RESEARCH ARTICLE

# Limited Understanding of Pap Smear Testing among Women, a Barrier to Cervical Cancer Screening in the United Arab Emirates

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## Abstract

Global data indicate that cervical cancer is the fourth most common cancer among women worldwide. Important factors that affect interventions for early diagnosis of cervical cancer include social beliefs and values and poor knowledge. These may contribute to women's participation in screening for cervical cancer and have a significant impact on decisions to take preventive action. The present study was conducted with 599 women in the UAE between September 2016 and March 2017. A cross-sectional survey was conducted to determine knowledge about cervical cancer and screening, demographic characteristics and perceived barriers. Knowledge about the Pap smear test was limited, and awareness that they should undergo the Pap smear test every three years even with an initial negative/normal Pap smear result was abysmal. In spite of the positive attitude of the women towards the Pap smear test, almost 80% of the women surveyed had no knowledge of precancerous lesions. Having higher income (21/29, 72%, p=0.027) and more miscarriages were associated with better practice of Pap smears (19/26, 73%, p=0.010). Knowledge levels were significantly higher (66.3±22.2,) that values for attitude (60.5±20.9, p= 0.03, 95% CI {0.22-11.3}, Chi-square 4.38) and practice (53.7 24.1, p= 0.001, 95% CI {6.9-18.1}, Chi-square 19.7). A well-designed health education programme on cervical cancer and benefits of screening should increase the awareness among women in UAE. One point to stress is that better communication with health professionals and improvement of access to health care services should increase the rate of cervical cancer screening.

**Keywords:** Women health- screening- cervical cancer- United Arab Emirates

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## Introduction

Cancer of the cervix is a preventable disease, as it is pre-detected by a long, treatable pre-invasive stage that can be detected with routine cervical screening, of which the Papanicolaou (Pap) smear remains the primary tool. Global data indicate that cervical cancer is the fourth most common cancer among women worldwide, with approximately 528,000 new cases and 270,000 deaths annually. About 85% of the cases are in developing countries, accounting for 13% of all female cancers (Small et al., 2017). The United Arab Emirates (UAE) have a population of 1.82 million women ages 15 years and older who might be at risk of developing cervical cancer. Like many other countries, cervical cancer in the UAE is the second commonest cancer in females. The Health Authority Abu Dhabi (HAAD, 2013) reported around 50-55 new cases annually in the Emirate of Abu Dhabi with an overall incidence of 7 per 100,000 women; half of these cases occurring in relatively young women between the ages of 35-55 years (HAAD, 2013). Other Arabian Gulf countries have also shown a similar pattern of incidence and trends in cervical cancer (Ivana Kulhánová et al., 2017; Nooyi and Al-Lawati, 2011). Interestingly, nearly 70% of cervical cancer cases are diagnosed at a later stage and are therefore not curable. Public health reports, press the urgent need to develop and execute programs towards prevention and early detection of cervical cancer in the UAE (Khan and Woolhead, 2015).

A relatively low prevalence of abnormal smears and cervical cancer has been reported in the Muslim population as compared to the Western population (Barakat and Maaita, 2002; Bener et al., 2001; Jamal and Al-Maghrabi, 2003; Wasti et al., 2004). Probable explanations include sexual behavior inherent to the practice of Islam (Jamal and Al-Maghrabi, 2003). Early detection and treatment of cervical cancer through screening programs significantly reduce the morbidity and mortality of this disease

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(Mosavel et al., 2009).

Important factors that affect applications for early diagnosis of cervical cancer is shown to be social beliefs and values and poor knowledge that contribute to women's level of participation in screening for cervical cancer and have a significant impact on the women's decision to take preventive action against cancer of the cervix (Abdullah et al., 2013; Chang, et al., 2013; Lee, et al., 2007; McFarland, 2009; Wong, et al., 2009). One of the most common challenges in cervical cancer prevention programs in developing countries is, increasing women's awareness (Erbil et al., 2010; Wellensiek et al., 2002). Generally, reports from many developing countries indicated that women had inadequate knowledge of causes, risks and prevention of cervical cancer (Erbil et al., 2010; Wellensiek et al., 2002). According to the results of these studies, the rate of women applying Pap smear does not reach to the aimed level and the reasons for this are socio-demographic characteristics, attitude to a gynecologic examination and the awareness of the women of cervical cancer as well as the Pap smear test.

