ORIGINAL ARTICLE

# Involving Men in Women's Health: A Qualitative Study of Male Staff Perceptions of Cervical Cancer at a Private University in Malaysia.

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**Abstract**

**Background:** In Malaysia, cervical cancer is the fourth most common cancer affecting women, following breast, intestinal, and lung cancers. The Pap smear is essential for early detection, and yet uptake remains below the WHO-recommended target of 70%. Many studies have examined why women do not undergo screening; however, few studies have explored men's perspectives, representing an important research gap. This study investigates men's awareness, knowledge, and perceptions of cervical cancer and their roles in supporting its prevention. **Methods:** A qualitative design was employed, involving three focus group discussions (FGDs) with 13 male participants. Semi-structured interviews were conducted until thematic data saturation was reached. **Results:** Participants exhibited diverse levels of awareness, with only a few demonstrating accurate knowledge of cervical cancer risk factors and the causal link to human papillomavirus (HPV). Misconceptions were prevalent, with several attributing the disease to lifestyle, diet, or hygiene. Although cervical cancer was widely acknowledged as a serious women's health issue, knowledge about prevention methods, including Pap smears and HPV vaccination, was inconsistent. While many men expressed willingness to support female family members emotionally, financially, and physically, cultural norms, religious beliefs, and socio-demographic factors posed significant barriers to open discussions and involvement. **Conclusion:** Health education strategies should shift toward inclusive approaches that actively engage men and couples. Strengthening men's awareness and involvement represents a crucial step toward increasing screening uptake and advancing cervical cancer elimination efforts in Malaysia.

**Keywords**: *Cervical cancer prevention, health behaviour, male involvement, men's perception, pap smear.*

## Introduction

Cervical cancer remains one of the most prevalent cancers affecting women globally, with an estimated 604,127 new cases and 341,831 deaths in 2020. More than half of these cases occurred in Asia [1]. In Malaysia, current estimates indicate that every year, 1,740 women are diagnosed with cervical cancer and 991 die from the disease [2]. Cervical cancer ranks as the 4th most frequent cancer among women in Malaysia and the 2nd most frequent cancer among women between 15 and 44 years of age [2].

Persistent infection with high-risk human papillomavirus (HPV) types is the primary etiological factor [2]. Unlike many other cancers, cervical cancer is largely preventable through early detection via Pap smear and HPV vaccination. Malaysia has introduced school-based HPV vaccination for secondary school girls as part of government initiatives to curb the disease [3].

The World Health Organization (WHO) launched the Global Strategy to Accelerate the Elimination of Cervical Cancer in 2020, aiming to achieve by 2030: 90% of girls fully vaccinated against HPV by age 15, 70% of women screened using a high-performance test by the age of 35 and 45, and 90% of women with cervical disease receiving appropriate treatment [1].

Despite national Pap smear programs introduced in the 1960s, Malaysia's screening coverage remains suboptimal. National health surveys report that fewer than half of eligible women undergo screening within the recommended interval [4].

Although a positive finding according to the National Health and Morbidity Survey showed Pap smear screening coverage among women aged 30 to 65 increased from 23.1 per cent in 2019 to 43.2 per cent in 2023, it is still well below the WHO's 70% target [4].

Many studies have explored why women do not undergo Pap smear screening. Common reasons include the misconception that screening is only for symptomatic women, lack of understanding about screening's preventive purpose, and poor knowledge of the HPV–cervical cancer link [5,6].

While most public health initiatives target women, the role of men in supporting cervical cancer prevention is underexplored. This is particularly important in Asean countries where men still hold the role of provider and decision-making. Men's knowledge, attitudes and behaviours influence women's access to sexual and reproductive health services, including cervical cancer prevention. Research from Asia and Africa indicates that male partners can act either as facilitators or barriers to women's screening [5,6]. Systematic reviews and primary studies report that supportive male attitudes, accompaniment to clinics, and active encouragement increase the likelihood that women will seek screening; conversely, male partner opposition, lack of awareness, and gendered norms about modesty and sexual health can discourage screening uptake [7 – 13].

Interventions that engage men through education, couple-based counselling or community outreach show promise in improving screening intentions and Pap smear uptake. Recent studies in low and middle-income countries have emphasised the need to involve men in elimination strategies such as in eliminating cervical cancer [14].

