

## Pap Smear Screening: Deterrents among the At-Risk Population in Trinidad



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**ABSTRACT:** Cervical cancer is a condition that affects many women globally. The WHO recommends Papanicolaou (Pap) smear screening, a method by which abnormal cervical cells can be detected and aid in preventing malignant progression. However, despite the availability of this test, uptake remains low among many Caribbean countries, including Trinidad.

**Objective:** A literature review on cervical cancer screening and barriers to getting tested in Trinidad.

**Study Design:** The study design chosen was a narrative literature review. This paper sought to assess available literature centered around reasons for lack of screening and how it may contribute to the current prevalence rates of cervical cancer.

**Methods:** Data was obtained from online articles via Google Scholar, Pubmed, ScienceDirect, and Scopus from 1987 to 2022. The focus was on publications detailing lifestyle and factors influencing Pap smear testing and follow-up.

**Results:** Results showed that personal understanding, accessibility, physician perception, and socioeconomic disadvantages can deter pap smear screening.

**Conclusions:** Addressing these issues and how they can influence screening uptake is key to increasing detection and decreasing cervical cancer deaths.

**KEY WORDS:** cervical cancer screening, pap smear, Trinidad, influencing factors, screening deterrents, Human Papilloma Virus

### INTRODUCTION

Cervical cancer is a disease of global concern. In 2018, the WHO estimated that 311 000 women died from Cervical cancer<sup>1</sup>. It is also the second leading cause of death among women due to cancer in the Caribbean and the second most common cancer within Trinidad<sup>2</sup>. It has also been associated with high mortality rates<sup>3</sup>. Furthermore, the Ministry of Health of Trinidad cites Cervical Cancer as one of the most common cancers in women under 50 years of age<sup>4</sup>.

An understanding of this disease has developed with technological advances, and a cause is known, the Human Papilloma Virus (HPV). Even though contracting the virus is not always preventable, its progress to a malignant stage can be detected, and debilitating effects avoided with a screening test known as a Pap Smear.

Primary prevention starts with the HPV vaccine, which can be given at 9-12 years of age<sup>5</sup>. Additionally, according to the American College of Obstetrics and Gynaecologists, pap smears are recommended for any sexually active female aged 21 and over<sup>6</sup>. In 2001, the Pan American Health Organization (PAHO) developed a Caribbean Cervical Cancer Prevention and Control Project to increase testing effectiveness and improve population awareness of the disease<sup>2</sup>.

Though screening programs have improved, for some countries, such as Trinidad, death rates remain high<sup>7</sup>. Over the past few years, cervical cancer mortality rates have declined in countries like the United States (less than five deaths per 100 000 women-years). This is compared to relatively higher rates still in Trinidad and Tobago of approximately ten deaths per 100 000 women-years<sup>8</sup>.

In trying to gain an understanding of the prevalence of cervical cancer within Trinidad, it was found that over a year from 2009 to 2010, there was only a 9% coverage of Pap smear tests being done for the at-risk group ages 25-49 years in Eastern Trinidad<sup>9</sup>. Furthermore, more than half of the women with abnormal tests in this study were lost to follow-up.

It can be appreciated that there is still uncertainty associated with medical treatment and tests in Trinidad. This apprehension is grounded in a mistrust of pharmaceutical medicine, invasive procedures, and a misperception of doctors and scientists. Addressing these concerns is vital in assessing screening hesitancy, influenced by many diverse factors.

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Many publications highlighted various possibilities for deterrents to screening. For example, Lurie et al. found that female patients felt more comfortable asking questions and expressing concerns to a female doctor and were more likely to follow through concerning their Pap Smears<sup>10</sup>. Soneji and Fukui found that urban residents had increased pap smear screening rates than rural residents. Follow-up was affected by a lack of laboratory services and timely generation of test results<sup>11</sup>. A further consideration in developing countries is that there tends to be specific areas with a lower income level, educational attainment, and access to information and health care. These factors and their correlation are essential in understanding the broader scope behind a woman's decision and ability to be screened.

