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RESEARCH ARTICLE

A SOCIO-DEMOGRAPHIC STUDY OF WOMAN UNDERGOING SCREENING FOR CERVICAL DYSPLASIA AT CHC, MURADNAGAR, DISTRICT-GHAZIABAD, U.P. INDIA

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ABSTRACT

Background: Cancer of cervix is a common cancer that affects Indian women physically, psychologically, socially and financially. The disease affects not just the women but also her family and society. **Aims and Objectives:** This study was designed to study status of uterine cervical dysplasia amongst women attending gynae OPD at CHC Muradnagar, Ghaziabad, U.P. **Materials and Methods:** This study was done at the community health center (CHC), Muradnagar. It was a cross-sectional study done by using VIA (visual inspection using acetic acid) technique on uterine cervix on 1250 women aged above 30 years of age attending gynecology OPD of CHC Muradnagar, Ghaziabad U.P. Purposive sampling was used to enroll all the women who were attending the gynecology OPD at CHC and were coming in the eligibility criteria. **Results:** Out of 1250 women, 14 were found to be VIA positive, out of which 4 cases came out to be positive for dysplasia after doing biopsy under colposcopy. Three biopsy positive cases were found in the age group of 41 to 50 years and one case in age group of 51-60 years, two biopsy positive cases were found amongst participants who had no literacy and two were found positive amongst females who had at least taken intermediate level or higher education, all the four biopsy positive cases were found amongst participants who were Hindu by religion, two biopsy positive cases were found amongst participants who were not working and two were found positive amongst females who were working, two biopsy positive cases were found amongst participants whose husbands were working as a professional and two cases were found positive amongst females whose husbands were working as either skilled/semi-skilled/unskilled labours or unemployed, two biopsy positive cases were found amongst participants who belonged to Class I Socio-economic status and two cases were found positive amongst females who belonged to Class III Socio-economic status. **Conclusion**: Our epidemiological study revealed that many socio demographic variables such as increasing age, literacy status, religion, working status of participant and her husband, socio-economic status are important factors that significantly showed higher proportion of dysplasia that can influence development of cervical cancer. In addition, these factors are supported by several epidemiological studies as important risk factors for development of cervical cancer, specially done in low resource settings. **Recommendation:** Mass health education and behaviour change interventions should be conducted at the community level in order to make all women of childbearing age aware about cervical cancer and its screening. The benefits of early diagnosis and treatment must be made aware to women so that they are encouraged to take cervical
cancer screening.

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INTRODUCTION

Cervical cancer is the commonest cancer causing death among women in developingcountries (Dennny, 2012). It is usually a very slow growing cancer that may not have symptoms for a longtime but can be only detected in early stage with regular screening methods. 86% of all deathsdue to cervical cancer are in developing countries, low and middle-incomecountries (Arbyn *et al*., 2011; Yesle *et al*., 2004).

Canceris leading cause of death in economically developed countries and the second leading cause of death in developing countries (WHO, 2004). Compared with other cancers, screening for cervical cancer is the most effective (Hakama *et al*., 1986; Coffey *et al*., 2004). Visualinspection of cervix after acetic acid application (VIA) has long been regarded as the most promising method for screening in resource – limited settings.

VIA is performed by a trained health care provider who applies a 3% to 5% acetic acid solution to the cervix and then observes the transformation zone for 1-2 minutes for aceto-white epithelium, which is brought to be indicative of abnormal cellular changes (Denny *et al*., 2002; ICMR, 2012-2013). Many socio demographic variables such as increasing age, literacy status, religion, working status of participant and her husband, socio-economic status are important factors that significantly showed higher proportion of dysplasia that can influence development of cervicalcancer. These factors are supported by several epidemiological studies as important risk factors for development of cervical cancer, specially done in low resource settings. With the literature knowledge for cervical dysplasia, we could gather the knowledge regarding this crucial disease of such a paramount importance. In addition, our objective was to generate awareness regarding importance of cervical cancer and its early detection through screening amongst all of the women attending CHC (community health centre) Muradnagar, Ghaziabad, UP, India and channelizing our study population towards early diagnosis, treatment and follow-up of cervical cancer.