In spite, that the UAE has a population-based cervical screening program offering Pap-smear testing every three years for women, a concerted understanding of the knowledge, attitude, practice and patient-preferences about Pap-smear testing is lacking. Thus, the purpose of the present study is to explore these critical factors that will help to overcome potential barriers toward the successful deployment of the population-based cervical screening program in the UAE.

## Materials and Methods

*Study Design/Cross-sectional survey/Study Procedure*

Participants for the study were recruited from various places such as the shopping malls, areas of work and other social centers using convenience sampling. The participants living in UAE, willing to provide a written informed consent were selected for the study. The participants were assured of the confidentiality of the information provided and protection of their rights to privacy, mandated by the research ethics guidelines of the human research ethics committees. The inclusion criteria mandated participants to be married women, between 18-64 years of age, having fair cognitive skills, ability to read and understand in English or Arabic (e.g. the local language). Both, UAE citizens (nationals) and expatriates from the seven Emirates: Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah and Fujairah were included in the study. Participants that were sick with other diseases, had inadequate mental health and were unable to meet any of the above criteria were excluded from the study.

*Survey Design (Evaluation tools)*

Surveys were conducted from September 2016 to March 2017. A structured questionnaire was designed and developed by a multidisciplinary team and through a review of the literature from relevant studies in (Jia et al., 2013; Jiangli Di et al., 2015; Yanikkerem et al., 2013). The evaluation tool was then pre-tested among 20 women to assess ease of understanding and time required for completion. Bilingual questionnaire in Arabic and English is represented in APPX I. The survey consisted of five functional domains: socio-demographic characteristics, knowledge, attitude, practice and patient-preferences related questions. The demographic data included age, nationality, residence location, marital status, number of marriages, age at first marriage, number of pregnancies, number of children, contraception use and miscarriages or voluntary terminations of pregnancy, Educational level, working status, and monthly income were included as items based on recommendations of an earlier study (Abdulrahman et al., 2016; Sreedevi et al., 2015; Yanikkerem et al., 2013). Questionnaires were administered during face-to-face interviews conducted in Arabic or English by physician researchers.

*Data analysis and statistics*

All collected data were entered into SPSS version 20 (IBM Corp., Released 2011, Armonk, NY, US) for statistical analysis. Descriptive statistics were computed for the socio-demographic variables. The overall responses to each item of the survey was recorded as percentage of the total. The percentage differences in the total responses were determined using the Chi-square test and statistical significance recorded for non-parametric data. For all tests, alpha ($\alpha$) was set at 0.05. The overall responses for each of the (except the patent preference) domains: knowledge, attitude and practice, computed as percentage of total response, was further categorized in to low (0-33.3%), limited (33.4-66.6%) and high (66.7-100%), respectively.

*Ethics statement*

The study was approved by the institutional review boards of Dubai Health Authority, Dubai. Participants were not compensated. All participants gave written informed consent before participation. Aggregate reporting of data assured to enhance confidentiality and accurate reporting by the respondents. Anonymity of participation was also guaranteed by return of completed survey constructs to an administrator; independent and blinded to the study hypothesis. A code linking respondents to their surveys was kept isolated from the investigators.

## Results

Majority of our respondents were between 30-39 years (48.5%), UAE national (430, 72%), had college or higher dg=degree certificate (361, 60%), married (580, 97%), and did not use contraception (355, 60%). Table 1 shows brief of demographic information of the participants.