This study reviews available literature focusing on the factors influencing women in obtaining Pap smears. It aims to determine the deterrents for women within their environment that have led to reservations and lack of adherence. If these factors are better understood, such information can be used to increase the screening uptake and ultimately reduce the prevalence of cervical cancer.

### **METHODOLOGY**

The study design used was that of a review of current, scientific literature from different online sources, revolving around cervical cancer and pap smear testing. Based on their verification and authenticity, articles were obtained from electronic databases including Google Scholar, PubMed, ScienceDirect, and Scopus. Different databases were chosen to ensure that relevant and diversified studies could be identified. The search criteria involved the retrieval of articles with the keywords and phrases: cervical cancer, the prevalence in Trinidad, pap smear testing, screening, knowledge of HPV, disadvantages, and health care, from a search that occurred from October 2020 to June 2022. The articles chosen were reviewed based on the inclusion and exclusion criteria set. The process involved reading through article abstracts for the pertinent phrases to establish relevance and utilizing the snowballing technique to obtain further linked articles. Once an article of relevance was found, other similar articles were ascertained using keywords from that article. After this, full-text articles were downloaded and compiled. The search resulted in a total of fifty-two (52) articles. They were then separated based on similarly related topics to facilitate data management, analysis, and discussion.

Inclusion criteria were full text, peer-reviewed articles regarding cervical cancer and screening, within Trinidad or other countries, from 1987 to 2022 and on women aged 11 to 65. Exclusion criteria were articles that were only abstracts or commentaries, non-English publications, and articles involving conditions not related to cervical cancer or secondary causes of cervical cancer.

Information from these articles involving the understanding of cervical cancer and deterrents to pap smear tests were pulled. The resources were separated into the most common themes socioeconomic determinants, health care facilities and service accessibility, perceptions and trust of physicians, and knowledge of disease or testing. Folders established culminated with twenty-five (25) articles, separated according to the particular focus.

### **RESULTS**

The folders established resulted in twenty-five (25) articles grouped according to specific focal points. The data analysis strategy used was that of content analysis. Therefore, the finalized articles were analyzed to observe any correlations or comparisons noted by various authors or organizations.

A review of the literature led to the determination of four main themes, arising from the sub-folder categorization of the selected articles, that were associated with influencing pap smear screening. These categories included: the association between pap smear testing and level of understanding, the association between pap smear testing and accessibility, the association between pap smear testing and socioeconomic disadvantages, and the association between pap smear testing and patient-physician interaction.

### **DISCUSSION**

The CDC views HPV as the most common sexually transmitted infection in the United States<sup>12</sup>. Though cases of malignancy may have a slow onset, it is estimated that HPV will infect 75-80% of sexually active males and females in their lifetime<sup>13</sup>. Additionally, there are many different types of HPV. However, some types, such as Type 16, are considered high risk and are attributable to half of the invasive cervical cancer cases along with other risk factors such as being over the age of 30, multi-parous, or having a history of smoking as well as Oral contraceptive use<sup>14</sup>. Hence, there is a need to understand why, with the advancements in public health coupled with technology and accessible information, there is no greater incentive for women to want to pursue routine screening. Many factors surfaced as predictors of screening in this review. The most referenced were understanding the disease or screening process, accessibility to medical centers with reliable services, socioeconomic disadvantages such as geographic location and employment benefits, and patient-physician comfort and interaction quality.

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### Pap Smear screening and Individual Understanding

In Trinidad, there exist some lack of knowledge regarding screening: how it is done and for what purpose. Grasping what the desired target population understands about screening helps to expose reasons for some deeply rooted reservations. The findings of this review gave an insight into Pap smear and cervical cancer knowledge within different age groups.

Stemming from the findings was the level of education within the target population. Modeste et al., found that 72% of Trinidad adolescent girls were unfamiliar with Pap smear screening<sup>15</sup>. The same study also compared the adolescent females studied and their parent's education level, finding that 48% of parents of Trinidadian adolescent girls had only completed a high school level of education, with even less obtaining a completed college degree<sup>15</sup>. Similarly, Smith et al., a Michigan focus group study, also found that a deterrent for some women was that they lacked an understanding of cervical cancer disease progression and frequently used terminology<sup>16</sup>.

