

RESEARCH ARTICLE

Knowledge and attitude towards cervical cancer among women in the sub-urban area: A cross-sectional study

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Abstract:

Cervical cancer is preventable and curable in its early stage, but it remains the second leading cause of cancer-related deaths among Malaysian women. Therefore raising awareness is crucial to reducing cervical cancer incidence and mortality rates. This study aims to assess the knowledge and attitudes toward cervical cancer among women in a suburban area in Selangor. A cross-sectional study was conducted using convenience sampling, involving 359 women aged 21 to 60. Participants completed a self-administered questionnaire through a Google link. Results showed that approximately half of the participants had moderate knowledge of cervical cancer, 179 (49.9%), while 217 (60.4%) exhibited a favorable attitude toward cervical cancer. A significant positive relationship correlation was found between knowledge and attitude ($p < 0.05$). The findings suggest that increasing knowledge about cervical cancer can lead to more positive attitudes. Future efforts should focus on educational programs and campaigns highlighting the importance of cervical cancer screening and its symptoms to enhance awareness.

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1. INTRODUCTION

Cervical cancer has recorded an estimated 604,127 new cases among women globally and nearly 341,831 deaths worldwide, while in Malaysia, cervical cancer ranked as the fourth most common cancer among women with 1,740 new cases and the second leading cause of death in cancer among women with 991 deaths (World Health Organization, 2020). Cervical cancer can lead to palliative care and mortality, yet it is well proved that cervical cancer can be cured if diagnosed early and treated promptly (Cubie & Campbell, 2020). In Malaysia, the rate of risk of developing cervical cancer is after 30 years of age, with the average peak age between 50- 74 years old (Azizah et al., 2016).

Knowledge about cervical cancer is pivotal in prevention, early detection, and effective disease management. Seng et al. (2018) conducted a study to investigate awareness, knowledge, and attitudes toward cervical cancer among women in Malaysia. The findings revealed that women in Malaysia still lack sufficient knowledge and general information about cervical cancer. Romli et al. (2019) found more than half of the participants did not know abnormal vaginal bleeding between periods and pain during sex were manifestations of cervical cancer. Women who had never had a Pap smear were less likely to know about cervical cancer than those who had a Pap smear (Abdullah et al., 2018). Therefore, understanding the level of knowledge

among women about cervical cancer is crucial for designing effective public health strategies and interventions to reduce the prevalence of cervical cancer.

Women's attitudes toward cervical cancer play a crucial role in determining their engagement with preventive measures, such as regular screenings and vaccination. Ajayi et al. (2021) found that women had positive attitudes toward screening and recognized its importance for early detection. Women's attitudes toward cervical cancer and Pap smear screenings are influenced by a myriad of factors, including cultural beliefs (Salehiniya et al., 2021), awareness levels (Abdullah et al., 2018), and access to healthcare services (Haas et al., 2021). Seng et al. (2018) state many women fear the pain associated with Pap smears. This fear is often based on misconceptions about the procedure, which is quick and painless for most women. According to George (2021), cultural norms and taboos surrounding reproductive health issues may shape perceptions of cervical cancer screenings, potentially impacting women's willingness to seek such services. More women have opportunities to undergo screening and take preventive measures if they acknowledge cervical cancer as a preventable and curable disease.

The relationship between the level of knowledge and attitude toward cervical cancer among women is essential to understanding the effectiveness of health education and awareness campaigns. Winarto et al. (2022) have explored this relationship to assess how knowledge impacts attitudes

and behaviors related to cervical cancer prevention and screening. The results showed that women with higher levels of knowledge about cervical cancer were more likely to have positive attitudes toward screening and prevention measures. A study conducted by Seng et al. (2018) in Malaysia revealed a positive correlation between knowledge and attitudes. Women with higher levels of knowledge about cervical cancer and vaccination demonstrated more favorable attitudes toward prevention and early detection. Pandey et al. (2021) in India explored the relationship between knowledge and attitudes toward cervical cancer screening among women. The results indicated that women with higher levels of knowledge about cervical cancer and screening had more positive attitudes and were more likely to undergo regular screening. Another study by Romli et al. (2019) found that women with a higher level of knowledge about cervical cancer were more likely to believe that they were at risk for the disease. This suggests that knowledge about cervical cancer can help women to understand their own risk and to take steps to reduce their risk.