It was encouraging that more than 85% of the total woman participants surveyed for the study were knowledgeable about the Pap smear test (512/599, 85%), and identified that the test was conducted using a vaginal swab (516/581, 89%) ($p<0.001$, Table 2), without anesthesia (463/599, 77%) and, that it was important for all women to undergo the test (456/499, 76%). The purpose of undergoing the pap smear test was clear to the women (346/599, 58%) and the majority were recommended to

Table 1. Descriptive Demographic Characteristics of Participants (n = 599)

| Variable | Number of cases | Percent of cases |
|---|---|---|
| Age (Years) | | |
| <29 | 156 | 26 |
| 30-39 | 291 | 48 |
| 40-49 | 119 | 20 |
| ≥50 | 34 | 6 |
| Nationality | | |
| UAE | 430 | 72 |
| Non-UAE | 170 | 28 |
| Emirates Residing in | | |
| Abu Dhabi | 23 | 4 |
| Dubai | 317 | 53 |
| Sharjah | 159 | 26 |
| Ajman | 52 | 9 |
| Umm Al Quwain | 6 | 1 |
| Fujairah | 19 | 3 |
| Ras Al Khaimah | 24 | 4 |
| Education level | | |
| Illiterate | 27 | 5 |
| Primary and second ary school. | 28 | 5 |
| High school | 182 | 30 |
| College and higher degrees | 361 | 60 |
| Marital status | | |
| Married | 580 | 97 |
| Divorced / Widowed | 19 | 3 |
| Number of marriages | | |
| 1 | 552 | 92 |
| ≥2 | 45 | 8 |
| Age at first marriage, years | | |
| less than 20 | 160 | 27 |
| 20-25 | 311 | 52 |
| ≥25 | 125 | 21 |
| Number of pregnancies | | |
| None | 48 | 8 |
| 1-5 | 455 | 76 |
| ≥6 | 94 | 16 |
| Number of children | | |
| None | 83 | 14 |
| 1 | 87 | 14.5 |
| 2 | 135 | 22.5 |
| 3 | 107 | 18 |
| ≥4 | 185 | 31 |
| Contraception | | |
| Do not use | 355 | 60 |
| Hormonal contraceptives | 66 | 11 |
| Coitus interruptus (interruption of intercourse/condom) | 112 | 19 |
| Uterine device /ligation | 60 | 10 |
| Working status | | |
| Employee | 370 | 62 |
| Student | 25 | 4 |
| Retired | 9 | 1.5 |
| Housewife | 196 | 32.5 |
| Monthly income, AED | | |
| Less than 20,000 | 300 | 50.5 |
| 20,000 - 40,000 | 254 | 43.5 |
| More than 40,000 | 29 | 5 |
| Miscarriages or voluntary terminations of pregnancy | | |
| 0 | 350 | 60 |
| 1 | 145 | 25 |
| 2 | 66 | 11 |
| ≥3 | 26 | 4 |

undergo the test by their gynecologist or a family physician (420/599, 70%). Yet, the understanding of the women to undergo the pap smear test every three years provided they obtained an initial negative/normal Pap smear result was poor (97/599, 14.8%). Overall, the attitude of the women towards the Pap smear test to detect cervical cancer early was positive (Table 2). Almost, three quarter of the total women surveyed for the study expressed their intention to undergo Pap smear test to prevent cervical cancer (494/599, 82%, $p<0.001$), regularly (466/599, 78%) (Table 2). The participants were further willing to be undergo the Pap smear screening at a nearby facility if it becomes available (458/599, 77%) and, also expressed that undergoing a Pap smear test gave them a sense of control (464/599,71%). In terms of practice, almost 50% of the women participants had undergone the Pap smear test and, one-third of them had underwent the procedure in the past five years (32%, Table 2). Women wanting to know more about the test was almost 80%, and was encouraging for the national screening program.

Almost all of the women participants preferred to undergo Pap smear test by a gynecologist (530/599, 91%) as compared to a primary healthcare physician. The primary reason for women not undergoing the Pap smear test was either due to no symptoms or being not aware about the test (less than 24% did not undergo the test). Pain, embarrassment, fear of infection and fear of cancer detection, were not significant enough ($p<0.76$) reasons to deter women away from the test. Early detection of cervical cancer (230, 60%) and physician recommendation (102, 26%) aided in women wanting to do the Pap smear test. Less than 10% of the women participants preferred "Pap smear awareness campaigns" to be launched from various portals such as the media, community and the schools. Pap smear awareness from the primary healthcare centers was preferred by the majority (422/599, 72%) of the women.

