

Associated factors with cervical pre-malignant lesions among the married fisher women community at Sadras, Tamil Nadu

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ABSTRACT

Objective: To identify the associated factors of cervical pre-malignant lesions among the married fisher women residing in the coastal areas of Sadras, Tamil Nadu. **Methods:** The study was conducted in five fishermen communities under Sadras, a coastal area in Tamil Nadu, India. Two hundred and fifty married fisher women residing in the area. Quantitative descriptive approach with a cross-sectional study design was used. Data were collected using a structured interview schedule for identifying the associated factors and Pap smear test was performed for identifying the pre-malignant cervical lesions among the married fisher women. Data were analyzed using descriptive and inferential statistics. **Results:** Among 250 women, about six (2.4%) of them presented with pre-cancerous lesions such as atypical

squamous cell of undifferentiated significance (ASCUS) — five (2%) and mild dysplasia one (0.4%). Majority of the women, about 178 (71.2%) women, had abnormal cervical findings. Statistical analysis showed a significant association of risk factors such as advanced age, lack of education, low socioeconomic status, using tobacco, multiparity, premarital sex, extramarital relationship, using cloth as sanitary napkin, etc. **Conclusion:** The study findings clearly show the increased vulnerable state of the fisher women for acquiring cervical cancer as they had many risk factors contributing to the same.

Key words: Associated factors, coastal community, cervical cancer, fisher women, pre-malignant cervical lesions, Pap smear

Introduction

Cervical cancer is the fourth most common cancer in women, and the seventh overall, with an estimated 528,000 new cases in 2012. There were an estimated 266,000 deaths from cervical cancer worldwide in 2012, accounting for 7.5% of all female cancer deaths. Almost nine of 10 (87%) cervical cancer deaths occur in the less-developed regions. Mortality varies 18-fold between the different regions of the world,

with rates ranging from less than 2 per 100,000 in Western Asia, Western Europe and Australia/New Zealand to more than 20 per 100,000 in Melanesia (20.6/100,000) and Middle (22.2/100,000) and Eastern (27.6/100,000) Africa.^[1]

India has a population of 432.20 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 122,844 women are diagnosed with cervical cancer and that 67,477 women die from the disease. Cervical cancer ranks as the second most frequent cancer among women in India and the second most frequent cancer among women between 15 and 44 years of age.^[1] According to the ICO Information Centre on Human Papilloma Virus (HPV) in India, about 7.9% of women in the general population are estimated to harbor cervical HPV infection at a given time, and 84.1% of invasive cervical cancers are attributed to HPVs 16 or 18.^[2] Studies performed in India

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so far have identified various risk factors contributing to cervical cancer. Some of the associated factors identified are illiteracy, poor personal hygiene, poor sanitation facilities, poor socioeconomic status, early marriage, multiparity, multiple sexual partners, etc.^[3-9] The ICO Information Centre on Human Papilloma Virus (HPV) and cancer reported that in India, among 432.20 million, the percentage of HPV prevalence was found to be 7.9%. Some of the risk factors reported were smoking prevalence of 2.8% and oral contraceptive use of 3.1%; the median age of the first sexual intercourse among women aged 25-49 years was 17.6 years.^[2]

Cervical cancer is easily preventable if detected at the earliest. The most widely recommended screening procedures around the world are Papanicolaou (Pap) smear, visual inspection of the cervix with acetic acid (VIA), HPV DNA test and colposcopy. Colposcopy is not used as a primary screening test but it is combined with other tests. Each test has its advantages and disadvantages and applicability in a specific situation. Cervical cancer screening in India is increased in recent times after many research studies and awareness programs are being conducted. The National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS, Ministry of Health and FW, Government of India)^[10] has among its major objectives cervical cancer control through opportunistic screening of women above 30 years. Based on this initiative, all primary health centers have started to perform screening procedures such as VIA/VILI and Pap smear.

Sankaranarayanan *et al.*^[11-15] have conducted many studies in India and have provided information on the effectiveness of various screening procedures in the Indian setting. The sensitivity and specificity for Pap smear test was found to be high, while VIA and VILI had high specificity and low sensitivity. The Pap smear test when used effectively has demonstrated to be a good screening tool in many settings.

