Chapter-II

REVIEW OF LITERATURE
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Researchers generally undertake a literature search to familiarize themselves with a knowledge base. A review of related literature is an integral component of any scientific approach. It involves the systematic identification, location, scrutinizing and summary of written materials that contain information on the research problem under study (Polit and Hungle, 2002).

A review of literature helps to assess what is already known, what is still unknown and untested to justify the need for its replication and to throw some light on the feasibility of the study and problems that may be encountered.

For the present research the investigator carried out extensive review of literature from the published, unpublished scholarly articles and internet search to broaden the understanding and insight in to the selected problem under study. The review of literature is a broad overview of studies, which are organized and arranged under the following headings.

- Studies Related To Prevalence / Epidemiology of Cervical Cancer
- Studies Related to Causes and Risk Factors of cervical cancer
- Studies Related to Signs and Symptoms of Cervical Cancer
- Studies related to cervical cancer screening and diagnosis
- Studies related to barriers and benefits of cervical cancer screening
- Studies related to cervical cancer treatment
- Studies related to cervical cancer prevention
- Studies related to awareness of cervical cancer
- Studies related to Structured teaching programme (STP)
2.1 Prevalence / Epidemiology of Cervical Cancer

Gopal (2012) conducted a study on examined disparities in cervical cancer mortality rates among US women in metropolitan and non-metropolitan areas from 1950 through 2007. During the last five decades, women in non-metropolitan areas had significantly higher cervical cancer mortality than those in metropolitan areas. Disparities persisted against a backdrop of consistently declining mortality rates. Throughout 1969–2007, both white and black women in non-metropolitan areas maintained significantly higher cervical cancer mortality rates than their metropolitan counterparts. Among black women, cervical cancer mortality declined at a faster pace in metropolitan than in non-metropolitan areas. In both metropolitan and non-metropolitan areas, black women had twice the mortality rate of white women. Survival rates were significantly lower in non-metropolitan areas, particularly among rural black women. The 5-year survival rate for black women diagnosed with cervical cancer was 50.8% in non-metropolitan areas, compared with 60.2% for black women and 71.0% for white women in metropolitan areas.

Gopal et al., (2012) conducted a study on Global Inequalities in Cervical Cancer Incidence. The mortality rates varied widely, with many African countries such as Guinea, Zambia, Comoros, Tanzania, and Malawi having at least 10-to-20-fold higher rates than several West Asian, Middle East, and European countries, including Iran, Saudi Arabia, Syria, Egypt, and Switzerland. HDI, GII, poverty rate, health expenditure per capita, urbanization, and literacy rate were all significantly related to cervical cancer incidence and mortality, with HDI and poverty rate each explaining >52% of the global variance in mortality. Both incidence and mortality rates increased in relation to lower human development and higher gender inequality.
levels. A 0.2 unit increase in HDI was associated with a 20% decrease in cervical cancer risk and a 33% decrease in cervical cancer mortality risk. The risk of a cervical cancer diagnosis increased by 24% and of cervical cancer death by 42% for a 0.2 unit increase in GII. Higher health expenditure levels were independently associated with decreased incidence and mortality risks.

Ali et al., (2012), the global burden of cervical cancer is disproportionately high among the developing countries where 85 per cent of the estimated 493,000 new cases and 273,000 deaths occur worldwide. There are several dimensions of the problem. Cervical cancer is a problem where people are poor, where the socio-economic status of the women is low and sometimes specific ethnicity also possess additional risk to the women to develop cervical cancer. Human papillomavirus infection is a main risk factor for the cervical cancer however there are some other factors which increase the risk. Among them some are number of sexual partners, age of first sexual intercourse, infection of sexually transmitted diseases, use of hormonal contraceptives, parity, age, smoking, food and diet. Apart from these factors, some other issues, such as policy on cancer, capacity of health system, socio-economic and cultural factors and awareness among the women are also associated with the cervical cancer related morbidity and mortality across the developing countries. There some interventions which give promising results in terms of reducing cervical cancer related morbidity and mortality. Among them visual inspection of cervix with acetic acid followed by treatment is one such effective method.