This study aims to investigate men's knowledge, perceptions, and readiness to support preventive measures against cervical cancer among men in a private university.

## Methods

*Study design*

This study adopted a qualitative research design using focus group discussions (FGDs) to explore male perceptions of cervical cancer. The qualitative approach was selected to provide rich, contextual insights into perceptions, attitudes, beliefs, and understandings of cervical cancer among male staff in a private university.

*Ethics in Research*

Ethical approval was obtained from the Medical Research Committee (MREC) of UniKL RCMP

prior to commencement. All participants gave verbal and written informed consent.

*Sampling*

The study employed purposive sampling to recruit participants, ensuring diversity in age, occupation, and educational background in order to capture a range of perspectives relevant to the research objectives. Eligibility criteria required that all participants be male staff aged above 18 who agreed to take part in the study. Data collection was conducted through semi-structured focus group discussions (FGDs), which continued until data saturation was achieved. A total of 13 male participants took part across three FGDs, representing a mix of academic and non-academic staff, including maintenance workers and administration personnel.

*Data Collection*

Data collection was guided by a semi-structured interview guide (Appendix 1), conducted in both English and Bahasa Malaysia to accommodate participants' language preferences. The interviewers were fourth-year medical students who had completed their gynaecology postings. These students possessed basic knowledge of cervical cancer and its prevention. To minimize interviewer bias, they underwent additional training in research ethics, focus group facilitation, and guided interviewing techniques. All interviewers were male to foster participants' comfort and openness.

*Focus Group Discussions (FGDs)*

Three FGDs were conducted, each lasting approximately 60 to 90 minutes. The discussions were video recorded. All recordings were transcribed verbatim to preserve the authenticity of participants' voices and expressions. FGDs facilitated interactive dialogue, enabling participants to collectively share and reflect on their perceptions.

*Data Analysis*

Thematic analysis was selected for its flexibility and for identifying patterns across the qualitative data collected without being constrained by a specific theoretical framework. The research team familiarised themselves with the transcripts through repeated reading, then coded recurring statements. These codes were then organized into themes and sub-themes. Four coders with a senior researcher collaboratively reviewed and refined the coding to ensure consistency and rigor. The semi-structured guide addressed seven topics: awareness of cervical cancer; knowledge of risk factors; awareness of screening programs; spousal support for screening; awareness of HPV vaccination; willingness to support screening and vaccination; and barriers to involvement in women's health.

## Results

Table 1 shows the sociodemographic characteristics of the participants in the focus group discussion; the majority were married and belonged to B40 income group (earning below RM5,249 per month).

The thematic analysis of the semi-structured interviews revealed several key themes:

1. **Awareness and Knowledge**:

Participants demonstrated varying degrees of awareness. While some had accurate knowledge of cervical cancer and its link to HPV, many held misconceptions about its causes, including lifestyle and hygiene.

" Saya rasa kanser serviks ni adalah dalam top 10 dalam kanser wanita selain kanser payu udara" (FGD 3, P5) (*I agree because I think cervical cancer is among the top ten cancer in women, apart from breast cancer)*

"This is the most common, you know, cervical cancer, especially among females, the 4th most common in Malaysia as well as in the world" (FGD 2, P4)

A knowledge gap existed between academic and non-academic participants. Some participants

drew parallels with male-specific cancers to understand the disease. One participant described cervical cancer as a silent killer in women, similar to prostate cancer in men.

"Dia salah satu orang kata silent killer dalam kehidupan wanita. Sama macam lelaki lah, kanser prostate." (FGD1, P3).("*It is a silent killer in women. Just like prostate cancer in men*")

Describing cervical cancer as a "silent killer" may create the perception that cervical cancer cannot be detected early and is often diagnosed at a late terminal stage, potentially undermining screening efforts.

Another participant noted he had only heard about it but never explored it due to the absence of family history.

"Takde pengetahuan ataupun pengalaman. Cuma, pernah dengar la tapi takde la nak explore benda ni kan, sebab memang di kalangan family memang tak pernah ada sejarah dengan penyakit ini" (FGD 3, P1) *( I don't have experience in this. But I have heard about it but I didn't explore on it because nobody in my family has it).*

Several participants had misperceptions about the causes of cervical cancer, attributing it to lifestyle factors, such as diet, fast food, preservatives and poor hygiene.

