

International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
© Gynaecology Journal
www.gynaecologyjournal.com
2023; 7(3): 05-09
Received: 09-02-2023
Accepted: 12-03-2023

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A study of Pap smear in non-pregnant women of reproductive age group attending out patient department in a tertiary care hospital

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DOI: <https://doi.org/10.33545/gynae.2023.v7.i3a.1331>

Abstract

Objectives: The objective of the present study is to do a routine Pap smear in non-pregnant women of reproductive age group attending the out-patient department and to study the Pap smear reports for any lesions like cervical dysplasia, infection, inflammation and hormonal status. Analysis of the observation and subjecting to statistical correlation as needed.

Materials and Methods: This is a prospective observational study involving the screening of non-pregnant women of reproductive age group attending the outpatient department of obstetrics and gynaecology of RMMCH between November 2020 to 2022.

Results and Discussion: The present study included 250 Pap smears, of which 41.6% are with abnormal cytology belonging to the age group between 36-45 years. Majority of the women with Pap smear abnormality were married before the age of 25 years indicating the necessity to screen as early as possible. Vaginal discharge was the most common symptom which is 56.2%. out of 250 samples, 54.4% were with normal Pap smear, 38% are with inflammatory smear, 2.8 % of them with ASCUS, 4% of them are with LSIL and 0.8% of them are with HSIL.

Conclusion: Though many screening tests are available, Pap smear is regarded as the gold standard test in identifying the precancerous lesions at the earliest due to its simplicity, safety and fair reliability. Screening should ideally be started at the age of 21 years since most of the women in our study are married before the age of 25 years with the mean age of 21 years. So morbidity and mortality due to cervical cancers can be prevented by early identification of cervical cancer by doing screening at regular intervals.

Keywords: Pap smear; ASCUS-Atypical squamous cells of undelivered significance, LSIL-low grade squamous intraepithelial lesion, HSIL- High grade squamous intraepithelial lesion

Introduction

Cervical cancer is the fourth most common cancer among the women globally with an estimate of 6,04,000 new cases and 3,42,000 deaths in 2020 (GLOBOCON 2020) [1]. It is the second most common cancer among women in India accounting for an incidence of 18.7 per lakh women (WHO report 2021) [2] In India, the incidence of cervical cancer increases around the age of 45 years and peaks at 55 years of age [3]. Cancer cervix has a long preinvasive period of 10-15 years. This long preinvasive period where the patients are completely asymptomatic implies the significance of screening for cervical malignancy. Screening targets are those women who have higher prevalence of precancerous lesions and are mostly in their 30's and 40's [3]. Cervical cancer is potentially preventable and effective screening programmes reduce the morbidity and mortality in many developed countries. This happens due to the detection of precancerous lesions. Since early detection predicts better prognosis, one of the most effective way of preventing and controlling cervical cancer is regular screening and early diagnosis. Cervical cancer if detected at an early stage is curable [4, 5]. Ever since the discovery of effectiveness of Pap smear in detecting epithelial changes in uterine cervix prior to occurrence to carcinoma cervix, Pap smear has been widely used as a mass screening method [6]. Pap smear is introduced by George Papanicolaou in 1940 in the diagnosis and prevention of cervical cancer.

The American college of Obstetrics and gynecologist (ACOG) in 2009, recommended that Pap Smear test can be advised for married women who are above 21 years of age. It is also stated that women aged between 21-29 should be screened for the same every three years. women of age 30-65 should be screened with Pap smear and HPV testing every 5 years, and screening should be stopped after the age of 65 years [7, 8].

In this study 250 women who attended the outpatient department of Obstetrics and gynaecology were screened with Pap smear for cervical cancer and the results were subjected to statistical correlation.

Materials and Methods

This prospective observational study was conducted in the outpatient department of obstetrics and gynaecology at Rajah Muthiah Medical College and Hospital over two years from November 2020 to October 2022 after approval from the 'Institutional Ethics committee'. A total of 250 women of age 21-49 years attending the gynaecology OPD who consented to participate in the study were included.

