"EFFECT OF HEALTH EDUCATION ON KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING CERVICAL CANCER SCREENING AMONG FEMALE NURSES WORKING IN TERTIARY CARE HOSPITALS IN BELGAUM"

By

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Dissertation

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KLE University, Belgaum, Karnataka

In Partial Fulfillment
of the requirements for the degree of

MASTER OF SURGERY
in
OBSTETRICS AND GYNAECOLOGY

Under the Guidance of

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I bow my head in respect before God Almighty.

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LIST OF ABBREVIATIONS USED

ACS	-	American Cancer Society
CIN	-	Cervical intraepithelial neoplasia
DALY	-	Disability adjusted life years
DNA	-	Deoxy ribonucleic acid
EPI	-	Extended programme on immunization
HIV	-	Human Immunodeficiency virus
HPV	-	Human Papilloma virus
IARC	-	International Agency for Research on Cancer
IEC	-	Information, education, communication
OC	-	Oral contraceptive
PBRC	-	Population based cancer registries
PCR	-	Polymerase chain reaction
SIL	-	Squamous intraepithelial lesion
VIA	-	Visual inspection acetic acid
VILI	-	Visual inspection with Lugol's iodine
Vs	-	Versus
WHO	-	World Health Organization

ABSTRACT

Background and objectives

Cervical cancer is the second most common malignancy in women worldwide, and it remains a leading cause of cancer-related death for women in developing countries. The present study was undertaken to assess the knowledge and attitudes regarding cervical cancer and screening programs, the effect of intervention in the form of education and to find out various barriers faced by them.

Methodology

The present one year study was conducted in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Belgaum on 400 female Nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre and District Hospital, Belgaum. Participants were randomized into two groups. A pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given that is group A was educated while group B was given a pamphlet. Then a post test questionnaire was given to analyse the change.

Results

In this study, participants of group A gained significant knowledge about the condition (11.5%), treatment option (21%) ($p<0.05$), HPV infection (27% vs 24%), multiple sex partners (5.5%), use of OC pills (24%), vaginal discharge (6% vs 2%) ($p<0.05$) of cervical cancer. Also group A gained better knowledge for regularity (10.5% vs 3.0%) and target age group (12.5% vs 3.5%) for screening

of cervical cancer ($p<0.05$) and tests (31% vs 27%) and visual methods (27% vs 10.5%) of screening ($p<0.05$). Most of the participants in both the groups indicated lack of awareness as the commonest barrier (49% vs 52%).

Conclusion and interpretation

These results call for creation of health promotion and disease prevention policies as well as awareness campaigns and screening programs at all levels of the health sector.

Keywords

Cervical cancer; Cervical cancer screening; Barriers for cervical cancer screening;

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INTRODUCTION

Cervical cancer is the second most common malignancy in women worldwide, and it remains a leading cause of cancer-related death for women in developing countries.[1]

Cervical cancer is an important public health problem that deserves urgent attention. The burden of cervical cancer in India is enormous accounting for about 20% of all cancer related deaths in women and is the number one cause of death due to cancer in middle aged Indian women.[1]

It is paradoxical that so many deaths are occurring in spite of cervical cancer being a preventable disease. Organized population based screening linked to treatment of the detected neoplasias can lead to more than 70% reduction of disease related mortality.[2]

The lifetime risk of being diagnosed with cervical cancer is 0.78% and the lifetime risk of dying from cervical cancer is 0.26%.[3]

Human papillomavirus infections cause about 466,000 new cases and 231,000 deaths due to cervical cancer annually.[4,5] A World Bank report estimated that women with cervical cancer die about 18 years earlier than they would have otherwise.[6] In India an estimated 1.5 lakh women develop cervical cancer annually, about one fourth of global burden of cervical cancer.[7]

The incidence of cervical cancer is declining slowly necessitating concerted and organized control measures. Control through primary prevention

has become a distinct reality though a prophylactic vaccine, which may take quite some time for its widespread use. Thus control of cervical cancer through secondary preventive measures is the only viable solution now.

While high quality cytology screening may not be feasible for wide scale implementation in developing countries because of lack of necessary infrastructure, quality control and poor sensitivity of cytology, alternative screening modalities such as visual screening methods like visual inspection with acetic acid / visual inspection with Lugol's iodine (VIA/VILI) and recently Human Papilloma virus deoxyribose nucleic acid (HPV-DNA) can be explored.

Cervical cancer has been preventable since the introduction of the Pap smear in 1941. The scenario from developed world is quite different from the developing countries. This is because of the lack of knowledge about the screening methods and certain barriers faced by the women. It has been demonstrated that majority of women had not heard of cervical cancer and even more knew nothing about cervical cancer screening. Another reason for poor uptake of the cervical screening program may be the lack of communication between health-care workers and patients regarding availability and benefits of the screening methods available.[8]

Increasing the knowledge about the screening of cervical cancer among health professionals can reduce the mortality rates as the health care providers such as doctors and female nurses are the ones to motivate the general populations to undergo cervical cancer screening.

Hence the present study was undertaken to assess the knowledge and attitudes regarding cervical cancer and cervical cancer screening and the effect of health education among the nurses. The female nurses are an integral part of the health care system and educating them could benefit the society at large as they inturn can motivate the women they attend to regarding the benefits of cervical cancer screening.

OBJECTIVES

The objectives of the present study were;

1. To study the effect of health education on knowledge, attitude regarding cervical cancer screening among nursing professionals.

2. To find out various barriers towards cervical cancer screening.

REVIEW OF LITERATURE

The incidence of invasive cervical cancer has declined steadily in the United States over the past few decades; however, it continues to rise in many developing countries. The change in the epidemiological trend in the western world has been attributed to mass screening with Papanicolaou tests.

Epidemiology

Distribution, prevalence and incidence of Cervical Cancer

Global scenario

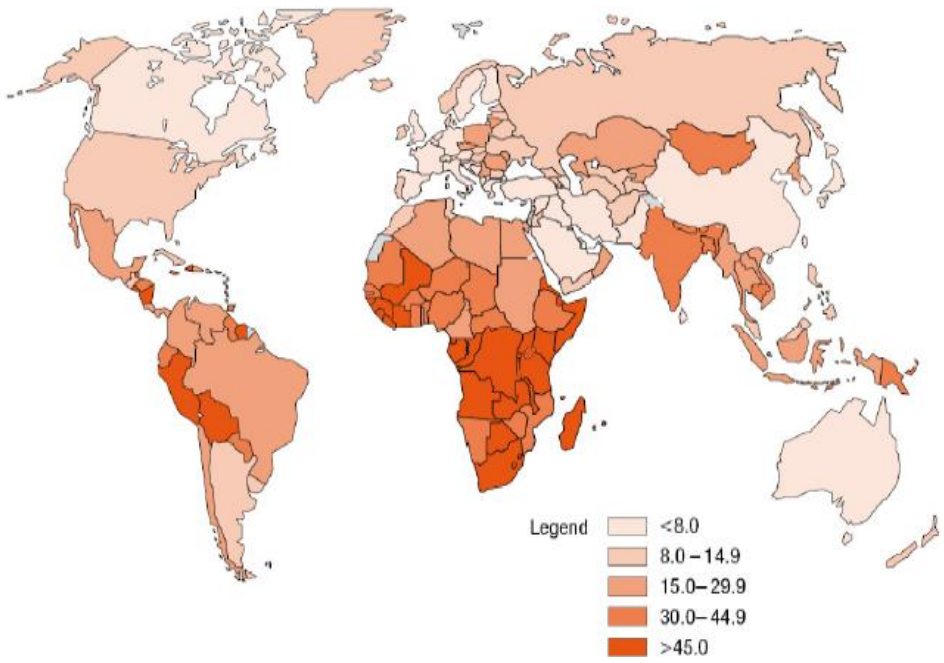


Figure 1. Global burden of cervical cancer: Age standardized incidence rates (Per 100,000 women)[9]

The American Cancer Society estimated that in the United States in 2010, 12,200 new cases of cervical cancer would be diagnosed.[10] In addition, more than

50,000 cases of carcinoma in situ are diagnosed each year. Internationally, 500,000 new cases are diagnosed each year. Unlike the United States, where the annual incidence is 6.8 cases or less per 100,000 women, rates in parts of South America and Africa range as high as 52.8 cases per 100,000 women.[11]

Global Cervical Cancer Burden[12]

In 2004, cervical cancer was the fifth most common cause of cancer related death among women in the world, and had:

- 489,000 new cases.
- An age-standardized incidence rate (global) of 16 per 100,000 women in 2002.
- One year prevalence of 381,033, and 5-year prevalence of 1.41 million in 2002.
- 268,000 deaths (3.6% out of 7.4 million cancer deaths).
- Nine age-standardized deaths per 100,000 in 2002.
- 3,719,000 DALYs (disability adjusted life-years).

Indian Scenario[12]

In 2004, cervical cancer was the third largest cause of cancer related mortality in India, and had:

- An age-standardized incidence rate of 30.7 per 100,000 women in 2002.
- One year prevalence of 101,583 and five year prevalence of 370,243 in 2002.
- 72,600 deaths (nearly 10% out of 729,600 cancer deaths).

- 6.5 deaths per 100,000.
- 9.5 age-standardized deaths per 100,000

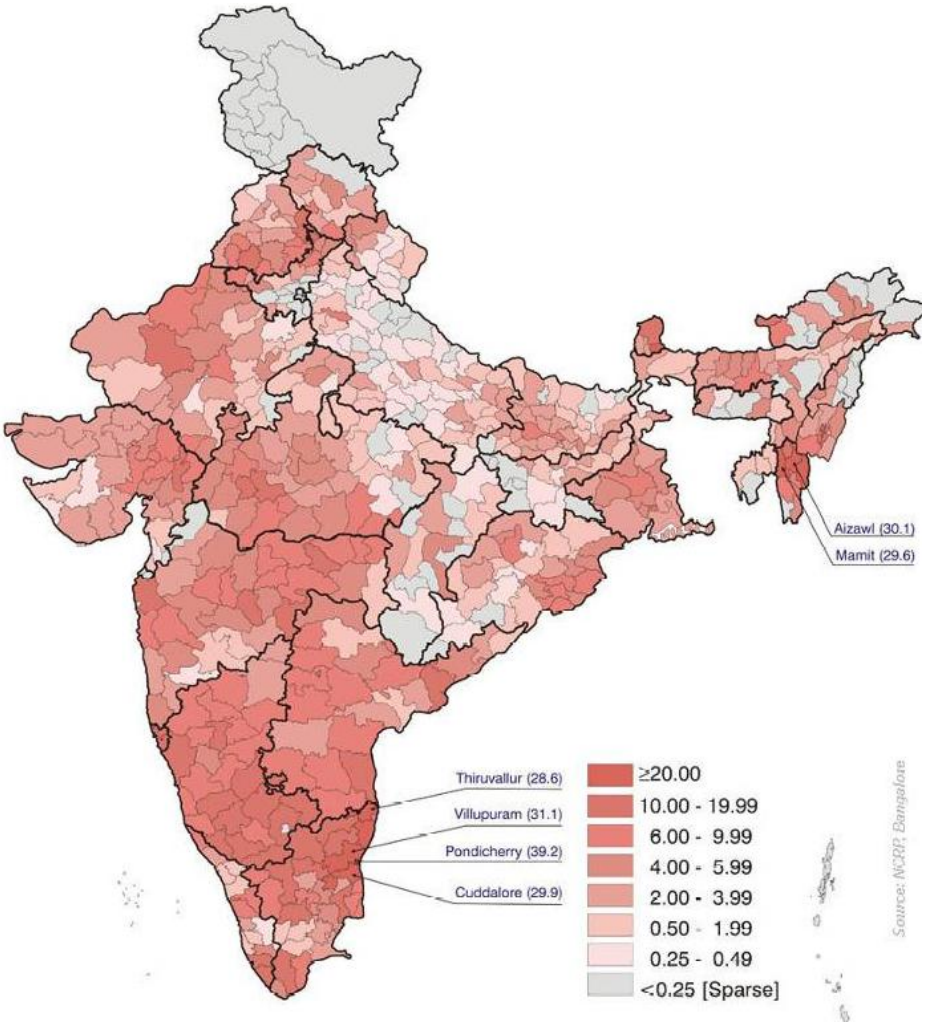


Figure 2. Districtwise comparison of age adjusted incidence of cervical cancer (per 100,000 population)[12]

As of 2002, the one year prevalence of cervical cancer in India was 101,583, and the 5 year prevalence was 370,243, accounting for approximately 26% of global prevalence, and 83% of total prevalence in South Central Asia. In India, the age-adjusted incidence of cervical cancer (30.7 per 100,000 women, 132,082 incident cases) is the highest relative to that of all other types of cancer, and is higher than the average for the South Central Asia region. By 2025, the

number of new cervical cancer cases in India is projected to increase to 226,084. Cervical cancer is the leading cancer among women in terms of incidence rates in two out of the 12 Population Based Cancer Registries (PBCRs) in India, and has the second highest incidence rate after breast cancer in the rest of the PBCRs. The age-adjusted incidence is highest in Chennai and lowest in Thiruvanathapuram, the capital of Kerela.[12]

India has a disproportionately high burden of cervical cancer. Although its age standardised death rate of 9.5 deaths per 100,000 population is representative of global rates, it accounts for nearly one-third of global cervical cancer deaths. Cervical cancer is the third largest cause of cancer mortality in India after cancers of the mouth and oropharynx, and oesophagus, accounting for nearly 10% of all cancer related deaths in the country. Among women, it is the leading cause of cancer mortality, accounting for 26% of all cancer deaths. According to IARC estimates, mortality from cervical cancer is expected to witness an increase from 74,118 deaths in 2002 to 132,745 deaths by 2025.[12]

Crude and age adjusted incidence rates per 100,000 population of cervical cancer in 12 PBCRs in India[12]

PBRC	Crude incidence rate	Age-adjusted incidence rate
Bangalore	18.8	21.7
Barshi	42.7	22.4
Bhopal	22.2	24.5
Chennai	24.4	30.6
Delhi	16.3	22.7
Mumbai	14.6	18.0
Ahmedabad	16.2	13.4
Karunagappally	19.2	15.0
Kolkata	17.5	19.9
Nagpur	19.1	23.2
Pune	20.5	22.5
Thiruvanathapuram	13.1	10.9

Another measure of disease burden is Disability Adjusted Life Years (DALYs). At a rate of 113 age-adjusted DALYs per 100,000 population, cervical cancer accounts for 26.5% of global cervical cancer DALYs, and 11.6% of total cancer DALYs in India.[12]

Race- and age-related demographics

In the United States, cervical cancer is more common in Hispanic, African American, and Native American women than in white women. The Center for Disease Control and Prevention's Surveillance of Screening-Detected Cancers (Colon and Rectum, Breast, and Cervix) United States, 2004–2006 reported that incidence rates of late-stage cervical cancer were highest among women aged 50-79 years and Hispanics.[13] However, cervical cancer may be diagnosed in any woman of reproductive age.