"Fast food ke apa ke. Salah satu fast food pun membuka kepada kanser tu, dia mengaktifkan kanser tu. Ready to eat." (FGD 3, P1) *(Probably fast food. The fast food activates the cancer. Ready to eat food)*

Some participants mentioned that sexual life - including multiple partners, unprotected sex, and homosexual relationships - also plays a role in causing cervical cancer.

"Bagi saya punca dia disebabkan, serviks ni, bahagian yang boleh di-access kan? Jadi, saya rasa mungkin ada unsur luar yang boleh menyebabkan jangkitan atau hubungan yang tidak sihat ke kan, tidak pakai perlindungan." (FGD1, P3) (*For me, the cause may be due to the fact that the cervix is accessible, so I feel that outside exposure causing infection or unhealthy relationships, and unprotected relationship may be the cause*.)

Many participants also agreed that genetics play a role.

"Saya rasa dari segi pemakanan, hygiene tadi, pastu genetic la. Saya rasa genetic la." (FGD1, P4). (*I think it is because of food, hygiene and genetics. I think it's genetic)*

Only two participants correctly associated cervical cancer with HPV: an obstetrician-gynaecologist (O&G) and a medical doctor who had a PhD in Clinical Pharmacology.

"...it has been found that cervical cancer has been associated with HPV. There are hundreds of types, but the ones strongly associated are type 16 and 18." (FGD 2, P3)

The emphasis on external causative factors such as diet, hygiene, poor lifestyles, and genetics highlights a significant gap in the understanding of HPV as the cause of cervical carcinoma.

Many participants correctly mentioned symptoms of vaginal discharge and abnormal bleeding.

"Bagi saya, saya rasa mungkin pendarahan la, pendarahan yang berpanjangan la, dia tak normal macam waktu period kan, lebih daripada seminggu maybe masih lagi darah." (FGD1, P3) (*For me, I think the symptoms would be prolonged bleeding, not normal like menses, probably more than a week of bleeding*.)

All participants acknowledged that cervical cancer is an important issue in women. One participant noted its importance because the cervix is involved in childbirth.

"Jadi, kanser serviks ni dikira penting, sebab dia untuk wanita, sebab dia merupakan tempat sumber peranakan so dia adalah penting juga" (FGD 3, P5) (*Cervical cancer is considered important, because it affects women, and it is for childbearing. So, it is important*.)

**2. Prevention Awareness:**

Regarding prevention, eight participants mentioned screening by Pap smear screening and seven mentioned HPV vaccination. However, knowledge was largely superficial.

**Pap Smear**

Although eight participants mentioned Pap smear, only two – an O&G specialist and a participant with nursing experience - could accurately describe the procedure.

"Cervical smear actually is a screening test, not a diagnostic test for precancerous conditions. Once the test comes positive, the patient can be referred for further diagnostic testing called colposcopy. Recommendations are from 20 to 21 years old (sexually active) until 65 years old." (FGD2, P3)

"Ambil biopsy pun boleh, even daripada darah, ideally specimen terus dari area tu result lagi cepat daripada blood test sebab blood test tu kadang dia tak tunjuk sangat. Kalau specimen, untuk result sama ada dia positive ataupun negative result tu." (FGD3, P4) (*Can take biopsy or even blood. Ideally, take a sample from the affected area, it gives faster results than a blood test. With a biopsy specimen, we know whether positive or negative.*)

Four participants mentioned Pap smear only vaguely, without further details.

"Pap smear tu, dia akan masuk dalam alatan dia lah." (FGD1, P1) (*Pap smear, it will enter into her organ*)

"Yang banyak tu pada wanita, nak kena Pap smear, kena check." (FGD3, P2) (*Mostly in women, need to do Pap smear, need to check*)

One participant gave a misinformed response:

"Pengumpulan sel-sel dalam rahim diukur untuk menentukan stage of kanser itu." (FGD1, P4) *(Gathering of cells within the uterus to see the stage of cancer)*

Thus, although awareness of Pap smear exists, understanding is superficial and largely limited to participants with a medical background. Some misunderstood the Pap smear as a staging procedure rather than a screening test.