MATERIALS AND METHODS

Our study was done to find correlation between cervical dysplasia and diabetes mellitus. Our study area was the Community Health Centre (CHC), Muradnagar, Ghaziabad. This was a health centre based observation study done on 1250 women with cross-sectional sectional study design. All of the women coming under eligibility criteria aged above 30 years, attending Gynaecology OPD of CHC, Muradnagar, Ghaziabad was the study population. Purposive sampling was used to enroll all the women who were attending the gynaecology OPD at CHC and were coming in the eligibility criteria.

Criteria for Selection

Inclusion Criteria: All of the women aged above 30 years, attending Gynecology OPD of CHC, Muradnagar, Ghaziabad with all type of gynecological complaints.

Exclusion Criteria

- All womenaged below 30 years
- All women with history of hysterectomy done
- All women who had undergone cervical cancer treatment in past
- All currently pregnant women
- Women who were not willing to give consent for the study

Information of individual and family was collected by pre-designed, pre-tested and structured schedule. Reproductive health related complaints were noted followed by clinical examination and cervical cancer screening.VIA(Visual inspection under acetic acid) of cervix was done, which came out to be VIA positive were send for biopsy to see dysplastic changes. The data collected was entered in MS Excel. After the master chart was prepared it was coded as categorical variables. The data was analyzed using SPSS version 17 (Statistical Package of Social Sciences) appropriate statistical test for the analysis of categorical variables was applied. Results were produced in form of frequencies and percentages.

RESULTS

The majority of the participants of the study population were from rural area (67.7%). Age group between 30 to 40 years was the most common age group in Rural (63.7%) as well as in Urban Population (59.9%) followed by 41 to 50 age group. Very few participants were above 60. Majority of the population were from Hindu background in Rural (57.2%) and from Muslim background in Urban (51.2%) population. Almost half of the ruralpopulations (50.2%) were illiterate whereas majority of the urban population (59.7%) had some level of literacy. Majority of the participants from both Rural (94.2%) and Urban (92.8%) background were housewives and majority of their husbands were either skilled or semi-skilled workers. Majority of the participants' family per capita monthly income was less than Rs. 5000 in both Rural (87.8%) and Urban (87.2%). Most of the families in both Rural (57.9%) and almost half of the Urban (50.5%) belonged to Class III of Socio-Economic Status as per the Modified B.G Prasad Scale followed by Class II socio economic-status. Out of 1250 cases, 14 women were found to be VIA positive, out of which 4cases came out to be positive for cervical dysplastic changes. Three biopsy positive cases were found in the age group of 41 to 50 years and one case in age group of 51-60 years, two biopsy positive cases were found amongst participants who had no literacy and two were found positive amongst females who had at-least taken intermediate level or higher education, all the four biopsy positive cases were found amongst participants who were Hindu by religion, two biopsy positive cases were found amongst participants who were not working and two were found positive amongst females who were working, two biopsy positive cases were found amongst participants whose husbands were working as a professional and two cases were found positive amongst females whose husbands were working as either skilled/semi-skilled/unskilled labours or unemployed, two biopsy positive cases were found amongst participants who belonged to Class I Socio-economic status and two cases were found positive amongst females who elonged to Class III Socio-economic status. Table-1 shows that majority of the participants of the study population were from Rural area (67.7%).

Age group between 30 to 40 years was the most common age group in Rural (63.7%) as well as in Urban Population(59.9%) followed by 41 to 50 age group. Very few participants were above 60. Majority of the population were from Hindu background in Rural (57.2%) and from Muslim background in Urban (51.2%) population. Almost half of the ruralpopulations (50.2%) were illiterate whereas majority of the urban population (59.7%) had some level of literacy. Majority of the participants from both Rural (94.2%) and Urban (92.8%) background were housewives and majority of their husbands were either skilled or semi-skilled workers. Majority of the participants' family per capita monthly income was less than Rs 5000 in both Rural (87.8%) and Urban (87.2%). Most of the families in both Rural (57.9%) and almost half of the Urban (50.5%) belonged to Class III of Socio-Economic Status as per the Modified B.G Prasad Scale (Revised for 2017) followed by Class II socio economic-status. Table-2 shows that three biopsy positive cases were found in the age group of 41 to 50 years and one case in age group of 51-60 years. There is a statistically highly significant difference in the age group distribution and positive cervical cancer cases. Table-3 shows that two biopsy positive cases were found amongst participants who had no literacy and two were found positive amongst females who had at-least taken intermediate level or higher education. There is a statistically highly significant difference in the literacy status of the participants and positive cervical cancer cases. Table-4 shows that all the four biopsy positive cases were found amongst participants who were Hindu by religion.