Etiology

Early epidemiological data demonstrated a clear association between cervical cancer and sexual activity. Major risk factors observed were sex at a young age, multiple sexual partners, promiscuous male partners, and history of sexually transmitted diseases. However, the search for a potential sexually transmitted carcinogen was unsuccessful until breakthroughs in molecular biology enabled scientists to detect viral genome in cervical cells.

Strong evidence now implicates human papillomaviruses (HPVs) as prime suspects.[14,15,16] HPV viral DNA has been detected in more than 90% of squamous intraepithelial lesions (SILs) and invasive cervical cancers compared with a consistently lower percentage in controls. Both animal data and molecular biologic evidence confirm the malignant transformation potential of papilloma virus–induced lesions.

Human papillomavirus[17]

HPV is a heterogeneous group of viruses that contain closed circular double-stranded DNA. The viral genome encodes 6 early open reading frame proteins (E1, E2, E3, E4, E6, E7), which function as regulatory proteins, and two late open reading frame proteins (L1, L2), which make up the viral capsid.

HPV infection occurs in a high percentage of sexually active women. Most of these infections clear spontaneously within months to one to two years, and only a small proportion progress to cancer. This means that other crucial factors must be involved in the process of carcinogenesis.

Three main factors have been postulated to influence the progression of low-grade SILs to high-grade SILs. These include the type and duration of viral infection, with high-risk HPV type and persistent infection predicting a higher risk for progression; host conditions that such as cominfection with HIV, multiparity or poor nutritional status; and environmental factors such as smoking, oral contraceptive use, or vitamin deficiencies.

In addition, various behavioural factors significantly increase the risk for cervical cancer. These include early age of first intercourse and higher number of sexual partners.

Patient Education

Cervical cancer is overrepresented among underserved and minority groups in the United States. It is imperative to increase awareness about the benefits of cervical cancer screening in these groups.[17]

A Cochrane review[18] found that the best approach to encourage women to undergo cervical screening involved invitations, such as fixed or open appointments, letters, telephone calls, verbal recommendations, prompts, and follow-up letters.

However, these findings relate to screening in developed countries, and their relevance to developing countries is unclear. Further studies are required to determine the effectiveness of promising interventions, such as revealing in an invitation letter the gender of the smear taker, using a health promotion nurse, the use of lay outreach health workers, and intensive attempts at recruitment.

Screening Recommendations

The American Cancer Society (ACS) and the US Preventive Services Task Force (USPSTF) recommend that all women should begin screening for cervical cancer approximately 3 years after sexual debut.[19,20]

Beginning at age 30 years, women who have had three consecutive normal Papanicolaou test results may undergo screening every two to three years. Women with high-risk factors (ie, diethylstilbestrol [DES] exposure, HIV infection, or other immunodeficiencies) should continue yearly screening.

Another option for women aged 30 years and older is to get screened every 3 years with the conventional-based or liquid-based Papanicolaou test plus HPV DNA test. A study conducted in China found that HPV DNA testing is highly sensitive and moderately specific for cervical intraepithelial neoplasia

(CIN) grade 3 or worse, including in women aged 35 years or younger.[21] This suggests that raising the cut-off age for this test may be beneficial.

The ACS recommends that women aged 70 years and older with 3 or more normal consecutive Papanicolaou test results and no abnormal Papanicolaou test results within the last 10 years may choose to stop having cervical cancer screening.

Women who have had a total hysterectomy may stop having cervical cancer screening. Exceptions are those who had a hysterectomy due to cervical carcinoma (or preinvasive changes) and women who had a hysterectomy without removal of the cervix.

Prevention, Management and Treatment of Cervical Cancer

Prevention

According to a WHO report[22] on comprehensive cervical cancer control, health education and promotion should be an integral part of any national cervical cancer control programme.

It should incorporate an awareness component, informing women and/or their families:[22]

- That cervical cancer is preventable,
- About the signs and symptoms of the disease,
- What they should do if signs and symptoms are present,

- That regular screening is essential to detect the cancer early and avoid disability and death from the disease.

It should also include aspects of behaviour modification, informing the population about:[22]

- The sexual and behavioural risk factors of cervical cancer,
- The use of condoms (although condoms do not provide 100% protection from HPV infection, their use should be encouraged, as they have been shown to allow for faster clearance of HPV infection, regression of cervical lesions, and prevention of other sexually transmitted diseases which increase the risk for developing cervical cancer.
- Avoiding multiple sexual partners,
- Delaying first sexual intercourse,
- Reducing parity,
- Reducing tobacco use.

Lastly, counselling should be incorporated in all cervical cancer prevention programmes.[22]

An awareness programme initiated by the National Cancer Registration Programme at Barshi,[23] a rural area in India, showed marked improvement in the stage at diagnosis of cervical cancer from 1988-89 to 1990-92, with a control site (no awareness programme) showing no such improvement. The methodology consisted of educating the general population about the symptoms of the cancer, and encouraging women who had such symptoms to undergo screening. Similar findings were reported by a study[24] in a district in Western India. These studies

demonstrate the importance of incorporating health education in a national screening programme.

The ACS recommends routine HPV vaccination for girls 11-12 years old; catch up vaccination or completion of the vaccination series can be conducted up to age 18 years. The ACS found insufficient data to recommend for or against universal HPV vaccination in women 19-26 years of age, and the ACS recommends against vaccination after age 26 years. Screening for cervical cancer should continue in vaccinated women, following the same guidelines as in unvaccinated women.[25]

Knowledge about cervical cancer and cervical cancer screening

An assessment of women's knowledge of cervical screening was considered important as up to 92% of those dying from this form of cancer have never been tested [13]. It has been noted that some women lack the knowledge about cervical cancer screening and its indications. Many women do not have a clear understanding of the meaning of an abnormal smear or the concept of pre-cancerous changes and many believe that the purpose of the cervical cancer screening is to detect cancer.[27]

It has been seen that 10% of women in Queensland and 13% in Victoria with cervical cancer had a previous abnormality which was not treated. Women need full information about treatment if they are to be fully protected. Other problems identified are lack of follow-up system for women who have been treated to ensure that they are re-screened, lack of monitoring to ensure that

treatment is effective and a lack of management services for some women who live in remote areas.[28]

A study conducted in Ireland showed that 55% of low risk and 45% of high risk women correctly identified the purpose of cervical cancer screening, that is to detect pre-cancerous lesions but high risk women are less likely to voluntarily present for screening so majority of them have their cervical screening opportunistically. Such groups need to be specifically targeted in awareness campaigns for cervical screenings. Socio-economic groupings are the strongest predictor of knowledge and uptake of cervical smears.[29]

A study conducted in Botswana revealed limited knowledge among women of low socioeconomic status and the reasons for the limited knowledge included cultural norms of secrecy, providers not informing the public and policy-makers limited attention to cervical cancer.[30]

Lack of knowledge regarding preventative health services, especially, women's preventative health might implore the need to expand these services in the emergency department where most women access and clinicians in these settings need to use their patient time opportunities to provide preventative health services to women.[31]

Attitude towards Cervical Cancer and Screening

Some women consider the Pap smear test unnecessary or of no benefit and considered themselves not to be at risk of developing cervical cancer. Additionally, they expressed feelings of embarrassment and/or pain. The receipt

of an abnormal result and referral for colposcopy causes high levels of distress, especially fear. Many women are frightened of medical procedures and believe that the abnormal smear is indicative of cancer and that their reproductive ability will be threatened. The resulting anxiety can have severe effect on day to day functioning leading to depressed mood, decreased libido, low self esteem with feeling of less attractive, tarnished, defiled or contaminated and dirty.[27]

Apart from women not having regular pap smears because of their cultural, ethnicity and socio-economic backgrounds, historically, they have tendered to look to family and economic needs first and placed their own welfare as least priority. The needs of family or extended families compete with the need to have regular pap smear test performed or, indeed, any other aspect of preventative health.[28]

In some studies, Latinos and women of Asian descent endorsed more misconceptions about cancer and fatalistic beliefs. In a study conducted in Sweden to attendees (those who had a pap smear within the last 3 years) and nonattendees (those who did not have a pap smear in the last 3 years), the analyzed result showed that non attendees did not evaluate the satisfactory benefits as high, did not perceive cervical cancer as severe and did not feel as anxious about pap smear as did attendees.[32]

Analysis of data from a study conducted in Netherlands showed that women's beliefs about cervical screening and attendance are the best predictors of screening uptake, even when demographic and organizational aspects are taken into account.[33]

Practice and Behavior towards cervical cancer screening

A study conducted in the United Kingdom revealed that reasons for not participation in screening programs include administrative failures, particularly, incorrect addresses and although many general practitioners made use of opportunistic screening, this was often performed during contraceptive or obstetric consultations and resulted in post-menopausal women being overlooked. It has also been revealed that most post-menopausal women are less likely to be screened regularly, and their non-participation may be a result of uncertainty as to whether the smear test is appropriate for their age-group and also the belief that part of their body is "finished with'.[27,34] Many women also do not participate due to unavailability of female screeners and also due to appointments available only during working hours.[27]

The major findings in the study in Nigeria to female health workers showed that their pap smear utilization was very low and there was a wide gap between their personal knowledge and uptake of pap test. This was unexpected as this population of women is required to be better informed about the high risk factors of developing cervical cancer. The behavior of these female health workers appears to be predicted by complex socio-cultural beliefs where women hardly reveal their personal medical details especially in a polygamous setting and superstition and inappropriate belief were the commonest excuse for not having a cervical cancer screening.[35]

Similar picture as above has been observed also in Uganda where only 19% of their female health workers have ever had a cervical cancer screening and

reasons for this included not feeling at risk, lack of symptoms, carelessness, fear of vaginal examinations, lack of interest and test being unpleasant. It is unlikely that these medical workers would feel motivated to screen others or advise them accordingly.[36]

In America, the question they are trying to answer is how to reach those women who do not get pap smear test. The answer is most likely a complicated mixture of many factors, including limited or sporadic access to health care and cultural attitudes that are fatalistic toward diseases such as cancer.[37]

The Australian Institute of health report entitled "Cervical cancer screening in Australia – Options for change" found that 15% of Australian women have never had a pap smear test; around 50% have had a pap smear test within past two years and 60% within the past three years but many groups of women who should be tested have not been taking advantage of the screening program. These include older women, women of low socio-economic status, women in rural areas, women from non-English speaking backgrounds and Aboriginal women.[28]

A study conducted in India to women who were non compliant with cervical cancer screening revealed that most of them have lower literacy rate compared to the compliant women and most common reasons cited for non-attendance were reluctant to go for test in the absence of any symptoms and apprehension to have a test that detects cancer. For those women who were willing to go, yet could not attend due to various hurdles, the most common hurdles were inability to leave house-hold chores, pre-occupation with family

problems and lack of approval from husbands. Therefore, modification of health behavior through education and social empowerment of women are essential for a population based cervical screening program to succeed in India.[38]

Low response to screening invitations is disproportionately concentrated in social classes iv and v according to modified B. G. Prasad's classification which are those with low socio-economic status. Women from these groups are much less likely to participate in a screening program, yet it is from these social groups that the highest incidence of cervical cancer is found.[34] Similarly, in Germany, women from upper social classes participated more frequently than women in lower social classes and participation dropped sharply among women over 55 years.[39,40]

The use of mobile units may be an effective screening program in rural areas where existing screening activities cannot effectively reach the female population at risk as seen in Thailand where the proportion of women reported knowing of Pap smear test increased from 20.8% in 1991 to 57.3% in1994 and 75.5% in 1997. The proportion of women who have ever had a Pap smear test increased from 19.9% in1991 to 58.1% in 1994 and 70.1% in 1997.

Screening by mobile unit accounted for 85.2% of all CIN III and all invasive cancer identified among pap smear taken by screening services in the area between 1992 and 1996.[41]

Studies conducted in African countries like Uganda, Botswana and Nigeria and also in Thailand and India showed that women have limited knowledge and a negative attitude towards cervical cancer and cervical cancer

screening which contributed to their non participation in screening programs and for some, even though they were screened, they do not present themselves for follow-up for further management once an abnormality is detected in their smear results. There were a lot of factors associated with these outcomes which could relate to the woman and also to the provider such as their education level, their socio-economic status, cultural/traditions and religious beliefs and the unfriendly environment provided by those who are providing these services.

A nationwide population-based database in Taiwan aimed to compare use of Pap smear testing by 1093 nurses and the 5465 individuals from general population reported that, 48.9% of the nurses and 56.2% of comparison subjects received a Pap test from 2004 to 2006 in Taiwan. Regression analysis showed that practicing female nurses were less likely to receive a Pap smear compared with the general population (OR=0.42, 95% CI=0.35–0.50, p<0.001), after adjusting for monthly incomes, number of obstetrics and gynaecology ambulatory care visits, urbanization level and the geographic location of the communities where subjects resided. The study concluded that, nurses were less likely to undergo cervical screening than the general population, despite ease of access and a national health insurance system providing universal coverage to residents of Taiwan. Efforts to raise the Pap screening rate among nurses may require addressing unique cultural and occupational concerns.[42]

A study conducted in Mulago Hospital, Uganda to describe knowledge on cervical cancer, attitudes and practices towards cervical cancer screening among the 310 medical workers of Mulago hospital reported response rate as 92% (285). Of these, 93% considered cancer of the cervix a public health problem and

knowledge about Pap smear was 83% among respondents. Less than 40% knew risk factors for cervical cancer, eligibility for and screening interval. Of the female respondents, 65% didn't feel susceptible to cervical cancer and 81% had never been screened. Of the male respondents, only 26% had partners who had ever been screened. Only 14% of the final year medical students felt skilled enough to use a vaginal speculum and 87% had never performed a pap smear. The study concluded that, despite knowledge of the gravity of cervical cancer and prevention by screening using a Pap smear, attitudes and practices towards screening were negative. The medical workers who should be responsible for opportunistic screening of women they care for are not keen on getting screened themselves. There is need to explain/understand the cause of these attitudes and practices and identify possible interventions to change them. Medical students leave medical school without adequate skills to be able to effectively screen women for cervical cancer wherever they go to practice. Medical students and nurses training curricula needs review to incorporate practical skills on cervical cancer screening.[36]

A study was done at Nnamdi Azikiwe University Teaching Hospital Nnewi Anambra State, Nigeria to determine the knowledge and practice of cervical cancer screening among practicing female nurses with a view to sensitizing them as a first step towards increasing screening uptake in the community. The results showed that, 144 out of 166 questionnaires were correctly completed and returned. 122 (87%) were aware of the existence of screening services. Although 9.3% had lost relations to cancer of the cervix, only 5.7% had ever undergone a pap smear. While 52 (37.1%) had no reason for not

screening, 21 (15%) were afraid of the possible outcome and 35 (25%) felt they were not likely candidates for cancer of the cervix. The study concluded that, knowledge of cervical cancer screening services among female nurses in Nnewi is high while uptake rate is abysmally poor. There is need to further educate the nurses who will play a major role in enlightening the public on the availability and need for cervical screening services.[43]

Another study from Nigeria to determine the knowledge, attitude and practice of cervical cancer screening among female undergraduates of tertiary institution reported that, out of the 220 students involved in the study, 134 (60.9) had knowledge of cervical cancer and 118 (53.6%) were sexually active with the average age at sexual debut being 21.2 years. The mean age of the students was 23.8 years and the age range was 17 to 39 years with 175 (80%) in the age range of 20-29 years. About 2/3 of the students did not know about Pap smear and worse still, none of them had undergone a Pap screening test before.[44]

In a study from Buyero University, Kano it was found that 60% of the respondent had knowledge about aetiological factors and signs and symptoms but only 20.8% had been screened before it was also observed that married women were four times more likely to have been screened as compared to single women.[45]

A cross-sectional, interview based survey was conducted in June, 2009 on 400 health professionals in tertiary care hospitals divided between the three tertiary care centers in Karachi, Pakistan to assess the knowledge and awareness about cervical cancer and its prevention amongst them. Convenience sampling

was applied as no definitive data was available regarding the number of registered interns and nurses at each center. Of all the interviews conducted, 1.8% did not know cervical cancer as a disease. Only 23.3% of the respondents were aware that cervical cancer is the most common cause of gynecological cancers and 26% knew it is second in rank in mortality. Seventy-eight percent were aware that infection is the most common cause of cervical cancer, of these 62% said that virus is the cause and 61% of the respondents knew that the virus is Human Papilloma Virus (HPV). Majority recognized that it is sexually transmitted but only a minority (41%) knew that it can be detected by PCR. Only 26% of the study population was aware of one or more risk factors. Thirty seven percent recognized Pap smear as a screening test. In total only 37 out of 400 respondents were aware of the HPV vaccine. The study concluded that, majority of working health professionals are not adequately equipped with knowledge concerning cervical cancer. Continuing Medical Education program should be started at the hospital level along with conferences to spread knowledge about this disease.[46]

METHODOLOGY

The present study was conducted in the KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum during the period of January 2010 to December 2010.

