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Knowledge Perceived-risk and Screening-uptake for cervical cancer among Women in a Christian Religious Institution in Ibadan Oyo State Nigeria

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Abstract

Cervical Cancer is one of the most known and common malignancies in women, though the disease is a preventable disease, it is ranked next to breast cancer. This is pinned on delayed detection due to lack of uptake of screening. The objective of the study was to assess the level of knowledge, perceived-risk and screening-uptake for cervical cancer among women in a Christian Religious Institution in Ibadan, Nigeria. A descriptive cross-sectional design with a purposive sampling technique and a simple sampling method was used to randomise 270 volunteered members into the study. Analysis was with SPSS Version 20, using descriptive and inferential statistics. Knowledge mean score was 14.04 ± 5.18 measured on a 20-point reference scale, 55 (20.4%) had poor knowledge, 92 (34.1%) had average knowledge, and 123 (45.6%) had good knowledge. with a moderate correlation between knowledge and screening-uptake (P=0.01). Perceived-risk mean score was 27.33 ± 7.37 measured on a 42-point reference scale, 38 (14.1%) had poor level of perceived-risk, 132 (48.9%) had average level of perceived-risk and 100 (37.0%) had good level of perceived-risk. Furthermore, a moderate correlation was observed between perceived-risk and screening-uptake (p = 0.01). Only 39.3% of the respondents had been screened before for cervical cancer, while 12.2% are currently on a screening schedule for cervical cancer. It is recommended that more effort be laid on health education programs by religious bodies and other associations to improve the knowledge and perceived-risk of women, thus influencing cervical cancer screening.

Keywords: *Cervical cancer, Screening, Knowledge, Christian Religious Institution, Women.*

Introduction

Cervical cancer is a preventable disease among females (Carmen, Kai, Rosa, Ka, Winnie, Doris, Wendy, & William, 2016). The Lancet (2018) estimated that approximately 570 000 cases of cervical cancer and 311 000 deaths from the disease occurred in 2018. Cervical cancer was the second most common cancer in women, ranking after breast cancer (2·1 million cases), colorectal cancer (0·8 million) and lung cancer (0·7 million). According to the World Health Organization (2013), every year, more than 270 000 women die from cervical cancer, and more than 85% of these deaths are in low- and middle-income countries. It is the second most common cancer in women worldwide and caused by sexually-acquired infection with Human papillomavirus (HPV) of which most people are infected with HPV shortly after onset of sexual activity. The majority of HPV infections resolve spontaneously and do not cause symptoms or disease. However, persistent infection with specific types of HPV (most frequently, types 16 and 18) may lead to precancerous lesions. If untreated, these lesions may progress to cervical cancer (W. HO, 2013).

Even though it has been said that cervical cancer is a preventable disease, yet it is the most common cause of cancer in the African Region where it accounts for 22% of all female cancers and 12% of all newly diagnosed cancer. In Africa, 34 out of every 100 000 women are diagnosed with cervical cancer and 23 out of every 100 000 women die from cervical cancer every year. This figure compares with 7 out of every 100 000 women being diagnosed with cervical cancer and 3 out of every 100 000 women dying of the disease every year in North America. Most of these women are diagnosed at advanced stage of cancer in Africa, which is associated with poor outcomes (WHO, 2013). Africa, with a

population of 267.9 million women aged 15 years and older at risk of developing cervical cancer, approximately 80,000 women are diagnosed with cervical cancer per year, and about 60,000 women die from the disease (Lynette & Rose, 2012). In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually, and 22.5 per 100,000 women die from the disease. This figure is higher when compared with 6.6 and 2.5 per 100 000 women, respectively, in North America. The marked differences can be explained by low preventive health behavior, lack of access to effective screening services that facilitate early detection and treatment (FMOH, 2014).

Current estimates in Nigeria indicate that every year 14,943 women are diagnosed with cervical cancer and 10403 die from the disease. It ranks as the 2nd most frequent cancer among women in Nigeria between 15 and 44 years of age. About 3.5% of women in the general population are estimated to harbour cervical HPV-16/18 infection at a given time, and 66.9% of invasive cervical cancers are attributed to HPVs 16 or 18 (Nigeria Human Papillomavirus and Related Cancers, Fact Sheet 2018).