Table 1. Distribution of the study population according to their Socio-Demographic characteristics

Socio-Demographic Characteristics		Rural (n =846)	Urban(n =404)	Total (n=1250)
Age (Years)	30 – 40	539 (63.7%)	242 (59.9%)	781 (62.4%)
	41 – 50	300 (35.5%)	152 (37.7%)	452 (36.1%)
	51 – 60	7 (0.8%)	8 (1.9%)	15 (1.2%)
	61 – 70	Nil	2 (0.5%)	2 (0.3%)
Religion	Hindu	484 (57.2%)	196 (48.5%)	680 (54.4%)
	Muslim	362 (42.8%)	207 (51.2%)	569 (45.5%)
	Others	Nil	1 (0.3%)	1 (0.1%)
Literacy Status	Illiterate	425 (50.2%)	163 (40.3%)	588 (7.0%)
	Primary School	221 (26.1%)	119 (29.5%)	340 (27.2%)
	Middle School	83 (9.8%)	47 (11.7%)	130 (10.4%)
	High School	64 (7.6%)	32 (7.9%)	96 (7.7%)
	Intermediate	30 (3.5%)	22 (5.4%)	52 (4.2%)
	Graduate	14 (1.7%)	14 (3.5%)	28 (2.2%)
	Post – Graduate	9 (1.1%)	7 (1.7%)	16 (1.3%)
Occupation of the Participant	Working	49 (5.8%)	29 (7.2%)	77 (6.2%)
	Non-Working	797 (94.2%)	375 (92.8%)	1173 (93.8%)
Husband's Occupation	Professional	85 (10.0%)	70 (17.3%)	155 (12.4%)
	Skilled Worker	431 (50.9%)	192 (47.5%)	623 (49.8%)
	Semi – Skilled Worker	205 (24.2%)	50 (12.4%)	255 (20.4%)
	Non – Skilled Worker	121 (14.4%)	90 (22.3%)	211 (16.9%)
	Unemployed / Retired	4 (0.5%)	2 (0.5%)	6 (0.5%)
Per Capita Monthly Income (in Rupees)	<5000	743 (87.8%)	336 (83.2%)	1079 (86.2%)
	5000-10,000	103 (12.2%)	68 (16.8%)	171 (13.7%)
Socio-Economic Status (Modified B.G Prasad Scale, 2017 Revision)	I	13 (1.5%)	11 (2.7%)	24 (1.9%)
	II	277 (32.7%)	156 (38.6%)	433 (34.6%)
	III	490 (57.9%)	204 (50.5%)	694 (55.6%)
	IV	66 (7.9%)	33 (8.2%)	99 (7.9%)
	V	Nil	Nil	Nil

Table 2. Association of Age of the Participant with their Cervical Biopsy Specimen Finding

Age of the participant	BIOPSY FINDING		Total (n = 1250)
	Positive	Negative	
30-40	0	781 (100%)	781 (62.5%)
41-50	3 (0.7%)	449 (93.7%)	452 (36.2%)
51-60	1 (6.7%)	14 (93.3%)	15 (1.2%)
61-70	0	2 (100%)	2 (0.1%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)

Fisher's exact test value=23.130, p value = 0.000

Table 3. Association of Literacy Status of the Participant with their Cervical Biopsy Specimen Finding