Study design

One year controlled trial.

Study period

The present study was conducted during the period of January 2010 to December 2010.

Sample size

The present study consisted of 400 participants done by convenient sampling.

Sampling procedure

Female Nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum during the study period were included.

Selection criteria

Inclusion criteria

- Female nurses aged between 25 to 60 years.

Exclusion criteria

- Not willing to participate in the study.

Procedure

The ethical clearance was obtained from Institutional Ethics Committee of Jawaharlal Nehru Medical College, Belgaum. Based on the selection criteria all the female nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum during the study period were screened for eligibility. The eligible participants were briefed about the nature of the study and a written informed consent was obtained (Annexure I).

Participants were randomized into two groups based on the institutions they were working for that is Group A (Consisted of female nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum) and Group B (Consisted of female nurses working at District Hospital, Belgaum). The demographic data like age, educational qualification and years of services were recorded on predesigned and pretested proforma (Annexure II).

In group A, a pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given to the study participants. A health talk was given regarding cervical cancer and cervical cancer screening. Then a post test questionnaire was given after the educational programme to analyse the change in the knowledge and attitude about cervical cancer.

In group B, a pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given to the study participants. Further they were provided with a pamphlet (Annexure III) about the knowledge, attitude and barriers for the cervical screening. Then a post test questionnaire was given after providing pamphlet to analyse the change in the knowledge and attitude about cervical cancer.

Statistical analysis

The data obtained was tabulated and analysed using rates, ratios and percentages. The comparison of change in knowledge, attitude and barriers was done using paired ‘t’ test .

RESULTS

The present one year controlled trial was conducted in the KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum. A total of 400 female Nurses were included in the study.

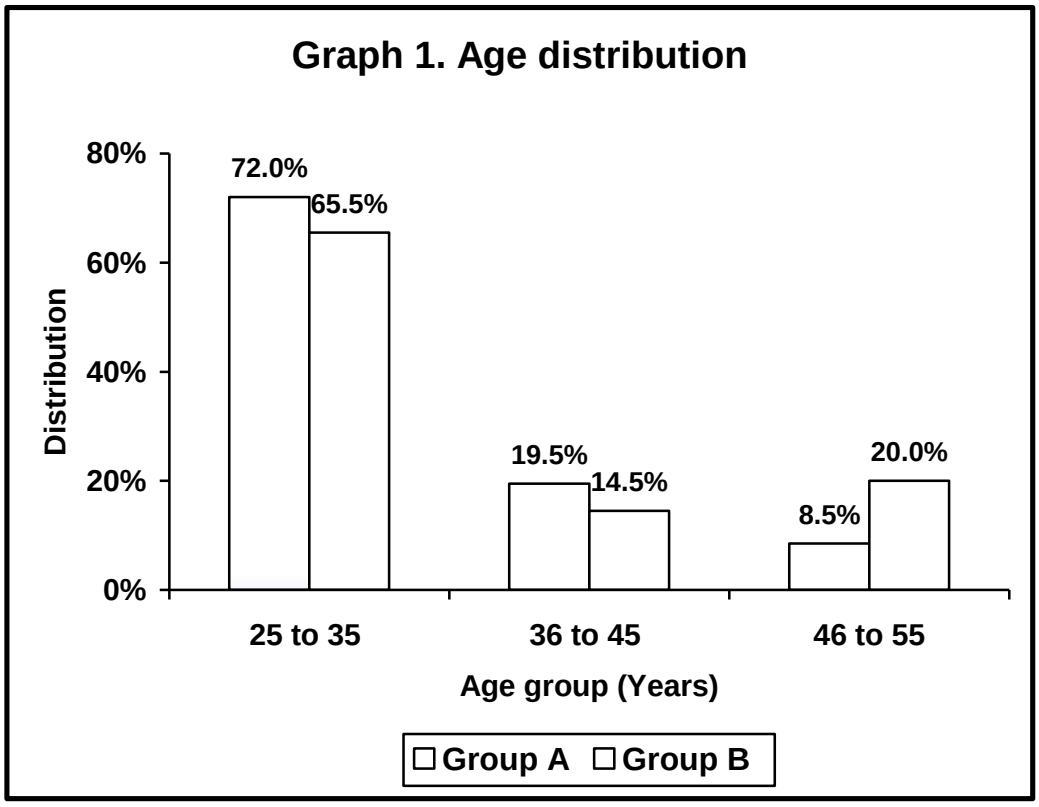
Participants were put into two groups based on the institutions they were working for that is;

- Group A (n=200) consisted of female nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum.
- Group B (n=200) consisted of female nurses working at District Hospital, Belgaum.

In both the groups a pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given to the study participants. Further, in group A participants were educated about the knowledge, attitude and barriers for the cervical screening and in group B participants were provided with pamphlet about the knowledge, attitude and barriers for the cervical screening. Then a post test questionnaire was given to analyse the change in the knowledge and attitude about cervical cancer. The data obtained was tabulated on MS-excel spread sheet and analysed using rates, ratios and percentages as below.

Table 1. Age distribution

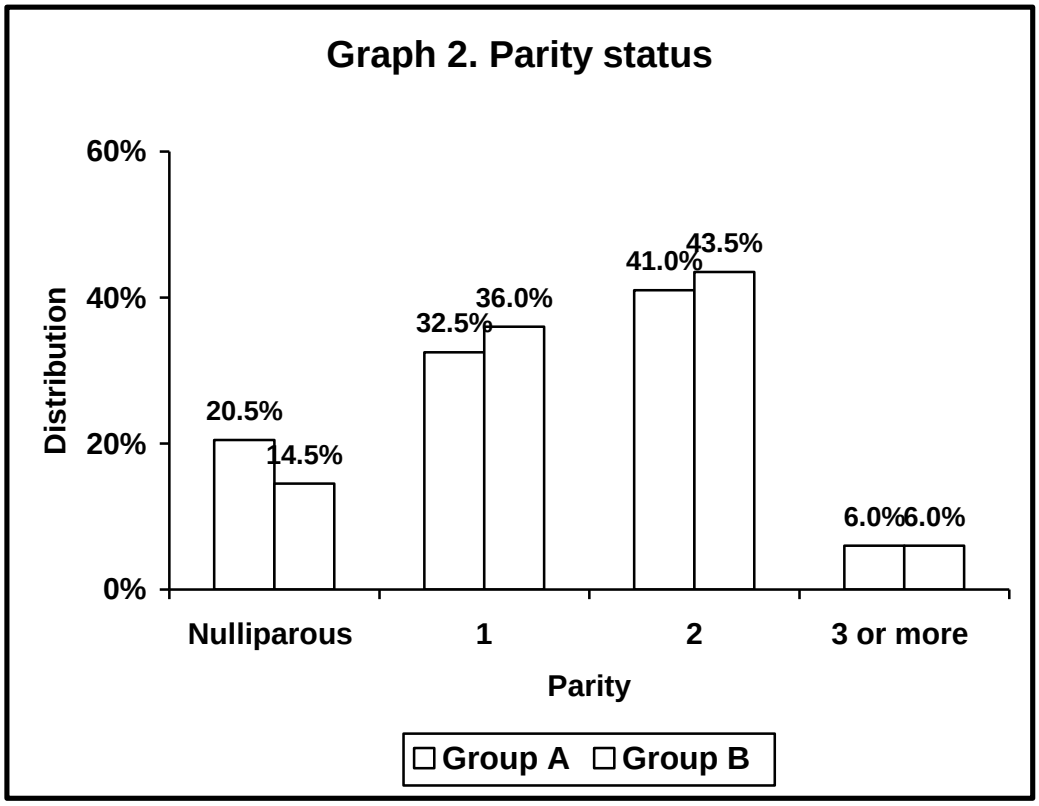
Age group (Years)	Group A (n=200)		Group B (n=200)	
	Number	**Percentage**	**Number**	**Percentage**
25 to 35	144	72.00	131	65.50
36 to 45	39	19.50	29	14.50
46 to 55	17	8.50	40	20.00
Total	200	100	200	100



In this study most of the participants had age between 25 to 35 years (72% in group A and 65.5% in group B).

Table 2. Parity status

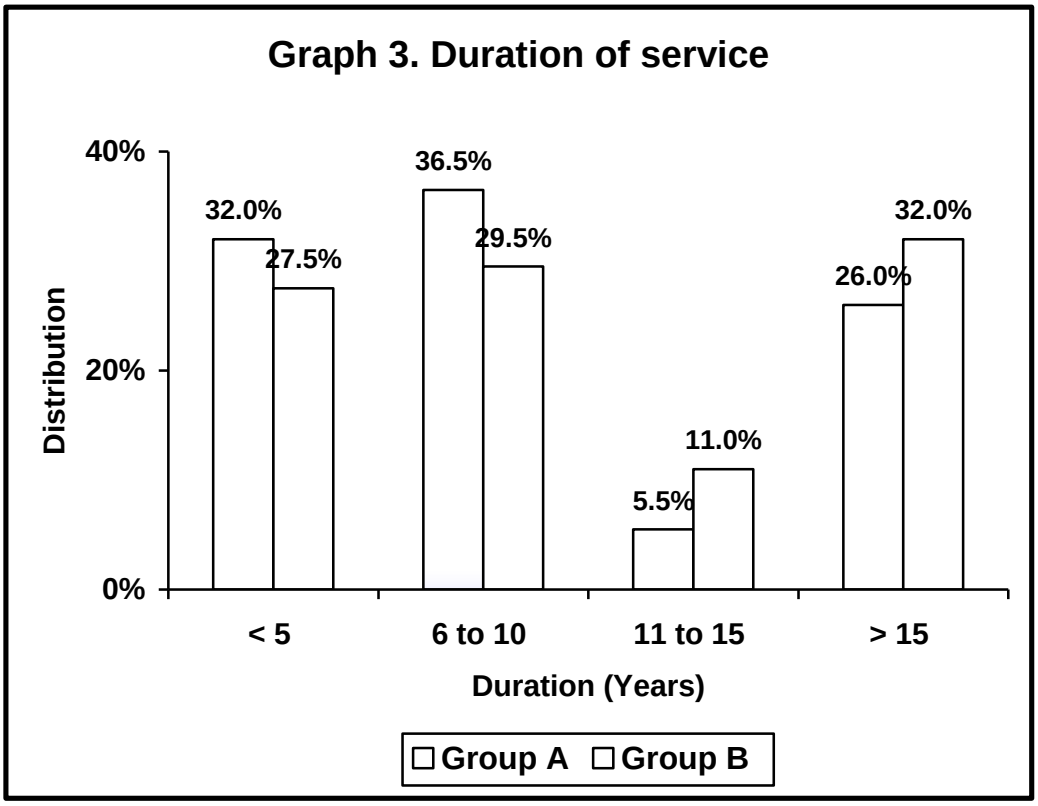
Parity	Group A (n=200)		Group B (n=200)	
	Number	**Percentage**	**Number**	**Percentage**
Nulliparous	41	20.50	29	14.50
1	65	32.50	72	36.00
2	82	41.00	87	43.50
3 or more	12	6.00	12	6.00
Total	200	100	200	100



In this study majority of the participants had parity 2 in group A (41%) and group B (43.5%).

Table 3. Duration of service

Durations (Years)	Group A (n=200)		Group B (n=200)	
	Number	**Percentage**	**Number**	**Percentage**
Less than 5	64	32.00	55	27.50
6 to 10	73	36.50	59	29.50
11 to 15	11	5.50	22	11.00
More than 15	52	26.00	64	32.00
Total	200	100	200	100



In this study equal distribution was seen with the duration of service between less than five, six to ten and eleven to fifteen years.

Table 4. Knowledge of cervical cancer

Knowledge	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Fatal Condition	157	78.5	180	90.0	141	70.5	146	73.0
Major problem	164	82.0	182	91.0	152	76.0	161	80.5
Can be treated	191	95.5	199	99.5	183	91.5	186	93.0
Treatment option	51	25.5	93	46.5	109	54.5	129	64.5

The knowledge of cervical cancer was assessed in terms of condition, magnitude of the problem, overall treatment and treating options of cervical cancer. During pretest, in both the groups, most of the participants (95.5% vs 91.5%) knew that cervical cancer can be treated if diagnosed early but lacked in knowledge about treatment options (25.5% vs 54.5%) of cervical cancer. During the post test assessment participants in group A had better awareness compared group B except knowledge about treatment options.

Table 5. Causes of cervical cancer

Causes	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
HPV Infection	113	56.5	167	83.5	143	71.5	191	95.5
Non progression to cervical cancer	104	52.0	152	76.0	69	34.5	132	66.0

The causes of cervical cancer were studied by questioning role of HPV infection that is, HPV infection is associated with cervical cancer but does not

always progress to cervical cancer. During pretest, in group A, more than half of the participants (56.5% and 52%) gave correct answer whereas in group B 71.5% knew that HPV infection is associated with cervical cancer and 34.5% answered that, HPV infection does not always progress to cervical cancer. During the post test assessment participants in group A had better awareness compared to group B.