**HPV vaccination**: Seven participants mentioned the HPV vaccine. Two of them showed a good understanding, including awareness of cost concerns in the private sector.

"So, if patients can get vaccines earlier, because actually there is association with this squamocolumnar transformation junction, which is a susceptible area. So, if patients get this vaccination, it can prevent cervical cancer." (FGD2, P3)

"Government already did their job, and they prepared a vaccine and injected all the secondary school students. For example, about 200,000 to 300,000 women are already injected every year." (FGD2, P2)

"Kalau ikut pada statement pada doctor-doktor pakar, macam since sekolah menengah dia dah ambil vaccine, tiba – tiba dapat penyakit lagi, so kena consider booster dose. Tapi vaccine first dose pun dah dikira mahal, apatah lagi booster dose. Lagi-lagi kalau bahagian swasta." (FGD3, P4) ("*According to the specialists, if she had taken the HPV school vaccination program and still gets the disease, she will have to consider a booster dose. However, even the first dose is already expensive, what more a booster dose, especially from private clinics*.")

Two participants mentioned HPV briefly:

"HPV? Pernah dengar la." (FGD1, P1) *( HPV? I have heard of it)*

"Now slowly, the incidence may come down mainly because the government has introduced human papillomavirus vaccination." (FGD2, P4)

Two participants were unaware of the HPV vaccine:

"Kami tak tahu pula ada vaccine dah sekarang." (FGD1, P3) *(we didn't know there is a vaccine now)*

"Tak pernah tahu pula." (FGD1, P2) (Never knew that)

The government's campaign for HPV vaccination among girls in secondary schools has raised awareness among some participants on the availability of vaccination against HPV, but a similar awareness gap persists.

**3. Support and involvement:**

Nine out of 13 participants expressed willingness to play a role in raising cervical cancer awareness.

"Kalau ada masalah bagitahu lah, kita boleh pergi buat pemeriksaan bersama la kan" (FGD1, P3) ("

If there is a problem, just tell, we can do check-ups together")

"Macam saya pula, untuk husband and wife takde masalah, boleh bincang semua benda" (FGD1, P2) ("My wife and I don't have a problem discussing any issues")

"I have no problem to actually sharing things about cervical cancer, especially with my family members (FGD2, P2)

"Saya dengan wife tiada masalah apa, kadang dia bincang ke apa, masalah ke apa. Kalau ada penyakit atau symptoms apa apa terus bawa ke hospital" (FGD3, P2) ("My wife and I do not have any problems to discuss things. If she has any medical problems or symptoms, I will bring her to the hospital immediately)

Five participants mentioned that they were willing to give moral support and advice to their wives and female family members. "Also, give them some advice to do Pap Smear and vaccination" (FGD2, P2)

"You have to be the educator and also advocator to the patient" (FGD2, P1)

One participant purchased insurance specifically for women's cancer for his wife as a form of support.

"Kalau awak kata HPV tu ada booster pula, mungkin saya akan bawa partner saya untuk pergi. Tu moral support lah. Kita akan encourage. Kalau partner saya, kita ambil insurance. Kita boleh support macam tu la." (FGD3, P1) (" If you say the HPV vaccine needs a booster, I will bring my partner to have it as my moral support to her. I will encourage her to take up medical insurance. That is my way of supporting her")

Eight participants stated they would provide physical support (accompanying partners or any female relatives for a check-up and financial support. Seven of the participants stated that they would bring their wives and any female relatives for a check-up.

"Kalau wife saya atau siapa-siapa dalam family ada tunjuk symptoms, orang kata baik bawa pergi cept-cepat untuk elakkan benda tu lagi merebak. So, kalau kita buat early screening, mungkin kita dapat cegah benda tu dari merebak sampai boleh meragut nyawa.." FGD3, P5 ("If my wife or anybody in my family showed symptoms, it's better to quickly bring her to get medical attention to prevent spread of the disease. We may be able to prevent the disease from causing death")

"Bagi saya, saya galakkan wife saya buat setahun sekali Pap smear sebab kita dah tahu kanser serviks tu macam mana, mungkin satu pembunuh dalam hidup perempuan" (FGD 1, P1) ("For me, I would like to encourage my wife to perform yearly pap smear, since we know that cervical cancer can cause death")

Meanwhile only 1 out of 13 participants mentioned of financial support for his wife as he mentioned as follows:

"Untuk wife saya, saya ambil insurance lain yang cover benda tu. So at least, manalah kita tahu, at least adalah something untuk rawatan berterusan." FGD3, P1 ("For my wife, I already took insurance for her to cover for cancers")

Participants were willing to give moral and physical support to their wives.