Another contributing factor related to the theme of understanding is the influencing effect of family members. Ackerson et al., detailed that some women choosing to get tested (or not) was often due to influences imposed by family members such as mothers or grandmothers<sup>17</sup>. In earlier years, with less dissemination of information, some senior women may never have been taught about HPV and its link to cancer. This lack of understanding can result in reservations passed on from generation to generation. Despite the possibility, as mentioned earlier, Soneji and Fukui's cross-sectional study on Latin American Countries (LAC) found that a woman's knowledge of Pap smear screening increased with educational attainment and age, though plateauing at 31-35 years<sup>11</sup>.

These associations, as mentioned above, show that a deterrent to testing can originate from one's level of understanding, what is gained individually, and what is taught by others. Hence, these factors are essential to address when trying to formulate change in behavior and decision-making among Trinidadian women. Having necessary education at the intrapersonal and interpersonal levels of society can influence personal choices and, more importantly, one's ability to instigate change. If this is done, more women may be moved to get themselves tested at the advised recommendations and would be able to pass on said practices to future generations.

### Pap smear screening and accessibility

Another factor derived from this review was accessibility – to medical sites or testing. Four Regional Health Authorities currently exist within the island of Trinidad, with over fifty health care facilities providing medications and services accessible to the public free of charge. However, despite the Government's public health efforts to provide free pap smear testing for all women, physical obstacles remain.

Patients need to be able to access pap smear tests and get timely and reliable results. If abnormalities are seen on cytology, women may need repeat testing or referral to a specialist such as a Gynecologist or Gynecological Oncologist. Laboratory services and trained medical staff are essential to this process flow. If not well managed or there exists a lack of resources, the public health care systems can become overwhelmed by the number of tests to be done. This importance is emphasized by Murillo et al., who found that effective screening programs were limited by poor quality sampling and a shortage of trained technicians within the Caribbean and LACs<sup>18</sup>.

Women need to commute to the public health centers for testing. Depending on location, some may not have the means to travel far distances and decline to do so just for a 'screening' test. Lynch and Maharaj found that rural residents in Trinidad were less likely to be screened than urban residents<sup>9</sup>. Similarly, Woldetasdik et al's study in Ethiopia also found lower cervical cancer screening uptake in rural residences<sup>19</sup>. This reality is of concern considering the progressive nature of cervical cancer, where the benefits of early detection may be missed if screening is sought too late. If women cannot access the centers to get tested or have delayed results, cervical cancer cases will only continue to increase.

### Pap smear screening and Socioeconomic disadvantages

Another area highlighted in various publications was socioeconomic disadvantages within the female population. As mentioned, there appears to be an urban-rural divide regarding pap smear screening. Furthermore, Lisle et al., found that women in rural areas in Trinidad were less likely to hold a college or university degree, and there was a tendency toward imbalance in urban-rural educational attainment there<sup>20</sup>. Additionally, Martin et al., found that women from lower economic brackets had lower probabilities of screening for pap smears in most Caribbean islands<sup>2</sup>. Breitung et al., also noted that women of a low socioeconomic status had a poor understanding of pap smear testing in their Texas-based review<sup>21</sup>. Education and social status can impact one's earning capacity. Due to this influence, some women may not have the resources to be screened or pursue secondary investigations if needed.

A higher socioeconomic status can be linked with employment; the better the income, the higher the status. The importance of this association can be seen in results from a web-based Japanese survey by Kaneko that found that working respondents were more likely to have undergone pap smears than those unemployed<sup>22</sup>. Also, the better the employment, the more likely it provides

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insurance or health coverage. Hence, individuals who hold partial or complete coverage insurance may be more likely to seek out medical care or be interested in doing so than those who do not. Ward et al., found that individuals without health insurance had lower cervical, breast, and colorectal cancer screening rates. The same study also observed that inadequate health insurance coverage was associated with less access to care and poorer cancer outcomes<sup>23</sup>. Comparably, O'Malley et al., related having private insurance with screening adherence<sup>24</sup>.