Table 6. Risk factors for cervical cancer

Risk factors	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Sex at early age	151	75.5	173	86.5	125	62.5	142	71.0
Multiple partners	153	76.5	164	82.0	145	72.5	148	74.0
Smoking /tobacco	153	76.5	162	81.0	139	69.5	143	71.5
OC pills	77	38.5	125	62.5	102	51.0	112	56.0
HIV coinfection	153	76.5	169	84.5	141	70.5	169	84.5
Mosquito bite	165	82.5	177	88.5	170	85.0	178	89.0

The risk factors for the cervical cancer were assessed by questioning about initiating sex at early age, multiple sex partners, habits like smoking and chewing tobacco, OC pills, HIV coinfection and mosquito bite. During pretest, in group A, more than three fourth participants gave correct answer whereas in group B it varied from 51% to 85%. During the post test assessment participants in group A had better awareness compared to group B except for the question of mosquito bite where both the groups gave almost similar answers.

Table 7. Signs and symptoms

Signs and symptoms	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Asymptomatic	161	80.5	181	90.5	164	82.0	180	90.0
Menstrual bleeding	163	81.5	180	90.0	186	93.0	195	97.5
Vaginal discharge	176	88.0	188	94.0	193	96.5	197	98.5

The signs and symptoms of cervical cancer were assessed by questioning about symptoms at presentation such as asymptomatic in initial phase, postcoital / intermenstrual bleeding and vaginal discharge. During pretest, group B participants had better knowledge about the signs and symptoms compared to group A. However there was better awareness about the signs and symptoms during the post test assessment in group A but overall group B performed well.

Table 8. Cervical cancer screening

Screening	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Regularity	164	82.0	185	92.5	188	94.0	194	97.0
High risk groups	111	55.5	145	72.5	124	62.0	166	83.0
Discontinuing screening	131	65.5	156	78.0	160	80.0	167	83.5
Interval of screening	130	65.0	137	68.5	98	49.0	105	52.5

The knowledge about the cervical cancer screening was assessed by questioning about the benefits of screening, regularity, target population to be

screened, discontinuation of screening and the interval of screening. During pretest, group B participants had better knowledge about the screening compared to group A especially with regard to regularity and discontinuation of screening. However there was better awareness about the screening during the post test assessment in participants of group A.

Table 9. Cervical cancer screening methods

Screening methods	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Tests	88	44.0	150	75.0	105	52.5	159	79.5
Visual methods	121	60.5	166	83.0	168	84.0	189	94.5

The knowledge about the various cervical cancer screening methods were assessed by asking about the tests and visual methods for the screening. During pretest, 44% and 60.5% participants of group A gave correct answers with regard to tests and visual methods whereas in group B 52.5% and 84% participants gave correct answers. However there was better awareness about the screening methods during the post test assessment in participants of group A (75% and 83%).

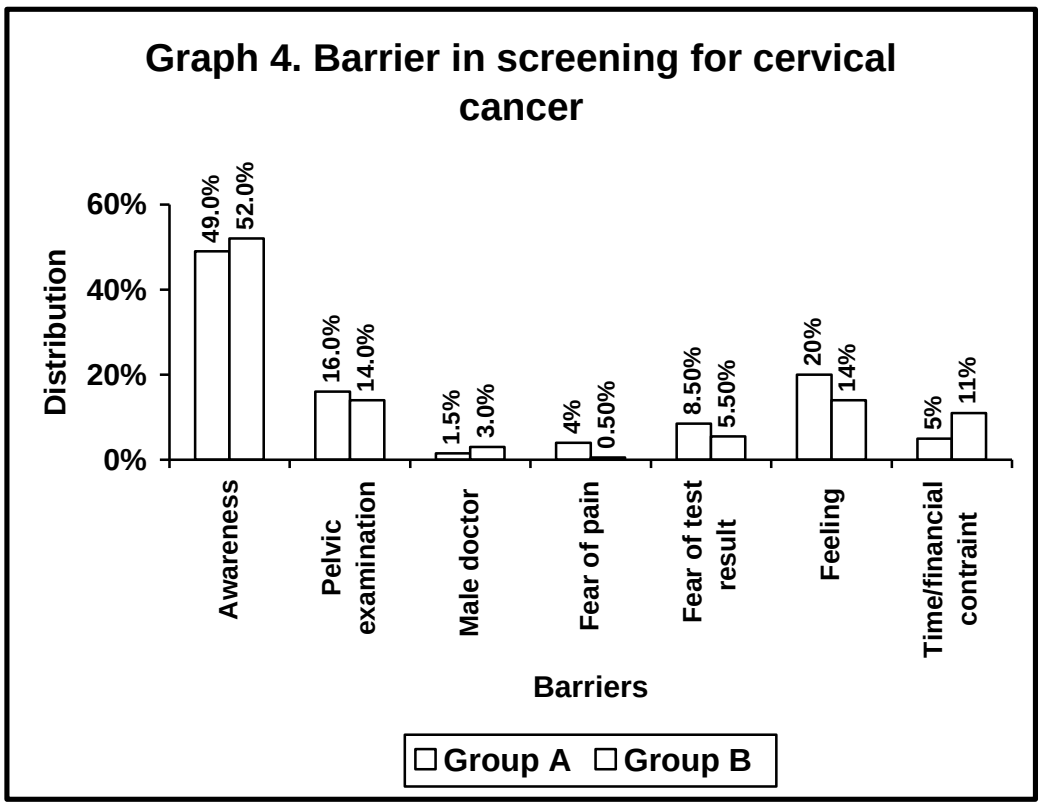
Table 10. Vaccination for cervical cancer

Vaccination	Group A (n=200)				Group B (n=200)			
	Pretest		Post test		Pretest		Post test	
	No	%	No	%	No	%	No	%
Prevention	140	70.0	167	83.5	182	91.0	195	97.5
Administration	97	48.5	162	81.0	126	63.0	167	83.5

The knowledge about the prevention of cervical cancer was studied by questioning about role of vaccination that is, vaccination prevents cervical cancer and target age group for administration. During pretest, 70% and 48.5% participants of group A gave correct answers with regard to prevention and administration of vaccination whereas in group B 91% and 63% participants gave correct answers. However there was better awareness about the screening methods during the post test assessment in participants of group A (83.5% and 81%).

Table 11. Barrier in screening for cervical cancer

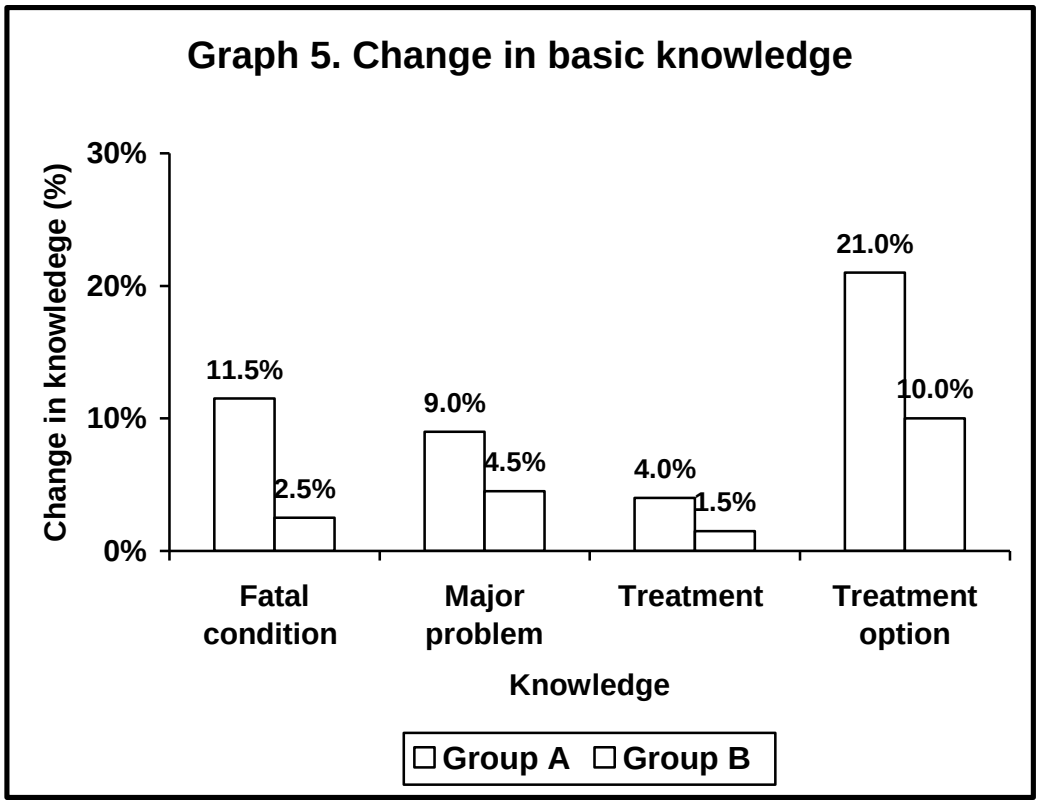
Barriers	Group A (n=200)		Group B (n=200)	
	Number	Percentage	Number	Percentage
Lack of awareness	98	49.0	104	52.0
Pelvic examination	32	16.0	28	14.0
Male doctor	03	1.5	06	3.0
Fear of pain	08	4.0	01	0.5
Fear of test result	17	8.5	11	5.5
Feeling that women with complaints should undergo cervical cancer screening	40	20.0	28	14.0
Time / financial constraint	10	5.0	22	11.0



In this study most of the participants in both the groups indicated lack of awareness as the commonest barrier (49% vs 52%). The other barriers were a feeling that women having specific complaints only should undergo cervical cancer screening (20% vs 14%), embarrassment to undergo examination (16% vs 14%), fear of the test result (8.5% vs 5.5%), time constraint or financial issues (5% vs 11%), fear that pelvic examination is painful (4% vs 0.5%) and embarrassment to be examined by male doctor (1.5% vs 3%).

Table 12. Change in basic knowledge

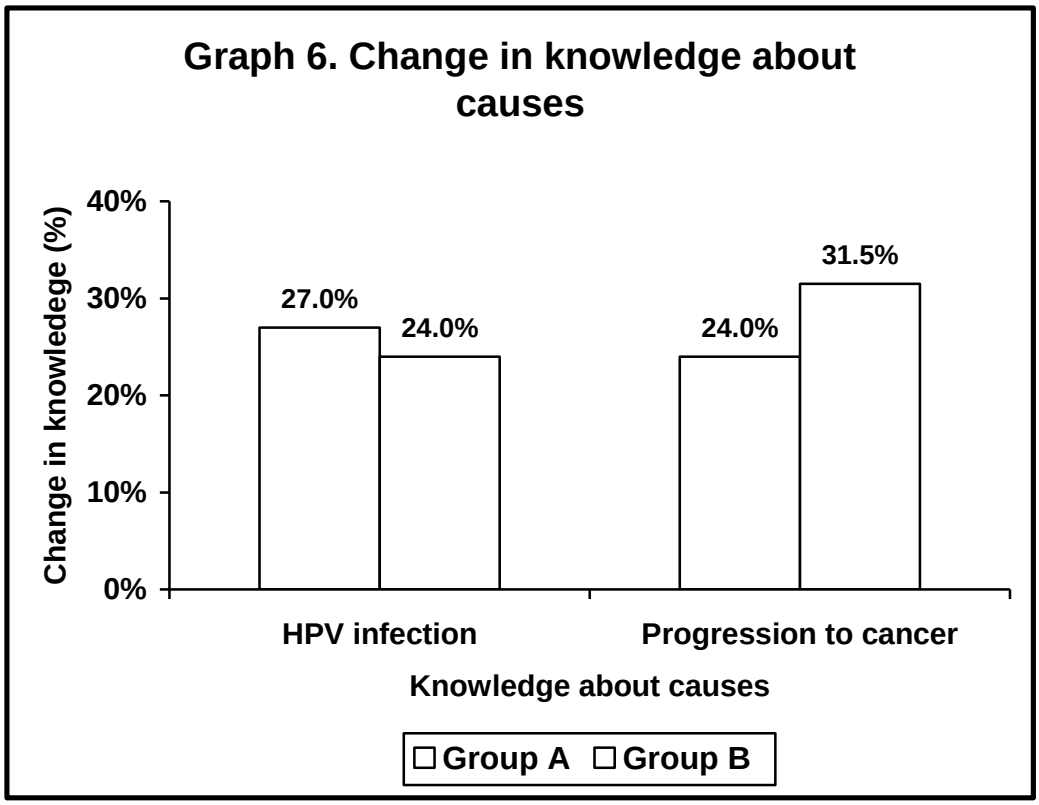
Knowledge	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Fatal Condition	23	11.50	5	2.50	3.52	**0.000**
Major problem	18	9.00	9	4.50	1.79	0.073
Can be treated	8	4.00	3	1.50	1.53	0.126
Treatment option	42	21.00	20	10.00	3.04	**0.002**



In this study, participants of group A significant gained knowledge about the condition (11.5%) and treatment option (21%) of the cervical cancer ($p < 0.05$).