A study conducted by Eunice, Louis and Usha (2008) pointed that, knowledge of early detection method for cervical cancer, and perceived beliefs about benefits of and barriers to receiving Pap tests are related to outcomes of ever having a Pap test and having had one in the preceding 3 years among Korean American women. Early cervical cancer detection through Pap testing is critical to reducing cervical cancer–related morbidity and mortality. Another study by concluded that women without functional knowledge of routine cervical cancer screening may not be able to promote behaviour change in themselves (Heena, Durrani, AlFayyad, Riaz, Tabasim, Parvez & Abu-Shaheen, 2019). Furthermore, the study among female university students in Ghana by Annan, Oppong & Kugbey, (2019) demonstrated that cervical cancer knowledge was positively associated with screening practices, suggesting that increased cervical cancer knowledge and awareness influences chances of getting tested for cervical cancer. Perceived susceptibility, benefits and seriousness were significant and positively correlated with increased cervical cancer screening behaviours in the study.

The U.S. Preventive Services Task Force (2003) recommends cervical cancer screening at least every 3 years for women who have an intact cervix. Limited knowledge on symptoms and signs is also recognised as a contributing component to the delay in seeking early cervical cancer screening among women in Malawi (Eleanor, Ellen, Alfred, Address, Abigail & Angela, 2012).

Also, the perceived risk of contracting a disease refers to individuals' subjective perception of their susceptibility to the disease. For example, a woman must believe there in the likelihood of contracting cervical cancer before she will be keen in cervical cancer screening. (Sedigheh, 2012). The health belief model predicts that women will be more likely to adhere to the cervical cancer screening recommendation if they feel that they are susceptible to cervical cancer (Glanz, Rimer & Viswanath, 2008). Another study showed that individuals who were convinced they had risk factors for cervical cancer, were more likely to take action to prevent an unfavourable outcome next to getting the disease (Saslow, Runowicz, Solomon, Moscicki, Smith, Eyre & Cohen, 2009). Perception of not being at risk for cervical cancer has been verified as a reason for not obtaining Pap smear test in previous studies (Mutyaba, Mmiro & Weiderpass, 2006).

Early detection has been found to be important in the management of cervical cancer, however most of the women in developing nations are known to present late when nothing can be done for them (Ayinde, Omigbodun & Ilesanmi, 2004). This is a major reason for persistence. Several reasons for presenting late have been identified, viz lack of awareness and ignorance about the symptoms, fatalistic attitude (fear of death from the disease), readiness to attribute neoplastic disease to supernatural causes thereby resulting in delays in seeking help, fear of confirmation of suspicion and of course the perennial problem of low coverage of the population by health center services especially the rural areas (Adewole, Benedet, Brian & Follen, 2005; Olukoya, 1989). Report also has shown that 50-90% of women who develop or die from cervical cancer have never been screened before. A literature search identified studies that examine factors influencing women's participation in screening program, their psychological reaction to the receipt of an abnormal cervical smear result, and experiences of colposcopy (Fylan, 1998). Reasons given for

nonparticipation included, lack of understanding of the disease, administrative failures, inconvenient clinic times, unavailability of a female screener, lack of awareness of the test's indications and benefits, considering one-self not to be at risk of developing cervical cancer, and fear of embarrassment, pain, or the detection of cancer (Fylan, 1998). The receipt of an abnormal result and referral for colposcopy cause high levels of distress owing to limited understanding of the meaning of the smear test, and many women believe the test aims to detect existing cervical cancer (Fylan, 1998), showing a gap in the knowledge of the disease. Furthermore, in country where poverty persists, another factor that may be considered could be the financial implication for cervical cancer screening. Though cervical cancer screening is relatively inexpensive and there is worldwide agreement that screening programmes for cervical cancer are a necessity (Ngoma, 2006). Factors that can influence participation rate still include: acceptability, accessibility, screening interval, promotion of screening among others (Lara, 1987). It is considered that ready availability of cervical cancer screening centers in the country could contribute to the reduction in the incidence and mortality of cervical cancer.