Assessment of adequacy of Knowledge, Attitudes, and practice related to the Pap test in relation to the demographic and gynecological characteristics of women

Table 2. Assessing the Knowledge, Attitude and Practice of Women on PAP Smear in UAE (n=599). *p < 0.05, significance determined using Montecarlo 2 tailed significance at 95% CI.

| Survey Items and Responses | n | (%) | P Value |
|---|---|---|---|
| Have you heard about Pap smear test? | | | <0.001* |
| Yes | 512 | 85 | |
| No | 87 | 15 | |
| How did you know about Pap smear test? | | | <0.001* |
| Gynecologist/Family Physician | 382 | 64 | |
| Friend | 72 | 12 | |
| Media | 46 | 8 | |
| Health publication | 99 | 17 | |
| What is the aim of doing Pap Smear test? | | | <0.001* |
| Detect Cervical Cancer changes | 346 | 58 | |
| Discover Other cancers | 67 | 11 | |
| Treat Vaginal Inflammation | 78 | 13 | |
| Don't know | 108 | 18 | |
| Every Woman must take the Pap Smear test? | | | <0.001* |
| Yes | 456 | 76 | |
| No | 143 | 24 | |
| If the test result of Pap smear is normal, then the test should be repeated every? | | | <0.001* |
| One Year | 196 | 33 | |
| Two Year | 82 | 14 | |
| Three Years | 97 | 16 | |
| Four Years | 24 | 4 | |
| Dont know | 198 | 33 | |
| Pap smear test is be done by? | | | <0.001* |
| X-Ray | 8 | 1 | |
| Vaginal Swab | 516 | 89 | |
| Ultrasound | 15 | 3 | |
| All of the above | 42 | 7 | |
| Pap smear test should be done under anesthesia? | | | <0.001* |
| Yes | 32 | 5 | |
| No | 463 | 77 | |
| Uncertain | 104 | 17 | |
| Do you believe that you could have pre-cancer lesions? | | | <0.001* |
| Yes | 129 | 22 | |
| No | 264 | 44 | |
| Uncertain | 206 | 34 | |
| Is the treatment of cervical cancer worth going through? | | | <0.001* |
| Yes | 494 | 82 | |
| No | 18 | 3 | |
| Uncertain | 87 | 15 | |
| Does having a regular Pap Smear test give you a sense of control? | | | <0.001* |
| Yes | 464 | 77 | |
| No | 28 | 5 | |
| Uncertain | 107 | 18 | |
| Is it valuable to have Pap Smear regularly? | | | <0.001* |
| Yes | 466 | 78 | |
| No | 39 | 7 | |
| Uncertain | 94 | 16 | |