Table 13. Change in knowledge about causes

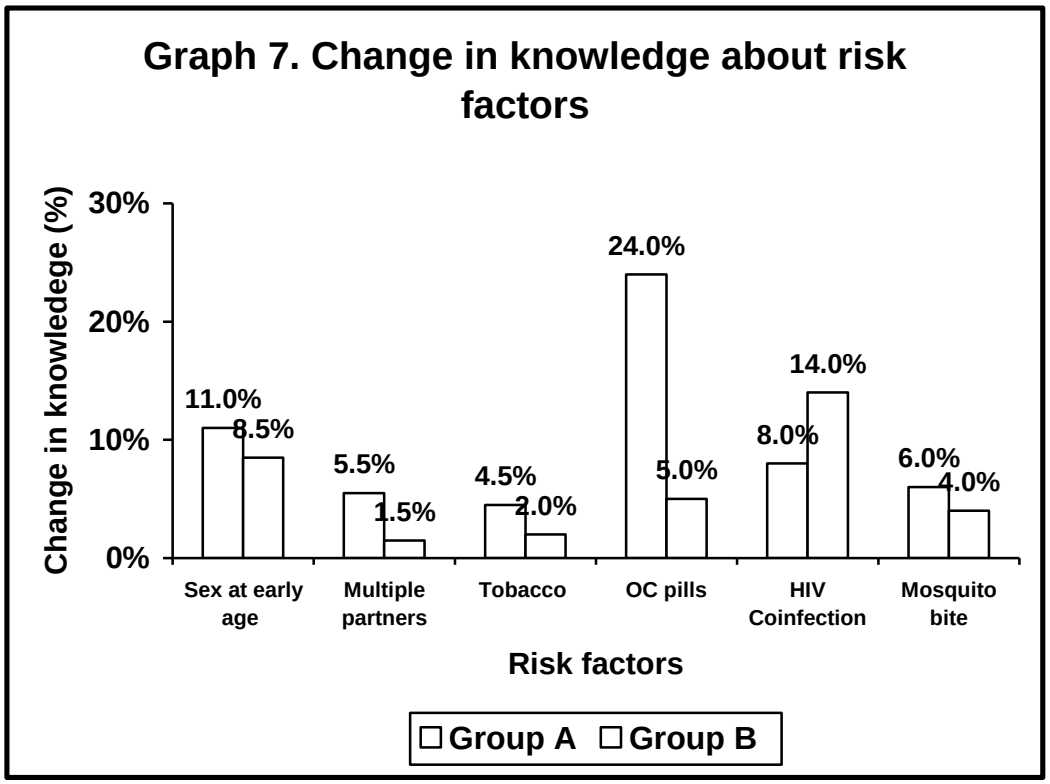
Causes	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
HPV Infection	54	27.00	48	24.00	0.69	0.690
Progression to cancer	48	24.00	63	31.50	1.67	0.095



In this study, participants of group A had better knowledge about HPV infection (27% vs 24%) whereas group B outnumbered group A about the role of HPV infection in cervical cancer. However this difference was statistically not significant ($p>0.05$)

Table 14. Change in knowledge about risk factors

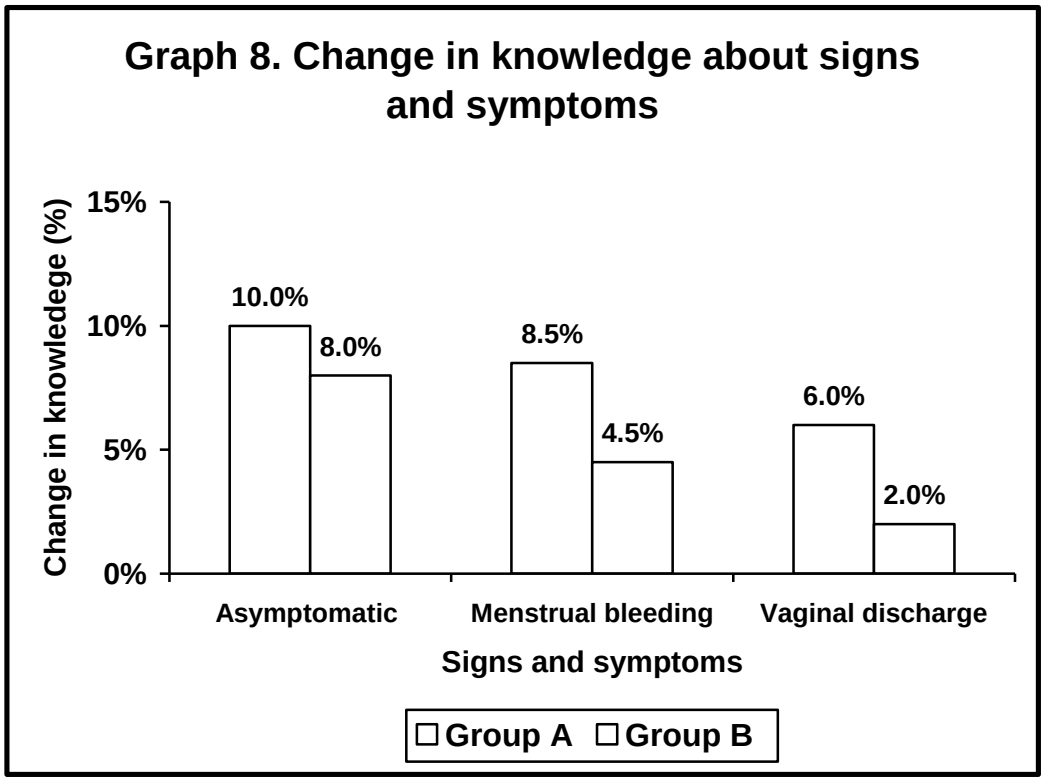
Risk factors	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Sex at early age	22	11.00	17	8.50	0.84	0.401
Multiple partners	11	5.50	3	1.50	2.17	**0.030**
Smoking /tobacco	9	4.50	4	2.00	1.41	0.159
OC pills	48	24.00	10	5.00	5.39	**0.000**
HIV coinfection	16	8.00	28	14.00	1.92	**0.055**
Mosquito bite	12	6.00	8	4.00	0.92	0.357



In this study, participants of group A significant gained knowledge about the multiple sex partners (5.5%) and use of OC pills (24%) whereas in group B participants significant gained knowledge about the role of HIV coinfection in cervical cancer (14%) ($p<0.05$).

Table 15. Change knowledge about signs and symptoms

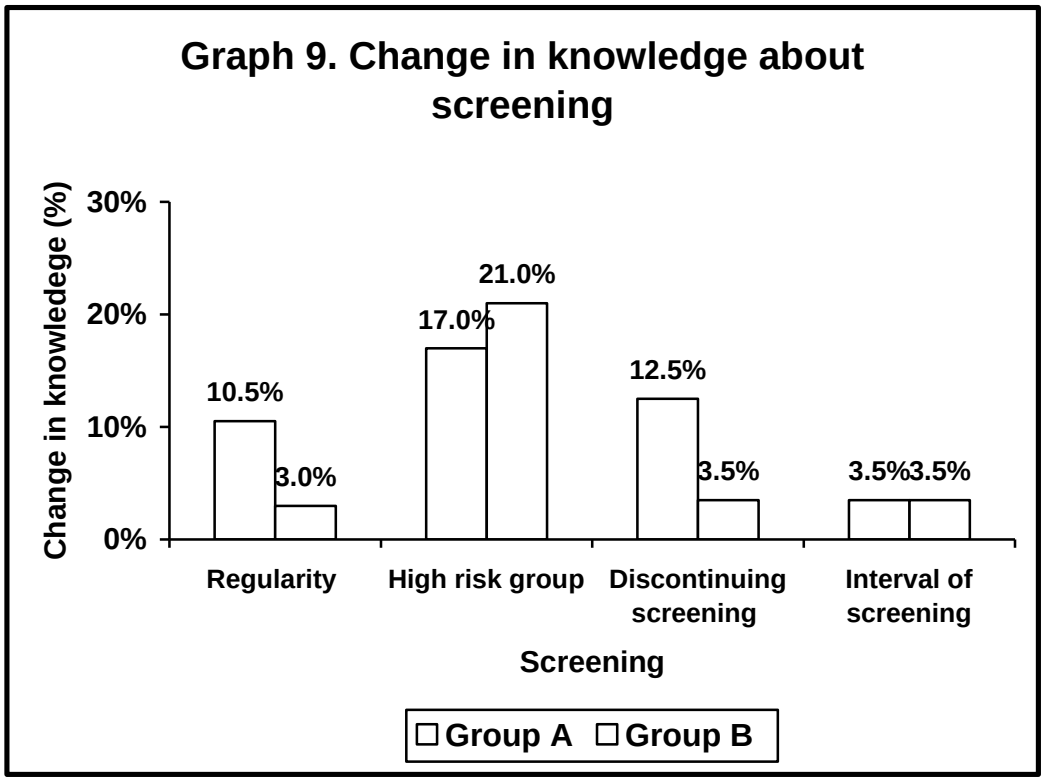
Signs and symptoms	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Asymptomatic	20	10.00	16	8.00	0.69	0.690
Menstrual bleeding	17	8.50	9	4.50	1.62	0.105
Vaginal discharge	12	6.00	4	2.00	2.04	**0.041**



In the present study, participants of group A significant gained knowledge about the vaginal discharge as sign and symptom of cervical cancer (6% vs 2%) ($p<0.05$). With regard to other symptoms better change in knowledge was seen with group A but this change was statistically not significant.

Table 16. Change in knowledge about screening

Screening	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Regularity	21	10.50	6	3.00	2.99	**0.003**
High risk groups	34	17.00	42	21.00	1.02	0.309
Discontinuing screening	25	12.50	7	3.50	3.31	**0.000**
Interval of screening	7	3.50	7	3.50	0.00	1.00

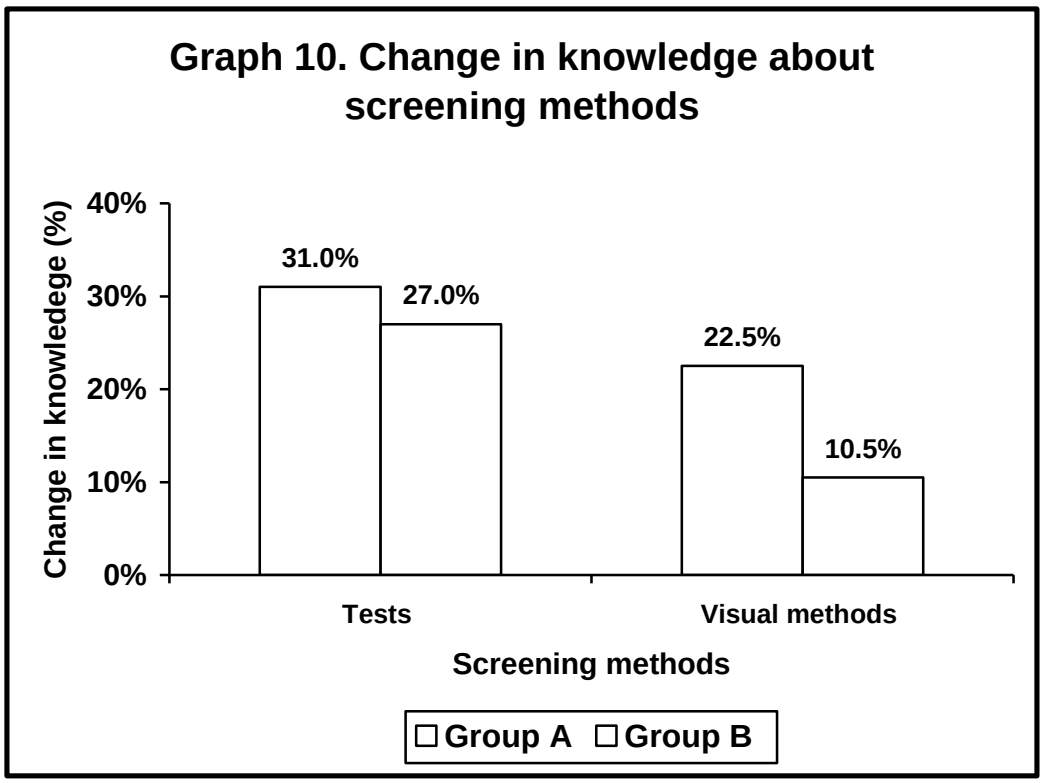


In this study, participants of group A became significantly more aware about the regularity (10.5% vs 3.0%) and age for discontinuing screening (12.5% vs 3.5%) for screening of cervical cancer ($p<0.05$) whereas, among the participants of group B awareness was better with high risk groups for cervical

screening (21% vs 17%) but this difference was statistically not significant (p>0.05).

Table 17. Change in knowledge about screening methods

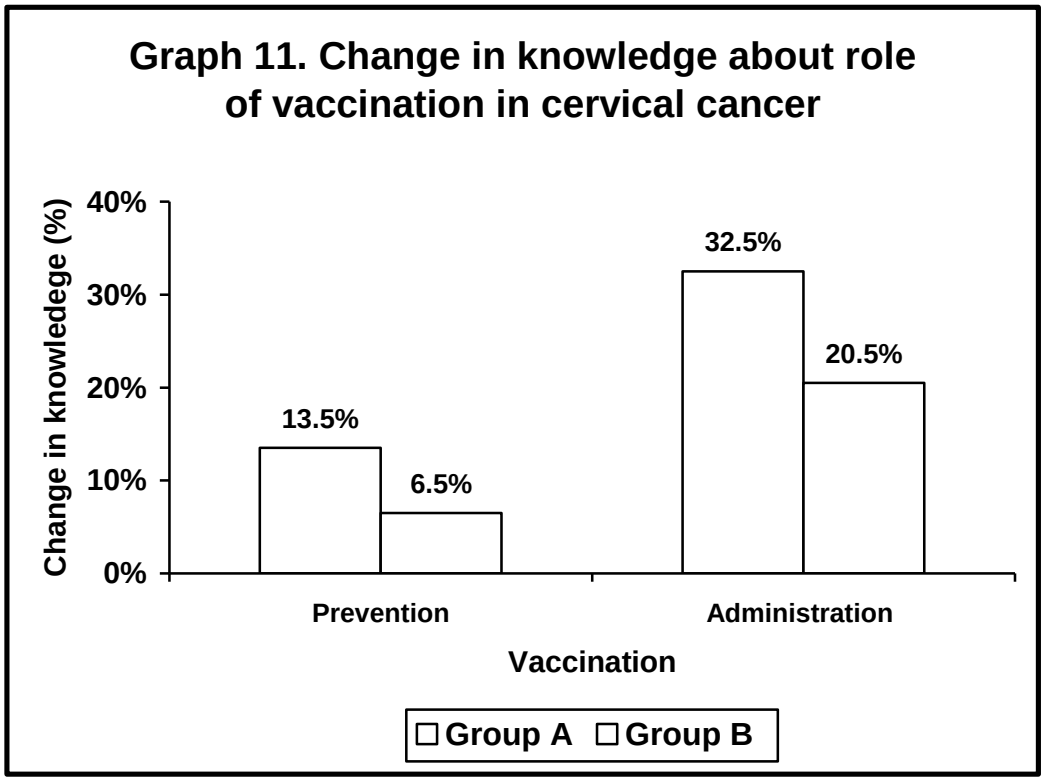
Causes	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Tests	62	31.00	54	27.00	2.33	**0.019**
Visual methods	45	22.50	21	10.50	2.72	**0.007**



In this study, participants of group A had significantly gained more knowledge about tests (31% vs 27%) and visual methods (27% vs 10.5%) of screening for cervical cancer (p<0.05).

Table 18. Change in knowledge about role of vaccination in cervical cancer

Causes	Group A (n=200)		Group B (n=200)		'z' value	'p' value
	No	%	No	%		
Prevention	27	13.50	13	6.50	2.33	**0.019**
Administration	65	32.50	41	20.50	2.72	**0.007**



In the present study, participants of group A had significantly gained more knowledge about prevention (13.5 vs 6.5%) and administration (32.5% vs 20.5%) of vaccination for cervical cancer ($p<0.05$).