**4. Barriers:**

Eight of the participants mentioned how culture-religion matter became barriers in Asians community especially among Malays.

"..... Melayu ni lebih kepada sifat malu, berlapik. Benda ni quite sensitive la untuk dibincangkan, pada saya lah." (FGD1, P4) (……Malays are usually shy and do not talk openly about these things. Its sensitive and private)

"....Sebab kita mewarisi ketidak-terbukaan dari orang-orang tua kita. Lagi pun kita budaya Melayu" (FGD1, P4) ( We inherit this close culture from our parents. .., this is Malay culture)

"Sometimes there is a taboo mindset among the wives and the husbands. This religious culture is a sensitive issue that needs to be solved." (FGD2, P1)

Ten participants mentioned sociodemographic factors - specifically, location and level of education as significant barriers.

"Kami ni dari kampung, so saya rasa benda tu satu benda yang sensitive lah. Macam saya cakap, level of education orang tu and lokasi orang tu."

(FGD1, P4) (We are from the village, so I feel discussing this issue is sensitive. As I have mentioned, the education level and where the person stays also affect his perception)

“So, I think education matters a lot because they are likely to be more inquisitive in asking, …..” (FGD2, P3)

One participant noted that women prefer discussing female health issues with other women, and a man initiating such a conversation might be seen as strange or even as sexual harassment.

“Tapi selalunya, benda ini biasanya orang perempuan lebih selesa bercakap dengan kaum sesama dialah.....perempuan jarang tanya dengan lelaki sebab dieorang fikir lelaki tak tahu masalah ini”(FGD1, P3) ("Usually, women are more comfortable talking among themselves... Women rarely ask men because they think men don't know about this issue")

“Dia akan jadi macam sexual harassment. Dia lebih kepada privacy. (FGD1, P4) ( It can become like sexual harassment. It is very private).

“Bagi saya pula,mungkin kita tidak dirujuklah. Orang perempuan tak pernah minta pendapat kita atau tak minta tolong dekat kita kan. Kita tak pernah di”approach” lah.” (FGD1, P3) (“As for me, we were never referred to. The women never ask for our opinion, or ask for our help. We were never approached).

**Discussion**

Screening for cervical changes is Malaysia’s main preventive strategy for combating cervical cancer. However, despite the availability of a national screening program, the proportion of women undergoing screening remains below 50%, far from WHO target of 70% coverage [1,4]. Numerous studies have explored the reasons for women’s reluctance to participate in screening. Poor knowledge has consistently been identified as a key factor, with many women unaware that screening is intended to detect early cervical changes before they progress to cervical cancer [5,6,15].

There is a critical gap in research examining men’s knowledge, awareness, perceptions, and attitudes toward cervical cancer and its prevention. In Southeast Asia, men often act as breadwinners and decision-makers, and they also play a role in the transmission of the HPV. Thus, they must be made aware of the seriousness of the disease and actively involved in its prevention. Our study highlights significant gaps in men’s understanding and involvement. Many participants were unaware that cervical cancer is among the top five cancers affecting women. Although approximately one thousand women die from this disease annually, it has largely escaped men’s attention. These findings are consistent with previous studies [14,16,17]. In a survey involving 500 males, very poor knowledge and awareness of cervical cancer and screening were reported, along with negative attitudes toward screening [18]. Misunderstanding of the role of Pap smear as a preventive screening tool may also lead men and women alike to think that they are not at risk since they are asymptomatic [19].