Literacy Status of the participant	Biopsy Finding		Total (n=1250)
	Positive	Negative	
Illiterate	2 (0.3%)	586 (99.7%)	588 (47%)
Primary School	0	340 (100%)	340 (27.2%)
Middle school	0	130 (100%)	130 (10.4%)
High School	0	96 (100%)	96 (0.5%)
Intermediate	1 (2%)	51 (98%)	52 (4.2%)
Graduate	0	28 (100%)	28 (2.2%)
Post-Graduate	1 (7%)	15 (93%)	16 (1.3%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)

Fisher's exact test value=23.74 , p value = 0.001

Table 4. Association of Religion of the Participant with their Cervical Biopsy Specimen Finding

Religion of the participant	Biopsy Finding		Total (n=1250)
	Positive	Negative	
Hindu	4 (0.6%)	676 (99.4%)	680 (54.4%)
Muslim	0	569 (100%)	569 (45.5%)
Others (Christian)	0	1 (100%)	1 (0.1%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)

Fisher's exact test value=3.364 , p value = 0.186

Table 5. Association of the Working status of the Participant with their Cervical Biopsy Specimen Finding

Working status of the participant	Biopsy finding		Total (n=1250)
	Positive	Negative	
Not working	2 (0.2%)	1170 (99.8%)	1172 (93.8%)
Working	2 (2.6%)	76 (97.4%)	78 (6.2%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)

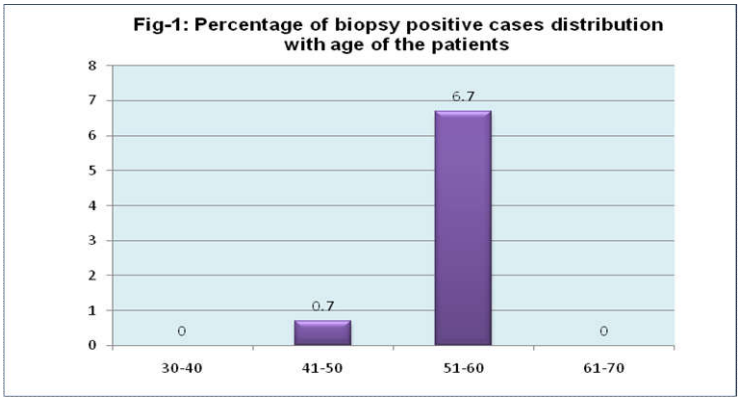
Fisher's exact test value=13.134 , p value = 0.000

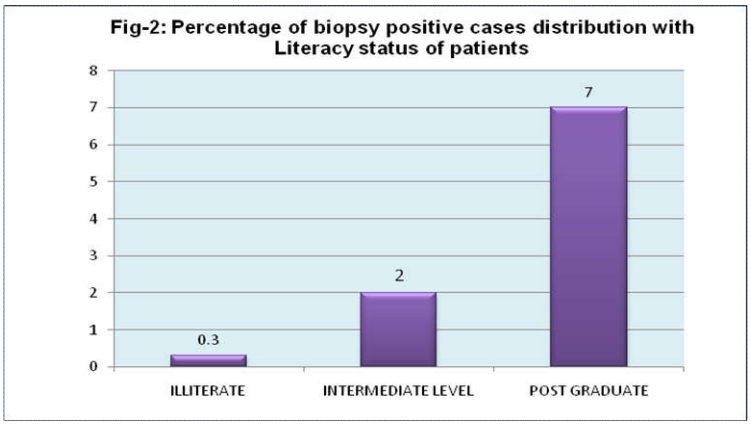
Table 6. Association of the Working status of the Participants' husband with their Cervical Biopsy Specimen Finding