Women living in suburban areas may have different knowledge and attitudes towards cervical cancer than women in other settings due to various factors influencing their healthcare access (Arora & Mishra, 2017), socio-cultural context (Luque et al., 2016), and community characteristics (Barnett & Vasquez, 2017). According to Abdullah et al., (2018), women in rural areas were less likely to know about cervical cancer than women in urban areas. Therefore, it is crucial to conduct research specific to suburban areas to understand women's unique knowledge and attitudes in these settings. This knowledge can inform the development of tailored interventions and educational materials that address suburban women's specific needs and challenges, ultimately improving cervical cancer awareness, prevention, and screening rates among this population. Thus the study objective is to identify knowledge and attitude toward cervical cancer among women in a suburban area in Selangor.

2. METHODOLOGY

2.1 Study design, location and sampling

A cross-sectional study was conducted among women in a sub-urban district at Selangor. The inclusion criteria were women residing in the selected sub-urban area aged 21 to 60 years old and able to comprehend either Malay or English. The sample size was calculated using the Raosoft Sample Size Calculator software with a margin of 5%, a confidence level of 95%, and a response distribution of 50%; hence, the recommended sample size was 359. Data was collected using convenience sampling and an online self-administered questionnaire was distributed through social media (Facebook, Telegram, and WhatsApp). The study received UiTM Research Ethics Committee REC/12/2021 (UG/MR/1117), and the data was encrypted to protect confidential and sensitive information.

2.2 Research instruments

The study used a structured questionnaire adopted from Mengesha et al. (2020) consisting of 3 sections. Section A is socio-demographic data including age, race, level of education, marital status, family history of cancer, and source of information regarding cervical cancer; meanwhile, Section B consists of questions about knowledge in various aspects of cervical cancer, including its meaning, risk factors, signs and symptoms, and screening. The knowledge section consisted of 27 closed-ended questions that required a yes or no response. Participants' knowledge was assessed using a scoring system where each 'yes' response earned 1 point, totaling to a maximum of 27 points for 27 questions. The scores categorized participants into three levels: 'Good Knowledge' for 22-27 points (80%-100% accuracy), 'Moderate Knowledge' for 16-21 points (60%-79% accuracy), and 'Poor Knowledge' for scores below 15 (<60% accuracy)..

In Section C, participants respond to 11 closed-ended questions about attitudes towards cervical cancer and its prevention, with 'yes' or 'no' options. Each 'yes' response earns 1 point. 'No' responses are not awarded points. The total score is calculated based on the 'yes' responses, which are then converted into a percentage for interpretation. If the participant's score meets or exceeds the mean score, it indicates a favorable attitude towards cervical cancer. The questionnaire reliability indicates Cronbach's alpha is 0.714 for knowledge and 0.77 for attitude toward cervical cancer.

2.3 Statistical analysis

The collected data was analysed using Version 26.0 of the IBM Statistical Package for the Social Sciences. Social demographic data, knowledge, and attitudes regarding cervical cancer were described using descriptive statistics. The correlation test was utilised to determine the relationship between knowledge and attitude. P-values <0.05 were considered statistically significant.

3. RESULTS

Table 1 describes the socio-demographics of 359 participants. 148 (41.2%) of women in the range 21 to 30 years old, and only 50 (13.9%) were from 51 to 60. Most of the participants were 264 (73.5%) is Malay. In terms of the level of education, 170 (47.4%) were undergraduates. The majority of the participants, 197 (54.9%), were single, and 332 (92.5%) stated that they had no family history of cervical cancer.

Table 1. Demographic characteristic

Characteristics	Frequency	Percentages (%)
Age		
21-30 years	148	41.2
31-40 years	100	27.9
41-50 years	61	17.0
51-60 years	50	13.9
Race		
Malay	264	73.5
Chinese	32	8.9
Indian	39	10.9
Others	24	6.7
Level of Education		
No formal education	5	1.4
PMR/PT3	6	1.7
SPM	78	21.7
Pre-university	79	22.0
Undergraduate	170	47.4
Master	13	3.6
PhD	8	2.2
Marital Status		
Single	197	54.9
Married	141	39.3
Divorced	21	5.8
Family History of Cervical Cancer		
Yes	27	7.5
No	332	92.5
Source of information regarding cervical cancer		
Parents	5	1.4
Classroom	44	12.3
Internet	137	38.2
Campaign	43	12.0
Mass Media (TV, Radio)	130	36.2

3.1. Knowledge of cervical cancer

Table 2 shows that most participants had moderate knowledge about cervical cancer 179 (49.9%). However, 43 (12%) participants are classified as having poor knowledge.