DISCUSSION

New estimates of worldwide and regional cancer incidence and mortality published by the World Health Organization in the GLOBOCAN 2008 report[47] confirm the prediction that the numbers for cervical cancer would continue to climb, especially in developing countries. The estimated annual incidence in the less-developed countries of the world is now more than 450,000 and the mortality more than 240,000. Using GLOBOCAN 2002[12] figures, more than 80% of deaths from cervical cancer worldwide were estimated to be in developing countries; in GLOBOCAN 2008, it was 88%; and by 2030, it is predicted to be at least 98%.[47]

Not many know that India, with a population of 365.71 million has women aged between 15 years and above who stand at the risk of developing cervical cancer. India accounts for one sixth of the world's population, also bears one fifth of the world's burden of cervical cancer.[24] There are approximately 130,000 new cases of cervical cancer in India per year and the disease is reported to be responsible for almost 20% of all female deaths.[48] India's cervical cancer age-standardized incidence rate (30.7 per 100,000) and age-standardized mortality rate (17.4 per 100,000) are the highest in South Central Asia.[24] Data from Mumbai suggest that there may have been a slight decline in cervical cancer incidence in recent years. However, the absolute incidence is still very high, especially in rural areas, and the number of cases grows due to high population growth.[48]

The Indian National AIDS Control Organization estimates that the number of people living with HIV is approximately 5.1 million (38% of whom

are women). This suggests cause for concern given the strong association between HIV and HPV infections and evidence of more rapid progression of HPV infections to cervical neoplasia in HIV infected women.[48]

With early detection and timely treatment in mind, the World Health Organization recommends that nations with limited resource should screen all women at least once in a lifetime with priority given to women at the age of 35–40 when likely-to-progress, high- grade but treatable dysplasia can be found. There is some debate about whether this age limit is too high, especially in countries with high HIV incidence, although recent data from South Africa, including 20,000 women showed the mean age of cancer to be 51.6 years.[48]

Prevention should be the key element in any disease control programme. Prevention means eliminating or minimizing exposure to the causes of cervical cancer, and includes reducing individual susceptibility to the effect of such causes. This approach offers the greatest public health potential and the most cost effective long-term method of cervical cancer control. Educating people regarding the disease will help drive away the fears and stigma associated with the disease. It is important to involve all levels of the population in the educational process. The contents of cancer education should focus on issues such as control, safe sexual practices to avoid Human Papilloma Virus infection.

In many developed countries a decline in the incidence of and mortality due to cervix cancer has been observed in the past 30 years due to cervical cancer screening. These screening programmes are difficult to organise in India because of certain barriers. Increasing the knowledge about the screening of cervical

cancer among health professionals can increase awareness levels as the health care providers such as doctors and female nurses are the one to motivate the general populations to undergo cervical cancer screening tests.[49]

Hence the present study was undertaken to assess the knowledge and attitudes regarding cervical cancer and screening programs and the effect of intervention.

This one year study was conducted in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Belgaum. A total of 400 female Nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum during the study period were included. Participants were put into two groups based on the institutions they were working for namely, group A (n=200) consisted of female nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and group B (n=200) consisted of female nurses working at District Hospital, Belgaum.

In both the groups a pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given to the study participants. Further, in group A participants were educated about the knowledge, attitude and barriers for the cervical screening and in group B participants were provided with pamphlet about the knowledge, attitude and barriers for the cervical screening. Then a post test questionnaire was given to analyse the change in the knowledge and attitude about cervical cancer.

In this study most of the participants had age between 25 to 35 years (72% in group A and 65.5% in group B). Majority of the participants had parity 2 in group A (41%) and group B (43.5%) and equal distribution was seen with the duration of service between less than five, six to ten and eleven to fifteen years.

During pretest, in both the groups, most of the participants (95.5% vs 91.5%) knew that cervical cancer can be treated if diagnosed early but lacked in knowledge about treatment options (25.5% vs 54.5%) of cervical cancer. During the post test assessment participants in group A had better awareness compared to group B except knowledge about treatment options and the participants of group A significantly gained knowledge about the condition (11.5%) and treatment option (21%) of the cervical cancer ($p< 0.05$).

A study[50] from northern Tanzania by Urasa M et al reported that, majority of nurses knew that cervical cancer could be treated by radiotherapy while only a few were aware of surgery and chemotherapy as treatment options. These results are not surprising since most patients suspected of having cancer are referred to tertiary referral hospitals for confirmation of diagnosis and treatment. The nurses therefore do not get to see the management of cervical cancer.

In this study, the causes of cervical cancer were studied by questioning role of HPV infection that is, HPV infection is associated with cervical cancer but does not always progress to cervical cancer. During pretest, in group A, more than half of the participants (56.5% and 52%) gave correct answer whereas in group B 71.5% knew that HPV infection is associated with cervical cancer and 34.5% answered HPV infection has no role in progress to cervical cancer. During

the post test assessment participants in group A had better awareness compared group B. Also participants of group A had better knowledge about HPV infection (27% vs 24%) whereas group B outnumbered group A about the role of HPV infection in progression to cervical cancer. However this difference was statistically not significant ($p>0.05$).

Several studies[36,51,52] from developing countries have reported that, majority of the nurses had inadequate knowledge of transmission of HPV, causes, risks, symptoms, treatment and prevention of cervical cancer.

A study[50] from northern Tanzania by Urasa M et al reported that, regarding causes, less than 40% correctly identified either HPV infection or genetic predisposition. Only two thirds of the nurses identified sexual intercourse as a mode of transmission of HPV. This result was not surprising in a setting where the most commonly known sexually transmitted infections are HIV-AIDS, chlamydia, gonorrhea and syphilis. As a result less than half of the nurses knew that condom use and being faithful to one partner can prevent HPV infection.

In the present study, the risk factors for the cervical cancer were assessed by questioning about sex at early age, multiple sex partners, habits like smoking and chewing tobacco, OC pills, HIV coinfection and mosquito bite. During pretest, in group A, more than three fourth participants gave correct answer whereas in group B it varied from 51% to 85%. During the post test assessment participants in group A had better awareness compared group B except for the question of mosquito bite where both the groups gave almost similar answers. Participants of group A significant gained knowledge about the multiple sex

partners (5.5%) and use of OC pills (24%) whereas in group B participants significant gained knowledge about the role of HIV coinfection in cervical cancer (14%) ($p<0.05$).

Mutyaba et al[36] reported that, large proportion of the nurses had inadequate knowledge of risks. In two studies by Tessaro et al[53] and Kahesa C et al[54] only a small proportion of the nurses identified smoking as a risk factor. This can be explained by the fact that smoking is most commonly associated with lung cancer and not with other types of cancers in anti smoking awareness campaigns in the community.[54] This finding can also be explained by the fact that smoking is not a common practice among Tanzanian women by Urasa M et al.[50] A study from United States by Kahesa C et al[54] on nurse practitioners reported that, they knew most of the risk factors such as multiple sexual partners, history of HPV infection and sexual intercourse at an early age.

In this study, the signs and symptoms of cervical cancer were assessed by questioning about symptoms at presentation such as asymptomatic in initial phase, postcoital / intermenstrual bleeding and vaginal discharge. During pretest, group B participants had better knowledge about the signs and symptoms compared to group A. However there was better awareness about the signs and symptoms during the post test assessment participants in group A but overall group B performed well.

In this study, participants of group A became significantly more aware about the regularity (10.5% vs 3.0%) and target age group (12.5% vs 3.5%) for screening of cervical cancer ($p<0.05$) whereas, among the participants of group B

awareness was better with target risk groups for cervical screening (21% vs 17%) but this difference was statistically not significant ($p>0.05$).

In a study from Tanzania by Urasa M et al.[50] most widely identified symptom was blood stained vaginal discharge by approximately half of the nurses. Post-coital bleeding, painful coitus and post-menopausal bleeding were identified by less than half of the nurses. Study also reported that, inability of these nurses to identify most of the symptoms can be due to shortage of health workers, the nurse patient ratio in Tanzania is approximated to be 1:23,000. As a result, work overload prevents the nurses from spending enough time with individual patients and knowing their symptoms.

In the present study, the knowledge about the cervical cancer screening was assessed by questioning about the regularity, target population, duration upto which screening should be done and interval for the screening. During pretest, group B participants had better knowledge about the screening compared to group A especially with regard to regularity and target age groups of screening. However there was better awareness about the screening during the post test assessment in participants of group A but overall lacked knowledge when compared to group B except with regard to duration. With regard to change in knowledge, participants of group A had significantly gained more knowledge about tests (31% vs 27%) and visual methods (27% vs 10.5%) of screening for cervical cancer ($p<0.05$).

In a study from Tanzania by Urasa M et al.[50] most of the nurses were not aware of the recommended pap smear screening interval, similarly in Uganda in a

study done among hospital workers by Mutyaba et al[36] found that less than half of them had adequate knowledge regarding screening interval. Comparatively a larger proportion of Thai nurses could correctly identify the timing for screening in a study by Nganwai P et al.[55]

These results are a reflection of the fact there is no screening policy set by the ministry of health or locally at the hospital. In most hospitals in the country where Pap smear screening services are available, the test is carried out by doctors.

In this study, the knowledge about the cervical cancer screening methods were assessed by asking about the tests and visual methods for the screening. During pretest, 44% and 60.5% participants of group A gave correct answers with regard to tests and visual methods whereas in group B 52.5% and 84% participants gave correct answers. However there was better awareness about the screening methods during the post test assessment in participants of group A (75% and 83%).

The lack of a significant association between knowledge levels can be explained by the fact that nurses at the hospital rotate between departments at least once every one to two years. A study from Nigeria by Ayinde OA et al[52] reported that, different health workers, medical doctors and medical literature were the most commonly mentioned sources of information about Pap tests, only a few cited the media in another study by Ngwalle EW et al.[56]

In a study from Ibadan by Ayinde OA et al[52], despite the small proportion of nurses who had a Pap smear test, almost half of them considered cervical cancer to be of high public health importance.

In a study conducted in Nigeria by Ayinde OA et al,[52] where 93% of respondents including doctors, nurses and hospital maids had never had the test. This again highlights the absence of a screening policy as well as a lack of awareness of the public health importance of cervical cancer among nurses.

In the present study, knowledge about the prevention of cervical cancer was studied by questioning about role of vaccination that is, vaccination prevents cervical cancer and target age group for administration. During pretest, 70% and 48.5% participants of group A gave correct answers with regard to prevention and administration of vaccination whereas in group B 91% and 63% participants gave correct answers. However there was better awareness about the screening methods during the post test assessment in participants of group A (83.5% and 81%) but overall, better knowledge was seen in group B. The participants of group A had significantly gained more knowledge about prevention (13.5 vs 6.5%) and administration (32.5% vs 20.5%) of vaccination for cervical cancer ($p<0.05$).

A study from Tanzania by Urasa M et al.[50] reported that, only a few of the few nurses who were aware of the existence of a vaccine for HPV knew when the vaccine is supposed to be given. In comparison, more than 90% of nurses in a study done among Canadian nurses knew that the vaccine should be given before girls become sexually active.[57] This could be explained by the fact that the HPV

vaccine is still a new concept in most developing countries and is not yet included in the Tanzanian Extended Program on Immunization (EPI).

These results could be explained by the level of education of these nurses, most of whom have diplomas and certificates in nursing as compared to those in a study in Thailand where the majority of whom had bachelor's degrees thereby higher proportions of nurses correctly identified causes, transmission, symptoms, treatment and prevention.[55]

In this study most of the participants in both the groups indicated that, lack of awareness as the commonest barrier (49% vs 52%).

The Uganda study by Tessaro IA et al[52] found that, the respondents' reasons for not being screened were not feeling at risk, lack of symptoms, carelessness, fear of vaginal examination, lack of interest, test being unpleasant and not yet being of risky age. Another study by Nganwai P et al[55] showed that the majority (89.2%) of those who had never had a Pap test did not feel at risk of developing cervical cancer.

Overall, in the present study, the knowledge and practices of cervical cancer were poor among the health professionals from both tertiary care centres. However after the health education participants of group A gained more knowledge compared to group B.

Information, Education and Communication (IEC) campaigns on breast, prostate and oral cancers had raised awareness in communities about the causes and prevention of these diseases. This was not the case for cervical cancer for

which virtually no IEC materials or efforts promoted its preventable nature in the vast majority of communities and facilities visited. Where available, counseling in tertiary facilities for women was often inadequate or incomplete. Most community members reported familiarity with other forms of cancer, but rarely knew of cervical cancer. Only very few community members and clients who knew someone who had been diagnosed with cervical cancer reported some familiarity with the disease, but also did not know that it was preventable.

Few community members or asymptomatic women had ever been screened for cervical cancer. Those who ever had a Pap smear or were interviewed when they presented for screening also did not know that the test could help in preventing cervical cancer. Similarly, women interviewed who were undergoing treatment for early and late stage cervical cancer were often unaware of their exact diagnosis or if aware, did not know the cause of the disease for which they were being treated.

Results from this study as well as those done in Tanzania, Uganda and Nigeria indicate that the utilization of screening services is dependent on an individual's awareness of the importance of cervical cancer screening as well as the ability of the health sector to make these services available and accessible.[35,51,57] From a health belief model and conceptual framework one can deduce the hypothesis that the nurses' screening practices are influenced by their perception of their own susceptibility to the disease, their regard of the public health importance of the disease, benefit of screening and barriers to screening which are in turn influenced by their knowledge about the disease. As a result and

in support of the health belief model, only a small proportion of the nurses had had a Pap smear.

These results call for creation of health promotion and disease prevention policies as well as awareness campaigns and screening programs at all levels of the health sector. Integration of screening services into already existing programs, such as family planning and reproductive health services, would be an effective strategy in an already financially and human resource challenged health sector.

CONCLUSION

India with its highest share of global burden of cervical cancer has to implement a population based cervical cancer oriented programme to reduce the number of cancer related deaths. There are new screening options available like visual inspection after acetic acid application, single visit approach to screening and treatment. The emergence of two effective vaccines against HPV the necessary cause for cervical cancer has introduced a fresh lease of life to the cervical cancer control strategies.

In this study the knowledge, attitude and awareness towards cervical cancer screening were poor among the health professionals from both tertiary care centres. After the health education participants of group A, who underwent a health talk session regarding cervical cancer and cervical cancer screening gained more knowledge. But these health educational sessions should be conducted more often to have a better level of recall.

A women's death is often not only because of lack of knowledge and awareness but is also caused by ineffective health system and practices of health care workers. This can be overcome by taking appropriate measures in creating awareness regarding this deadly but highly preventable disease initially amongst the health care professionals and subsequently in the general population.

SUMMARY

Increasing the knowledge about the screening of cervical cancer among health professionals can increase awareness levels as the health care providers such as doctors and female nurses are the one to motivate the general populations to undergo cervical cancer screening tests. Hence the present study was undertaken to assess the knowledge and attitudes regarding cervical cancer and screening programs and the effect of intervention.

This one year study was conducted in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College, Belgaum. A total of 400 female Nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and District Hospital, Belgaum during the study period were included. Participants were put into two groups based on the institutions they were working for namely, group A (n=200) consisted of female nurses working at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum and group B (n=200) consisted of female nurses working at District Hospital, Belgaum.

In both the groups a pretest questionnaire about the knowledge, attitude and perceived barriers about cervical cancer was given to the study participants. Further, in group A A health talk was given regarding cervical cancer and cervical cancer screening and in group B participants were provided with pamphlet about the knowledge, attitude and barriers for the cervical screening. Then a post test questionnaire was given to analyse the change in the knowledge and attitude about cervical cancer.

In this study, participants of group A gained significant knowledge about the condition (11.5%), treatment option (21%) ($p<0.05$), HPV infection (27% vs 24%), multiple sex partners (5.5%), use of OC pills (24%), vaginal discharge (6% vs 2%) ($p<0.05$) of cervical cancer. Also group A gained better knowledge for regularity (10.5% vs 3.0%) and target age group (12.5% vs 3.5%) for screening of cervical cancer ($p<0.05$) and tests (31% vs 27%) and visual methods (27% vs 10.5%) of screening ($p<0.05$). Most of the participants in both the groups indicated lack of awareness as the commonest barrier (49% vs 52%).