Inclusion Criteria

- Non pregnant women
- Both nullipara and multipara

Exclusion Criteria

- Pregnant women
- Women during menstruation
- Women with recent intravaginal medications
- Women with clinically established cervical pathology
- Women not given consent

Method of study

All the women in study were sensitized about the screening method to detect carcinoma of cervix in preclinical stage. The women who volunteered to participate were re-informed about the Pap smear, biopsy if required and the required follow-up in case of an abnormal pap test result. Thereafter, informed consent was obtained in a structured Proforma. A detailed history was taken in all the women and that included personal information, history, and clinical examination. Informed written consent was obtained from all the selected women. PAP smears were made with the conventional method according to standard medical literature. The participants were prepared in lithotomy position. A sterile bivalve speculum of appropriate size was inserted into the vagina without lubrication and was positioned that allowed complete visualization of the cervical os and ectocervix. First the sample of ectocervix was taken using a wooden spatula (Ayres), and the notched end of the spatula that corresponds to the contour of the cervix was rotated to 360° around the circumference of the cervical os and was immediately smeared

over labelled glass slide in rotary manner and was fixed within 30seconds before drying in 95% ethyl alcohol in koplik's jar. For endocervical cytology, endocervical brush was inserted into the endocervix until the junctions of the bristles of the brush with the end of handle were in approximation with external os. Then brush was rotated 180° (one half turn) in endocervical canal, then rolled on glass slide and fixed immediately in 95% ethyl alcohol and was sent to Department of Pathology for examination. Cytology laboratory reported the examination results according to the Bethesda system (2014). All the women with abnormal results were advised for follow-up and treatment as per the standard guidelines by World Health Organization (WHO).

Ethics approval

The study protocol was approved by the Institutional Human Ethics committee of Rajah Muthiah Medical College, Annamalai University, Chidambaram, Tamil Nadu. Participants were ensured of the confidentiality of their report. Participation in the study is purely voluntary and did not have any financial burden for the participants.

Statistical Analysis

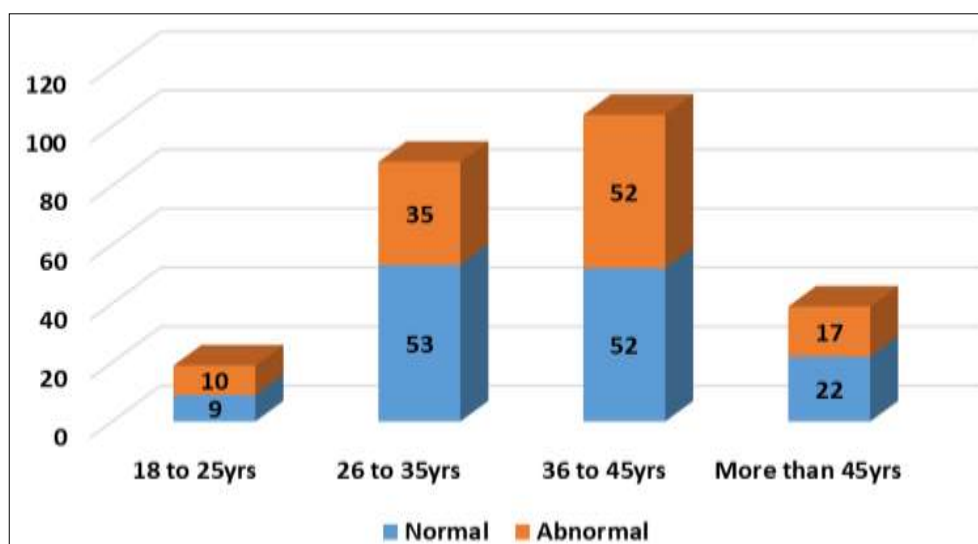
Descriptive indices including mean and standard deviation for qualitative variables and number and percent for categorial variables were reported. Logistic regression was performed to investigate the associated factor with behavior. All analysis was performed in SPSS version 16.0

Results

The age of the patients who participated in study were from 18 years. Of these majority of patients 104 (41.6 %) belong to 36-45 years of age, followed by 88 patients (35.25%) belonging to 26-35 years. 38 of them were.

Table 1: PAP smear abnormality in different age groups

Age group	PAP smear results		Total	Statistics
	Normal	Abnormal		
18 to 25yrs	9(6.7%)	10(8.8%)	19(8%)	Chi square 13.939 Df 6 p value- 0.03 Significant
26 to 35yrs	53(39.3%)	35(30.7%)	88(35.2%)	
36 to 45yrs	52(38.5%)	52(45.6%)	104(41.6%)	
More than 45yrs	22(15.6%)	17(14.9%)	39(15.2%)	
Total	136(100%)	114(100%)	250(100%)	

