Cervical cancer awareness and its prevention among rural women of Kancheepuram district of Tamil Nadu, India, A Cross-Sectional Study

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ABSTRACT
Cervical cancer is the second most common cancer among Indian women; around 20% of cervical cancer cases all over the world are from India. Even though amelioration in the health care system had progressed compared to earlier days, the mortality due to cervical cancer in developing countries like India. The study focuses on the awareness, prevention and screening of cervical cancer in rural women of Kancheepuram district. The cross-sectional study with 416 women using multistage sampling method was conducted, the tool was Cervical cancer awareness measure toolkit version 2.1 with altered changes in the socio-demographic section with B. G Prasad scale for socio-economic status was included accordingly to the rural area. The awareness about the term cervical cancer was 43.2% (180/416). Still, the awareness about the term human papillomavirus (HPV) was only 7.1% (32/416), of the 416 women who participated in the study only 15.5% of women were screened for cervical cancer at least once in their lifetime, Less than 50% of the women participants were aware of cervical cancer, hence planned health education with behavioural change program is needed for promoting the knowledge and screening of cervical cancer in rural areas of Kancheepuram district.

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INTRODUCTION
Cervical cancer is one of the cancer types that affect the women population, cancer cervix that invades the cells of the cervix-the lower end of the uterus, which connects to the vagina. Multiple strains of human papillomavirus which is the sexually transmitted infection is the important factor in causing most cervical cancer, among the several cancer types. Cervical cancer is the second most prevalent cancer among women (Narayana et al., 2017).

The estimation done in the year 2018 reveals that 6.6% of newer incidence and mortality due to cervical cancer was 7.5% globally (Ferlay et al., 2019).

The mortality due to cervical cancer is high in developing nations. More than 80% of the comprehensive load of incidence of cervical cancer is from developing nation (Ferlay et al., 2015), the reasons behind are lack of approach towards screening, treatment and prevention program (Varughese and Richman, 2010).

India being the developing nation, 20% of cervical cancer cases all over the world were from India, annually from India, the figure of 122,844 women...
were found to be affected, and 67,477 women die due to cervical cancer (Ferlay et al., 2015).

Correspondingly, the screening procedure helps in detecting the early stages of cervical cancer thence the treatment procedure can be employed, resulting in a long-duration survival rate after treatment and cure (Kumar and Tanya, 2014).

There are various methods of cytological examination in screening for cervical cancer, screening done at regular intervals among all sexually active women can reduce the occurrence of cervical cancer incidence (Takiar et al., 2010). The level of awareness about symptoms, early diagnosis, screening tests and procedures, treatment and cure of cervical cancer in the rural women population in India was low (Kadam et al., 2014).

In rural parts of south Tamil Nadu about three-fourth of women knew cervical cancer could be diagnosed earlier by screening procedure. Still, there is a lack of awareness of symptoms about disease, symptoms, risk factors (Tamilarasi et al., 2018). Poor knowledge and awareness about screening procedures, reasons like never seen or felt that pap smear has to be done, insufficient knowledge about where the screening tests will be conducted accounts for contributing element for not screening (Garner, 2003).

Risk factors such as marriage at an early age and multiparity add to risk factors of cervical cancer incidence in rural India (Badwe et al., 2014).

Increasing the awareness in the community about cervical cancer raised the rate of uptake of screening in rural areas of Tamilnadu (Isaac et al., 2012). Programme conducted in Kerala reported that adequate awareness and knowledge is the crucial criteria for a woman to determine whether to undergo the pap test (Aswathy et al., 2012).

According to the sustainable development goals (SDG3) to reduce the premature mortality of non-communicable diseases through prevention program and treatment by 2030 without gender inequality is feasible when we reduce mortality and morbidity due to cervical cancer in our country that requires urgent attention where the counts are preventable by appropriate measures.

Baseline assessment about the status of awareness and prevention of cervical cancer is needed in implementing cancer prevention programs. Active participation of the women in the community was always in need of an hour to measure and create awareness about the disease (Garner, 2003).

The study aims to explore the stature about the awareness, prevention and screening of cervical cancer in the rural areas of Kancheepuram district among women aged 17-60 years. where there is no study/survey has been done in this rural area.