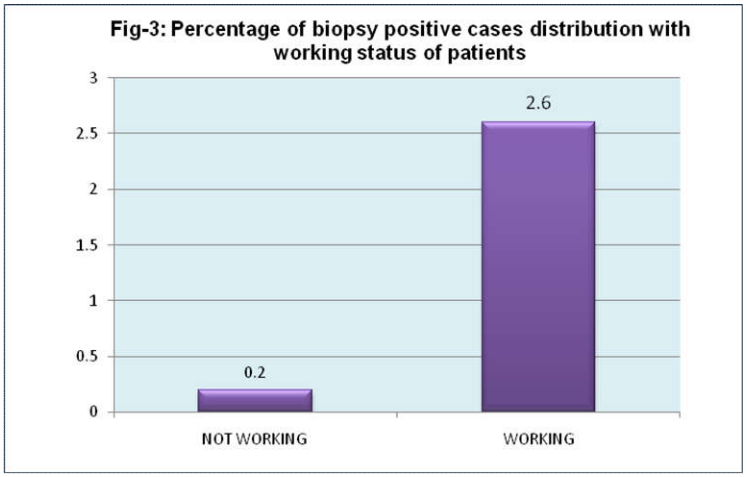
Working status of the participant husband	Biopsy finding		Total (n=1250)
	Positive	Negative	
Professional	2 (1.3%)	153 (98.7%)	155 (12.4%)
Others(skilled/semi-skilled/unskilled/labour/unemployed)	2 (0.2%)	1093 (99.8%)	1095 (87.6%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)

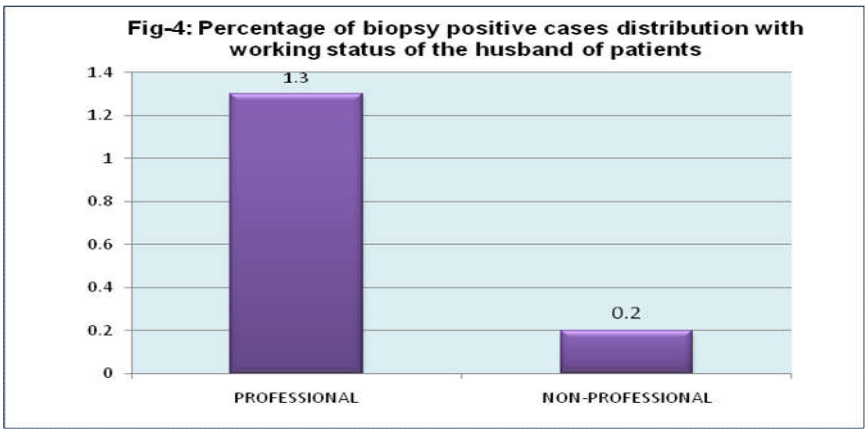
Table 7. Association of the Socio-Economic Status of the Participants' family with their Cervical Biopsy Specimen Finding

Socio-Economic status of the participants' family	Biopsy Finding		Total (n=1250)
	Positive	Negative	
Class I	2 (8.3%)	22 (91.7%)	24 (2%)
Class II	0	433 (100%)	433 (34.6%)
Class III	2 (0.3%)	692 (99.7%)	694 (55.5%)
Class IV	0	99 (100%)	99 (7.9%)
Total	4 (0.3%)	1246 (99.7%)	1250 (100%)









However the difference in the religion distribution with biopsy positive cases was not found to be statistically significant. Table-5 shows that two biopsy positive cases were found amongst participants who were not working and two were found positive amongst females who were working and there is a high statistically significant difference in the working status of the participants and positive cervical cancer cases. Table-6 shows that two biopsy positive cases were found amongst participants whose husbands were working as a professional and two cases were found positive amongst females whose husbands were working as either skilled/semi-skilled/unskilled labors or unemployed. There is a statistical significant difference in the professional status of the participants' husband and cervical cancer cases. Table-7 shows that two biopsy positive cases were found amongst participants who belonged to Class I Socio-economic status and two cases were found positive amongst females who belonged to Class III Socio-economic status and there is a statistically highly significant difference in the Socio-economic class distribution of the participants and cervical cancer cases.