Table 2. Knowledge of cervical cancer

Variables	Frequency (n)	Percentage (%)
Knowledge		
Good	137	38.2
Moderate	179	49.9
Poor	43	12.0

Table 3 shows that most of the participants, 348 (96.9%), had heard about cervical cancer. The majority of participants, 302 (84.1%), understand the meaning of cervical cancer. 324 (90.3%) of them correctly identified abnormal cell growth in the cervix as cervical cancer. But 145 participants (40.4%) are unaware of the common symptoms of cervical cancer. Approximately 261 participants (72.7%) were aware of the risk factors for cervical cancer, while 57 participants (15.9%) were unaware of cervical cancer risk.

Table 3. Subscales of knowledge regarding cervical cancer

Variables	Frequency (%)
Heard about cervical cancer	
Yes	348 (96.9)
No	11 (3.1)
Know the meaning of cervical cancer	
Yes	302 (84.1)
No	57 (15.9)
The meaning of cervical cancer	
Wound of cervix	4 (1.1)
Pain in the cervix	11 (3.1)
Abnormal growth of cells in the cervix	324 (90.3)
Swelling in the cervix	20 (5.6)
Know the risk factors for cervical cancer	
Yes	261 (72.7)
No	98 (27.3)
Knowledge on risk factors of cervical cancer	
Sexually transmitted disease	251 (69.9)
Smoking	180 (50.1)
Having multiple Sexual Partners	245 (68.2)
Poor dietary habit	244 (68.0)
Early marriage	97 (27.0)
Family history of cervical cancer	322 (89.7)
HPV (human papillomavirus) infection	287 (79.9)
Know common symptoms of cervical cancer	
Yes	214 (59.5)
No	145 (40.4)
Knowledge on the symptoms of cervical cancer	
Intra or post-coital bleeding	280 (78.0)
Bleeding after menopause	245 (68.2)
Persistent blood-stained vaginal discharge	292 (81.3)
Lower abdominal pain	320 (89.1)
Cervical cancer is preventable	
Yes	346 (96.4)
No	13 (3.6)
Cervical cancer is curable	
Yes	302 (84.1)
No	57 (15.9)
Heard about the Pap smear test	
Yes	266 (74.1)
No	93 (25.9)
If yes, where did you hear about Pap smear for the first time? (n =286)	
Relatives	24 (6.7)
Friends	23 (6.4)
Health workers	112 (31.2)
Mass media	127 (73)

Variables	Frequency (%)
How many times should a healthy woman undergo a Pap smear test?	
Only once	111 (30.7)
Two times only	91 (25.3)
At least three times and above	157 (43.7)
Know the preventive measure for cervical cancer	
Yes	241 (67.1)
No	118 (32.9)
Know the preventive measures for cervical cancer	
Using condom	207 (57.7)
Good hygiene	338 (94.2)
HPV vaccine	308 (85.8)
Pap smear	293 (81.6)
Know the screening health for cervical cancer	
Yes	260 (72.4)
No	99 (27.6)
Know the screening for cervical cancer	
By taking a piece of cervical tissue	150 (41.8)
Blood test	47 (13.1)
By taking fluids/cells of the cervix	138 (38.4)
Urine test	24 (6.7)

3.2. Attitudes toward cervical cancer

According to Table 4, more than half of the participants, 217 (60.4%), had a favourable attitude, while 142 (39.6%) had an unfavourable attitude.

Table 4. Attitude toward cervical cancer

Variables	Frequency (n)	Percentage (%)
Attitude		
Favourable	217	60.4
Unfavourable	142	39.6

Table 5 presents the findings of the attitude toward cervical cancer which 193 (53.8%) do not believe cervical cancer transmits through sexual intercourse and do not believe smoking is a risk factor for cervical cancer 146 (40.7%). Only 116 (32.3%) participants think early marriage is a risk factor for cervical cancer. In contexts of prognosis, 323 (90%) thought cervical cancer was curable.