The rationale behind the selection of Kancheepuram district was based on the data of NFHS 4 (National Family Health Survey-4) where the percentage of literacy 73.3%, the percentage of women ever screened for cancer cervix is 19.2% only. Previous studies show that literacy plays the significant role in the knowledge of screening for cervical cancer, as a background the Kancheepuram district was selected for the study (Garner, 2003; Patra et al., 2017).

MATERIALS AND METHODS

Study period and study area
The cross-sectional study was conducted between September 2019 and Feb 2020 in the rural areas of Kancheepuram district of Tamil Nadu.

Sampling method
Rural villages were selected from the Kancheepuram district following the multistage sampling technique. The samples were selected by using the systematic sampling method where every second woman of the village under the eligibility criteria.

Sample population
The list of Data regarding figures of women in 18-57 years of age was obtained from the village administrative office, after voluntary consent, the participants were included in the study. Women with the previous history of cervical cancer were excluded. The age group was determined by earlier reported studies and the incidence of cases.

Sample size
The sample size was estimated using the cross-sectional formula, \(n = \frac{4pq}{d^2}\) (\(p\) is the proportion of the population with an attribute of significance from the earlier study (Siddharthar, Rajkumar, and Deivasigamani 2014) Nevertheless the voluntary willingness to participate in the study is found to be higher than sample calculated, so the sample size \(n=416\) was concluded.

Study Tool
The research tool was a structured questionnaire, Cervical cancer awareness measure toolkit version 2.1 with modified changes in the socio-demographic section with B. G Prasad scale for socio-economic status was included, accordingly to the rural area from the earlier studies (Nelson et al., 2018)

The questionnaire is a standard questionnaire with a good face and content validity, for the execution
purpose at the field level, the questionnaire was pretested with 30 samples.

The results of the pretested samples were analysed for reliability; the value of Cronbach’s alpha was 0.79, ensuring the reliability of the questionnaire. The research tool consists of 1. Socio-demographic features 2. Awareness about cervical cancer 3. Knowledge about cervical cancer symptoms 4. Prevention and screening knowledge.

The questionnaire was translated into the native language, and again back to back translation was done to ensure the quality. The data was collected by face to face interview method.

Ethical clearance

Willingness was got from the participants through the consent form, which was explained detailly and was in the local language; the institutional ethical clearance was obtained.

Statistical methods

The data were entered in the excel and was analysed by the spss 20 software.

The frequency and percentage were estimated. Chi square association was analysed to find out any significant association between the socio-demographic and awareness knowledge and practice variables. The value of less than 0.05 was considered as significant.

RESULTS

The socio-demographic data of the study population shows, where the of majority population are in the age group of 18-29 year and half of the population was a housewife and completed their primary level of school education (Table 1).

The socio-economic level, which was recorded in the study based on modified B. G Prasad scale, shows that the lowest class and middle class are the dominant features of the study community (Graph 1).

The above Pie chart depicts the percentage of women ever screened for cervical cancer was 15.5% in the community (Chart 1).

Chart 1: Percentage of women ever screened for cervical cancer

The awareness about the term cervical cancer was high compared with awareness about the term human papillomavirus (HPV). More than three fourth of the women participated was not aware of the long term precancerous lesion and its transformation into cancer disease. The more common known risk factors of cervical cancer from the women involved in the study include lack of regular screening, a contraceptive pill used for the long term, compromised immune system (Table 2).

The most known common symptom of cervical cancer in the study was vaginal bleeding between periods along with back pain, where symptoms of weight loss, pelvic pain are the less commonly answered symptoms of cervical cancer (Table 3).

We can found less than 20% of the study population accepts that cervical cancer is preventable. Awareness about term cervical cancer screening was better when compared with awareness for the term HPV and its vaccination. The level of awareness and knowledge that women claims about maintaining sexual hygiene can prevent cervical cancer is also found to be less than 10% (Table 4).

The chi-square association was tested and found to be significant between variables education level and awareness of cervical cancer screening with a p-value of 0.028 (249), education and knowledge on risk factors of cervical cancer where p-value of 0.00 (phi, 348).