Lei et al., (2011) conducted a study on cervical cancer data of 11 cancer registries during 1988-2002 in China. The age and urban/rural differences and trend of cervical cancer incidence and mortality showed that during 1988-2002, a total of 6007 incidence cases and 3749 mortality cases of cervical cancer were reported in the
11 cancer registries. The incidence crude rate of cervical cancer was 3.80/100,000 and the world age adjusted rate was 2.78/100,000. In the same period, the mortality crude rate was 2.37/100,000 and the world age adjusted rate was 1.66/100,000. Declined incidence and mortality trends were observed during this period in urban as well as in rural areas. When calculating the rates by age group, we found that the declining trends were only for older women and increasing trends for younger women, especially for women in the rural areas.

Ronco et al., (2010) study on human papillomavirus (HPV)-based screening for cervical study of the four randomised trials to investigate these outcomes. 176 464 women aged 20—64 years were randomly assigned to HPV-based (experimental arm) or cytology-based (control arm) screening in Sweden (Swedescreen), the Netherlands (POBASCAM), England (ARTISTIC), and Italy (NTCC). These women for a median of 6-5 years (1 214 415 person-years) were followed and identified 107 invasive cervical carcinomas by linkage with screening, pathology, and cancer registries, by masked review of histological specimens, or from reports. Cumulative and study-adjusted rate ratios (experimental vs control) were calculated for incidence of invasive cervical carcinoma. The rate ratio for invasive cervical carcinoma among all women from recruitment to end of follow-up was 0.60 (95% CI 0.40-0.89), with no heterogeneity between studies (p=0.52). Detection of invasive cervical carcinoma was similar between screening methods during the first 2-5 years of follow-up (0.79, 0.46-1.36).

Bruni et al., (2010) conducted a study on meta-analysis was performed of studies published between 1995 and 2009 that used polymerase chain reaction or Hybrid Capture 2 for HPV detection in women with normal cytological findings. The analysis included 194 studies comprising 1,016,719 women with normal cytological
findings. The estimated global HPV prevalence was 11.7% (95% confidence interval, 11.6%-11.7%). Sub-Saharan Africa (24.0%), Eastern Europe (21.4%), and Latin America (16.1%) showed the highest prevalence. Age-specific HPV distribution presented with a first peak at younger ages (<25 years) and, in the Americas and Africa, a rebound at older ages (45 years). Among the women with type-specific HPV data (n= 215,568), the 5 most common types worldwide were HPV-16 (3.2%), HPV-18 (1.4%), HPV-52 (0.9%), HPV-31 (0.8%), and HPV-58 (0.7%).

Sofia et al., (2008) conducted a study on we analyzed data from national databases to obtain mortality trends and regional variations using a Poisson regression model based on location (urban-rural). During 1995-2005 a total of 48,761 cervical cancer (CC) deaths were reported in Mexico (1995=4 280 deaths/year; 2005=4 620 deaths/year). On average, 12 women died every 24 hours, with 0.76% yearly annual growth in CC deaths. Women living in rural areas had 3.07 higher CC mortality risks compared to women with urban residence. Comparison of state CC mortality rates (reference=Mexico City) found higher risk in states with lower socio-economic development (Chiapas, relative risk [RR]=10.99; Nayarit, RR=10.5). Predominantly rural states had higher CC mortality rates compared to Mexico City (lowest rural population).

Carmen (2008) conducted a study and observed a significant decline in the incidence and mortality rates of cervical cancer in the United States since the introduction of the Pap test. Unfortunately, a reduction in the burden of cervical cancer is not equal across all ethnic and racial groups; significant disparities exist. Disparities are reflected not only in mortality and incidence rates, but also in screening rates.
Asmaa Haseeb Hwaid (2013) conducted a cross sectional study about study 198 women, the age range was (17-60) years present results show that the women demonstrated poor levels of knowledge about HPV and cervical cancer, 106(53.54%) of them had heard about HPV, while, only 73(36.87%), 60(30.30%) knew that the cervical cancer and genital warts caused by HPV respectively. This study showed that the participants had very limited knowledge about pap smear, only 57(28.79%) knew that pap smear is the test to detect abnormal cervical cells, the results show highest level of knowledge and awareness about HPV, cervical cancer was among health care workers group, participants who live in urban and married with statistically significant difference (P<0.05), (P<0.01).

