

PAP SMEAR SCREENING FOR DETECTION AND PREVENTION OF CERVICAL CANCER IN RURAL POPULATION OF TAMIL NADU, INDIA CONDUCTED IN A TERTIARY CARE HOSPITAL

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Abstract

Background

Cervical screening has been one of the most successful public health program practiced for the prevention of cervical screening. Cytology forms the basis for this screening. Therefore, this test is recommended by the gynecologists to all women who are sexually active. The present study was designed to understand the health status of the women of rural population of Kanchipuram and Chengalpattu districts of the Tamil Nadu, India.

Methods

This is a cross sectional study involving the screening of women from the rural population of Kanchipuram and Chengalpattu districts for the assessment of health status using pap smear test who have attended the outpatient department of Obstetrics and Gynecology conducted during the period of January 2018 to March 2021.

Results

The present study included 1500 Pap smears, of which the most common abnormality was inflammatory smear, which is followed by atrophic smear. Among all the study subjects majority (64.5%) of the women were home makers and not working, remaining participants were either self employed or working women. Percentage of abnormal smear reports was reported in group 2 (31-40 years) subjects followed by group 3 (41-50 years) women. In 22 patients, Atypical Squamous Cell of Undetermined Significance (ASCUS) was observed. The present study reported very less cervical cancer prevalence in our study population.

Conclusion

It can be concluded that Pap smear is a sensitive and effective screening test which can be used for assessing the reproductive health status of the women and in the early detection of cervical cancer by doing screening at regular intervals.

Keywords: Women health, Cervix cancer, Pap smear screening, Rural population, Ascus

Introduction

Need for a healthy life for all age groups of women across the world and promotion of preventive care among the women should be of prime importance for any government. Pap smear is the most important test which is used to assess the women health and early detection of cervical cancer. Cervical screening has been one of the most successful public health programs practiced for the prevention of cervical screening. Cytology forms the basis for this screening. Therefore, this test is recommended by the gynecologists to all women who are sexually active. Pap smear test is a cytological screening test introduced by George Papinicolaou in 1940 in the diagnosis and prevention of cervical cancer [1].

Though many studies have reported less prevalence of cervical cancer in women who are screened annually, it is recommended that, pap smear test can be repeated at least once in every year to check the health status of a women [2, 3]. Pap smear test is not recommended for those women who are below the age of 21 years because of low incidence of cervical cancer and is also associated with high false positive [4, 5].

The American College of Obstetricians and Gynecologists (ACOG) in 2009, recommended that pap smear test can be advised for the married women who are above the age of 21years [5]. It also stated that women aged between 21 to 29 should be screened for the same every three years. The organization noted that women ages between 30 to 65 years should undergo pap smear with HPV testing every 5 years, and screening should stop after age 65 [6, 7].

As mentioned earlier pap smear screening is important to assess the health and in the diagnosis of cervical cancer. There is limited data available on the health status of the women from rural population of Tamil Nadu, India. Hence, the present study was designed to understand the health status of the women of rural population of Kanchipuram and Chengalpattu districts of the Tamil Nadu, India. The results of this study can help to design the necessary educational programs and counseling services, also to reduce the gaps and barriers to improve the quality of health services for women in the society.

MATERIALS AND METHODS

Study Design

The study was a cross sectional study involving the screening of women from the rural population of Kanchipuram and Chengalpattu districts for the assessment of health status using pap smear test who have attended the outpatient department (OPD) of Obstetrics and Gynecology (OBGY) at Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhuranthagam, Tamil Nadu. The study was conducted during the period of January 2018 to March 2021.

Inclusion criteria

Married women from the rural areas of Kanchipuram and Chengalpattu districts of Tamil Nadu, India, attending OPD of OBGY at Karpaga Vinayaga Institute of Medical Sciences and Research Centre, were recruited for the study.

Exclusion criteria

Women who have undergone pap smear test within a period one-year, pregnant women, who were in menstruation, and those who are already diagnosed with cervical cancer were excluded from the study.