DISCUSSION

As per the Census 2011, (Vedantham *et al*., 2010) the total population of Ghaziabad district was 4,681,645 out of which 67.55 percent lives in urban regions of district and 32.45 % population of Ghaziabad districts lives in rural areas of villages. The population of Community Development Block Muradnagar stands as 1,48,580 of which and of the total population of Muradnagar 83.5% (124081) belonged to rural community and 16.5 % (24499) belonged to Urban community. Female literacy level was 61 % in rural and 74% in urban areas of Ghaziabad and forMuradnagar Rural female literacy level stands at 67% and urban literacy level at 75%. 73% of the total population of Ghaziabad belonged to Hindu community, 25 % Muslim and rest others. Nearly 82 percent of the females residing in rural areas of Muradnagar were unemployed and nearly 89% of the women residing in urban areas were unemployed. Our study showed that three biopsy positive cases were found in the age group of 41 to 50 years and one case in age group of 51-60 years. Vedantham *et al*. 2010 observed in their study that VIA positivity was significantly correlated with age over 60 years with an adjusted OR of 2.08 (C.I 1.25-3.47) times higher chances of developing cervical cancer compared to women in age group of 25-29 years (WHO, 2002). Globally it was observed that in unscreened populations, the peak risk of invasive cervical cancer occurs earlier then for most adult cancers, peaking or reaching a plateau from about 35-55 years (http://www.glo bocan.iarc.fr/old/age_specific_ta ble_r.asp?).

In India the peak, age for cervical cancer incidence is 55–59 years (Bobdey *et al*., 2016). A recent study done by Saurabh Bobdey, Jignasa Sathwara, Ganesh Balasubramaniam *et al*. (2016) revealed that in India more than 85% of patients were from age group 40 years and above (ICMR, 2016). The maximum numbers of cases were reported in 50–59 years of age group amounting to 27.37% of all cervical carcinoma cases as revealed in a three year report Population based Cancer Registries (Franceschi *et al*., 2003). Our study showed that there was significantly higher distribution of cervical biopsy positive cases amongst women with higher literacy status, i.e at least intermediate level or higher. However, Vedantham *et al*. 2010 observed in their study that VIA positivity was significantly correlated with poor literacy status (WHO, 2002). Similarly S Franceschi *et al*. 2003 in their multicenter case-control study in Chennai, Southern India revealed that ORs and corresponding 95% CIs Illiteracy compared to higher education increases risk to nearly 5 times for development of cervical cancer. (OR **vs.** high education = 4.8) (Seema *et al*., 2003).

We can possibly explain our findings by there being a probability of women with higher education more likely to visit health centres for complaints related to reproductive health and thereby more likely to be screened out for CIN (cervical intra-epithelial) changes. Women with higher education are likely to have better awareness on importance of reproductive health compared to women with poor literacy status. Our study showed that all the four biopsy positive cases were found amongst participants who were Hindu by religion. However the difference in the religion distribution with biopsy positive cases was not found to be statistically significant. P Seema *et al*. 2003 in their meta analysis study on social inequalities as risk factors for cervical cancer revealed that specific religious practices also modify the risk of developing cervical cancer in women following HPV infection. Dikshit *et al*. 2012 in their Million Death study done in several parts of India between the years 2001 and 2003 revealed that Cervical cancer was far less common in Muslim than in Hindu women (study deaths 24, age-standardised mortality ratio 0·68 (0·64–0·71) vs 340, 1·06 (1·05–1·08)). Circumcision amongst Muslim men, which reduces the sexual transmission of human papillomavirus is a likely explanation (Arbyn *et al*., 2008). Our study showed that significantly higher proportion of females with positive cervical biopsy cases was amongst the women who were currently working compared to women who were not working. Arbyn *et al*. 2011 in their study in 2008 revealed that age-specific analyses clearly indicated that cervical cancer primarily affects young adult women who are actively involved in their careers or caring for their families The possible explanation of significant occurrence of cervical

cancer cases amongst working women could be that these working women are more empowered to make decision related to their health and get themselves screened for cervical cancer as opposed to house-wives who do not have such decision making power related to their health needs and often face various social restriction to undergo such a screening. Similarly it was seen in our study that significantly higher number of CIN changes cases were seen amongst women whose husband were doing some higher professional job compared to those whose husband wereworking as either skilled/semi-skilled/unskilled labors orunemployed.