Additionally, there is a significant association between occupation type and knowledge about
prevention measures of cervical cancer, the p-value of 0.00 (Phi, A23).

DISCUSSION

The status of awareness about cervical cancer was found to be 43.2% in the study area (Table 2), similar to the study conducted in Kanyakumari district of Tamil Nadu reported 68% (Garner, 2003), the bottom line between the studies, being higher literacy level among women in the Kanyakumari district recorded the better level of awareness than our present study.

Regarding the present study, 15.5% (Chart 1) of women were screened for cervical cancer, whereas, the study done in the tertiary hospital of Tamil Nadu presented alone 13% of women screened, which can be attributed to pap smear being a normal diagnostic regimen of the hospital. (Sambath and Chandrasekaran, 2018).

The awareness regarding HPV vaccination was less than 5% in our study (Table 4), similar kind of study conducted in a tertiary hospital of Tamil Nadu in the year 2019 shows the percentage of awareness about HPV vaccination is 25%. Even though 3.4% was only vaccinated (Balasubramaniam et al., 2019), so the study emphasises the priority for creating public awareness on cervical cancer prevention measures.

From the study, vaginal bleeding with back pain, followed by post-coital bleeding and pain are the symptoms recorded as the common known symptom of cervical cancer (Table 3), the community-based study done in the year 2017 in the Delhi reported that vaginal bleeding (40%) and the post-coital bleeding are the first two highest reported symptoms (Patra et al., 2017).

The other symptoms like vaginal discharge, pelvic pain and weight loss were found to be less reported known symptom in our study (Table 3). Still, a study done in a tertiary care centre in Mangalore, women attending outpatient, those who had come in to contact with doctors earlier for check-up stated that irregular menstrual bleeding, vaginal discharge and weight loss being the familiar symptoms of cervical cancer, interestingly the source of information about cervical knowledge symptoms given by the study population in the Mangalore was mass media (Kumar and Tanya, 2014). So it is evident that mass media can be imparted as a source of health education for promoting cervical cancer.

Regarding the risk factors, our study population are aware of the contraceptive pill usage, low, irregular screening, compromised immune system and multiple pregnancies but awareness and knowledge about the human papilloma virus infection is low compared to other factors (Table 2), the study done among students in the age group of 12-22 years in north India exhibits that 73% of student are aware of the human papilloma virus (Hussain et al., 2014) in their study which means the literate population have adequate knowledge about HPV infection.

From the above results, the awareness and knowledge about cervical cancer signs (Table 2) and symptoms, screening and prevention (Tables 3 and 4) have to be addressed, since it was low among the study population, similar study done by Aswathy Sridevi in India also illustrates knowledge about HPV infection, screening, and vaccination is low among the population with poor socio-economic status, indigent hygiene measures and low literacy level (Aswathy et al., 2015).

The study done in Tirumazhisai in Tamilnadu in 2016 apart from awareness creation mass screening is recommended in the rural population. Where preventive workforce has to be created to educate and screen the rural population (Parimala et al., 2016).

Recommendations

The study depicts the importance of creating awareness and knowledge about cervical cancer especially in the areas of symptoms, risk factors, vaccination and screening procedures, through planned health education with behavioural change program using mass media or any other source, is needed for promoting the knowledge and screening of cervical cancer in rural areas of Kancheepuram district.

The study also influences the need for mass screening, where we can found the screening rate is low only in our study area.

Redefining the rural women population in aspects of socio-economic status, education, hygiene practices through routine behaviour exercise or the planned program will be a crucial element as a precautionary step in prospective view.

CONCLUSIONS

Less than 50% of the women participants were aware of cervical cancer, the level of awareness and knowledge about cervical cancer is not sufficient to overcome the disease burden in rural areas of Kancheepuram district.