Geetha Mani et al., (2012) conducted a descriptive, cross-sectional study conducted among 100 women attending a rural health centre, in Kancheepuram district, Tamil Nadu between May and July 2012, using a semi-structured schedule. Among the 100 participants, 74% were aware of the term cervical cancer. This awareness was positively associated with higher levels of education, socioeconomic status and occupational status (p< 0.05). Awareness about symptoms (29.7%), risk factors (1.35%), Pap smear (14.9%), other screening methods (13.5%) and treatment (4%) was low. None of the participants were aware of human papilloma virus (HPV) vaccine and none had undergone screening or immunization.

Habib Hasan Farooqui et al (2012) conducted a study to know the most prevalent types of human papillomavirus in cervical cancer in India are HPV 16 and HPV 18, found in 60.7 per cent and 16 per cent of cases respectively. A comprehensive strategy with a judicious mix of interventions on health promotion, specific protection (vaccination), early diagnosis (screening), and treatment should be instituted to prevent and control cervical cancer in India. Proponents of vaccination
and screening argue for enhanced investments on these interventions based on their relative cost-effectiveness. For policymakers, the major concerns about these interventions remain affordability and cost to government. Herein we try to review comprehensively the evidence on prevention and control interventions and to recommend appropriate policies to guide public health decision-making.

2.2 Causes and Risk Factors of Cervical Cancer

Biswas et al (2012) used a case-control design to a total of 268 subjects, comprising 134 women with invasive cervical cancer as cases and 134 control women were studied. A multiple logistic regression model was used to analyses the data. In a multiple logistic regression model, independent effects were observed for early age at first coitus, showing maximum risk in women who reported their first intercourse at < 12 years of age, compared to that of women at > or = 18 years (odds ratio [OR] = 3.5, 95% confidence interval [CI]: 1.1-10.9). Increased risk was also seen for women who had extramarital sex relationships (OR = 5.5, 95% CI: 1.5-19.5).

Austoker, (2011) conducted a study on women at National cancer Institute of the NIM dealing with cervix cancer the exciting development of vaccines for human papilloma virus (HPV). Both target HPV 16 and HPV 18 C account for about 70% of cases of cervical cancer. The merck vaccine also target HPV 6 and HPVII account for about 90% of external genital warts.

Lia (2010) conducted a cross-sectional survey of risk factors for cervical cancer in 1991 in one city and 12 villages in the province. A marked decline in cervical cancer mortality rates was observed from 1970 to 1992 and in successive birth cohorts from 1892 to 1927, and rates remained relatively constant in subsequent birth cohorts through that of 1952. The percentages of women with selected risk
factors were lower in younger women (30–54 years) than in older women (55–69 years) in both cities and rural areas.

M. Burd., (2010) studies the association between certain oncogenic (high-risk) strains of HPV and cervical cancer. Although HPV is essential to the transformation of cervical epithelial cells, it is not sufficient, and a variety of cofactors and molecular events influence whether cervical cancer will develop. Early detection and treatment of precancerous lesions can prevent progression to cervical cancer. Identification of precancerous lesions has been primarily by cytologic screening of cervical cells. Cellular abnormalities, however, may be missed or may not be sufficiently distinct, and a portion of patients with borderline or mildly dyskaryotic cytomorphology will have higher-grade disease identified by subsequent colposcopy and biopsy. Sensitive and specific molecular techniques that detect HPV DNA and distinguish high-risk HPV types from low-risk HPV types have been introduced as an adjunct to cytology.

Gatune JW and Nyamongo (2005) conducted an ethnographic study of cervical cancer among women in rural Kenya with question is there is a folk causal model? One hundred and sixty women (mean age 37.9 years) who sought various health cares interviewed using a semi-structured questionnaire. In addition, three focus group discussions (25 participants) were held, five factors obtained from a group of 41 women respondents. All women were aged between 20 and 50 years. About 40 percent knew about cervical cancer, although many still lack factual information. A history of sexually transmitted diseases (61.5%), multiple sexual partners (51.2%), and contraceptive use (33%) were identified as risk factors.
Noureddine Chaouki, (2010), conducted a hospital-based case-control study. The study included 214 cases of invasive cervical cancer and 203 controls. A structured questionnaire was used to investigate known and suspected risk factors for cervical cancer. In multivariate adjusted or HPV-stratified analyses, in addition to the strong effect of HPV, other risk factors identified were sexual intercourse with multiple partners before the age of 20 and low socio-economic status. Use of oral contraceptives for 5 or more years and high parity were also found to be related to cervical cancer.