Table 2. Continued

| Survey Items and Responses | n | (%) | P Value |
|---|---|---|---|
| In the case of availability of pap smear screening in a health center near you, are you going to do a pap smear? | | | <0.001* |
| Yes | 458 | 77 | |
| No | 43 | 7 | |
| Uncertain | 97 | 16 | |
| Do you feel Pap Smear test is painful & with no benefit? | | | <0.001* |
| Yes | 31 | 5 | |
| No | 370 | 62 | |
| Uncertain | 198 | 33 | |
| Have you had a Pap smear test? | | | 0.03* |
| Yes | 325 | 54 | |
| Uncertain | 274 | 46 | |
| How many times did you have pap smear test in the past 5 years? | | | <0.001* |
| one test | 274 | 51 | |
| 2 tests | 164 | 31 | |
| >3 tests | 98 | 18 | |
| If you did not do a smear test, what were the reasons for not doing it? | | | 0.76 |
| Not aware | 84 | 29 | |
| Painful Procedure | 27 | 9 | |
| Fear of Infection | 9 | 3 | |
| Embarrassment | 31 | 11 | |
| No symptoms | 80 | 27 | |
| Afraid of Cancer discovery | 63 | 21 | |
| If you did pap smear, what were the reasons for doing it? | | | 0.83 |
| Early detection of cancer | 230 | 60 | |
| Vaginal bleeding | 21 | 5 | |
| Newly married | 6 | 2 | |
| Recommended by the doctor | 102 | 26 | |
| Reading it somewhere | 20 | 5 | |
| Had done it before, repeating it | 7 | 2 | |
| Where would you prefer to do the pap smear test? | | | <0.001* |
| Primary Care | 90 | 15 | |
| Gynecologists | 330 | 55 | |
| Private center | 36 | 6 | |
| No preference | 143 | 24 | |
| Whom do you prefer to do the pap smear test? | | | <0.001* |
| Primary Care | 39 | 7 | |
| Gynecologists | 530 | 91 | |
| Private center | 11 | 2 | |
| Nurse | 5 | 1 | |
| Would you like to more about the pap smear test? | | | <0.001* |
| Yes | 522 | 88 | |
| No | 68 | 12 | |
| Who is most suitable to raise awareness about pap smear test? | | | |
| Primary Care | 422 | 72 | |
| Gynecologists | 51 | 9 | <0.001* |
| Media | 50 | 9 | |
| Community Campaign/ Schools | 61 | 10 | |

Table 3. Assessment of Adequacy of Knowledge, Attitudes, and Practice Related to the Pap Test in Relation to the Demographic and Gynecological Characteristics of Women in UAE (n=599). *p < 0.05, significance determined using Montecarlo 2 tailed significance at 95% CI.

| Variable | | Adequate knowledge | | | Appropriate attitude | | | Adequate test practice | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | n | % | p | n | % | p | n | % | p |
| Age (years) | | | | | | | | | | |
| <29 | 156 | 47 | 30 | 0.082 | 58 | 37 | 0.432 | 62 | 40 | 0.001* |
| 30-39 | 291 | 139 | 48 | | 132 | 45 | | 163 | 56 | |
| 40-49 | 119 | 62 | 52 | | 57 | 48 | | 76 | 64 | |
| ≥50 | 34 | 19 | 56 | | 16 | 47 | | 24 | 71 | |
| Nationality | | | | | | | | | | |
| UAE | 430 | 190 | 44 | 0.681 | 187 | 43 | 0.815 | 238 | 55 | 0.178 |
| Non-UAE | 170 | 81 | 48 | | 75 | 44 | | 87 | 51 | |
| Emirates Residing | | | | | | | | | | |
| Abu Dhabi | 23 | 8 | 35 | 0.194 | 15 | 65 | 0.845 | 18 | 78 | 0.889 |
| Dubai | 317 | 184 | 58 | | 132 | 42 | | 161 | 51 | |
| Sharjah | 159 | 72 | 45 | | 68 | 43 | | 92 | 58 | |
| Ajman | 52 | 31 | 60 | | 25 | 48 | | 26 | 50 | |
| Umm Al Quwain | 6 | 17 | 283 | | 10 | 167 | | 10 | 167 | |
| Fujairah | 19 | 3 | 16 | | 4 | 21 | | 5 | 26 | |
| Ras Al Khaimah | 24 | 12 | 50 | | 8 | 33 | | 12 | 50 | |
| Education level | | | | | | | | | | |
| Illiterate | 27 | 10 | 37 | 0.182 | 13 | 48 | 0.985 | 14 | 52 | 0.121 |
| Primary /secondary school | 28 | 13 | 46 | | 8 | 29 | | 15 | 54 | |
| High school | 182 | 59 | 32 | | 80 | 44 | | 104 | 57 | |
| College and higher degrees | 361 | 184 | 51 | | 160 | 44 | | 191 | 53 | |
| Marital status | | | | | | | | | | |
| Married | 580 | 259 | 45 | 0.514 | 253 | 44 | 0.821 | 315 | 54 | 0.573 |
| Divorced / Widowed | 19 | 8 | 42 | | 10 | 53 | | 11 | 58 | |
| Number of marriages | | | | | | | | | | |
| 1 | 552 | 251 | 45 | 0.642 | 238 | 43 | 0.51 | 299 | 54 | 0.957 |
| ≥2 | 45 | 15 | 33 | | 24 | 53 | | 26 | 58 | |
| Age at first marriage, years | | | | | | | | | | |
| less than 20 | 160 | 64 | 40 | 0.842 | 68 | 43 | 0.43 | 86 | 54 | 0.257 |
| 20-25 | 311 | 144 | 46 | | 136 | 44 | | 167 | 54 | |
| ≥25 | 125 | 59 | 47 | | 571 | 457 | | 71 | 57 | |
| Number of pregnancies | | | | | | | | | | |
| None | 48 | 17 | 35 | 0.364 | 21 | 44 | 0.8 | 22 | 46 | 0.71 |
| 1-5 | 455 | 204 | 45 | | 192 | 42 | | 239 | 53 | |
| ≥6 | 94 | 46 | 49 | | 49 | 52 | | 64 | 68 | |
| Number of children | | | | | | | | | | |
| None | 83 | 31 | 37 | 0.921 | 34 | 41 | 0.285 | 34 | 41 | 0.198 |
| 1 | 87 | 36 | 41 | | 37 | 43 | | 43 | 49 | |
| 2 | 135 | 60 | 44 | | 53 | 39 | | 76 | 56 | |
| 3 | 107 | 43 | 40 | | 40 | 37 | | 57 | 53 | |
| ≥4 | 185 | 95 | 51 | | 98 | 53 | | 115 | 62 | |
| Contraception | | | | | | | | | | |
| Do not use | 355 | 141 | 40 | 0.897 | 148 | 42 | 0.173 | 183 | 52 | 0.583 |
| Hormonal contraceptives | 66 | 33 | 50 | | 32 | 48 | | 44 | 67 | |
| Coitus interruptus | 112 | 62 | 55 | | 56 | 50 | | 63 | 56 | |