In Tamil Nadu, where the study was conducted, cervical cancer accounts to be second largest, with incidence varying in different districts. In Chennai, the incidence of cervical cancer is 15.1%.^[16] There is a high incidence felt in the north eastern districts of Tamil Nadu, Thiruvallur (28.6/100,000), Villupuram (31.1/100,000), Pondicherry (39.2/100,000) and Cuddalore (29.9/100,000).^[17] The investigator, on literature search and personal field experience, came to witness the increase in the incidence of cervical cancer among the married fisher women residing at the coastal areas of Tamil Nadu. This was quite evident with the

findings from the report of the high incidence rates in the areas of Pondicherry (39.2/100,000) and Cuddalore (29.9/100,000), where more fisher women reside in those coastal areas.^[17]

One of the articles published in The Hindu reports that cervical cancer is higher among the women living in the coastal areas of Andhra Pradesh, where the Lions Cancer hospital in Vishakapattinam, Andhra Pradesh, has registered 40% of cervical cancer cases from coastal Andhra as reported by Dr. Aditya Narayan, Chief Radiation Oncologist, LCH.^[18]

Shetty *et al.*^[19] conducted a cross-sectional study to assess the prevalence of pre-cancerous cervical cancer lesions among the married women in the coastal areas of Karnataka. About 316 participants were screened by VIA/VILI and Pap smear test, where the study results showed a prevalence of about 7.6% with pre-cancerous lesions, and 40.1% of them had abnormal cervical findings with the Pap smear test. The investigators were surprised with that information and wanted to bring this alarming issue to the limelight to save many women vulnerable for cervical cancer in those areas. Hence, a study was conducted to understand the relationship of the associated factors that makes the fisher women community more vulnerable for acquiring cervical cancer.

Materials and methods

Design and approach

Quantitative approach with a cross-sectional study design was used.

Setting

The study was conducted in five fishermen communities under Sadras, one of the coastal areas in Tami Nadu, India. The fishermen communities were, namely, Mayurkuppam, Sadraskuppam, Pudupattinam, Oyalikuppam and Kokilamedu.

Study participants

The study participants were married fisher women between 20 and 45 years of age (women in the reproductive age group at high risk for cervical cancer) who fulfilled the inclusion criteria, such as living in the coastal areas permanently, not pregnant, have not undergone total hysterectomy and willing to participate after informed consent. The sample size was derived for the study using the standard formula for prevalence/descriptive studies, $n = Z\alpha^2 pq/d^2$. The sample size derived was 246. The total married fisher women in the

study setting between the age group of 20 and 45 years was around 980. Researchers contacted more than 600 women who fulfilled the inclusion criteria, but only 250 of them gave consent, and most of the women did not give consent to undergo vaginal examination and the Pap smear test as they reported fear of diagnosis, social stigma toward cervical screening, etc. The sampling technique used was convenient sampling.

Tools and techniques

The data collection instrument was developed by the investigator with the support of review of the literature^[3-9,20-22] and the expert's guidance. The content validity of the tool was obtained from 11 experts from the fields of oncology (1), obstetrics and gynecology (1), community medicine (1), community health nursing (7) and bio-statistics (1). The tools used for data collection were the following:

Part I: Demographic data

Part one consists of demographic data such as age, marital status, age at menarche, age of women at marriage, duration of married life, number of births given, level of education of women, level of education of husband, occupation of the women, occupation of the husband, place of living, religion, family income, use of tobacco, use of alcohol, shellfish eating and visit of health worker during the past 12 months.

Part II: Associated factors questionnaire

Part II consists of three sections of structured questions closed-ended with options to assess various associated factors related to cervical cancer. The reliability score of the structured questionnaire was found to be $r = 0.82$ by using the split-half method. The questionnaire consisted of the following sections.

Section A: Factors related to perineal hygiene

Factors related to perineal hygiene consisted of questions regarding type of sanitary napkin, change of napkin, drying of used cloth napkin, washing perineum with soap and water.

Section B: Factors related to sexual behavior including sexual hygiene

Factors related to sexual behavior including sexual hygiene consisted of questions regarding vaginal douching after sexual intercourse, frequency of sexual intercourse, extramarital relationship, premarital sex and age of first sexual debut.

Section C: Factors relating family welfare practices and gynecological problems

Factors relating family welfare practices and gynecological problems consisted of questions regarding use of temporary family planning methods, intrauterine device usage (Copper T), problems in uterus, vaginal discharge, post-coital bleeding and husband having STI (sexually transmitted infection).

Part III: Observation tool for vaginal examination

Observation tool for vaginal examination was a structured observation checklist recorded after visual inspection of the appearance of the external genitalia, vagina and cervix. The reliability score of the observation tool was found to be $r = 0.85$ by the inter-rater method (two observations were made simultaneously by the investigator and the staff nurse at the primary health center).

