 1**.

Table 5. Respondents attitude toward Pap smear test.

Questions	Response	Frequency (%)
If you were told that a Pap smear test is simple, painless and good for early detection of cervical cancer, would you like to have one?	1 Yes	70 (82.35)
	0 No	15 (17.65)
	Well women clinic in the primary health care center.	6 (7.06)
Where would you prefer to have this test done?	Gynecology clinic at general hospital.	41 (48.24)
	Private clinic.	24 (28.24)
	No preference.	11 (12.94)

The responses from participants revealed that the prevalence of cervical cancer in the Qassim region was probably low, as 91% of the participants did not have any relatives diagnosed with cervical cancer (Table 2).

Knowledge of Cervical Cancer and Pap Smear Test:

Twenty four percent of female participants had good knowledge about cervical cancer, risk factors, vaccine and probable to detect cervical cancer with the Pap smear test before symptoms appear. The main source of information about the Pap smear was obtained from relatives and friends 25.9%. However, over 56% had never heard of cervical cancer and 48% had not heard about the Pap smear. About two-thirds of the participants (72%) believed that the Pap smear can detect cancer before the appearance of symptoms and a majority (97%) believed that the Pap smear could improve treatment outcome (Table 3).

The participants' response to knowledge questions were graded as "1" for a correct answer and "0" for a wrong answer. The total knowledge scores were categorized into a dichotomous variable for knowledge with scores between "0 - 5" labeled as poor knowledge and scores between "6 - 9" labelled as good knowledge. About 75% of the respondents displayed good knowledge versus 25% reporting poor knowledge about cervical cancer and the pap smear test (Figure 3).

Practice of Cervical Cancer Screening:

Of the 85 women who participated in this study, only 14% had a Pap smear test done at least once in their lifetime (Table 4) (Figure 4).

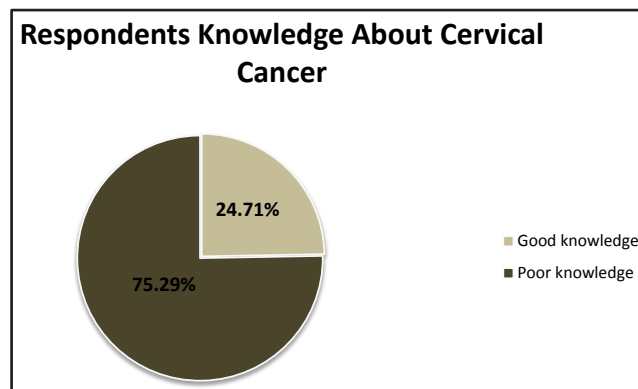


Figure 3. Respondents knowledge about cervical cancer.

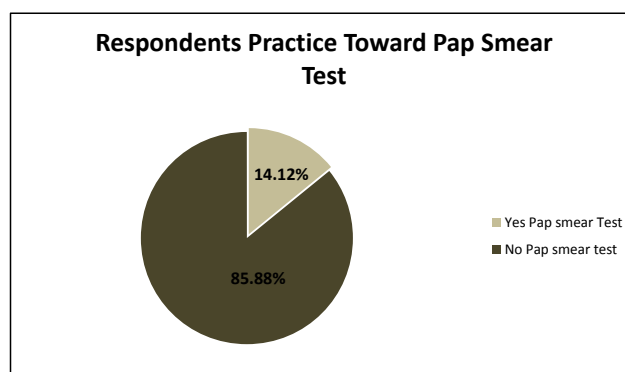


Figure 4. Respondents reported practice of cervical cancer screening.

Attitude toward Pap Smear Test:

The majority of women (82.3%) said they would have a Pap smear if they were told that the procedure was painless and simple (Table 5) (Figure 5).

More than half of the respondent would prefer the test to be done in the Gynecology clinic at general hospital. Less than 30% would prefer to get the test done at Private clinics. A very small proportion of the respondents would prefer getting the cervical screening test done at the Primary Healthcare Center and about 12% of the women had no particular preference to the location where the screening test could be done (Figure 6).

We compared knowledge scores with the practice of cervical cancer screening as shown in Table 6.

▪ The hypotheses for tests of Independence between good knowledge and practice of cervical screening

Null Hypothesis (H_0): Knowledge about cervical cancer and practice of cervical cancer screening are independent.