Table 3. Continued

| Variable | | Adequate knowledge | | | Appropriate attitude | | | Adequate test practice | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | total | n | (%) | *p* | n | (%) | *p* | n | (%) | *p* |
| Working status | | | | | | | | | | |
| Employee | 370 | 188 | 51 | 0.005* | 172 | 46 | 0.368 | 212 | 57 | 0.079 |
| Student | 25 | 9 | 36 | | 6 | 24 | | 9 | 36 | |
| Retired | 9 | 4 | 44 | | 5 | 56 | | 6 | 67 | |
| Housewife | 196 | 66 | 34 | | 80 | 41 | | 99 | 51 | |
| Monthly income, AED | | | | | | | | | | |
| Less than 20,000 | 300 | 116 | 39 | 0.204 | 122 | 41 | 0.158 | 142 | 47 | 0.027* |
| 20,000 - 40,000 | 254 | 127 | 50 | | 110 | 43 | | 151 | 59 | |
| More than 40,000 | 29 | 21 | 72 | | 21 | 72 | | 21 | 72 | |
| Miscarriages or voluntary terminations of pregnancy | | | | | | | | | | |
| 0 | 350 | 165 | 47 | 0.114 | 155 | 44 | 0.073 | 183 | 52 | 0.010* |
| 1 | 145 | 55 | 38 | | 56 | 39 | | 77 | 53 | |
| 2 | 66 | 33 | 50 | | 36 | 55 | | 46 | 70 | |
| ≥3 | 26 | 12 | 46 | | 16 | 62 | | 19 | 73 | |

There was a significant difference of knowledge between employed and unemployed women, with employed women having higher rate of adequate knowledge (188/370, 51%, p=0.005). The practice of performing Pap smear was significantly different by age group with women aging 30-39 years old having the best practice (163/291, 56%, p=0.001). Furthermore, having higher income (21/29, 72%, p=0.027) and more miscarriages were associated with better practice of Pap smear (19/26, 73%, p=0.010) (Table 3).