While the global average incidence of cervical cancer is 15.2 per 100,000 women, the Sub-Saharan Africa has an incidence of 19.1. About 92,000 new cases of cervical cancer were recorded by the African regional office of the World Health Organization (WHO) and 57,000 deaths, Nigeria being the most populous African country had about 10,000 new cases and 8,000 mortalities in the same period. Reports from regional population-based cancer registries in Nigeria revealed age-specific rate of 36.0, 30.3, and 21.0/100,000 women for Ibadan, Abuja, and Calabar cancer registries, respectively, and mean age at diagnosis of cervical cancer being 56.1, 52.3, and 50.1 years accordingly which is late already. Further report from the Ibadan Cancer Registry, University College Hospital Ibadan revealed an increasing trend in incidence of cervical cancer cases dated between year 2000 and 2019 and the age group with the highest record being between age 40 to 69 with the highest being between 50 and 59. The report of occurrence of cervical cancer at lower ages is notable in the reports from these registries and could be ascribed to earlier age at sexual debut, lifestyle changes such as smoking and multiple sexual partners (Sowemimo, Ojo, & Fasubaa, 2017).

In this environment however, several studies have been carried out on cervical cancer, with few studies using the Theory of Planned Behavior Model and Protection Motivation Theory, a good number using none. These theories in Health promotion are the appropriate tools to diagnose health behavior. Hence, as a diagnostic tool to examine the level of knowledge of cervical cancer and cervical cancer screening-uptake among women, this study was carried out using the Health Belief Model. Also, less studies have been carried out in religious setting. The study population location is a church with a large number of members including women, and owing to a number of cancer related deaths observed by the researcher among women in this environment, hence this study was carried out.

Materials and methods

This study was a cross-sectional study design conducted at the Oritamefa Baptist Church, Ibadan, and two of her sister churches, within Ibadan, Oyo State, Nigeria. The church has hospital-based facility where members are attended to. Within Ibadan metropolis, Oritamefa Baptist Church is a confluence of women activities. This study was conducted during the Women's Missionary Union's meeting, which comprises of women only. Adopting the American College of Obstetricians and Gynaecologists' recommendation on Pap test guidelines, the population for this study refers to women in Oritamefa Baptist Church, with a finite population of about 800 women between the ages of 18 – 70 years in Oritamefa Baptist Church, Ibadan, Oyo State, Nigeria. The sample size was determined by using the report from regional population-based cancer registries in Nigeria, which revealed age-specific rate of 36.0 for Ibadan. The first stage of the estimation of the sample size for this study was estimated using the Cochran (1963) sample size formula

$$N = \frac{Z2pq}{d2}$$

Where N is the desired sample size, Z is the standard normal deviation at 95% confidence level (1.96), P is the prevalence adopted from the report from cancer registries which is to be 36%, q is equal to 1-P, d is the desired level of precision (0.05).

$$N = \frac{(1.96)2\ (0.36)\ (0.59)}{(0.05)2} = 354$$

Furthermore, since the population in this study refers to women in Oritamefa Baptist Church, which is a finite population of about 800 women, the finite population correction for proportion sample size formula would further be used to determine the sample size: $n = \frac{n0}{1 + \frac{(n0 - 1)}{N}}$

Where n0 = the initial sample size which is 354

n = adjusted sample size which is to be calculated.

N = the population size which is about 800

According to the aforementioned criteria, the sample size was calculated as 270 women including a 10% non-response rate. As a result, this study included 270 women at the ages of 18 to 70. The participants were either single, married, widowed, separated or divorced at the time of the study living in Ibadan. The exclusion criteria were women with age less than 18 years or above 70 years. Purposive sampling was used to select the study location, participants were selected using the Simple Random Sampling method and the registers for the women meeting served as a sampling frame. The questionnaire contained 4 parts which is a structured questionnaire and self-completed; however, there were interviewers in case of participants who needed assistance.

The instrument was carefully designed to capture the required data for the study. The sections consisted of:

Section A: Demographic characteristics were measured with 10 items which included: age, ethnic origin, and educational attainment, and marital status, number of children, family history, death record, average income and family type.

Section B: measured knowledge of cervical cancer screening on a 20-point reference scale using a dichotomous scale with response 'yes' or 'no' with 20 questions in total. Scores were assigned on a dichotomous scale (0 and 1).

Section C: measured perceived-risk of cervical cancer on a 42-point reference scale using a four type Likert scale with 14 questions. The keys for the Likert scale included: strongly agree, agree, disagree and strongly disagree. Scores ranging from 0 to 3 on the basis of correctness will be assigned to participants' responses.