Table 5. Subscales of attitudes towards cervical cancer

Variables	Frequency (%)	
	Yes	No
Believe having multiple sexual partners is a risk factor for cervical cancer	262 (73.0)	97 (27.0)
Believe cervical cancer is transmittable through sexual intercourse	166 (46.2)	193 (53.8)
Believe HIV positivity increases the chance of getting cervical cancer	257 (71.6)	102 (28.4)

Believe the use of the oral contraceptive pill is a risk factor for cervical cancer	168 (46.8)	191 (53.2)
Think that smoking is a risk factor for cervical cancer	213 (59.3)	146 (40.7)
Think early marriage is a risk factor for cervical cancer	116 (32.3)	243 (67.7)
Think cervical cancer is a major health problem for a female of reproductive age group (15-49 years)	295 (82.2)	64 (17.8)
Think it is possible to detect cervical cancer with early screening before symptoms appear	324 (90.3)	35 (9.7)
Think early detection of cervical cancer is good for treatment outcome	351 (97.8)	8 (2.2)
Believe cervical cancer is preventable	346 (96.4)	13 (3.6)
Think it is possible to cure cervical cancer	323 (90.0)	36 (10.0)

3.3. The relationship between knowledge and attitudes toward cervical cancer

A statistically significant, positive, and moderate correlation exists between knowledge of cervical cancer and attitudes toward cervical cancer among women's residents, as shown in Table 6.

Table 6. The correlation between knowledge of cervical cancer and attitudes toward cervical cancer

	Attitudes toward cervical cancer	
	r	P value*
Knowledge of cervical cancer	0.457	< 0.001

* p-value <0.05

4. DISCUSSION

4.1. Knowledge of cervical cancer

This study shows that participants demonstrated moderate knowledge about cervical cancer, with 179 individuals (49.9%) exhibiting this level of understanding. This knowledge score was slightly lower when compared to a similar study conducted among female healthcare workers in Hawassa, Southern Ethiopia (Dulla et al., 2017). There is a different result between both studies due to the Ethiopia study conducted among female health care workers, where most of the participants received education and were aware of cervical cancer, compared to this study selected the general women population. However, this study's findings are consistent with research from other developing countries, such as India and Nigeria, which have reported low knowledge about cervical cancer (Taneja et al., 2021; Olubodun et al., 2019). The consistency across these countries might be attributed to factors such as the lack of

population-based screening programs, ineffective mass media campaigns, or cultural barriers hindering information dissemination about cervical cancer.

This study demonstrates that the knowledge of women about cervical cancer was generally good, with a majority of the participants having heard about cervical cancer. The findings align with similar studies conducted in Uganda and Kenya, where most participants also indicated awareness of cervical cancer (Mwaka et al., 2016; Gatumo et al., 2018). However, the study's results contrast with a similar study in India, where poor awareness of cervical cancer was reported, with only one-quarter of the participants indicating they had heard of cervical cancer (Jha et al., 2020). The discrepancy in awareness levels could be attributed to various factors, including differences between developing countries regarding healthcare infrastructure, health education initiatives, and access to information about cervical cancer and screening.

This study highlights a concerning trend where only half of the participants who had heard about cervical cancer were familiar with its clinical manifestations. This finding is consistent with a previous study conducted in Malaysia which also reported less recognition of cervical cancer signs and symptoms among the Malaysian community (Seng et al., 2018). The consequences of this lack of awareness and recognition are critical, as women may only seek screening and treatment when they experience physical symptoms (Darj et al., 2019). Delayed detection can result in cervical cancer being diagnosed later, reducing the chances of successful treatment and potentially leading to poorer health outcomes. There is a need for comprehensive health education campaigns that not only raise awareness about cervical cancer but also emphasize the importance of recognizing its clinical manifestations. Educating women about the early signs and symptoms can empower them to seek medical attention promptly and increase the likelihood of early detection.

4.2. Attitudes toward cervical cancer

The results of this study indicate a positive and encouraging trend in participants' attitudes toward cervical cancer. According to Romli et al. (2019), the majority of working women in Kedah exhibited a positive attitude toward cervical cancer screening. More than half of this study participants demonstrated a favorable attitude, reflecting an awareness of the importance of cervical cancer prevention and early detection. The findings of this study are consistent with research conducted in other countries, such as Indonesia (Winarto et al., 2022), Thailand (Chang et al., 2017), and Zimbabwe (Tapera et al., 2019), which also reported positive attitudes towards cervical cancer screening. These similarities across diverse populations suggest that efforts to promote awareness and education about cervical cancer are yielding positive outcomes in multiple regions.