Participants in our study demonstrated limited knowledge regarding the actual cause of cervical cancer, with many unaware that HPV causes it. Although the Ministry of Health has conducted campaigns promoting HPV vaccination among girls and encouraging women to undergo screening, these efforts appear insufficient in reaching male populations. Similar findings were reported in a study from Karnataka, where 90% of participants were unaware that cervical cancer is caused by HPV and transmitted through sexual intercourse [18]. A study conducted in Singapore also showed that men had only moderate knowledge of cervical cancer and poor awareness of HPV [20]. These findings reflect a broader pattern in which men, even in more developed settings, may have limited awareness of women’s health issues. This study underscores the need to educate men about women’s diseases and their prevention.

Misconceptions regarding the causes of cervical cancer were also evident. Some participants attributed the disease to factors such as poor diet

and hygiene. Such misconceptions may lead men to believe that cervical cancer results from women's personal lifestyle choices, potentially contributing to stigma and blame. These misconceptions could lead men to believe that they have no part in contributing to the disease and it is wholly the women's fault for not taking good care of themselves.

Women's decisions to undergo screening are influenced by their husbands' opinions [17,20]. In our study, although there was a general willingness among men to support women, this support was often undermined by misconceptions and sociocultural barriers. Many participants felt uncomfortable discussing the condition, as reflected in their use of vague terms such as "her organs" instead of referring specifically to the cervix. Although many had heard of the Pap smear test, they were unable to describe the procedure, its purpose, or the recommended screening intervals.

Stigma surrounding cervical cancer was also evident. Some participants felt that discussing cervical cancer with female friends could lead to accusations of sexual harassment. Similar stigmatization has been reported in other studies, where cervical cancer was perceived as a consequence of moral wrongdoing or as a punishment from God [21].

Cultural factors also played a role. Being Malay was perceived as a barrier to discussing the disease, as it was considered a sensitive and taboo topic. Participants believed that discussing women's health issues was easier in other ethnic groups compared to the Malay community.

Participants also noted that individuals living in rural areas and those from lower socioeconomic backgrounds may have lower awareness of cervical cancer compared to those in urban settings.

Targeted educational interventions that include men as key stakeholders in women's health could improve prevention outcomes. A behavioural model study in Karnataka found that while knowledge and awareness were important determinants of men's willingness to support their wives in screening, attitudes and routine health-seeking behaviours were also significant factors. Men with higher educational levels and better health literacy were more likely to encourage their wives to undergo screening [18]. Interventions should therefore address misinformation, promote open communication, and leverage men's supportive roles within families. These findings are consistent with studies conducted in Sub-Saharan Africa, South Asia, and Southeast Asia, which demonstrate that men's support is a critical factor in improving the uptake of cervical cancer screening and HPV vaccination programs [8 -12,14, 17,19,23].

To increase the uptake of Pap smear screening, HPV vaccination, and early treatment of cervical cancer, a shift in strategy is needed. Greater emphasis should be placed on engaging spouses by improving their knowledge and awareness. This approach represents a crucial step forward in efforts to eliminate cervical cancer.

**Limitations**

This study has several limitations that should be considered when interpreting the findings. First, the study population was limited to staff from a single private university, which may introduce sampling bias and limit the generalizability of the results. Second, the institutional setting of a medical university may have influenced participants' responses. Exposure to health-related information, either formally or informally, could result in responses that do not fully reflect those of men in the broader community, particularly those from non-medical or less educated backgrounds. Third, the study is subject to potential social desirability bias. Given the sensitive nature of cervical cancer and reproductive health, participants may have provided responses that they perceived as socially acceptable or expected, rather than their true beliefs or behaviours. This may have led to an overreporting of supportive attitudes toward screening and women's health.

Despite these limitations, the study provides valuable insights into men's perspectives on cervical cancer, including their level of awareness, existing misconceptions, perceived barriers, and willingness to support women in their families. These findings contribute to a better understanding of the sociocultural dynamics influencing cervical cancer prevention and highlight important areas for targeted intervention.

## Conclusion and Recommendations

This study underscores the critical importance of incorporating men into public health strategies for cervical cancer prevention. While current efforts largely focus on women, our findings demonstrate that men play a significant role in shaping health-seeking behaviours, particularly in relation to screening uptake. Therefore, effective prevention strategies must adopt a more inclusive, gender-sensitive approach that actively engages men as partners in women's health.