Section D: Screening-uptake was measured on a 7-point reference scale using a dichotomous scale with response 'yes' or 'no' with 7 questions in total. Scores were assigned on a dichotomous scale (0 and 1)

The validity of the questionnaire was enhanced through appraisal and verification by the researchers and other experts in the field. A pilot test of the instrument was carried out in a homogenous population as the study population but different from the study location to test for the reliability of the instrument with a reliability indices of 0.739. Administration of the instrument to respondents was carried out upon given consent and data collection was supervised by the investigator with four trained Research Assistant who were employed to assist in the administration of the questionnaire for the study.

Data obtained from properly completed questionnaires were coded and analysed using the Statistical Package for Social Science (SPSS) version 23.0. After collection, data were screened for outliers and missing values, coded and entered using SPSS version 20 for descriptive statistics. Frequency tables were used to display descriptive analysis. The variables were computed and scores were allocated according to the rating scale for each variable. Further analysis was used to express the findings of the research.

Results

The demographic characteristics of the respondents in this study included; age, ethnic origin, educational attainment, marital status, and number of children, family history, death record, monthly income and family type. Majority, 73 (27.2%) of the respondents had the age range 38-47 in the study with the mean and standard deviation of 44.57 ± 15.05. Majority, 241 (89.3%) of the respondents were Yoruba, 253 (93.7%) had tertiary education, 180 (66.7%) were married and 61 (22.6%) had three children. Also, some of the respondents, 40 (14.8%) had family history of cervical cancer, 99 (36.7%) had family history of cervical cancer screening and 33 (12.2%) had family history of death due to cervical cancer. Majority 148 (54.8%) had income of above 50,000 naira and likewise for family type which was nuclear 220 (81.5%).

From the Pearson correlation analysis, a statistically significant weak correlation was found between family history of cervical cancer and screening-uptake at R = 0.237 Also, between family history of cervical cancer screening and screening-uptake was found a moderate correlation R = 0. A weak correlation was also

found between family history of record of death due to cervical cancer and screening-uptake R = 0.226. Between income and screening-uptake was found a weak correlation. Other demographic characteristics had no statistical significance with screening-uptake; however, a moderate correlation was found between education and screening-uptake. A strong correlation was found between marital status and screening-uptake at R = 0.834, number of children and screening-uptake at R = 0.869.

Level of knowledge of cervical cancer

Level of knowledge of cervical cancer among respondents was measured on a 12-points reference scale with a mean and standard deviation of 7.95 ± 3.47. Of the 270 respondents, many, 130 (48.1%) had good knowledge, some, 65 (24.1%) had average knowledge and others 75 (27.8%) had poor knowledge, as shown in table 1.1.

Table 1.1. Frequency distribution of the level of knowledge of cervical cancer

Variables	**Respondents in this study N=270**	
	Frequency (N)	**Percent (%)**
Poor knowledge	75	27.8
Average knowledge	65	24.1
Good knowledge	130	48.1

Level of knowledge of cervical cancer screening

Level of knowledge of cervical cancer screening among respondents was measured on an 8-points reference scale with a mean and standard deviation of 6.09 ± 2.12. Of the 270 respondents, some 44 (16.3%) had poor knowledge, others 40 (14.8%) had average knowledge, and majority 186 (68.9%) had good knowledge as shown in table 1.2.

Table 1.2. Frequency distribution of the level of knowledge of cervical cancer screening

Variables	**Respondents in this study N=270**	
	Frequency (N)	**Percent (%)**
Poor knowledge	44	16.3
Average knowledge	40	14.8
Good knowledge	186	68.9

Level of knowledge in total

In summation, the level of knowledge was measured on a 20-point reference scale with a mean and standard deviation of 14.04 ± 5.18. Of the 270 respondents, 55 (20.4%) had poor knowledge, some 92 (34.1%) had average knowledge, and majority 123 (45.6%) had good knowledge as shown in table 1.3. The Pearson correlation showed a moderate correlation, between level of knowledge and screening-uptake. Furthermore, binary logistics regression was carried out which showed that knowledge was significant at 0.000 with Exp (B) of 1.160.