Demographic, educational, and socioeconomic factors, sexual behavior, use of contraceptives, pap smear testing and other related gynecological and obstetrics history was collected from the patients during their visit to the OPD. A total of 1500 patients were recruited for the study during the study period. All the participants were subjected to pap smear test after obtaining informed consent. The samples were sent to the central clinical lab for processing, evaluation, and diagnosis. For those smears found to be satisfactory for evaluation, cytological abnormalities were reported based on the Bethesda System [9]. The slides were examined, and results were reported by the pathologist. Since 1988, the Bethesda System for Reporting Cervical Cytology has been the accepted reporting system in the United States. The 2014 revision is the most recent (9). The reporting format includes, Specimen type, Specimen adequacy, General Categorization, Interpretation/Result, Epithelial Cell Abnormalities and other malignant neoplasms [7, 9].

Statistical Analyses

Descriptive indices including mean and standard deviation for quantitative variables and number and percent for categorical variables were reported. Logistic regressions were performed to investigate the associated factor with behavior. All analysis were performed in SPSS version 16.0.

RESULTS

This cross-sectional study was conducted at Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhuranthagam, Tamil Nadu. Study includes participation of 1500 women who are willing to take part in the study. Demographic data like age, marital status, education, occupation, and parity of all the study subjects was noted and tabulated in table 1. There are total of 1500 participants in this study. Based on their age the participants were categorized into five groups. Group 1 consists of participants aged between 21 – 30 years, Group 2 consists of participants aged between 31 – 40 years, Group 3 consists of participants ranged between 41 – 50 years, Group 4 consists of 51 – 60 years and Group 5 consists of women aged above 60 years (Table 1). Highest number of participants (485 – 32.3%) were in the age group of 31 – 40

years, followed by 41 – 50 years (443 – 29.5%) and least number of participants (79 – 5.3%) were in the age range of >60 years. All the participants who took part in the pap smear screening test were married (Table 1) and above the age of 21 years (Figure 1). The mean age of the study population is 38 ± 9 years and highest number of participants were in the age group of 31 – 40 years.

Table 1: Demographic, educational, occupational, and obstetrics history details of the study participants.

Parameter	N	%
Age		
21 – 30 years	342	22.8%
31 – 40 years	485	32.3%
41 – 50 years	443	29.5%
51 – 60 years	151	10.1%
>60 years	79	5.3%
Marital Status		
Married	1500	100%
Education		
No education	229	15.3%
Primary Schooling	358	23.9%
Secondary Schooling	503	33.5%
Higher secondary	307	20.4%
Degree or above	103	6.8%
Occupation		
Housewife/Un employed	968	64.5%
Self Employed/Working Women	532	35.4%
Parity		
Nulliparous	46	3.1%
Parous	1454	96.9%

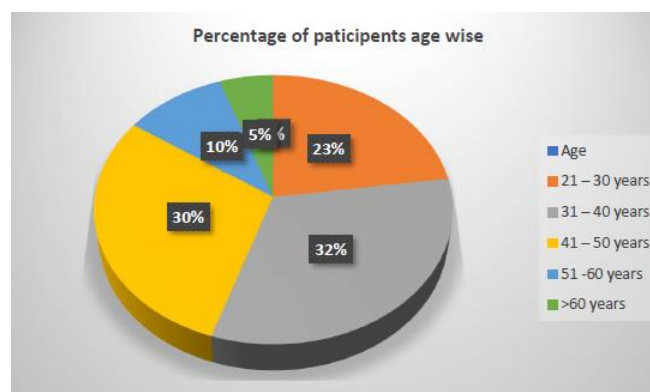


Figure 1: Shows the percentage of participants as per the age group categorized in the study.

Of all the study participants 15.3% women were not having the formal basic education, 23.9% had primary school education, 33.5% of the women have completed secondary school education, 20.4% of the women have higher secondary education and 6.8% of the women were having degree and above educational qualification (Table 1, Figure 2).

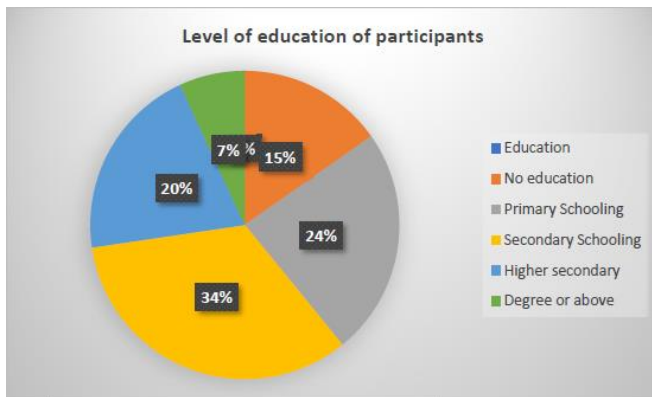


Figure 2: Shows the level of education of study participants.