*Comparison between the knowledge, attitude and practice domains*

Overall, the women in the UAE were limited (66.3±22.2) in their knowledge about the Pap smear test (Table 4). Their understanding to undergo the Pap smear test every three years provided they obtained an initial negative/normal Pap smear result was abysmal. In spite of the positive attitude of the women towards the Pap smear test, almost 80% of the women surveyed were unaware of precancerous lesions (Table 4). Although, 50% of the women surveyed did undergo the Pap smear test, one-third of them did not establish a practice of undergoing regular tests (Table 4).

The knowledge levels of the women in the UAE was significantly higher (66.3±22.2,), when compared to their attitude (60.5±20.9, p= 0.03, 95% CI {0.22-11.3}, Chi-square 4.38) and, practice (53.7 24.1, p= 0.001, 95%

Table 4. Knowledge, Attitudes, and Practice Towards and Reasons for Undergoing the Pap Test in UAE (n=599).

| Domain | Survey Items | Expected Responses | Number (n) Percent (%) | |
|---|---|---|---|---|
| Knowledge | If the test result of Pap smear is normal, then the test should be repeated every? | Three | 97 (15) | Mean± SD 66.3±22 Outcome Limited |
| Knowledge | What is the aim of doing Pap Smear test? | Detect Cervical Cancer Changes | 346 (53) | |
| Knowledge | How did you know about Pap smear test? | Gynecologist/ Family Physician | 382 (58) | |
| Knowledge | Every Woman must take the Pap Smear test? | Yes | 456 (70) | |
| Knowledge | Pap smear test should be done under anesthesia. | No | 463 (71) | |
| Knowledge | Have you heard about Pap smear test? | Yes | 512 (78) | |
| Knowledge | Pap smear test is be done by? | Vaginal Swab | 516 (79) | |
| Attitude | Do you believe that you could have pre-cancer lesions? | Yes | 129 (20) | Mean± SD 60.5±21 Outcome Limited |
| Attitude | Do you feel Pap Smear test is painful & with no benefit? | No | 370 (56) | |
| Attitude | In the case of availability of pap smear screening in a health center near you, are you going to do a pap smear? | Yes | 458 (70) | |
| Attitude | Does have a regular Pap Smear test give you a sense of control? | Yes | 464 (71) | |
| Attitude | Is it valuable to have Pap Smear regularly? | Yes | 466 (71) | |
| Attitude | Is the treatment of cervical cancer worth going through? | Yes | 494 (75) | |
| Practice | Have you had a Pap smear test? | Yes | 325 (50) | Mean± SD 53.7± 24 Outcome Limited |
| Practice | How many times did you have pap smear test in the past 5 years? | >3 | 161 (32) | |
| Practice | Would you like to know more about the pap smear test? | Yes | 522 (80) | |

CI {6.9-18.1}, Chi-square 19.7) (Campbell, 2007; Small et al., 2017).

## Discussion

Cervical cancer is a slow-developing cancer of the cervix uteri of the female genital tract. Almost all cases are strongly associated with oncogenic infection with the Human papillomavirus (HPV) (Small et al., 2017). Cervical cancer contributes to 7.5% of female mortality and almost over 250,000 deaths worldwide (Small et al., 2017). It has been proposed that by the year 2020, almost 0.7 million women could develop cervical cancer unless screening and community interventions are implemented for early detection and improved women's health outcomes (Ilter et al., 2010). Cervical cancer has been reported to be less common in Muslim Countries compared to other countries in the world (Forman et al., 2012, Kelly, G. 2014). Given the paucity of regional incidence and prevalence studies, it might be difficult to pin-point specific reasons for the reported low incidence in Muslim countries. Under-reporting, and social reservations towards screening stemming from cultural rather than religious beliefs and values could be significant factors for the observed low incidence, both in the UAE and the Muslim countries (Khan and Woolhead, 2015). Although cervical cancer is largely preventable, the symptoms remain elusive until the cancer advances. Therefore, it is important that healthy women be screened for early detection of asymptomatic precancerous lesions (Small et al., 2017). Pap smear test with a sensitivity range up to 70% is the tool of choice to detect early stages of the disease (El-Hammasi et al., 2009). Reports have indicated that countries that lack a national cervical screening program, record a higher prevalence of cervical cancer compared to countries with national screening program (El Banna et al., 2014). Screening acceptance has been found to be strongly correlated with the religion and culture (Wong et al., 2013). Fatalistic beliefs guided Muslim women in Malaysia leading them to refuse cervical cancer screening and early detection (Wong et al., 2013). Immigrants in the United States, especially the Muslim women expressed apathy towards cervical cancer screening (Padelaet al., 2014), while another group of American Arab women expressed that their faith and beliefs detached them from the fear of cancer diagnosis (Padela et al., 2014; Salman, 2012). Studies from Qatar and Saudi have also suggested the need for generating measures to educate women in pursuing cervical cancer screening programs (Al-Meer et al., 2011; Sait, 2009).