The knowledge and practices of cervical cancer were poor among the health professionals from both tertiary care centres. After the health education participants of group A, who underwent health talk session regarding cervical cancer and cervical cancer screening gained more knowledge. Most of the participants in both the groups indicated lack of awareness as the commonest barrier.

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ANNEXURE I – CONSENT FORM

Consent to take part in the study **Effect of health education on knowledge, attitude and practice of cervical cancer screening among female nurses working in tertiary care hospitals in Belgaum.**

This study is being conducted under the guidance of **Dr. Anita Dalal.** This study requires you to answer some questions on cervical cancer and the various screening methods available. The study group consists of female nurses . All the information collected through these questions will be kept strictly confidential.

There will be no financial aid for the participants in the study. Your participation is entirely by your will and you may choose to withdraw at any given point of time.

We request you to participate in the study ,however the participation is totally voluntary.

If you have any further queries about the study you may contact;

Dr.Anita Dalal
09448140343

Dr.Nandan Purandare
09743971172

Participants signature:

ANNEXURE II – PROFOMA AND QUESTIONNAIRE

EFFECTS OF HEALTH EDUCATION ON KNOWLEDGE, ATTITUDE AND BARRIERS TOWARDS CERVICAL CANCER SCREENING AMONG FEMALE NURSES WORKING IN TERTIARY CARE HOSPITALS.

Age (Years) : Years of service:

Parity :

QUESTIONS ON KNOWLEDGE AND ATTITUDE TOWARDS CERVICAL CANCER SCREENING.

1) Cervical cancer is fatal condition Yes ☐ No ☐

2) Cervical cancer is a major public health problem. Yes ☐ No ☐

3) Cervical cancer can be treated if diagnosed early. Yes ☐ No ☐

4) Hysterectomy is the only treatment option for women with cervical cancer. Yes ☐ No ☐

<u>CAUSES AND RISK FACTORS</u>

5) HPV infection is associated with cervical cancer. Yes ☐ No ☐

6) HPV infection always progresses to cervical cancer. Yes ☐ No ☐

7) Women with fewer pregnancies are at higher risk of developing cervical cancer. Yes ☐ No ☐

8) Initiating sexual activity at an early age increase the risk of cervical cancer Yes ☐ No ☐

9) Women with multiple sex partners are at an increased risk for cervical cancer. Yes ☐ No ☐

10) Women who smoke or chew tobacco are at higher risk of cervical cancer. Yes ☐ No ☐

11) Long term OC pill used does not increase the risk for cervical cancer. Yes ☐ No ☐

12) Co-infection with HIV increases the risk of cervical cancer. Yes ☐ No ☐

QUESTIONS ON SIGNS AND SYMPTOMS.

13) Women may be completely asymptomatic in the initial phase. Yes ☐ No ☐

14) Women with cervical cancer often present with post coital/post menstrual bleeding. Yes ☐ No ☐

15) Women presenting with persistent abnormal vaginal discharge should report to the doctor immediately. Yes ☐ No ☐

QUESTION ON CERVICAL CANCER SCREENING

16) Do you agree that screening for cervical cancer at regular intervals help reduce the risk of cervical cancer. Yes ☐ No ☐

17) Cervical cancer should be done for high risk group only. Yes ☐ No ☐

18) Cervical cancer screening should be discontinued after 50 years of age. Yes ☐ No ☐

19) Women should be screened for cervical cancer once on 10 years. Yes ☐ No ☐

20) Pap Smear is the only test available for cervical cancer screening. Yes ☐ No ☐

21) VIA/VILI are the visual methods for cervical cancer screening. Yes ☐ No ☐

22) A women can acquire HPV infection with mosquito bite. Yes ☐ No ☐

23) HPV infection can be prevented by vaccination. Yes ☐ No ☐

24) HPV vaccination should be administered to married women only. Yes ☐ No ☐

QUESTIONS ON BARRIERS TO CERVICAL CANCER SCREENING

25) Which of the following acts as a barrier to cervical cancer screening?

a) Lack of awareness regarding cervical cancer screening. ☐

b) Embarrassment to undergo pelvic examination. ☐

c) Embarrassment to be examined by male doctor. ☐

d) Fear that pelvic examination is painful. ☐

e) Fear of the test result. ☐

f) A feeling that women having specific complaints only should under go cervical cancer screening. ☐

g) Time constraint/financial issue. ☐

26) Do you counsel other women about the benefit of cervical cancer screening. Yes ☐ No ☐

27) Did you undergo cervical cancer screening test in the last 3 years. Yes ☐ No ☐

If yes, then answer questions 28 to 32.

28) Did you experience discomfort at the time of examination. Yes ☐ No ☐

29) Did you collect the test result? Yes ☐ No ☐

30) Did your doctor explain the test results?

31) Will you repeat the test within the time specified by the doctor? Yes ☐ No ☐

32) Will you recommend the test to your friends/relatives/colleagues? Yes ☐ No ☐

ANNEXURE III – PAMPHLET

CERVICAL CANCER

Cervical cancer is the most common cancer among Indian women. Also it is one of the most preventable. The aim of this pamphlet is to alert you about the prevention and early detection of cervical cancer.

Risk factors

- Early onset of sexual activity
- Early age of marriage
- Multiple pregnancies at short interval
- Multiple sexual partners
- Poor genital hygiene
- HPV infection
- Tobacco addiction

Signs and symptoms

- Intermenstrual bleeding
- Post coital bleeding
- Post menopausal bleeding
- Irregular heavy menstrual periods
- Vaginal discharge
- Unexplained weight loss and weakness

Screening methods

- Pap smear
- VIA
- VILI
- HPV-DNA test

Recommendations for prevention

- Cervical cancer screening at regular intervals.
- Delay the age of marriage and first sexual intercourse.
- Postpone birth of first child till 20 years of age.
- Avoid multiple and rapid pregnancies.
- Modify life style like tobacco use and multiple sexual partners.
- Use barrier contraceptive to protect against sexually tranmitted diseases.
- Vaccination.
- Maintain good hygiene.
- Seek medical help if you have any of the above mentioned signs and symptoms.

ANNEXURE IV - MASTER CHART GROUP B

				PRETEST ASSESSMENT																																								POST TEST ASSESSEMENT																							
Sl No.	Age (Years)	Parity	Service (Years)	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24	Question 25 a	b	c	d	e	f	g	Question 26	Question 27	Question 28	Question 29	Question 30	Question 31	Question 32	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24
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ANNEXURE IV - MASTER CHART GROUP B

Sl No.	Age (Years)	Parity	Service (Years)	PRETEST ASSESSMENT																																						POST TEST ASSESSEMENT																							
				Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24	Question 25 a	b	c	d	e	f	g	Question 26	Question 27	Question 28	Question 29	Question 30	Question 31	Question 32	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24
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52	31	2	9	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2	1	2	1	1	1	1	1	1	2	1	2	1	1	1	2	2	1	1	1	2	1	2
53	32	2	10	1	1	1	2	1	2	2	2	2	2	1	2	1	1	1	1	2	2	1	1	1	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	2	2	2	2	1	1	2
54	26	N	4	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	2	1	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	2	2	1	2	1	2	2	1	2	1	1	1	2	2	2	2	1	2	1	2
55	52	3	30	2	1	1	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	2	1	1	2	2	2	1	1	2	1	2	1	1	1	2	1	2	2	1	2	1	2	1	2
56	48	2	26	1	1	2	2	1	2	1	1	2	1	1	1	2	1	1	1	2	2	1	2	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	2	1	1	1	1	1	2	2	2	1	1	1	2
57	39	3	17	1	1	2	1	2	1	1	1	2	1	2	1	1	1	1	1	2	2	1	2	1	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	1	2	1	1	2	1	2	2	1	2	2	1	1	1	1	1	2	2	1	1	1	2	2	2
58	34	1	12	1	1	1	2	1	1	1	1	1	1	2	2	2	2	1	1	2	2	2	1	1	2	1	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	1	2	1	2	1	2
59	33	1	11	1	1	1	2	1	1	1	1	1	1	2	2	2	1	1	1	2	2	2	1	1	2	1	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2	1	1	1	2	2	2	1	2	1	2	1	1	1	1	1	2	2	1	2	1	2	1	2
60	52	2	30	1	2	1	2	1	1	1	1	1	1	2	2	1	1	1	1	2	2	2	2	1	2	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	1	2	1	2	1	2	2	1	1	1	1	2	2	2	2	1	2	2	1
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62	29	1	7	1	2	1	1	2	1	1	1	2	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	2	1	1	1	1	2	2	2	2	2	2	1	1	1	1	2	2	1	2	1	2	2	2
63	28	2	6	1	1	1	2	1	1	2	1	1	1	2	1	2	1	1	2	2	2	1	1	1	1	2	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	1	2	1	2	2	2
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65	28	1	6	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	2	1	1	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	2	2	1	1	2	2	2	1	1	1	2	2	1	2	2	1	1	2	1	2
66	42	2	20	1	1	1	1	2	1	1	1	1	1	2	1	1	1	1	1	2	2	1	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	1	2	1	2	1	2	1	1	1	2	1	2	2	1	1	1	2	2	2
67	49	2	27	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2	1	1	1	1	2	1	2	2	1	2	1	2	2	1
68	25	N	3	1	1	1	2	2	2	2	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	2	2	1	1	2	1	2
69	27	1	5	1	1	1	2	1	2	1	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	-	1	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	1	1	2	1	1	1	1	2	1	1	2	1	1	1	2	2	2	1	2	1	1
70	31	2	9	1	1	1	2	1	2	2	1	1	2	1	1	1	1	1	1	2	2	2	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2	1	2	1	1	2	1	1	1	2	1	1	1	1	2	2	2	2	1	2	2	1	1
71	35	2	13	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	1	1	2	2	2	2	1	1	1	2	2	1	1	1	1	2	2	1	1	1	2	1	1
72	54	2	32	2	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	2	1	2	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	1	1	1	2	1	2	2	2	1	2	1	1	1	1	2	2	2	2	1	2	2	2
73	48	3	26	2	1	1	2	2	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	1	2	2	1	2	2	2	1	1
74	47	2	25	2	1	1	2	1	1	2	1	1	1	1	1	2	1	1	1	1	2	1	2	2	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	2	2
75	26	N	4	1	2	1	2	2	1	2	1	1	1	2	2	1	1	1	1	2	1	1	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	1	1	2	1	1	2	2	1	2	1	1	1	1	2	1	2	2	1
76	30	1	8	2	1	1	2	1	1	1	2	1	2	2	2	1	1	1	2	2	1	1	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	2	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	2	2	2	2	1	2	1	2
77	31	2	9	2	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	2	1	2	1	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	1	2	1	2	2	2	1	2	2	1	1	2	1	2	1	2	1	2	1	2	2	2
78	25	N	3	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	1	1	2	1	2
79	26	1	4	1	1	1	2	2	2	2	1	1	2	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	2	2	1	1	2	2	2	2	2	1	2	2	2	1	1	2	1	2	2	1	2	2	2	1
80	29	1	7	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1
81	33	2	11	2	1	1	2	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1	2	-	1	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1	2	1	2	1	1
82	26	1	4	1	1	1	2	1	2	2	1	1	2	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	1	1	1	1	1	1	2	1	1	2	1	2	2	1	1	2	1	2	1	2
83	35	2	13	1	1	1	2	1	1	2	1	1	1	2	2	1	1	1	1	2	2	2	1	2	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	1	1	1	1	2	2	1	1	1	1	2	2	2	1	1	2	1	2
84	33	1	11	1	1	1	2	1	1	1	1	1	1	2	1	1	2	1	1	2	1	2	2	2	1	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	2	2	1	1	2	2	2	1	1	1	1	2	2	1	1	1	2	2	1	1

ANNEXURE IV - MASTER CHART GROUP B

PRETEST ASSESSMENT

Sl No.	Age (Years)	Parity	Service (Years)	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24	Question 25 a	b	c	d	e	f	g	Question 26	Question 27	Question 28	Question 29	Question 30	Question 31	Question 32
85	27	1	5	2	1	1	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	1	2	2	1	2	-	1	-	-	-	-	-	1	2	-	-	-	-	-
86	25	N	3	2	1	1	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	1	2	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
87	26	1	4	2	1	1	2	1	1	2	2	2	1	2	2	1	1	1	1	2	2	1	2	2	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
88	48	3	26	1	1	1	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-
89	26	1	4	2	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	2	2	1	2	1	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-
90	52	2	30	2	1	1	2	1	2	2	1	1	2	2	2	1	1	1	1	2	2	2	2	2	2	1	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-
91	33	1	11	1	2	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	2	1	1	1	2	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
92	37	1	15	1	2	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	2	1	1	1	2	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
93	29	1	7	1	1	2	1	1	1	2	1	1	2	1	1	1	1	1	1	2	2	1	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
94	25	N	3	1	1	1	2	1	1	1	2	1	2	2	2	1	1	1	1	2	2	2	1	2	2	1	2	-	1	-	-	-	-	-	2	2	-	-	-	-	-
95	26	2	4	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	1	2	2	1	1	1	2	1	2	-	-	-	-	-	1	-	1	2	2	2	-	-	-
96	41	2	19	1	2	1	2	1	1	2	2	2	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-
97	35	1	13	2	2	1	2	1	1	2	2	1	2	2	2	2	1	1	1	2	2	1	1	1	2	2	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
98	39	2	17	2	2	1	2	1	1	2	1	2	2	2	2	2	1	-	1	1	2	2	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
99	51	2	29	2	1	1	2	1	1	1	2	1	1	1	1	1	1	1	2	2	1	1	1	2	2	1	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-
100	46	2	24	2	1	1	2	1	1	2	2	2	1	1	2	1	1	1	1	2	2	1	1	1	2	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
101	25	N	3	1	1	2	2	1	1	2	2	2	2	2	1	2	1	2	1	1	1	2	1	1	1	1	1	1	-	-	-	-	-	-	1	1	1	1	-	2	1
102	31	1	9	2	1	1	1	2	1	1	1	2	1	2	2	1	1	1	1	2	1	1	2	1	2	1	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-
103	30	2	8	1	2	2	2	1	1	1	2	2	2	2	1	1	1	1	1	2	1	2	2	1	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
104	26	1	4	1	1	1	2	1	1	2	2	2	2	2	1	1	1	1	1	2	1	2	2	1	2	2	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
105	35	2	13	2	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	-	1	-	-	-	-	-	2	-	-	-	-	-	-
106	29	1	7	2	1	1	2	1	1	2	1	1	2	2	1	1	1	1	1	2	2	1	1	2	1	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
107	55	2	33	1	2	1	2	1	1	1	1	1	1	2	2	1	1	1	2	2	2	1	2	1	2	1	1	1	-	-	-	-	-	-	2	-	-	-	-	-	-
108	26	1	4	2	1	1	2	1	1	2	1	1	1	2	1	1	1	1	1	2	2	2	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
109	29	2	7	1	1	1	2	1	1	2	1	1	1	2	1	1	2	1	1	1	2	1	1	1	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
110	32	2	10	1	1	1	2	1	1	2	1	1	1	2	1	1	2	1	1	1	2	1	1	1	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-
111	53	2	31	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	2	1	1	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
112	28	1	6	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
113	49	3	27	1	1	2	2	1	1	2	2	1	1	1	2	1	1	1	1	2	2	2	1	2	2	1	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-
114	51	1	29	2	1	1	2	1	1	2	2	2	1	2	1	1	1	1	1	2	2	1	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
115	26	N	4	1	1	1	2	1	1	2	2	2	2	1	2	1	1	1	1	2	2	1	1	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
116	25	N	3	1	1	1	2	1	1	1	1	2	1	1	2	1	1	1	1	2	2	2	1	1	2	2	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-
117	33	2	11	2	1	1	2	2	1	1	2	1	1	2	2	1	1	2	1	2	1	2	2	1	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
118	39	2	17	1	1	1	2	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	2	1	2	1	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-
119	46	2	24	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	2	1	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-
120	49	2	27	1	1	1	2	1	1	2	1	1	2	1	2	1	1	1	1	2	2	2	1	2	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-
121	52	1	30	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-
122	26	1	4	1	2	1	1	1	1	2	1	2	2	1	1	1	1	1	1	2	2	2	1	2	2	2	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
123	29	1	7	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-
124	28	2	6	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	2	1	1	1	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-
125	28	1	6	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	2	1	1	1	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
126	28	1	6	1	1	1	2	1	2	1	1	1	1	2	1	1	1	1	1	2	2	1	2	1	2	1	1	1	-	-	-	-	-	-	2	-	-	-	-	-	-