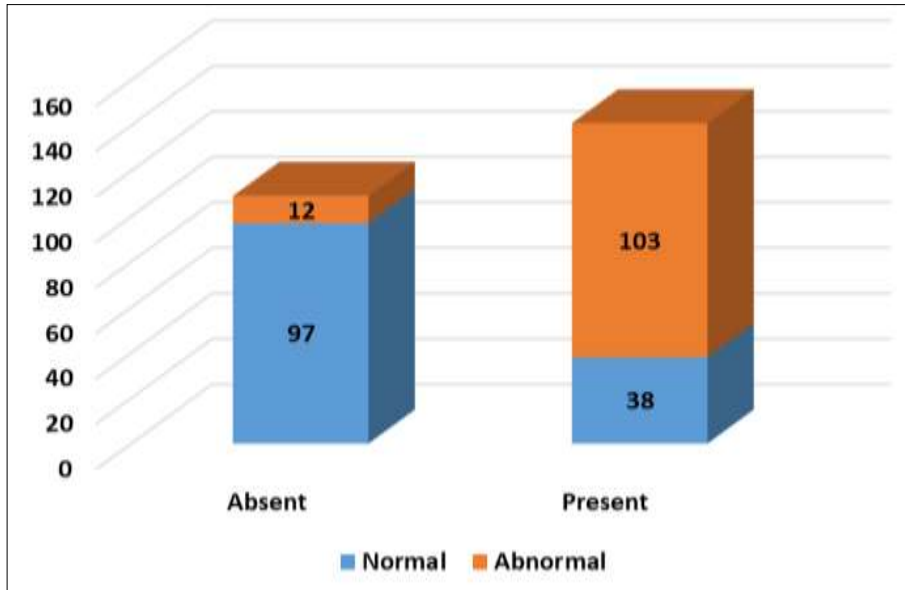


Graph 1: PAP smear abnormality in different age groups

Among the study participants, the age group between 36 to 45 years were 41.6% and have significant abnormality in Pap smear.

Table 2: PAP smear abnormality and vaginal discharge in study subjects

Vaginal discharge	PAP smear results		Total	Statistics
	Normal	Abnormal		
Absent	97(71.9%)	12(10.5%)	109(43.7%)	Chi square 94.442 p value- 0.001 Significant
Present	38(28.1%)	103(89.5%)	141(56.3%)	
Total	135(100%)	115(100%)	250(100%)	



Graph 2: PAP smear abnormality and vaginal discharge in study subjects

Correlation between vaginal discharge and abnormality in Pap smear were studied and P value was found to be less than 0.05% and hence statistically significant.

Table 3: Comparison of age of Marriage with abnormal PAP smear results

Hypothesis parameters	Mean age	Statistical test	P value	Test result
Mean age of marriage of abnormal Pap smear subjects	21.69 years	Independent samples Mann Whitney U test	0.014	Rejects null hypothesis
Mean age of marriage of normal Pap smear subjects	21.30 years			

- Mean age of marriage in abnormal Pap smear subjects = 21.69 years
- Mean age of marriage in normal Pap smear subjects = 21.30 years

among women with abnormal and normal Pap smear at 95% confidence interval.

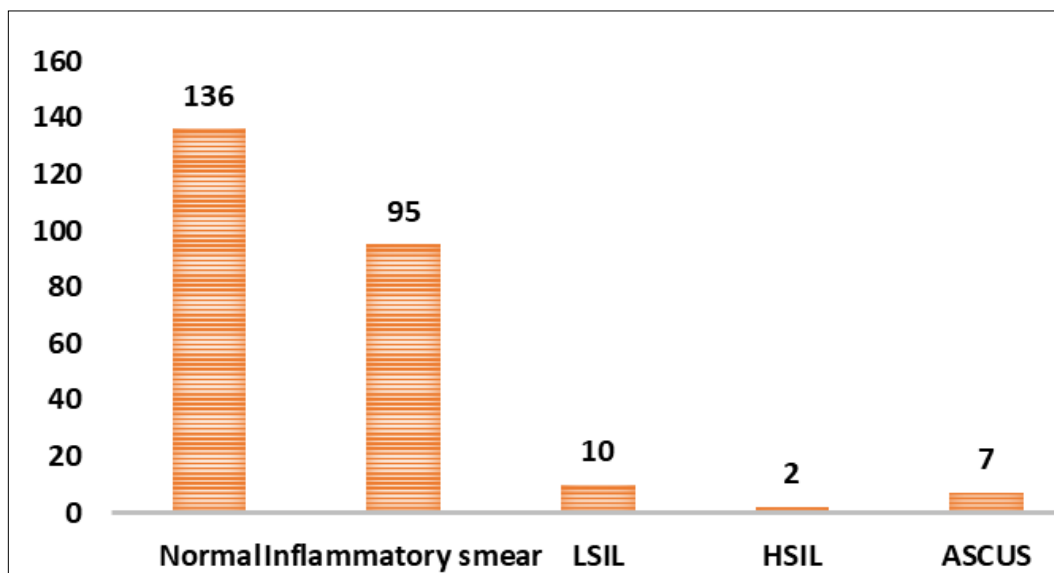
Independent samples Mann Whitney U test applied to compare the mean age of marriage across the Pap smear results (Positive and Normal study).