Huang, et al., (2010) conducted a study to evaluate the association between HPV and cervical cancer in Chinese women, among the women who lived in Shanghai, People's Republic of China. Biopsies from 40 women, diagnosed with either squamous-cell carcinoma (n = 35) or adenocarcinoma (n = 5) were tested for HPV DNA by PCR. The HPV types present in tumors were determined either by hybridization of PCR products with HPV type-specific probes or by PCR-based sequencing. A total of 35 of the 40 cervical cancer specimens (87.5%) contained HPV DNA. In this population of Chinese women with cervical cancer, HPV 52 and 58 were as prevalent as the “high-risk” (for cervical cancer) viruses HPVs 16 and 18.

Bosch et al., (2009) conducted an epidemiologic studies and showed that the association of genital human papillomavirus (HPV) with cervical cancer is strong, independent of other risk factors, and it is consistent in several countries. There are more than 20 different cancer-associated HPV types, More than 1000 specimens from sequential patients with invasive cervical cancer were collected and stored frozen at 32 hospitals in 22 countries. Slides from all patients were submitted for central histologic review to confirm the diagnosis and to assess histologic characteristics. A generalized linear Poisson model was fitted to the data on viral type and geographic
region to assess geographic heterogeneity. HPV DNA was detected in 93% of the
tumors, with no significant variation in HPV positivity among countries. HPV 16 was
present in 50% of the specimens, HPV 18 in 14%, HPV 45 in 8%, and HPV 31 in 5%.
HPV 16 was the predominant type in all countries except Indonesia, where HPV 18
was more common.

**Harry et al., (2009)** conducted a study on Multi factorial Etiology of Cervical
Cancer, human papillomaviruses (HPV), especially HPV-16 and HPV-18, play at
least a major if not a necessary role in the etiology of cervical cancer. However, many
investigators acknowledge that HPV is not sufficient to induce cervical cancer and
that a multi factorial etiology is likely. HPV can be found in a growing proportion of
patients with cervical cancer, approaching 100%, but is not yet found in every patient
with disease. Other factors, such as herpes simplex virus type 2 infections, cigarette
smoking, vaginal douching, nutrition, and use of oral contraceptives; have been
proposed as contributing factors.

**Angela et al., (2009)** Conducted study among 16 573 women with cervical
cancer and 35 509 without cervical cancer were reanalysed centrally. Relative risks of
cervical cancer were estimated by conditional logistic regression, stratifying by study,
age, number of sexual partners, age at first intercourse, parity, smoking, and
screening. Among current users of oral contraceptives the risk of invasive cervical
cancer increased with increasing duration of use (relative risk for 5 or more years' use
versus never use, 1•90 [95% CI 1.69—2.13]). The risk declined after use ceased, and
by 10 or more years had returned to that of never users. A similar pattern of risk was
seen both for invasive and in-situ cancer, and in women who tested positive for high-
risk human papillomavirus. Relative risk did not vary substantially between women
with different characteristics.
**Moreira ED et al., (2006)** conducted a cross-sectional study on “Assessment of knowledge and attitude of young uninsured women toward human Papilloma virus vaccination and clinical trials”, Brazil. The sample consisted of 204 women aged 16 to 23 years, attending a public outpatient gynecological clinic. A questionnaire was administered by in person interview. Data on knowledge and attitudes towards HPV vaccination was collected. Overall, 72 percent of the respondents would enroll in a HPV vaccine trail, despite the fact that 69 percent of women were ignorant of what HPV may cause, and only 10 percent acknowledged that HPV might lead to cervical cancer. The need of a placebo arm (31%) and three vaccinations injections (25%) were the trial design characteristics most cited for deterring participation. Factors promoting participation were “Careful/detailed consultations by the same physician” (92%), “access to more information on women’s health” (84%), and “Office visits on time” (79%); whereas “clinic too far from home” (36%), “fear of adverse events” (29%), and “Gynecologic examination discomfort” (25%) were the most commonly reported reasons for not enrolling in a trial. Being sexually active, more than three lifetime sexual partners and perception of high risk for cervical cancer were predictors of participation in a HPV vaccine trial urban, young populating. Thus, when planning HPV vaccine trial. Knowledge of HPV infection and cervical cancer was low in this urban, young population. Thus when planning HPV vaccine trials, it was important to “consider implementing educational programs to provide knowledge of the benefits of preventive vaccine and information on the etiology of and risk factors for cervical cancer.