Symptoms present in the women selected for the study include Urinary Tract Infection (UTI) in 9.5% of the population, bleeding vaginam in 24.3%, white discharge in 66.2%, and 9.2% women were asymptomatic. Among all the participants 3.1% of the women were nulliparous and remaining 96.9% of the women are primi or multiparous (Table 2, Figure 3).

Table 2: Symptoms of the patients presented with at OPD at the time of pap smear screening.

Parameter	N	%
Symptoms		
Not recorded	0	0
No complaints	137	9.2%
Complaints present	1363	90.8%
White discharge	901	66.2%
Vaginal Bleeding	332	24.3%
UTI	130	9.5%

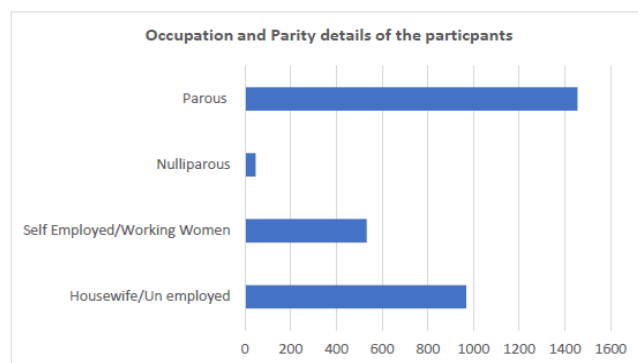


Figure 3: Shows the occupation and parity details of study participants.

Table 3: Summary of the pap smear studied for all the participants.

Age	Normal	Inflammatory smear	Candidiasis	Ascus*	Bacterial vaginosis	Atrophic smear	Trichomonas vaginalis	Inadequate	Total
Group 1 (21 – 30 years)	208	106	5	1	10	0	4	8	342 (22.8%)
Group 2 (31 – 40 years)	255	156	7	9	14	5	12	27	485 (32.3%)
Group 3 (41 – 50 years)	224	112	6	8	7	54	3	29	443 (29.5%)
Group 4 (51 -60 years)	54	30	0	1	3	50	0	13	151 (10.1%)
Group 5 (>60 years)	16	13	0	3	1	39	0	7	79 (5.3%)
Total	757	417	18	22	35	148	19	84	1500

*Atypical Squamous Cell of Undetermined Significance (ASCUS)

Pap smear findings were tabulated in Table -3 and categorized as per the age group of the women. In group 1 there are total 342 women, of them 208 women presented with normal smear report, inflammatory smear was seen in 106 women, 5 women were presented with candidiasis, 1 presented with Ascus, 10 people showed bacterial vaginosis, 4 people showed Trichomonas Vaginalis and 8 samples were inadequate so no diagnosis was confirmed for those samples (Table 3, Figure 4). Group 2 includes a total 485 women, of them 255 pap smear reports were normal, 156 women presented with inflammatory reports, 7 women reported with candidiasis, 9 women were presented with Ascus, 14 women were presented with bacterial vaginosis, 5 atrophic smears were reported in this group, 12 women were presented with Trichomonas Vaginalis, 27 samples were inadequate (Table 3, Figure 4). Group 3 includes 443 women, of them 224 women were presented with normal smear report, 112 pap smear reports were inflammatory smear, 6 women were reported candidiasis, 8 were presented with Ascus, 7 were presented with bacterial vaginosis, 54 were presented with atrophic smear, 3 people were presented with Trichomonas Vaginalis, 29 samples were inadequate (Table 3, Figure 4). Group 4 includes 151 women, of them 54 were presented with normal smear report, 30 women were reported with inflammatory smear, 1 Ascus sample was reported, 3 samples were bacterial vaginosis, 50 atrophic smears and 13 samples were inadequate (Table 3, Figure 4). Group 5 includes 79 women, of them 16 samples were normal, 13 samples were inflammatory, 3 samples were reported Ascus, 1 women reported Bacterial Vaginosis, 39 samples were reported as atrophic smear, and 7 samples were inadequate (Table 3, Figure 4).