Consequently, women could afford more private specialists or primary care visits and follow-ups if they have the financial buffer of insurance and insurance plans. These women may also be more likely to seek out private care if they cannot make regular clinic hours, public facilities are too overcrowded, or test results are delayed, as they would have the means to do so.

Unfortunately many women in Trinidadian rural areas, whose source of income may be more from self-employed agricultural work, would not be privileged to insurance. Many females may not even be employed as the men are viewed as the financial caretakers for the family while women play a more housekeeper and caregiver role<sup>25</sup>. This situation furthers their inability to secure health insurance for themselves and for testing. These women would, as a result, encounter deterrents to screening due to these socioeconomic disadvantages.

### Pap smear screening and Health care provider impact

Articles reviewed also noted an association between physician and patient screening. Medical practitioner care and influence can start at an early age. However, Modeste et al., found that 50% of Trinidad adolescent females had never seen a Pediatrician before<sup>15</sup>. This is perhaps because parents often do not seek 'pediatric' care for children or adolescents in many Caribbean countries. The younger population is usually treated mainly by General Practitioners or Family Doctors. Hence, teens are not exposed as early as they should be to information provided by a specialist who would be trained to educate them on STDs or HPV specific to that age group. Such limited interaction can contribute to the lack of regard for screening or even HPV vaccination as adolescents age.

Moreover, the influence of medical providers is key to successful screening. Women who had a recent doctor's visit were more likely to do Pap smear screening<sup>26</sup>. O'Malley et al., further emphasize this importance, as it was found that women who had long-standing relationships with their physicians had higher adherence rates for screening<sup>24</sup>. This shows how healthy and efficient patient-physician interaction can lead to compliance with testing and the likelihood of follow-through.

Physician impact is further seen when considering male vs. female physicians, and the degree of influence each can have based solely on their gender. Lurie et al., found that women were more likely to undergo screening pap smears and mammograms if they saw a female physician rather than a male physician<sup>10</sup>. A cross-sectional study conducted by Almaro et al., also found that 87% of their participants preferred to see a female physician, with the preference being embarrassment or shame in front of a male practitioner<sup>27</sup>.

There is often apprehension about discussing issues regarding sexual activity and female reproductive organs with a male physician, which is viewed as a topic to have with a woman. Efforts must be made to rid female patients' discomfort of being cared for by a male doctor for gynecological issues, such as stigmas, cultural barriers, and fear of being tested. Patient preference for a female provider can result in higher breast and cervical cancer screening rates by female physicians.<sup>25</sup> Hence, this can be a deterrent, especially in countries with a high ratio of male doctors in practice. Other concerns, such as women viewing the pap smear tests as extremely painful and unnecessarily invasive, also need to be addressed during visits to maintain compliance.

## RECOMMENDATIONS

Pap smear screening needs to be on an upward trajectory to address the increasing rates of Cervical Cancer. A few recommendations arose from this review, many already being implemented worldwide and can have considerable benefits in countries such as Trinidad. Some measures directly tackle improving the efficiency of the publicly accessed health care centers. For example, once obtained at a local health center, pap smear samples are generally sent to larger laboratory providers, which may take several weeks to report due to the number of samples to be tested. However, having on-site lab services at the health centers (predominantly rural ones) would aid in expediting the turnaround time.

Also, many centers still use paper filing methods to keep track of patients' information. It has been shown that Electronic Medical Records, help to improve work flow by improving access to lab reports and providing alerts and reminders<sup>28</sup>. If more medical institutions in Trinidad could become computerized with an online platform, it may be easier to create automatic reminders of patients' dates for re-screening and provide better record keeping of vast amounts of patient information.

Secondly, regarding accessibility, ways that have been found to tackle this were Telemedicine and Mobile medical units. The American Academy of Family Physicians defines Telemedicine as the practice of medicine using technology to deliver care at a distance<sup>29</sup>. Handheld mobile devices are now more prevalent in society than ever before. Though persons may have geographical challenges, they can be reached by personal devices such as laptops, tablets, or cell phones. Investment in Telemedicine can have

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unlimited possibilities, as has been noted since the onset of the Covid-19 pandemic. Telemedicine can significantly change how health care and health-related information can be accessed<sup>30</sup>. Though the procedure for screening is a physical one, awareness can be raised of cervical cancer and pap smear benefits through the mode of Telemedicine. A specialist can also use this to consult on cases to staff in rural areas.