In the UAE, cervical cancer screening, although covered by the national insurance providers, is performed opportunistically on women who visit health facilities. The lower screening rates (< 20%) have generated a public health alarm to scale up the Pap smear test screening program (Aswadet al., 2013). Results indicate that more than 86% of the total women participants surveyed for the present study were knowledgeable about the Pap smear test in the UAE. They were also well-informed that the test was conducted using a vaginal swab (89%) and without anesthesia (77%) and, that it was important for all women to undergo the test (82%). Interestingly, given that the Pap smear test is performed on women who visit the healthcare facilities, only 50% of the women surveyed had undergone the test. Comparing with an earlier report from Sharjah, UAE, where a vast majority of women had not even heard about the Pap smear test (Bakheit and Haroon, 2004), our results are encouraging. This does not discount the requirement to have a structured mandatory screening program for cervical cancer in the country. In spite that more than 50% of the women were recommended by their gynecologists to undergo a Pap smear test, incentives for the gynecologists to motivate women will prove to be beneficial towards limiting the incidence of cervical cancer in the UAE. It is presumed that having women physicians as "crusaders of the cause" will motivate more women to undergo the test, given the cultural sensitivity of the population. On the positive side, 77% of women surveyed in our study expressed their intention to undergo the test, and more so, if the service was available at a nearby facility. Unlike other studies (Salman, 2012; Bakheit and Haroon, 2004) pain, embarrassment, fear of infection and fear of cancer detection, were not significant enough ($p<0.76$) reasons to deter women away from the test in our study. Employed women had better knowledge on pap smear while women with higher family income had more adequate practice towards testing. This was in accordance with other reports from Brazil (Fernandes et al., 2009), Argentine (Gamarra et al., 2005), India (Bansal et al., 2015); and Malaysia (Abdullah et al., 2011).

The UAE in the past forty-five years has transformed from a traditional to a modern healthcare provider. The results from our study indicate the crucial need to have a structured cervical cancer screening program, given the fact that the women of the UAE are inclined both in terms of knowledge and attitude to adapt to cervical cancer prevention programs. Additionally, this study is the first study of the region, which has addressed the preferences of the women in relation to cervical cancer screening program. It is anticipated that the results of this study can be applied to similar cultures and ethnic background population in the countries of the Middle East.

In conclusion, a well-designed health education programme on cervical cancer and benefits of screening would increase the awareness among women in UAE. On that issue, a multimedia approach utilizing pictorials, audio-visual and personal communication on cervical cancer could yield beneficial results. One more important point is the fact that better communication with health professionals and improvement of access to health care services should increase the rate of cervical cancer screening.

*Limitations*

This study has several limitations. It only focused on the knowledge of the women in some common places in UAE. It may not be generalized to all target populations, especially the target women who didn't attend these common places might have different knowledge and attitude on this regards. Therefore, the results of this study should be interpreted with caution. This study used a cross-sectional design; thus, it only speculated

on the causal relationship between the variables. It used convenience sampling, so the results might be unrepresentative of the population being studied. However, despite these limitations, the results of this study provide a basis for further planning future in-depth research prior to developing educational materials and planning training-based interventions for the implementation of the Pap smear screening in UAE.

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*Conflicts of interest*

There are no conflicts of interest.

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