Table 1.3. Frequency distribution of level of knowledge in total among respondents

Variables	Respondents in this study N=270	Percent (%)
	Frequency (N)	
Poor knowledge	55	20.4
Average knowledge	92	34.1
Good knowledge	123	45.6

Level of perceived-risk

Level of perceived-risk of cervical cancer among respondents was measured on a 42-points reference scale with a mean and standard deviation of 27.33 ± 7.37. Of the 270 respondents, few 38 (14.1%) had poor level of perception, majority 132 (48.9%) had average level of perception and some 100 (37.0%) had good level of perception as shown in table 1.4. The Pearson correlation showed a moderate correlation, between level of perceived-risk and screening-uptake and a statistical significance was found between level of perceived-risk and level of screening-uptake. Furthermore, a binary logistics regression that was carried out showed that perceived-risk was significant at 0.001 with Exp (B) of 1.074.

Table 1.4. Frequency distribution of the level of perceived-risk of cervical cancer

Variables	Respondents in this study N=270	Percent (%)
	Frequency (N)	
Poor perception	38	14.1
Average perception	132	48.9
Good perception	100	37.0

Level of screening-uptake

Level of screening-uptake for cervical cancer among respondents was measured on a 7-points reference scale with a mean and standard deviation of 4.05 ± 1.73. Of the 270 respondents, some 79 (29.3%) had poor level of screening-uptake, majority 139 (51.5%) had average level of screening-uptake and others 52 (19.2%) had good level of screening-uptake as shown in table 1.5.

Table 1.5. Frequency distribution of level of Screening-uptake for cervical cancer

Variables	Respondents in this study N=270	Percent (%)
	Frequency (N)	
Poor screening-uptake	79	29.3
Average screening-uptake	139	51.5
Good screening-uptake	52	19.2

Discussion

This study identified some sociodemographic factors that influenced the level of screening-uptake, which include: family history of cervical cancer, family history of cervical cancer screening, family history of record of death due to cervical cancer and income. This implies that women with family history of either cervical cancer screening or death due to cervical cancer are more likely to go for screening, as well as women with financial stability. This is consistent with those reported in previous studies in Jordan among women which suggest that the low screening rate could be explained by the majority of the study sample consisting of women with a low income, and unemployed women (Al Nsour, Brown, Tarawneh, Haddadin & Walk, 2012). In another study among Ghanaian women, level of education that is, educational attainment was a determinant of cervical cancer screening intention (Nancy innocentia Ebu, 2018), however in this study, there was only an observed moderate correlation between education and screening, but no statistical significance.

Knowledge and screening – uptake

The objective was to measure the level of knowledge of cervical cancer among women. This study revealed that 34.1% of the respondents had at least an average level of knowledge of cervical cancer and cervical cancer screening, while 45.6% had good knowledge. Of the respondents, 63.7% had heard of human papilloma virus before, while 95.2% had heard of cervical cancer before, and 90.4% had heard of screening for cervical cancer before. This compares with the 100% level of awareness of cervical cancer that was reported in a study among secondary school teachers in Mushin, Lagos, Nigeria, explained as a predominant highly educated and urban population of respondents recruited who would probably have been exposed to one source of information or the other (Toye, Okunade, Roberts, Salako, Oridota, Onajole, 2017). This assertion was also corroborated by the Nigerian study done in both urban and rural settings in South-eastern where the knowledge of cervical cancer screening was significantly associated with urban dwellings (Nwankwo et al, 2011) of which the study location for this study is also urban. However, majority of the respondents reported health facilities, socio media and church programs as their sources of information which is likely due to the health programs carried out within the church premises, consistent to that which was reported by Toye et al, (2017) as mass media.

Furthermore, these findings imply that women in the study location are generally knowledgeable about cervical cancer and its screening which is consistent with another study by Aweke, Ayanto, Ersado, (2017) who reported that 53.7% of women had good knowledge. It is however in contrast with a study carried out among women in Ogbomoso, Oyo state Nigeria who reported low awareness and screening – uptake among participants (Abiodun et. al, 2017). This difference could also be as a result of health awareness programs carried out in the study location over time.

The Pearson correlation showed a moderate correlation which is statistically significant, between level of knowledge and screening-uptake which is consistent with the study by Gu et al, (2012) that showed that knowledge about cervical screening were significantly associated with screening and Carmen et al, (2016) who reported that knowledge influences women's uptake of cervical cancer screening services.