Another venture for potential is that of home visits via mobile medical units. Greenwald et al., stated that community access to screening could be limited by costs, clinic hours, and distance<sup>31</sup>. Hence mobile units are a service that can be incorporated into both the public and private health sectors. Doctors can take healthcare a step further by following through with at-home visits. With these visits, patients can get advice and information on cervical cancer and even have pap smears done within the mobile units or in the comfort of their homes. Yu et al., support this, stating that mobile units help eliminate many logistic barriers to testing, such as transportation and accessibility issues<sup>32</sup>.

Trinidad has an operational mobile unit equipped for cervical, breast, and prostate screening (TTCS, 2021)<sup>33</sup>. Expanded projects like these can help address issues of lack of testing and follow-up due to accessibility.

Thirdly, efforts should be made to increase subsidized insurance plans. Encouraging more employment-provided or government-subsidized insurance options, regardless of income, can significantly improve screening uptake. Though health services are free to access, many women may not desire to utilize public health centers due to long wait times, overcrowding, inflexibility of hours, and delayed results. The subset of women who would prefer to access private facilities should be able to afford to do so. Having options of varied insurance plans would undoubtedly be of great benefit for many women within Trinidad.

Finally, in a profession where male physicians often still outnumber females, assessing the gap in addressing gynecological issues with at-risk patients is crucial. Though some studies, such as Makam et al., found that most women showed no partiality toward male vs. female gynecologists<sup>34</sup>, Hall et al., meta-analytic review found a preference by patients for communicating and disclosing information to female physicians<sup>35</sup>.

Regardless, ensuring female patients are within an environment that encourages conversation and provides comfort is essential. Hence the role of a physician needs to be a facilitating one and not a deterrent. To ensure compliance, all physicians should clarify and educate on HPV and screening during patient visits.

### **LIMITATIONS**

Firstly, this study was limited by the lack of articles regarding screening specifically of women in Trinidad. As a result, some correlations had to be drawn from LACs or other developing countries that would have shown similar characteristics and patterns to Trinidad.

Specific information regarding the turnaround time of pap smear results at health centers, the number of labs within the country doing cytology, or data on patient compliance after positive findings were not available within the scope of this research.

Secondly, many of the public health centers in the country are not on an online platform and are still using paper document methods of gathering information and records, limiting what can conveniently be accessed on the internet. As a result, some articles used data from patients' hospital or clinic records and demographic surveys, whose documentation accuracy could not be verified for this study.

Thirdly, Recall bias should be considered in self-reporting, for instance, in studies with incomplete data, and patients themselves had to be contacted to gain information. Another limitation of this study was that some articles were based on smaller study groups, usually from one geographical area. So it would be hard to infer associations or influences about the general public as a whole, and there could be a likelihood of selection bias with this approach. Furthermore, studies varied between narrative reviews and cross-sectional studies. As a result, some articles can only suggest an association between findings and not confirm a related cause, making assumptions for this review less reliable.

### **CONCLUSION**

Cervical cancer remains a condition with high mortality if not detected early. Routine pap smear screening has been proven to be a solution to address this. Efforts should be made to adapt to today's society's evolving needs and resources. Countries like Trinidad with protocols for Cervical cancer screening must continue to maintain their efforts. However, current policies need to be frequently reviewed and adjusted. Innovative methods should be considered to tackle the deterrents to screening so women of different age groups, economic backgrounds, and geographical locations can be reached. Only then can there be an assurance that with regards to cervical cancer screening, no woman is without access to the help she needs.

### **AUTHORS STATEMENT**

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We, the submitting authors, declare that this paper has not been submitted for publication anywhere else, has not been previously published and is not currently under consideration for publication elsewhere. Each author listed has made contributions, edits and participated in the conception of this study.

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