To translate these findings into practice, several actionable strategies are recommended. First, workplace-based awareness programs should be implemented, particularly in male-dominated sectors. These platforms provide valuable opportunities to deliver targeted education on cervical cancer, HPV transmission, and the importance of early screening. Integrating brief educational sessions, health campaigns, or digital awareness initiatives within workplace settings may improve reach and normalize discussions around reproductive health among men.

Second, couple-focused educational interventions should be strengthened within existing healthcare services. Antenatal clinics, primary care visits, and community outreach programs offer strategic entry points to engage both partners simultaneously. Encouraging joint participation in health education can facilitate shared decision-making, improve communication, and enhance support for cervical cancer screening.

Third, public health campaigns should be redesigned to be more male-inclusive. Current messaging predominantly targets women, potentially overlooking the influential role of men. Future campaigns should explicitly highlight men's role in HPV transmission and prevention, while promoting supportive behaviours. The use of culturally appropriate messaging, male role models, and targeted media channels can enhance engagement and acceptance.

Finally, interventions must address prevailing misconceptions, stigma, and sociocultural barriers. Community-based programs should focus on improving health literacy, correcting misinformation, and fostering open dialogue about reproductive health. Tailoring these interventions to cultural contexts is essential to ensure acceptability and effectiveness.

In conclusion, a shift toward inclusive, couple-oriented, and male-engaged strategies is essential to improve cervical cancer prevention outcomes. Strengthening men's awareness and involvement represents a crucial step toward increasing screening uptake and advancing efforts toward cervical cancer elimination.


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## Conflict of Interest

The authors declare no conflict of interest.

## Authors' contribution

AM was responsible for the conceptualization of the research, review findings and finalizing the manuscript. PYS, MDMA, MAANI, RR, and NS were responsible for conducting the interviews of FGD, drafting the manuscript.

Table 1. Sociodemographic Characteristics of FGDs Participants.

| **Characteristics** | **Category** | **Frequencies n (%)** |
|---|---|---|
| Age Group (years) | 19-29 | 3 (23.1) |
| | 30-39 | 3 (23.1) |
| | 40-49 | 3 (23.1) |
| | >49 | 4 (30.8) |
| Marital status | Single | 3 (23.1) |
| | Married | 9 (69.2) |
| | Divorce | 1 (7.7) |
| Highest education level | Doctorate (PhD) | 1 (7.7) |
| | Master's Degree | 2 (15.4) |
| | Bachelor's Degree | 3 (23.1) |
| | Diploma/STPM | 5 (38.5) |
| | SPM | 2 (15.4) |
| Household income | B40 | 8 (61.5) |
| | M40 | 3 (23.1) |
| | T20 | 2 (15.4) |

Abbreviations: STPM= Sijil Tinggi Persekolahan Malaysia (STPM), or Malaysian Higher School Certificate; SPM= Sijil Pelajaran Malaysia, or Malaysian Certificate of Education; B40= bottom 40% with monthly income below RM5,249; M40= middle 40%, with monthly income between RM5,250-RM11,819; T20=top 20% with monthly income RM11,820 and above.

Table 2. Awareness and knowledge of men on cervical cancer

| Theme | Subtheme | Description | Representative Quote | Interpretation |
|---|---|---|---|---|
| **1. Awareness and Knowledge** | Variable awareness | Participants demonstrated varying levels of awareness, from accurate knowledge to minimal understanding | "*I think cervical cancer is among the top ten cancer in women* (FGD3, P5) | Awareness exists but is often incomplete or underestimated |
| | Accurate knowledge (limited) | Only a few participants demonstrated correct epidemiological knowledge | "*Cervical cancer… the 4th most common in Malaysia as well as in the world*" (FGD2, P4) | Knowledge is concentrated among medically trained individuals |
| | Misconceptions on causes | Causes attributed to lifestyle, diet, hygiene, and genetics | "*Fast food… activates the cancer*" (FGD3, P1) | Misconceptions may hinder preventive behaviour |
| | HPV knowledge gap | Limited understanding of HPV as primary cause | "HPV? *I have heard of it" (*FGD1, P1) | Public health messaging on HPV has not effectively reached men |
| | Symptom recognition | Some awareness of symptoms, such as abnormal bleeding | *"Bleeding usually more than one week"* (FGD1, P3) | Partial knowledge present, but lacks depth |