Null Hypothesis: There is no difference in age of marriage among women with abnormal and normal Pap smear, p value = 0.014 Test Results= Rejects null hypothesis

Interpretation: There is significant difference in age of marriage

Table 4: PAP smear report

PAP smear report	Frequency	Percent
Normal	136	54.4
Inflammatory smear	95	38
LSIL	10	4.0
HSIL	2	0.8
ASCUS	7	2.8
Total	250	100.0



Graph 3: PAP smear report

Among the smears examined majority (54.4%) of them had normal smear report, 38% were inflammatory smears, 4% were LSIL, 0.8% were HSIL, 2.8% were ASCUS.

Discussion

The introduction of cervical cancer screening programs has resulted in tremendous reduction in the incidence of cervical cancer in developing countries. Among the screening test, Pap smear is the most commonly used cost effective test. In this study, most of the abnormal cytology, that is 41.6% was detected in patients in the age group between 36-45 years, followed by 26-35 years that is 35% (Table -1). This observation was supported by Pushpalatha sanchan [9] *et al.* study 45.5% belongs to 31-49 years and Vijaya kharrat *et al.* [10] study 43.5% belongs to 31-49 year. Majority of the women were married before the age of 25 years 63.2% which was comparable to study conducted by Ayten dinc *et al.* [11] 65% of them belong to age group less than 25 years of age during marriage and in Kandhelwal. P *et al.* 66% of them belong to age group less 25 years of age during marriage [12]. Early sexual intercourse has an important role in pathogenesis of CIN. The incidence of CIN increases with increase in duration of married life and early age of sexual activity. Majority of our women are at risk of developing cervical cancer thus requiring screening at younger age. The most common symptoms in our study is vaginal discharge which is 56.2% and similar to the studies done by Ashok verma *et al.* [13] which is 54.5% and in Pradan. B *et al.* [14], which is 59%.

Comparative results of similar studies

In this study it is observed that out of 250 samples 135 were normal which is 54%, 95 samples shows inflammatory smear which is 38%.

Table 5: Comparative results of similar studies

	In this study	Pushpalatha <i>et al.</i> study [9]	Verma <i>et al.</i> study [15]	Padmini <i>et al.</i> study [16]
ASCUS	2.8%	2.9%	1%	8%
LSIL	4%	5.09%	5.5%	5%
HSIL	0.8%	0.48%	3%	3%

A few studies done by Bhutia.K *et al.* [17] and Baroti *et al.* [18] reported that women with persistent inflammation should be

appropriately treated, otherwise chance of development of cervical intra epithelial lesions increases. A repeat Pap smear should be taken after proper antibiotics.

Limitations of the Study

Since the sample size is less many of the proven risk factors have not gained any significance in this study. Because of the covid restrictions during the study the number of study population is less and follow up of the patients was difficult.

Conclusion

We have concluded from our prospective observational study that, Pap smear abnormalities are higher in women of age more than 25 years. Maximum of the women in our study with Pap smear abnormalities are married before 25 years with a mean age of 21 years. Age at marriage has got an importance, earlier the marriage and sexual activity, the duration of exposure to HPV infection is more and there is increased risk of development of CIN and its progression to cervical cancer. So, this study suggests screening for cervical cancer should ideally be started at the age of 21 years. The study population with Pap smear abnormalities had vaginal discharge as the most common symptom. So all the women with symptoms especially with vaginal discharge should be subjected to Pap smear testing. In suspected cases, colposcopy and colposcopy directed biopsy should be performed to confirm the diagnosis of cervical cancer. Early detection can be made possible by increasing the community awareness, health education and conducting training courses for health workers and medical officers and encouraging the voluntary organization to participate. Though many screening tests are available at present, Pap smear is regarded as the gold standard test in identifying the precancerous lesions at the earliest due to its simplicity, safety and fair reliability.

Conflict of Interest – None

Source of funding

We did not receive any kind of external financial support or fund for conducting this study.