In addition, we found that significantly higher proportion of CIN changes were seen amongst women who belonged to better or higher socio-economic class compared to lower socio-economic class. Our findings are contrary to innumerable studies which show an excess of cervical cancer among low socioeconomic class women; to an extent that this considered as one of the earliest and most consistent findings of epidemiologic studies of this tumour. (Schiffman *et al*., 1996) Parikh *et al*. 20003 reported in their meta-analysis of case control studies done on cervical that based on 57 studies, they found an increased risk of approximately 100% between high and low social class categories for the development of invasive cervical cancer, and an increased risk of approximately 60% for dysplasia, including carcinoma in situ (Parikh *et al*., 2003). Thus, all these studies reported a consistent increasing trend in cervical cancer incidence with various indicators of decreasing social class, including level of education, income and occupation. The main explanations advanced for the excess risk among lower socio-economic groups are related to sexual behaviour, corresponding to a greater chance to acquire and/or become chronic carriers of human papillomavirus (HPV), which is a necessary cause of cervical cancer. Less access to early diagnosis or cytological screening for cervical cancer is also likely to result in a higher incidence and mortality. Overall, an increased relative risk of dysplasia and cervical cancer with decreasing social class was observed when all studies were pooled women in the middle social class group were at approximately a 26% increased risk of cervical disease (95% CI 17–36%), whereas women in the lower social class tertile were at approximately an 80% increased risk when compared to women in the upper tertile (95% CI 69–92%).When stratified by geographical region it was found that the risk was greater in studies originating from North America and in studies originating from South America, Asia and Africa, where approximately a 100% increased risk was observed in these regions among the low social class group when compared to the high social class group (Parikh et al., 2003). The possible explanation for discrepancy in our findings could be that these women who had better literacy status, who were financially independent and had better socio-economic status were more empowered to participate in the screening of cervical cancer and thus had a better chance to be diagnosed early and treated appropriately.

Conclusion and Recommendations

Our epidemiological study revealed that many socio demographic variables such as increasing age, literacy status, religion, working status of participant and her husband, socio-economic status are important factors that significantly showed higher proportion of dysplasia that can influence development of cervical cancer. In addition, these factors are supported by several epidemiological studies as important risk factors for development of cervical cancer, specially done in low resource settings. Lastly usage of VIA for cervical screening was an easy and convenient method to screen cases at a peripheral level and the benefit was that it required no costly lab based procedures, was quick in giving results and the patients could be immediately sent for management. Cervical screening with VIA has a good potential in helping screening population catered by low resource settings where there is scarcity of man-power, material and money. The advent of HPV vaccines had added a new weapon in the fight against cancer of the cervix. Study from All India Institute of Medical Sciences in New Delhi states that a wide spectrum of HPV infection is seen across India. HPV -16 and HPV -18 are the most common types a vaccine targeting these types could eliminate 75% of the cervical cancer in the country.

HPV vaccines namely Gardasil and Cervarix prevent infection with HPV type 16 and 18, which are responsible for 90% of the cervical cancer cases. Gardasil also prevents HPV type 6 and 11, which causes 90 % of the genital warts. Timely implementation of an affordable and effective screening strategy in developing country is thus crucial, while waiting for further improvements in HPV testing, vaccine technology, costs, and its widespread use [(12)]. Thereby a comprehensive disease control initiative – a combination of improved screening and treatment of pre-cancerous lesions (secondary prevention) with effective HPV vaccination (primary prevention)-has the best potential to significantly reduce the burden of cancer cervix relatively soon. Mass health education and behaviour change interventions should be conducted at the community level in order to make all women of childbearing age aware about cervical cancer and its screening. The benefits of early diagnosis and treatment must be made aware to women so that they are encouraged to take cervical cancer screening. Persistent HPV infection is perhaps the single most important cause of development of cervical cancer. Therefore, high-level advocacy is needed to bring HPV vaccination into routine immunization coverage in all the States of India, especially the poor performing states. VIA has time proved and it is worth in cervical screening especially in low-resource settings. Staff (medical and paramedical workers and other health care providers) should be trained for VIA procedure so that they can easily conduct this test and screen maximum population and refer them to higher centre for appropriate management.

REFERENCES

Arbyn, M., Castellsague, X., sanjose, S., *et al*., 2011. Worlwide burden of cervical cancer in 2008. *Annals of Oncolog,* 22: 2675-2686.