Part IV: Pap smear test report

Pap smear test report as given by the pathologist after assessment of the Pap smear collected by the investigator. The reliability of the Pap smear test in the present study was found to be $r = 0.88$ by the inter-rater method.

Data collection procedure

The investigator gathered the eligible participants in groups of six to 10 every day and brought them to the primary health center at Sadras. Informed consent was obtained from them and privacy was established while collecting the information from the participants and, after information concerning the associated factors was collected, the investigator then performed the Pap smear test with the assistance of the medical officer at the Primary Health Centre of Sadras Health Post. The Pap smear test was investigated and reported by the pathologist of the Govt. Chengalpettu Medical College Hospital, Chengalpattu.

Ethical clearance

The study was approved by the Institutional Ethical Committee of the Chettinad Hospital and Research Institute, Tamil Nadu. All participants were given privacy and information was collected individually and confidentiality was maintained. The clients who had been identified as having pre-malignant cervical lesions were referred to the regional cancer center in Chennai, Tamil Nadu, India for further testing and treatment.

Statistical analysis

The investigator has used frequency and percentage distribution to show the overall findings. The chi square

test was used to determine the association of factors with the findings. The statistical analysis was performed using SPSS Version 17.

Results

The demographic characteristics of the 250 participants showed that 68 (27.2%) of them were between the age of 41 and 45 years; 152 (60.8%) of them attained menarche between 14 and 16 years; 67 (26.8%) of them had got married between 9 and 17 years of age; 93 (37.2%) of them were between 11 to 20 years after marriage; 234 (94.4%) of them were living with their spouse; 94 (37.6%) of them have given birth to three to four children; 236 (94.4%) of them were Hindu; 206 (82.4%) of them were living in their own house; 93 (37.2%) of them had a family income between Rs. 2001 and Rs. 4000; 105 (42%) of them had done primary schooling; 129 (51.6%) of their husbands had done primary schooling; 72 (28.8%) of them were working in garments factories; and 184 (73.6%) of their husbands had occupation of catching fish.

Table 1 depicts the personal habits contributing to illness among the study participants; among the 250 participants, 58 (23.2%) had the habit of using tobacco and, among them, 28 (48.3%) women were using smokeless tobacco/oral chewing and 30 (51.7%) women had a habit of smoking, 25 (10%) women had the habit of using alcohol and 111 (44.4%) women had the habit of eating shellfish frequently.

Table 2 depicts the factors related to perineal hygiene practices of the participants; among the 250 participants, 133 (53.2%) women were using cloth as sanitary napkin during menstrual cycle; 94 (37.6%) women changed the sanitary napkin only twice in a day; 96 (38.4%) women dried the napkin under the sun; and 214 (85.6%) women washed their perineum both after urination and defecation.

Table 3 depicts the factors related to sexual behavior and hygiene of the study participants; among the 250 participants, 169 (67.6%) women douche the vagina after coitus; 124 (49.6%) women have coitus once in a while; 12 (4.8%) women had an extramarital relationship; four (33.4%) women had a relationship with multiple partners; nine (3.6%) women had pre-marital sex; and 36 (14.4%) women had their first sexual debut before 15 years of age.

Table 4 depicts the factors related to family welfare practices and gynecological problems of the study participants.

Table 1: Frequency and percentage distribution of risky personal habits of the participants (n = 250)

Habit	n	%
Tobacco usage		
Yes	58	23.2
No	192	76.8
If yes, tobacco (n=58)		
Smokeless (oral chewing)	28	48.3
Smoking	30	51.7
Alcohol		
Daily	13	5.2
Weekly twice	2	0.8
Occasionally	10	4.0
Nil	225	90.0
Shellfish eating		
Frequently	111	44.4
Occasionally	86	34.4
Nil	53	21.2

Table 2: Frequency and percentage distribution of factors related to perineal hygiene of the participants (n = 250)

Perineal hygiene factor	n	%
Type of sanitary napkin		
Commercial pad	117	46.8
Cloth	133	53.2
Change of sanitary napkin		
Once in a day	29	11.6
Twice a day	94	37.6
Thrice a day	85	34.0
More than three times	42	16.8
Drying of napkin		
Under the sun	96	38.4
Inside the bathroom	28	11.2
Throw in dust bin	126	50.4
Washing of the perineum with soap and water		
After urination	22	8.8
After defecation	14	5.6
Both one and two	214	85.6

Among the 250 participants, 196 (78.4%) women do not use any temporary family planning methods. Among 22 women using cooper T, 10 (45.5%) women were using less than 3 months. Ninety-three (37.2%) women had complaints of vaginal discharge; nine (3.6%) women had complaints of post-coital bleeding; and 14 (5.6%) of their husbands had problems of sexually transmitted infection.