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Conflict of Interest
Table 1: Socio-demographic data

| Age         | Frequency(n) | Percent |
|-------------|--------------|---------|
| 18-29 years | 180          | 43.3    |
| 30-49 years | 170          | 40.8    |
| >49 years   | 66           | 15.9    |

| No of Children/Parity | Frequency | Percent |
|-----------------------|-----------|---------|
| Nulliparity           | 8         | 1.9     |
| 1-2 children          | 244       | 58.7    |
| More than three children | 164     | 39.4    |

| Literacy Level   | Frequency | Percent |
|------------------|-----------|---------|
| Illiterate       | 128       | 30.8    |
| Primary          | 208       | 50      |
| Secondary        | 48        | 11.5    |
| Graduation       | 32        | 7.7     |

| Occupation | Frequency | Percent |
|------------|-----------|---------|
| Unskilled  | 127       | 30.5    |
| Skilled    | 22        | 5.3     |
| semi-skilled | 27      | 6.5     |
| Housewife  | 240       | 57.7    |

Table 2: Knowledge about Cervical Cancer, Human Papillomavirus and Risk Factors

| Awareness about cervical cancer and human papillomavirus | Percent |
|--------------------------------------------------------|---------|
| Women who were Aware of term cancer                     | 60      |
| Women who were aware of cervical cancer                  | 43.2    |
| Women who consider cervical cancer is a genetic disease  | 15.3    |
| Women who know that cervical cancer occurs after a long period of precancerous lesion | 14.4   |
| Women who believe if detected early, cervical cancer can be cured | 43.2   |
| Women who know that even Postmenopausal women still have the risk of getting cervical cancer | 12     |
| Women who were aware of the human papillomavirus         | 7.7     |
| Women who know that HPV (Human Papilloma Virus) infection is a necessary factor inducing cervical cancer | 7.2   |

| Risk factors of cervical cancer                          | Percent |
|--------------------------------------------------------|---------|
| Contraceptive pill usage for long term                  | 16.6    |
| Not regular screening                                   | 14.4    |
| Compromised Immune system                               | 10.1    |
| The compromised immune system, not regular screening    | 9.1     |
| Multiple pregnancies                                    | 9.9     |
| Having many sexual partners                             | 9.1     |
| Having a sexual partner with many previous partners     | 8       |
| STD Infection(chlamydial infection)                     | 5.05    |
| Infection with human papillomavirus                     | 7.2     |
| Having many children and long term usage of the contraceptive pill | 5.5    |
| Having sex at an early age                              | 5.05    |
Table 3: Knowledge about Symptoms of Cancer Cervix in the study population

| Percentage of knowledge about the known Symptoms of cervical cancer reported by participants | Percent |
|------------------------------------------------------------------------------------------|---------|
| Vaginal bleeding between periods                                                        | 10.8    |
| Vaginal bleeding between periods with low back pain                                    | 21.6    |
| Vaginal bleeding between periods along with weight loss                                  | 9.4     |
| Vaginal discharge with pelvic pain                                                      | 9.4     |
| Heavy periods, and pain during sex (Post-coital bleeding)                               | 9.6     |
| Vaginal discharge                                                                      | 7.9     |
| Vaginal discharge, heavy periods with diarrhoea and weight loss                          | 8.4     |
| Blood in stools and weight loss                                                         | 1.7     |
| Pelvic pain                                                                             | 2.9     |
| Weight loss                                                                            | 5       |
| Heavy periods                                                                          | 5       |
| Pain during sex                                                                        | 0.7     |
| Bleeding Menopause                                                                     | 4.6     |
| Bleeding Menopause with weight loss                                                     | 2.9     |

Table 4: Knowledge about cervical cancer prevention and screening procedures

| Awareness, knowledge about prevention and screening | Percent |
|-----------------------------------------------------|---------|
| Percent of women who reported that cervical cancer is preventable | 19.2 |
| Awareness that screening will help in detecting cervical cancer | 14.2 |
| The knowledge that maintaining sexual hygiene can prevent cervical cancer | 12 |
| Knowledge about the duration of screening that every woman should be screened for cervical cancer at least every three years | 8.7 |
| Knowledge about the availability of HPV vaccination for preventing cancer | 3.3 |
| Awareness about Pap smear test | 11.5 |
| Knowledge about Pap smear test which is is one of the screenings for cervical cancer | 7.2 |
| Percent of knowledge about the recommended frequency of pap smear screening test | 4.6 |
| Percent of women who knew Cervical smear cytological examination | 6.2 |

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