From the binary logistics regression of this study, knowledge was found out to be a significant predictor at 0.000 with Exp (B) of 1.160. This is similar to the report by Eunice et al, 2008 who stated that knowledge of early detection methods for cervical cancer is a significant predictor. Hossein, (2017) also reported the same.

Perceived-Risk and Screening-uptake

The objective was to determine the level of perceived-risk of cervical cancer among respondent. Of the 270 respondents, 48.9% (132) had average level of perception and 37.0% (100) had good level of perception. This implies that generally, more women have at least an average level of perception of the disease. This study also showed that more women (54.8%) had female preference for the sex of the health examiner which is similar to the findings from a study among Tanzanian women reporting women's preference for a female examiner during the procedure (Frida & Tanya, 2012).

The Pearson correlation showed a moderate correlation which is statistically significant between perceived-risk and screening-uptake. This means that screening-uptake is also

influenced by perceived-risk in this population which is similar to a study by Eunice et al, 2008 who reported that perceived beliefs about benefits of and barriers to receiving Pap testing were significant predictors. Another study among Vietnamese American women also reported that perceived risks, are associated with receipt of prior cervical cancer screening (Grace et al, 2013). However, Carmen et al, (2016) reported no association between perceived susceptibility to cancer and screening behaviour.

Furthermore, from the binary logistics regression carried out in this study, perceived-risk was found out to be a significant predictor at 0.001 with Exp (B) of 1.074. This is similar to the study among women in Ilorin, North Central Nigeria that reported low risk perception as a main reason attributed to non-screening of most of the respondents who had never been screened (Idowu, Olowookere, Fagbemi & Ogunlaja, 2016).

Screening-uptake

The objective was to determine the level of screening uptake among respondent. This study revealed that few, 19.2% had good screening-uptake which is again consistent with other studies (Aweke et al, 2017). Findings from this study revealed that only 39.3% of respondents had been screened before for cervical cancer, while 12.2% are currently on a screening schedule for cervical cancer. This is consistent with most of the other studies conducted in other high- to middle-income countries. A participation rate of 39.4% was reported for Qatar, where women have a Pap test once in a lifetime, and a rate of 23.8% was reported in a Kuwaiti study. However, remarkably low screening-uptake (4.1%) was reported in some other part of Nigeria (Wright, Aiyedehin, Akinyinka & Ilozumba, 2014).

The approaches to cervical cancers screening education identified in this study were seminar, and counselling in the church with various church activity integrated in women program topics. The reason for this significant differences as well as the average level of knowledge and perceived-risk observed might be due to these activities and the fact that Christian institutions have rules and regulations guiding their selection of invited guests Also, some institutional programs can accommodate capacity building program in the sense that they can keep the women motivated during workshop and seminar.

Conclusion

The study was able to achieve the objectives that were set at the beginning. Again, it has been confirmed the abysmally low screening-uptake among Nigerian women. However, it has also demonstrated that screening-uptake can be influenced by family history and income as sociodemographic factors, also an increase in knowledge and perceived-risk towards cervical cancer will likely lead to increase in screening-uptake. This can serve as sensitization tool for stakeholders in the health sector involved in the promotion of health to explore these areas.

Recommendation

Since it has been demonstrated by this study that family history, income and knowledge are factors to consider in the uptake of cervical cancer screening, thus, more effort on health education programs that seeks to improve the knowledge of women as well as their perception towards cervical cancer and its screening should be focused on in areas with low screening-uptake. Also, awareness programs encouraging women to probe into their family history should also be carried out. Empowerment programs seeking to equip women financially is recommended in order to make women financially stable. Also, the social media could be used as a sensitization tool to increase awareness by health facilitators.

Furthermore, religious organizations as demonstrated by this study could also reach out to women by creating heavy awareness through health programs including seminars, increasing their knowledge and perception for women on cervical cancer screening despite faith and organised occasional screening is also recommended.

Women centred non-governmental organizations could also be an asset in laying emphasis on cervical cancer screening.

Finally, more studies need to be done to determine other factors that predicts or contribute to women's engagement in cervical cancer screening for early detection, thus, improving the quality of life of women in total.

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