The pre-malignant cervical lesions among 250 women via the Pap smear test was found to be 2.4%, i.e. about six women presented with pre-cancerous lesions such as atypical squamous cell of undifferentiated significance (ASCUS) — Five (2%) and mild dysplasia — One (0.4%). Among the findings of the Pap smear result, majority of the women, about 178 (71.2%), had abnormal cervical

Table 3: Frequency and percentage distribution of factors related to sexual behavior and sexual hygiene of the participants (n = 250)

Sexual behavior and sexual hygiene factor	n	%
Vaginal douching after coitus		
Yes	169	67.6
No	69	27.6
Not applicable	12	4.8
Frequency of coitus		
Daily	10	4.0
Weekly thrice	18	7.2
Weekly twice	33	13.2
Weekly once	60	24.0
Once in a while	124	49.6
Not applicable	5	2.0
Extramarital relationship		
Yes	12	4.8
No	238	95.2
If yes, no. of partners (n=12)		
Only one person	8	3.2
Multiple partners	4	1.6
Premarital sex		
Yes	9	3.6
No	241	96.4
Age of first sexual debut		
Before 10 years	3	1.2
10-14 years	33	13.2
15-30 years	209	83.6
After 30 years	5	2.0

findings such as inflammatory changes, 157 (62.8%); atrophy, 11 (4.4%); cervicitis, six (2.4%); candidiasis, two (0.8%); doderline bacilli, one (0.4%); and trichomoniosis, one (0.4%).

Table 5 provides information of the variables that had a statistically significant association with the Pap smear findings, such as age of the women, parity, years after marriage, level of education of the women, use of tobacco, type of sanitary napkin, use of temporary methods of family planning, vaginal douching after coitus and frequency of coitus.

Table 6 depicts the risk factors that contributed to the abnormal cervical findings identified by the Pap smear test. Among the risk factors, low socioeconomic status with regard to family income level below Rs. 4000 per month, lack of education in terms of lack of formal education, use of tobacco, alcohol, having an extramarital relationship, premarital sex, husband without circumcision, frequent shellfish eating, using cloth as sanitary napkin, not performing vaginal douching after coitus, frequency of sexual intercourse i.e. having daily/more than thrice weekly, not using any temporary methods of family planning and

Table 4: Frequency and percentage distribution of factors related to family welfare practices and gynecological problems of the participants (n = 250)

Family welfare practices and gynecological problems	n	%
Temporary methods of family planning		
Birth pills	25	10.0
Copper T	22	8.8
Calendar method	3	1.2
Condom	4	1.6
None	196	78.4
If copper T, duration of usage (n = 22)		
Less than 3 months	10	45.5
6-12 months	2	9.0
1-2 years	7	31.9
More than 3 years	3	13.6
Problems in the uterus		
Utero-vaginal prolapsed	6	2.4
Erosion of cervix	2	0.8
Vaginal discharge	93	37.2
Utero-vaginal prolapsed and vaginal discharge	4	1.6
Erosion of cervix and vaginal discharge	3	1.2
Utero-vaginal prolapsed, erosion of cervix and vaginal discharge	3	1.2
None	139	55.6
Painful bleeding after coitus		
Yes	9	3.6
No	231	92.4
Not applicable	10	4.0
Husband having problem		
Ulcer in penis	3	1.2
Discharge in penis	9	3.6
Ulcer in and discharge in penis	2	0.8
Normal	236	94.4

having post-coital bleeding showed significant abnormal cervical findings.

Discussion

The first objective was to identify clients with cervical pre-malignant lesions among married fisher women residing at Sadras

The findings clearly showed that although the prevalence of pre-cancerous cervical lesions was low, the prevalence of abnormal cervical findings such as high rate of inflammatory changes, atrophy, etc. were very high when compared with the other findings presented so far among the other areas of the world, which clearly makes the fisher women community more vulnerable to cervical cancer.

The above findings are in consistent with the study conducted by Shetty *et al.*^[19] to assess the prevalence of pre-cancerous cervical lesions in the coastal areas of Karnataka.