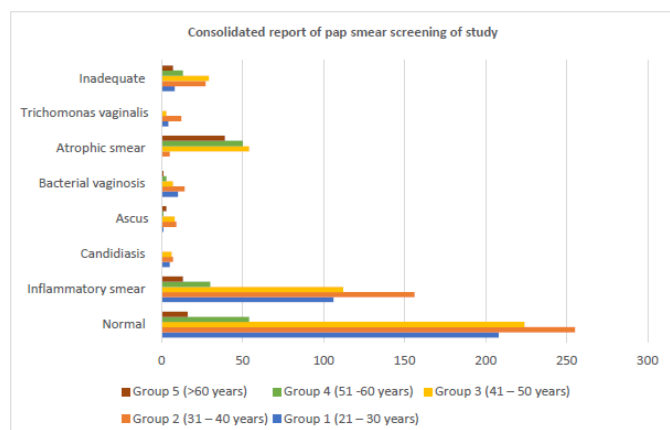


Figure 4: Depicts the details of consolidated pap smear analysis report of all the study participants.

DISCUSSION

The present study is a hospital-based study conducted in a tertiary care hospital situated in rural setup women from nearby villages visiting our hospital OPD, department of obstetrics and gynecology were recruited for the study. It is recommended that pap smear screening test should be started above the 21 years of age [9-11].

The present study included 1500 Pap smears, of which the most common abnormality was inflammatory smear, which is followed by atrophic smear. Among all the study subjects majority (64.5%) of the women were home makers and not working, remaining participants were either self employed or working women. Percentage of abnormal smear reports was reported in group 2 (31-40 years) subjects followed by group 3 (41-50 years) women. In 22 patients, Atypical Squamous Cell of Undetermined Significance (ASCUS) was observed. Lack of health education on personal hygiene and knowledge on safe sexual practices in women from rural areas are one of the reasons for high rates inflammation and infection of cervix which can lead to cervical cancer in India [12 -14].

Study done by Gupta et al. in [3] 4703 women in the year 2013 reported an incidence of 0.52% ASCUS but they had, Low-grade squamous intraepithelial cell lesion (LSIL) as the most common epithelial cell abnormality (1.36%) instead of ASCUS (3). Many hospital based studies showed that LSIL is the most prevalent epithelial cell abnormality. Studies reported by Sengul et al. and Nair et al. showed maximum cases of ASCUS among the various epithelial cell abnormalities which is in line with the present study reports [4, 9, 13, 14-18]. The study conducted by Nene et al in [13] 79,449 women and the study conducted by Misra et al., [19] in 4279 rural women population of India, reported the lowest and highest rate of epithelial cell abnormality in 0.92 % and 18.8% of cases, respectively [13, 19]. The present study reports showed less rate of cervical cancer prevalence in our study population compared to the studies conducted by Bhattacharyya AK et al which is 2.6% (studied in 5032 women) and Satyanarayan et al., reported 2.6% (study conducted in 7603 women) in 2014 [15, 20].

Vision 2030 of the United Nations Global Joint Program is to tackle the cervical cancer by ensuring reproductive health and reducing the gaps within and among countries [11, 20-23]. It recommends all the countries and their governments to strengthen their research capacity by all means to support

decisions on country adapted screening and treatment plans. As our tertiary care center is in the rural area of Tamil Nadu the rate of women's referral for screening is very low because of social, lack of proper education and economical barrier for undergoing the Pap smear test.

The present study reports the hospital-based pap smear test screening data in Kanchipuram, Chengalpattu districts of Tamil Nadu, India. The Indian government is also implementing a national program under NPCDCS since 2016.

CONCLUSION

More number of hospital-based studies with large sample size are need to be conducted in India and other developing countries for assessing the reproductive health and prevalence of cervical cancer in women. The study data from the teaching hospitals should be published so that researchers will come up with more effective strategies for the management of the disease and help in while planning national wide programs. It can be concluded that Pap smear is a sensitive and effective screening test which can be used for assessing the reproductive health status of the women and in the early detection of cervical cancer by doing screening at regular intervals.

Ethics approval and consent to participate

The study protocol was approved by the Institutional Ethics Committee of Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhuranthagm, Tamil Nadu, India. The research described in this manuscript was conducted in accordance with the principles outlined in the Declaration of Helsinki. Written informed consent was obtained from the individuals who participated in the screening before registration and were ensured of the confidentiality of their report. Participation in the study is purely voluntary for the participants.

Competing Interest

Authors declare that they have no competing interests

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