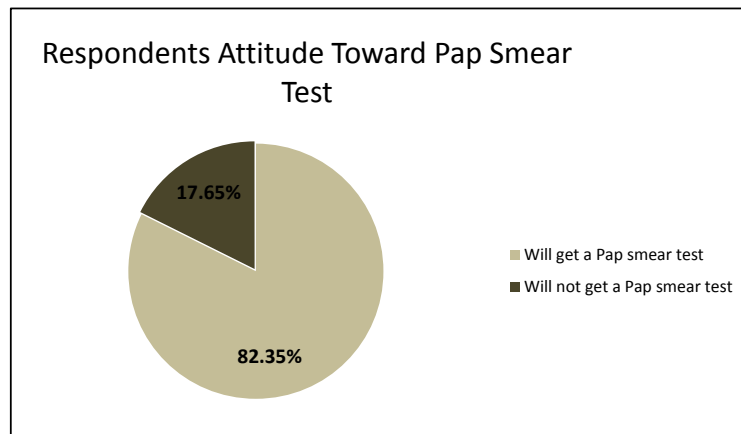


Figure 5. Respondents attitude toward cervical cancer screening.

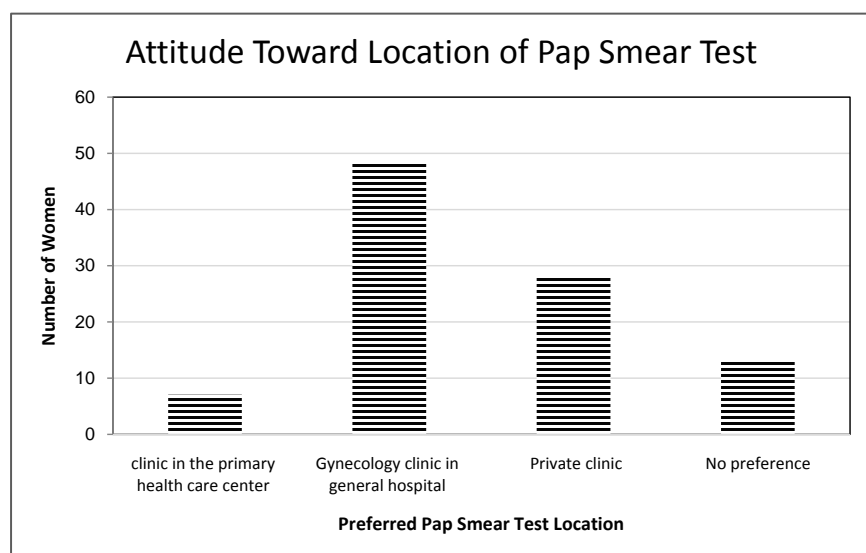


Figure 6. Attitude toward location of pap smear test.

Table 6. Association between knowledge of cervical cancer and practice of screening.

Knowledge Scores Category	Practice of Screening *	
	Frequency (%) Pap Smear Not done	Frequency (%) Pap Smear Done
Good knowledge	17 (23.29)	4 (33.33)
Poor knowledge	56 (76.71)	8 (66.67)

$p = 0.45$, * $p > 0.05$ (not significant).

Alternative Hypothesis (H_a): Knowledge about cervical cancer and practice of cervical cancer screening are not independent.

For this analysis, the significance level was 0.05 and the Fisher Exact test was employed instead of Pearson's Chi-Square test because the sample sizes were small in the cells of the contingency table. Using the sample data, we conducted a Fisher's Exact test for independence between the predictor variable (Knowledge of cervical cancer) and outcome variable (Practice of cervical cancer screening). Since the P-value (0.45) is more than the significance level (0.05), we fail to reject the null hypothesis.

Thus we conclude that there was not enough evidence at the 5% level of significance to conclude that there is an association between good knowledge about cervical cancer and the practice of cervical cancer screening of getting a Pap smear test done.

We compared appropriate attitude towards cervical cancer screening to the practice of cervical cancer screening as shown in **Table 7**.

▪ **The hypotheses for tests of Independence between appropriate attitude and practice of cervical screening**

Null Hypothesis (H_0): Appropriate attitude about cervical cancer screening and practice of cervical cancer screening are independent.

Alternative Hypothesis (H_a): Appropriate attitude about cervical cancer screening and practice of cervical cancer screening are not independent.