The findings from the study indicate that half of the participants do not believe that cervical cancer transmits through sexual intercourse. This is similar to Ngune et al. (2020) study, which indicates many young women in Kenya are unaware of cervical cancer associated with sexual intercourse. This misconception about the transmission mode is concerning, as cervical cancer is primarily caused by persistent infection with high-risk types of Human Papillomavirus (HPV), a sexually transmitted disease (World Health Organization, 2021). Furthermore, this study revealed that only 32.3% of the participants consider early marriage a risk factor for cervical cancer. Seng et al. (2018) also found that many Malaysian women may be unaware that an early marriage increases the risk of cervical cancer. Early age at sexual experiences was higher vulnerable to cervical cancer because of biological immaturity and hormonal in the body of a young girl (Xavier-Júnior et al., 2017). The low awareness of this risk factor underscores the importance of raising awareness about the potential health consequences of early marriage, including its association with cervical cancer.

This study highlights a positive trend in the participants' attitudes towards cervical cancer, with the majority acknowledging the possibility of prevention and the potential for cure. This aligns with research conducted by Getahun et al. (2020) and Aweke et al. (2017), which also reported similar attitudes among participants regarding the preventability of cervical cancer. However, the discrepancy between participants who believed cervical cancer is preventable and those who believed it is incurable, as reported by Mengesha et al. (2021), warrants further investigation. By building upon the existing awareness and knowledge, healthcare professionals can work together to reduce the population's cervical cancer burden, ultimately improving women's health and well-being in the region.

The findings from this study and the supporting evidence from Seng et al. (2018) and Jha et al. (2020) highlight a concerning lack of awareness among women regarding the link between smoking and cervical cancer. The participants in this study were found to lack awareness that smoking can lead to cervical cancer, suggesting that efforts to educate women about this important risk factor are still needed. The study by Jha (2020) further emphasizes that smokers may perceive their vulnerability to cardiovascular disease as higher than non-smokers, but they do not expect the same effect on their risk of developing cervical cancer. This disparity in perception emphasized the need for targeted health education campaigns that specifically address the association between smoking and cervical cancer.

4.3. The relationship between knowledge and attitudes toward cervical cancer

This study found a positive correlation between knowledge of cervical cancer and attitudes towards cervical cancer. The findings indicate that the participant possesses a moderate knowledge level and exhibits positive attitudes

towards cervical cancer. Studies have consistently shown that individuals with higher knowledge about cervical cancer and its risk factors tend to have more positive attitudes towards preventive measures and early detection (Zagloul et al., 2020; Nurjihan et al., 2019). Increased knowledge often leads to a greater understanding of cervical cancer's potential risks and consequences, motivating individuals to adopt healthier behaviors and seek appropriate medical care. In contrast, Rajiah et al. (2017) mentioned no correlation between knowledge and attitudes toward cervical cancer in terms of HPV vaccination among dental students in Malaysia. The results of this study are intriguing and suggest that other factors beyond knowledge alone might be influencing the attitudes toward HPV vaccination. Addressing cervical cancer requires a holistic approach that goes beyond simply increasing knowledge levels. Combining accurate information with culturally sensitive and contextually relevant interventions is essential to fostering positive attitudes and driving meaningful behavior change toward cervical cancer prevention and early detection.

4.4. Strength and limitation

The strength of this study lies in the large number of participants involved. Having a substantial sample size is advantageous as it increases the study's statistical power and generalizability of the findings. One of the limitations of this study is the use of convenience sampling which involves selecting participants based on their easy availability or accessibility, which may introduce bias into the study. Another limitation is the use of an online survey as the data collection method. While online surveys offer advantages, such as cost-effectiveness and the ability to reach a large number of participants efficiently, they also have some drawbacks. The major concern is the lack of control over the respondents' identity and the possibility of multiple submissions from the same individual (duplicate responses). Additionally, the online survey format may restrict participation to those who are digitally literate and have access to the internet. This could result in the underrepresentation of certain demographic groups, such as older adults or individuals with lower socio-economic status, leading to a potential sampling bias.

5. CONCLUSION

In conclusion, the study highlights that women in suburban areas have moderate knowledge and a favorable attitude toward cervical cancer. The participants demonstrated moderate awareness of the disease's symptoms, risk factors, and prevention methods. Moreover, the study reveals a positive and moderate correlation between knowledge and attitude towards cervical cancer. While the study provides valuable insights into women's knowledge and attitudes towards cervical cancer in suburban areas, future research could explore the factors hindering women from regular cervical cancer screenings in suburban areas. The study's findings emphasize the importance of health education and

awareness campaigns to improve knowledge and attitudes towards cervical cancer among women in suburban areas. By fostering a positive attitude towards cervical cancer prevention, healthcare professionals can work towards reducing the burden of the disease and improving women's health outcomes in suburban communities.

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