Table 3. Prevention awareness of cervical cancer

| Theme | Subtheme | Description | Representative Quote | Interpretation |
|---|---|---|---|---|
| **2. Prevention awareness** | Pap smear awareness | Majority mentioned Pap smear, but lacked procedural understanding | "*Pap smear is when an instrument is inserted in her organs"* (FGD1, P1) | Superficial awareness without clear understanding \| |
| | Misunderstanding of screening | Incorrect understanding of Pap smear's purpose | "*Collection of cells to determine staging"* (FGD1, P4) | Misinterpretation may reduce screening uptake |
| | HPV vaccination awareness | Some awareness of vaccination programs | "Government already… inject all secondary school students" (FGD2, P2) | Awareness influenced by national campaigns |
| | Limited vaccine knowledge | Some were unaware of HPV vaccine existence | "*We never knew there is vaccine"*(FGD1, P3) | Gaps in dissemination of preventive information |
| | Cost concerns | Concerns about affordability in the private sector | *"Vaccine is already expensive…booster dose is more expensive*" (FGD3, P4) | Financial perception may affect acceptance |

Table 4. Support and involvement of men in cervical cancer prevention

| Theme | Subtheme | Description | Representative Quote | Interpretation |
|---|---|---|---|---|
| **3. Support and Involvement** | Willingness to support | Participants expressed readiness to support women | "*If there is a problem, we can do check-up together" (F*GD1, P3) | Men are willing but need guidance |
| | Emotional support | Providing advice and encouragement | "Give them advice to do Pap smear and vaccination" (FGD2, P2) | Men can act as health advocates |
| | Physical support | Willingness to accompany for screening | *Bring them quickly to clinic to prevent spread" (*FGD3, P5) | Facilitates access to care |
| | Financial support | Providing insurance or financial assistance | *"I took insurance for my wife for treatment" (FG*D3, P1) | Financial role reinforces involvement |
| | Open communication (limited) | Some comfortable discussing with spouses | " *Husband and wife should have no problem to discuss" (FG*D1, P2) | Couple communication is a key opportunity |

Table 5. Barriers to Male Involvement in Cervical Cancer Prevention

| Theme | Subtheme | Description | Representative Quote | Interpretation |
|---|---|---|---|---|
| **4. Barriers** | Cultural and religious norms | Cervical cancer viewed as sensitive topic | ” *It's quite sensitive to discuss this…embarrassing* (FGD1, P4) | Cultural norms limit discussion |
| | Gender norms | Women’s health seen as private domain | *” Women's issue, only women will know”(*FGD1, P4 | Excludes men from involvement |
| | Social stigma | Fear of being perceived as inappropriate | *” It will be interpreted as sexual harassment*” (FGD1, P4) | Stigma discourages male engagement |
| | Socioeconomic factors | Lower awareness in rural/low education groups | *“Level of education and their location”(*FGD1, P4) | Inequality affects awareness |
| | Limited male-targeted messaging | Lack of outreach directed at men | “ *We were never approached*” (FGD1, P3) | Public health campaigns exclude men |
| | Communication barriers \| | Use of vague language due to discomfort | ” *Pap smear, putting instrument into her organs” (*FGD1, P1) | Reflects low health literacy and discomfort |

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## Appendix 1

## Sample of guided interview

| Questions | What do we need to deduct? |
|---|---|
| 1. Can you share your understanding on cervical cancer? | Evaluate the depth of participants' knowledge about cervical cancer. |
| | Identify any misconceptions or gaps in awareness. |
| | Explore the sources from which participants acquire information on cervical cancer. |
| 2. How comfortable are you discussing on cervical cancer and what factors may impact this comfort level? | Assess the participants' comfort or discomfort in discussing reproductive health topics, specifically cervical cancer. |
| | Examine factors that may influence their comfort levels, such as cultural norms, societal attitudes, or personal experiences. |
| | Understand the context in which discussions about cervical cancer might be hindered or facilitated. |
| 3. From your perspective, what role do you believe men can play in prevention of cervical cancer? | Explore participants' perspectives on the role they believe men can play in preventing cervical cancer. |
| | Identify potential strategies or actions that participants consider effective in raising awareness and contributing to prevention. |
| | Assess the level of engagement participants envision for men in promoting cervical health. |