We conducted a Fisher's exact test for independence between the predictor variable (Appropriate attitude towards cervical cancer screening) and outcome variable (Practice of cervical cancer screening). Since the P-value (0.08) was more than the significance level (0.05), we fail to reject the null hypothesis at the 5% level of significance. Thus we conclude that there was not enough evidence at the 5% level of significance to conclude that appropriate attitude about cervical cancer screening and practice of cervical cancer screening are independent.

We compared knowledge scores with attitude as shown in **Table 8**. There was not enough evidence at the 5% level of significance to conclude that there is an association between good knowledge scores about cervical cancer and the attitude towards cervical cancer screening tests.

The responses given verbatim by the participants' regarding the reasons for not getting a Pap Smear Test done is given in **Table 9**. Mostly it was the fear of the unknown among these women, in that they expressed fear and not knowing where to get the test done, or not knowing whether it will be a painful procedure involved in the Pap smear test.

Table 7. Association between attitude towards of cervical cancer screening and practice of screening.

Attitude Scores Category	Practice of Screening *	
	Pap Smear Test Not Done	Pap Smear Test Done
Appropriate	58 (79.45)	12 (17.14)
Not Appropriate	15 (100)	0

** $p = 0.08$, * $p > 0.05$ (not significant).

Table 8. Association between knowledge of cervical cancer and attitude towards screening.

Knowledge Scores Category	Attitude towards Screening	
	Not Appropriate	Appropriate
Good knowledge	3 (14.29)	18 (85.71)
Poor knowledge	12 (18.75)	52 (81.25)

$p = 0.64$, * $p > 0.05$ (not significant).

Table 9. Participants response to not getting a Pap smear test done.

	Frequency (%)
Lack of awareness in this region	1 (12.50)
If I don't have the pain, I will not do it	1 (12.50)
No time to go to the hospital to do the test	1 (12.50)
I am Scared	5 (62.50)

7. Discussion

This survey provides baseline information for planning a cervical cancer prevention program in Qatar. It is well known individuals' knowledge and beliefs about the cause and significance of a particular illness are interconnected with their healthcare-seeking behaviours [60]. The results showed a deficiency in knowledge about cervical cancer as well as low Pap smear uptake, which was surprisingly common among the educated women. Such findings have been reported by a number of previous studies in Arab communities. For example in the United Arab Emirates, a study of knowledge, attitude and practice among female school teachers in Sharjah has shown that, although the teachers had good knowledge about the Pap smear test, they were not commonly practicing it [59]. Of the women who had previously had the test, 95.4% had opportunistic testing. Around 95% of the sample had never had the test. In Kuwait, a 2008 study showed that about 52% of women had adequate knowledge about cervical cancer screening [58]. Apart from inadequate knowledge, it is well known that the most frequently reported reasons for not having a recent Pap smear were belief that it might be painful, not being referred by a health professional, and fear of having positive results [59]. In the present study, the poor level of knowledge was re-

lated to illiteracy and unemployment, which also indicates educational status the majority of employed women in Ar Rass are educated. The study also shows that the level of knowledge was higher the longer the marriage and in those with greater parity. In agreement with other studies from Arab countries [58], our study showed that women more than 50 years had poor knowledge about cervical cancer and screening, we found that even young women, 20 - 29 years, had poor knowledge even though this group is educated. One of the significant finding in this study was that the majority women got their knowledge about cervical cancer screening from their relatives and friends rather than physicians or the media. In our study almost 14% of the women had had at least 1 Pap smear. This is even lesser than the 23.8% in a Kuwaiti study [58]. A well organized cervical cancer screening program providing the Pap smear test through primary health care services is recommended: this should include raising awareness of women regarding risk factors, and overcoming barriers to having the test such as fear.

8. Conclusion

The knowledge and practice regarding cervical screening was inadequate among Saudi women, particularly among women less than 30 years of age, recently married, and with low education level. However, women in Ar Rass have a positive attitude towards cervical screening services although they need to have reassurances that can reduce the barriers to having a test. There is a need to create awareness about cervical cancer screening programs and to educate Saudi women about the symptoms for early diagnosis and treatment.