Table 5: Association of the variables with the Pap smear findings (*n* = 250)

Demographic variable	Normal		Pre-cancerous lesion		Abnormal cervix		Unsatisfactory smear		Chi square/Fisher exact test
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Age of Women, yrs									
20-25	11	19.0	1	16.7	14	7.9	2	25.0	$\chi^2 = 21.392$ $P < 0.002^{***}$ df = 12
26-30	15	25.9	1	16.7	28	15.7	1	12.5	
31-35	12	20.7	0	0.0	33	18.5	2	25.0	
36-40	13	22.4	1	16.7	45	25.3	3	37.5	
41-45	7	12.1	3	50.0	58	32.6	0	0.0	
No. of births given (parity)									
Nil	3	5.2	0	0.0	2	1.1	1	12.5	$\chi^2 = 13.988$ $P < 0.02^{**}$ df = 6
1-2	41	70.7	3	50.0	97	54.5	4	50.0	
3 and above	14	24.1	3	50.0	79	44.4	3	37.5	
Years after marriage									
1-10	21	36.2	1	16.7	46	25.8	3	37.5	$\chi^2 = 22.805$ $P < 0.003^{***}$ df = 9
11-20	28	48.3	1	16.7	59	33.1	5	62.5	
21-30	9	15.5	4	66.7	71	39.9	0	0.0	
31-40	0	0.0	0	0.0	2	1.1	0	0.0	
Education of women									
Non-formal	19	32.8	2	33.3	79	44.4	1	12.5	$\chi^2 = 21.273$ $P < 0.02^{**}$ df = 12
Primary school	29	50.0	1	16.7	70	39.3	5	62.5	
Secondary	8	13.8	3	50.0	27	15.2	1	12.5	
College	1	1.7	0	0.0	2	1.1	1	12.5	
Professional	1	1.7	0	0.0	0	0.0	0	0.0	
Tobacco usage									
Yes	50	88.2	4	66.7	131	73.6	7	87.5	$\chi^2 = 4.766$ $P < 0.02^{**}$ df = 6
No	8	13.8	2	33.3	47	26.4	1	12.5	
Type of sanitary napkin									
Commercial pad	32	55.2	2	33.3	80	44.9	3	37.5	$\chi^2 = 37.833$ $P < 0.05^{**}$ df = 3
Cloth	26	44.8	4	66.7	98	55.1	5	62.5	
Temporary methods of family planning									
Birth pills	1	1.7	0	0.0	23	12.9	1	12.5	$\chi^2 = 21.838$ $P < 0.03^{**}$ df = 12
Copper T	6	10.3	1	16.7	13	7.3	2	25.0	
Calendar method	1	1.7	0	0.0	1	0.6	1	12.5	
Condom	0	0.0	0	0.0	4	2.2	0	0.0	
None	50	86.2	5	83.3	137	77.0	4	50.0	
Vaginal douching after coitus									
Yes	46	79.3	5	83.3	111	62.4	7	87.5	$\chi^2 = 10.938$ $P < 0.04^{**}$ df = 6
No	10	17.2	1	16.7	59	33.1	0	0.0	
Not applicable	2	3.4	0	0.0	8	4.5	1	12.5	
Frequency of Coitus									
Daily	4	6.9	0	0.0	6	3.4	0	0.0	$\chi^2 = 41.124$ $P < 0.04^{**}$ df = 12
Weekly thrice	2	3.4	1	16.7	14	7.9	1	12.5	
Weekly twice	7	12.1	1	16.7	24	13.5	1	12.5	
Weekly once	15	25.9	1	16.7	42	23.6	2	25.0	
Once in a while	28	48.3	3	50.0	89	50.0	4	50.0	
Not applicable	2	3.4	0	0.0	3	1.7	0	0.0	

***:Highly significant, **: Moderately significant

About 316 participants were screened by the VIA/VILI and Pap smear tests, where the study results showed a prevalence of about 7.6% with pre-cancerous lesions and 40.1% of them had abnormal cervical findings with the Pap smear test.

The above findings were consistent with the other studies performed in the rural areas of India by Bhagya Lakshmi *et al.*^[23] in Vishakapattinam, Andhra Pradesh, Ushadevi *et al.*^[24] among the rural women of Kancheepuram district, Tamil Nadu and Ravikiran *et al.*^[25] in rural women of Nalgonda, Andhra Pradesh, India.