Arbyn, M., Castellsaque, X., Desanjose, S., *et al*., 2011. Worldwide burden of cervical cancer. *Ann Oncol.,* 2675-2686.

Bobdey, S., Sathwara, J., Balasubramaniam, G., *et al*., 2016. Burden of cervical cancer and role of screening in India. *Indian Journal of Medical and Pediatric Oncology*, 37: 278-285.

Coffey, P., Arrossi, S., Bradley, J., Dzuba, I. and White, S. 2004. ACCP Community Involvement Affinity Group. Improving screening coverage rates of cervical cancer prevention programs:a focus on communities.Seattle: Alliance for Cervical Cancer Prevention; (issues in Depth

No. 4) Available from: http://www.path.org/files/RH_acp_improve_screening.pdf.

Dennny, L. 2012. Cancer Cancer: Prevention and Treatment. Discov Med., 14:125-131

Denny, L., Kuhn, L., Pollacl, A. and Wright, TCJR. 2002. Direct visual inspection for cervical cancer screening: an analysis of factors influencing test performance. *Cancer,* 94: 1699-707.

Dikshit, R., Gupta, PC., Ramasundarahettige, C., *et al*., 2012. Cancer mortality in India: a nationally representative survey. *The Lancet.,* 1807-16

Disease Specific Documents for XII plan. Human Papilloma Virus ICMR: High power Committee to Evaluate Performance of ICMR, 2012-2013. New Delhi, India: ICM; 2014.

Franceschi, S., Rajkumar, T., Vaccarella, *et al*., 2003. Human papillomavirus and risk factors for cervical cancer in Chennai, India: a case-control study. *Int J Cancer.,* 107:127–33.

Geneva: World Health Organization: 2008

Hakama, M., Miller, AB. and Day, NE. 1986. Screening for Cancer of the Uterine Cervix.from the IARC Working Group on Cervical Cancer Screening and the UICC Project Group on the Evaluation of Screening Programmes for Cancer. WHO (Geneva), IARC (Lyon), and UICC (Geneva) *IARC Sci Publ.,* 76: 1–315.

Parikh, S., Brennan, P. and Boffetta, P. 2003. Meta-analysis of social inequality and the risk of cervical cancer. *Int J Cancer.,* 105: 687–691.

Ronco, G., Segnan, N. and Ponti, A. 1991. Who has Pap tests? Variables associated with the use of Pap tests in absence of screening programmes. *Int J Epidemiol.,* 20:349-53.

Schiffman, MH., Brinton, LA., Devesa, SS. and Fraumeni, JF Jr. 1996. Cervical cancer. *In:* SchottenfeldD, FraumeniJFJr, *eds.* Cancer epidemiology and prevention, 2nd ed. Oxford*: Oxford University Press, 2:* 1090–116.

Seema, P., Paul, B. and Boffetta, P. 2003. Meta-Analysis of Social Inequality and the Risk of Cervical Cancer. *Int J Cancer*., 105:687-691.

Three-Year Report of Population Based Cancer Registries 2012-2014. Bengaluru: National Centre for Disease Informatics and Research National Cancer Registry Program (ICMR); 2016. Mar, Incidence, Distribution, Trends in Incidence Rates and Projections of Burden of Cancer; pp. 1–15

Vedantham, H., Silver, MI., Kalpana, B., *et al*., 2010. Determinants of VIA (Visual inspection of the cervix AfterAcetic Acid Application) positivity in cervical cancer screening ofwomen in a peri-urban area in Andhra Pradesh, India. *Cancer Epidemiological Biomarkers and Prevention*, 19:13.

WHO. Cervical cancer screening in Developing Countries; Report of a WHO consultation. World Health Organization, 2002.)

World – both sexes estimated incidence by age. Available from: http://www.globocan.iarc.fr/old/age_specific_table_r.asp? Accessed on 30.8.17.

World Health Organization. The Global Burden of Disease: 2004 Update.

Yesle, BB., Kumar, AV., Kerkureet, A. and Sunny, L. 2004. Population based survival from cancers of breast, cervix and ovary in women in Mumbai. *Asian Pac J Cancer Prevention,* 5:308-315.

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