References

1. WHO. Cervical cancer profile. 2021; (2020): 2021. Available from <https://www.who.int/news-room/fact->

- sheets/detail/cervical-cancer
2. WHO. Cervical cancer. Country profile, 2021. Available from <https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.who.int/publications/m/item/cervical-cancer-ind-country-profile-2021>.
 3. Garima Malpani, Parti Agarwal, Amit Varma V. Consensus document for the management of cancer cervix. Indian council of Medical Research; c2016. [https://main.icmr.nic.in/site/default/files/reports/cervix% 20 cancer.pdf](https://main.icmr.nic.in/site/default/files/reports/cervix%20cancer.pdf).
 4. World Health Organisation. The Global Burden of Disease: 2004 Update. Geneva, WHO, 2009b. Death and DALY estimates for 2004 by cause for WHO Member States. Available at http://www.who.int/healthinfo/global-burden-disease/estimate_country/en/index.html.
 5. Mingo AM1, Panozzo CA, DiAngi YT, Smith JS, Steenhoff AP, Ramogola-Masire D, Brewer NT. Cervical cancer awareness and screening in Botswana. *Int J Gynecol Cancer*. 2012 May; 22(4):638-644. doi:10.1097/IGC.0b013e318249470a.
 6. Nandini NM, Nandish SM, Pallavi P, Akshatha SK, Chandrashekhara AP, *et al*. Manual Liquid Based Cytology in Primary screening for cervical Cancer: A Cost Effective Proposition for scarce Resource Settings. *Asian Pac J Cancer Prev*. 2012;13(8):3645-51.
 7. ACOG Practice bulletin No.109 Cervical cytology screening. *Obstetrics gynecol*. 2009;114:1409-1420
 8. Kumari M, Kolte S. Experience of cervical Pap smear screening in tertiary care hospital. *Int J Med Sci Public Health*. 2020;9(1):68-71.
 9. Pushpalatha Meenakshi Singh, Munna Lal Patel, Rekha Sanchan, *et al*. Department of physiology, career institute of medical sciences, Department of Obstetrics and Gynaecology and medicine, King George Medical University, India.
 10. Vijaya Kharra *et al.*, Pamu Shiva Ramulu, Rajanikar, Boinapalli Sudhakar. Cervical pap smear study and its utility in cervical cancer detection and prevention. *Indian journal of Obstetrics and Gynaecology Research* 2021;8(4):470-475
 11. Dinc A, pap smear screening results for Turkish pregnant women, *Asian Pacific J cancer Prev*. 2012;13(11):5835-5838.
 12. Khandelwal P, Javadekar D.P, Kumbhar S.C. Comparative study of Pap smear Between Pregnant and Non Pregnant women. *International Journal of Scientific Research*, April 2016;5(4):2277-8179.
 13. Ashok Verma, *et al.*, Suresh Verma, Shivani Vashist, Sumit Attri, Amrita Singhal. A study on cervical screening in symptomatic women using Pap smear in a tertiary care hospital in rural area of Himachal Pradesh, India. *Middle East Fertility Society Journal*. 2017 Mar 1;22(1):39-42.
 14. Pradan B, Pradan SB, Mital VP. Correlation of PAP smear findings with clinical findings and cervical biopsy. *Kathmandu Univ Med J(KUM)*. 2007 Oct 1;5(4):461-467.
 15. Verma A, Verma S, Vashist S, Attri S, Singhal A. A study on cervical cancer screening in symptomatic women using Pap smear in a tertiary care hospital in rural area of Himachal Pradesh, India. *Middle East Fertil Soc J [Internet]*. 2017;22(1):39-42. Available from: <http://dx.doi.org/10.1016/j.mefs.2016.09.002>
 16. Padmini CP, Indira N, Chaitra R, Das P, Grish BC, Nanda KM, *et al*. Cytological and colposcopic evaluation of unhealthy cervix. *J Evid Med Health*. 2015;2:6920-6927.
 17. Bhutia K, Puri M, Gami N, Aggarwal K. Trivedi SS. Persistent inflammation on pap smear: Does it warrant evaluation *Indian J Cancer*. 2011;48:220-2.
 18. Barouti E, Farzaneh F, Sene AA, Tajik Z, Jafari B. The pathogenic microorganisms in papanicolaou vaginal smears and correlation with inflammation. *Journal of Family & Reproductive Health*. 2013 Mar;7(1):23.

How to Cite This Article

Dr. K Lavanya Kumari, Dr. Nithya and Dr. Nandini PT. A study of Pap smear in non-pregnant women of reproductive age group attending out patient department in a tertiary care hospital. *International Journal of Clinical Obstetrics and Gynaecology* 2023;7(3):05-09

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