Table 6: Frequency and percentage distribution of the risk factors of the participants and their abnormal Pap smear findings such as pre-cancerous lesions, inflammatory changes and infection

Risk factor	Having risk factor		Abnormal cervix	
	n	%	n	%
Demographic and personal habits				
Age between 41 and 45 years	68	27.2	61	24.4
Married before 18 years	67	26.8	50	20
Parity 3 and above	99	39.6	82	32.8
Family income below Rs. 4000/month	182	71.8	132	52.8
No formal education	101	40	81	32.4
Tobacco use	58	23.2	49	19.6
Factors related to perineal hygiene				
Cloth as sanitary napkin	133	53.2	102	40.8
Drying napkin under sun	96	38.4	70	28
Factors related to sexual behavior and hygiene				
Not performing vaginal douching after coitus	69	27.6	59	23.6
Coitus daily/thrice a week	28	11.2	21	8.4
Extramarital relationship	12	4.8	11	4.4
Premarital sex	9	3.6	6	2.4
First sex before 15 years of age	36	14.4	31	12.4
Factors related to family welfare practices and gynecological problems				
Not using temporary methods of family planning	196	78.4	141	56.4
Having problems in the uterus	111	44.4	84	33.6
Post-coital bleeding	9	3.6	7	2.8

The second objective was to determine the associated factors of cervical pre-malignant lesions among married fisher women residing at Sadras

The study identified many risk factors that contributed to the abnormal cervical findings. The fisher women's lifestyle at the study setting was vulnerable as they have lack of education and women are more exploited by men. Women's rights are very minimal in those areas, many social problems like poor socioeconomic status, early marriage, extended sexual life, multiparity, multiple sexual partners, poor hygienic practices and many other factors were significantly high when compared with other areas that have reported these findings in India. This study has clearly brought these issues into the limelight for the authorities to consider.

The above findings clearly show the vulnerabilities of the population with regard to cervical cancer, which was in consistence with the following studies:

Tafurt Cardona *et al.*^[26] assessed the prevalence of abnormal cytology and information and their association with risk factors for uterine cervical neoplasia among 1735 females in Cauca, Colombia. The findings of the study indicated that

having sexual intercourse at an early age, multiparity, using hormonal contraceptives and not having annual cytology screening were associated with abnormal cytology reports.

Zhang *et al.*^[27] analyzed a population-based study with 10,000 women regarding risk factors for HPV infection in Shanghai suburbs, China. The results of the study found that the HPV-positive rate was 12.6%. The HPV-positive rates were higher in women with older age, lower educational level, younger age of the first sexual intercourse, multiple sexual partners, no usage of condom for contraception, multiple deliveries, vaginal delivery, menopause, vaginal inflammation and cervical erosion. This study concluded that HPV infection was associated with age, sexual behavior and chronic inflammation of the cervix and vagina.

Mahanta *et al.*^[28] studied the risk factors association with cancer cervix and cancer breast in a case study at Assam. This study revealed that there is a strong evidence between the following risk factors such as family income ($P = 0.017$), age at marriage ($P = 0.031$), age of the patients ($P = 0.017$), number of children ($P = 0.001$), age at first child birth ($P = 0.003$) and oral contraceptive used ($P = 0.028$) were found to have a high statistical significance.

Conclusion

The study findings clearly show the increased vulnerable state of the fisher women for acquiring cervical cancer as they had many risk factors contributing to cervical cancer. Fisher women living in those areas were not aware of this serious health problem and they remain a hidden community not receiving the facilities that people in other parts of the country get. The study findings recommended the government officials responsible for that particular region to take necessary steps in addressing this issue. The investigator also recommended conducting similar studies among the married women in other coastal areas of the country.

Limitations

The investigator found it difficult to convince the women for cervical screening as many women did not give consent due to poor awareness, social stigma and fear associated with the diagnosis of cancer. The sampling method became convenient instead of purposive as the response to participate was poor. Structured questionnaire and self-report interview were used and authors recorded the information as given by the respondents.

What this paper adds to existing knowledge

The current knowledge of cervical cancer and its prevention has clear information about the risk factors, its prevention and cure. Many studies are still being performed around the world with an intent to prevent and understand the population characteristics that makes them vulnerable to acquire the disease. This research work brings to the lime light the vulnerability of a hidden population of fisher women living in the coastal areas of Tamil Nadu, India with an intent to prevent the occurrence of cervical cancer. Studies on urban and rural differences are present, but studies on various subgroups of populations like the one presented here will add more knowledge to the existing knowledge.

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