POST TEST ASSESSEMENT

Sl No.	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24
85	1	1	1	1	2	2	1	1	2	2	1	2	1	1	1	2	2	1	1	2	2	2	1	2
86	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2
87	1	1	1	1	2	2	1	2	2	1	2	2	1	2	2	1	2	2	1	2	1	2	2	2
88	1	1	1	2	1	1	2	1	1	1	2	1	1	1	1	1	2	1	1	1	1	2	1	2
89	1	1	1	1	1	2	2	1	2	2	2	2	2	1	1	1	2	2	2	1	2	2	2	2
90	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	2	1	2	1	2
91	2	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1
92	1	1	1	2	1	2	1	1	2	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1
93	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	2	2	1
94	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1
95	1	1	1	1	1	2	1	1	1	2	2	1	1	1	1	1	2	2	1	2	1	2	1	2
96	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2
97	1	1	1	2	1	2	2	1	1	2	2	1	1	2	1	1	2	2	1	2	1	1	1	2
98	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1	2	2	2	2	1	2	2	2
99	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	2
100	1	1	1	2	1	2	1	1	1	1	2	1	1	1	1	1	2	2	1	1	1	2	1	2
101	1	1	1	1	1	2	1	1	2	2	1	2	1	2	1	1	1	2	1	2	1	2	1	2
102	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	2	2
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104	1	1	1	1	2	1	2	1	1	1	2	1	1	2	1	1	2	1	2	2	1	2	2	2
105	1	1	1	1	1	1	2	1	2	2	2	1	1	1	1	1	2	2	1	1	1	2	1	2
106	2	1	1	1	2	1	1	1	2	1	1	2	1	2	1	1	2	2	1	2	2	2	2	2
107	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	2	2	1	2	1	2	1	2
108	1	2	1	1	1	2	1	1	2	1	2	1	1	1	2	1	2	2	2	2	1	2	1	1
109	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	2	2	1	2	1	1
110	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1	1	2	2	2	1	1	2	1	2
111	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	2
112	1	1	1	2	1	1	2	2	2	1	1	1	1	1	1	1	2	1	1	2	1	2	1	2
113	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
114	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
115	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
116	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
117	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
118	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
119	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
120	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
121	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
122	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
123	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
124	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
125	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
126	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2

ANNEXURE IV - MASTER CHART GROUP B

Sl No.	Age (Years)	Parity	Service (Years)	PRETEST ASSESSMENT																																						POST TEST ASSESSEMENT																							
				Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24	Question 25 a	b	c	d	e	f	g	Question 26	Question 27	Question 28	Question 29	Question 30	Question 31	Question 32	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24
127	42	2	20	1	1	1	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2	1	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
128	49	2	27	1	1	1	2	1	1	1	1	2	1	2	2	1	1	1	1	2	2	2	2	1	1	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
129	25	N	3	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	1	2	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
130	27	1	5	1	1	1	2	1	2	1	2	1	2	2	1	1	1	1	1	2	2	1	1	1	2	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
131	31	2	9	1	1	1	2	1	1	2	1	1	2	1	1	1	2	1	1	2	2	2	2	1	1	1	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
132	35	2	13	1	1	1	2	1	1	2	1	1	2	1	1	1	2	1	1	2	2	2	2	1	2	1	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
133	54	2	32	1	1	1	2	1	1	2	2	2	1	1	2	1	1	1	1	2	2	2	2	2	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
134	48	2	26	2	2	1	2	1	2	1	1	2	1	1	1	1	1	1	1	2	2	1	2	2	2	1	2	-	1	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
135	47	2	25	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	2	1	1	1	2	2	2	2	1	2	1	2
136	26	1	4	1	2	1	2	1	1	2	1	1	1	2	1	2	1	1	1	2	2	1	2	1	2	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
137	30	2	8	2	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
138	31	1	9	1	1	1	2	1	2	1	1	1	1	1	1	2	1	1	1	2	2	2	2	2	2	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
139	25	N	3	1	1	1	2	1	1	2	2	2	1	1	2	1	1	1	1	2	2	2	2	2	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
140	26	1	4	1	1	1	2	1	1	2	2	2	1	1	2	1	1	1	1	2	2	2	2	2	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
141	29	1	7	1	1	1	2	1	1	1	1	1	1	2	2	2	1	1	1	2	2	1	1	1	2	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
142	26	N	4	2	2	1	2	1	1	1	2	1	2	2	1	1	2	1	1	2	2	1	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
143	27	2	5	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
144	28	2	6	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	2	2	1	1	2	2	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2
145	38	N	16	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
146	26	1	4	1	2	1	1	1	1	2	1	2	1	2	1	1	1	1	1	1	2	1	1	1	2	1	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
147	30	1	8	1	2	1	1	1	1	2	1	2	1	2	1	1	1	1	1	2	1	1	1	1	2	1	1	-	-	-	-	-	-	1	-	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
148	45	2	23	2	1	1	2	1	2	2	1	1	1	1	1	2	1	1	1	1	2	1	1	2	2	1	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
149	27	1	5	1	1	1	2	1	1	1	2	1	1	1	2	1	1	-	1	1	2	1	1	1	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
150	30	2	8	2	1	1	2	1	2	2	2	1	2	2	1	1	1	1	1	1	2	1	1	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
151	25	N	3	1	1	1	2	1	1	1	2	1	1	2	2	1	2	1	1	1	2	1	1	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
152	48	2	26	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	2	1	1	1	-	-	-	-	-	-	-	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
153	26	1	4	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	2	2	1	-	-	-	-	-	-	1	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
154	25	N	3	1	2	1	1	1	1	2	2	1	1	1	1	1	2	1	1	2	2	1	1	1	2	1	1	-	-	-	-	-	1	-	1	2	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
155	25	1	3	1	2	1	2	1	2	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	-	-	-	-	-	-	1	-	2	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
156	37	2	15	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
157	40	2	18	1	1	1	1	1	1	1	1	2	1	1	2	2	1	1	1	2	2	1	2	1	1	1	1	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
158	47	2	25	2	1	1	1	1	2	2	2	1	1	1	2	1	1	1	1	2	1	1	2	1	2	1	1	1	-	-	-	-	-	-	1	2	2	2	-	2	2	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
159	40	2	18	2	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	2	1	1	2	1	2	1	1	1	-	-	-	-	-	-	1	2	2	2	-	2	2	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
160	41	2	19	1	1	1	2	1	1	2	2	2	1	2	1	1	1	1	1	1	2	1	1	1	2	1	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	1	1	1	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
161	33	1	11	1	2	1	2	1	1	2	1	1	2	1	2	1	1	1	1	2	2	2	2	1	2	1	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
162	31	1	9	1	1	1	2	2	1	1	2	2	2	1	2	1	1	1	1	2	2	1	2	1	1	1	1	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
163	36	2	14	1	1	1	2	2	1	1	2	1	1	1	2	1	1	1	1	2	2	1	1	1	2	1	1	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
164	26	1	4	2	1	1	2	2	1	2	1	1	1	1	1	1	1	1	1	2	2	2	1	2	2	1	2	1	-	-	-	-	-	-	1	2	2	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
165	25	N	3	2	2	1	2	1	1	2	1	2	1	2	1	1	1	1	1	2	2	1	2	1	1	2	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
166	30	2	8	2	1	1	2	2	2	2	1	1	1	1	1	2	1	1	1	1	2	1	1	2	2	1	2	1	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
167	32	2	10	1	2	1	1	1	1	2	1	1	2	2	1	1	1	1	1	1	2	2	1	1	2	1	2	-	-	-	-	1	-	-	1	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
168	31	1	9	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2

ANNEXURE IV - MASTER CHART GROUP B

Sl No.	Age (Years)	Parity	Service (Years)	PRETEST ASSESSMENT																																					
				Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24	Question 25 a	b	c	d	e	f	g	Question 26	Question 27	Question 28	Question 29	Question 30	Question 31	Question 32
169	25	N	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
170	28	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	1	-	-	-	-	-	1	-	2	2	-	-	-	-	-
171	25	1	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-
172	25	N	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-
173	26	1	4	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
174	25	N	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	-	-	-	-	1	-	2	2	-	-	-	-	-
175	37	2	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	2	-	-	-	-	1	-	-	2	2	-	-	-	-	-
176	40	2	18	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-
177	47	2	25	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
178	40	3	18	1	1	1	1	2	2	1	1	1	1	2	2	1	1	1	1	1	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
179	41	1	19	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
180	33	2	11	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	-	-	-	-	-	-	1	2	2	-	-	-	-	-
181	31	1	9	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
182	36	2	14	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	-	-	-	-	-	1	-	2	2	-	-	-	-	-
183	26	N	4	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
184	25	N	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-
185	30	1	8	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
186	32	1	10	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
187	31	2	9	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
188	25	N	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	1	-	-	-	-	-	2	2	-	-	-	-	-
189	28	1	6	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
190	25	N	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
191	25	1	3	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
192	32	2	10	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	-	-	-	-	1	-	2	2	-	-	-	-	-
193	39	3	17	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2	-	1	-	-	-	-	-	2	2	-	-	-	-	-
194	46	1	24	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	-	-	-	-	1	-	-	2	2	-	-	-	-	-
195	51	2	29	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	2	2	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
196	26	1	4	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	-	-	-	-	-	-	1	2	2	-	-	-	-	-
197	34	2	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	2	1	-	-	-	-	-	-	2	2	-	-	-	-	-
198	55	2	33	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
199	42	1	20	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	-	-	-	-	-	-	2	2	-	-	-	-	-
200	29	1	7	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	-	-	-	-	-	1	-	2	2	-	-	-	-	-

Sl No.	POST TEST ASSESSEMENT																							
	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10	Question 11	Question 12	Question 13	Question 14	Question 15	Question 16	Question 17	Question 18	Question 19	Question 20	Question 21	Question 22	Question 23	Question 24
169	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
170	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
171	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
172	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
173	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
174	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
175	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
176	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
177	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
178	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
179	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
181	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	2
182	1	1	1	1	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1
183	2	1	2	2	1	2	2	1	1	2	2	2	1	2	1	2	2	1	2	1	2	2	1	2
184	1	2	1	2	1	1	2	2	1	1	2	2	2	1	1	1	1	2	2	2	2	2	1	2
185	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	2	1	1	2	1	1
186	1	2	1	1	1	1	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	2	1	1
187	1	1	1	1	1	2	1	1	2	1	1	1	2	1	2	2	1	2	2	2	2	1	1	2
188	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
189	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
190	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
191	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
192	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
193	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
194	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
195	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
196	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
197	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
198	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
199	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2
200	1	1	1	2	1	2	2	1	1	1	2	1	1	1	1	1	2	2	2	2	1	2	1	2

ANNEXURE IV - KEY TO MASTER CHART

1	Yes
2	No
N	Nulliparous
Question 1	Cervical cancer is fatal condition
Question 2	Cervical cancer is a major public health problem
Question 3	Cervical cancer can be treated if diagnosed early
Question 4	Hysterectomy is the only treatment option for women with cervical cancer.
Question 5	HPV infection is associated with cervical cancer.
Question 6	HPV infection always progresses to cervical cancer.
Question 7	Women with fewer pregnancies are at higher risk of developing cervical cancer.
Question 8	Initiating sexual activity at an early age increase the risk of cervical cancer
Question 9	Women with multiple sex partners are at an increased risks for cervical cancer
Question 10	Women who smoke or chew tobacco are at higher risk of cervical cancer.
Question 11	Long term OC pill used does not increase the risk for cervical cancer.

Question 12 Co-infection with HIV increases the risk of cervical cancer.

Question 13 Women may be completely asymptomatic in the initial phase.

Question 14 Women with cervical cancer often present with post coital/post menstrual bleeding.

Question 15 Women presenting with persistent abnormal vaginal discharge should report to the doctor immediately.

Question 16 Do you agree that screening for cervical cancer at regular intervals help reduce the risk of cervical cancer.

Question 17 Cervical cancer should be done for high risk group only.

Question 18 Cervical cancer screening should be discontinued after 50 years of age.

Question 19 Women should be screened for cervical cancer once on 10 years.

Question 20 Pap Smear is the only test available for cervical cancer screening.

Question 21 VIA/VILI are the visual methods for cervical cancer screening

Question 22 A women can acquire HPV infection with mosquito bite.

Question 23 HPV infection can be prevented by vaccination.

Question 24 HPV vaccination should be administered to married women only.

Question 25 Which of the following acts as a barrier to cervical cancer screening?

a) Lack of awareness regarding cervical cancer screening.

b) Embarrassment to undergo pelvic examination.

c) Embarrassment to be examined by male doctor.

d) Fear that pelvic examination is painful.

e) Fear of the test result.

f) A feeling that women having specific complaints only should under go cervical cancer screening.

g) Time constraint/financial issue.

Question 26 Do you counsel other women about the benefit of cervical cancer screening.

Question 27 Did you undergo cervical cancer screening test in the last 3 years. If yes, then answer questions 28 to 32.

Question 28 Did you experience discomfort at the time of examination.

Question 29 Did you collect the test result?

Question 30 Did your doctor explain the test results?

Question 31 Will you repeat the test within the time specified by the doctor?

Question 32 Will you recommend the test to your friends/ relatives/ colleagues?

Sl No Serial Number