Limitations

This study has several limitations. The participant's number was small as a result of the study's short term. In addition, the limited area of study as it conducted is in Qassim as one region of Saudi Arabia.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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List of Abbreviations

Abbreviations	Used For
HPV	Human Papilloma Virus
HIV	Human Immunodeficiency Virus
FIGO	International Federation of Gynecology and Obstetrics
CIN	Cervical Intraepithelial Neoplasia
LEEP	Loop Electrical Excision Procedure
SEER	Surveillance, Epidemiology, and End Results
NCI	National Cancer Institute
DSTD	Division of Sexually Transmitted Disease

Appendix



INFORMED CONSENT FORM Questionnaire ID Number: _____

Title of Research Project: Knowledge, Attitude and Practices Regarding Cervical Cancer and Screening among Saudi Women in Qassim.

We invite you to take part in a research study *about the knowledge, attitudes, and practices of cervical cancer screening at King Abdulaziz primary health center*. The aim of this study is determine the knowledge, attitudes, and practices of cervical cancer screening among Saudi women in Qassim.

Taking part in this study is entirely voluntary. This questionnaire will take 15 minutes maximum of your time. All information received from you will be kept confidential and used for research purposes only. If you decide to participate, please check the statements given below and sign this form to record your willingness to participate in this study.

1. I have read and understood the information about the project, as provided in the Information Sheet dated _____
2. I have been given the opportunity to ask questions about the project and my participation.
3. I voluntarily agree to participate in the project.
4. The use of the data in research, publications, sharing and archiving has been explained to me.
5. I agree to sign and date this informed consent form.

Research Participant:

Signature of Participant: _____ Date: _____

Research Investigator:

Signature of Researcher: _____ Date: _____

QUESTIONNAIRE

Please fill this questionnaire to the best of your knowledge by filling in the blanks and put a tick mark (✓) where necessary.

General information

1	Age at last birthday:	<input type="radio"/> Years <input type="radio"/> No formal education
2	Education level:	<input type="radio"/> Primary school <input type="radio"/> Preparatory school <input type="radio"/> Secondary school <input type="radio"/> University or equivalent <input type="radio"/> No formal education
3	Husband's education:	<input type="radio"/> Primary school <input type="radio"/> Preparatory school <input type="radio"/> Secondary school <input type="radio"/> University or equivalent
4	Marital status:	<input type="radio"/> Never married <input type="radio"/> Married <input type="radio"/> Divorced <input type="radio"/> Widowed
	Duration of marriage (years):	
5	Employment status:	<input type="radio"/> Employed <input type="radio"/> Unemployed
6	Parity "Number of children that you have given birth to":	<input type="radio"/> No children <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> ≥4
7	Number of miscarriages or voluntary terminations of pregnancy:	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> ≥3
8	Did you have any gynecological problems in the past?	<input type="radio"/> Yes <input type="radio"/> No
	If yes, please specify	
9	Have you or any other female family member ever diagnosed with cervical cancer?	<input type="radio"/> Yes <input type="radio"/> No
10	Have you ever heard about the Pap smear test?	<input type="radio"/> Yes <input type="radio"/> No
11	Where did you hear about the Pap smear test for the first time?	<input type="radio"/> Relatives, friends <input type="radio"/> Gynaecologist <input type="radio"/> Mass media (newspaper, internet, television) <input type="radio"/> Family physician <input type="radio"/> Nurse <input type="radio"/> Other, Please specify: _____
12	Do you know about the cervical cancer?	<input type="radio"/> Yes <input type="radio"/> No

Continued

-
- 13 What do you think are the risk factors that can lead to cervical cancer?
- Sexually transmitted disease
 - Smoking
 - Early age of marriage,
 - <18 years
 - Marriage to man with other women
 - Diet
- 14 Is it possible to detect cervical cancer with the Pap smear test before symptoms appear?
- Yes
 - No
- 15 Is early detection of cervical cancer good for treatment outcome?
- Yes
 - No
- 16 Is it possible to cure cervical cancer?
- Yes
 - No
- 17 Is there a vaccine to protect you from cervical cancer?
- Yes
 - No
- If yes, name the vaccine
- 18 Have you ever had a Pap smear test done?
- Yes
 - No
- 19 If you were told that a Pap smear test is simple, painless and good for early detection of cervical cancer, would you like to have one?
- Yes
 - No
- 20 If No, explain why you do not want to get a Pap Smear test done.
.....
- 21 If yes, Where would you prefer to have this test done?
- Well women clinic in the primary health care center
 - Gynecology clinic in general hospital
 - Private clinic
 - No preference
-

THANK YOU FOR YOUR COOPERATION AND TIME TO FILL IN THIS QUESTIONNAIRE