**Apple et al., (2006)** conducted a study to find the association between tobacco smoking and cervical cancer, The International Collaboration of Epidemiological Studies of Cervical Cancer has brought together and combined individual data on
13,541 women with and 23,017 women without cervical carcinoma, from 23 epidemiological studies. Relative risks (RRs) and 95% confidence intervals (CIs) of carcinoma of the cervix in relation to tobacco smoking were calculated with stratification by study, age, sexual partners, age at first intercourse, oral contraceptive use and parity. Current smokers had a significantly increased risk of squamous cell carcinoma of the cervix compared to never smokers (RR = 1.60 (95% CI: 1.48-1.73), p<0.001). There was increased risk for past smokers also, though to a lesser extent (RR = 1.12 (1.01-1.25). In current smokers, the RR of squamous cell carcinoma increased with increasing number of cigarettes smoked per day and also with younger age at starting smoking (p<0.001 for each trend), but not with duration of smoking (p-trend = 0.3). Eight of the studies had tested women for cervical HPV-DNA, and in analyses restricted to women who tested positive, there was a significantly increased risk in current compared to never smokers for squamous cell carcinoma (RR = 1.95 (1.43-2.65).

Xavier castellsague and Nubia Munoz, (2003) conducted large prospective and retrospective cohort studies on cofactors in Human popilloma virus carcinogenesis, role of parity oral contraceptives and tobacco smoking. Among middle-aged women in which several markers of HPV exposure are used and HPV persistence is documented it would b e valuable to study the role of these and other cofactors in HPV carcinogenesis, multiparous women who are smokers, and women on long-term oral contraceptive pills use may need close surveillance for cytologic abnormalities and HPV infections than women in the general population.

Chichareon et al., (1998) conducted a hospital-based, case-control study of invasive cervical cancer to investigate risk in relation to HPV infection and its epidemiologic cofactors in Hat-Yai, Thailand. A total of 338 patients with squamous
cell carcinoma, 39 patients with adenocarcinoma, and 261 control subjects were included in the study and were interviewed to obtain information with regard to cervical cancer risk factors. HPV DNA was detected in 95% of patients with squamous cell carcinoma, 90% of those with adenocarcinoma, and 16% of control subjects. For patients with squamous cell carcinoma, the most common types of HPV found were type 16 (60% of the positives), type 18 (18%), type 58 (3%), type 52 (3%), and type 31 (2%). For patients with adenocarcinoma, the most common HPV types found were type 18 (60% of the positives), type 16 (37%), and type 45 (3%).

Ravikiran et al., (2013) conducted a cross-sectional study among 345 village women of age group 15 years and above using systematic random sampling technique by a predesigned and a pretested questionnaire. Data was analyzed using SPSS version 17 for windows. The risk factors of carcinoma cervix like multiple sexual partners, smoking tobacco and prolonged use of Oral Contraceptive Pills (OCPs) for a period of 5 or more years for family planning were known to majority of the rural women. Misconceptions about carcinoma cervix like screening for carcinoma cervix, Intra Uterine Devices (IUDs) usage, Use of tampons and herbs was seen in a maximum proportion of the village women.

Sing, et al., (2012), conducted a Epidemiological Study of Various Risk Factors For Carcinoma Cervix of 813 women at the outpatient department (OPD), smears of the women who were suspected for carcinoma on clinical examination were confirmed by the cyto pathological investigations and were found to be the cases of SIL (Squamous Intraepithelial Lesion) (90; 11.68%) and carcinoma cervix (4; 0.51%). The compatibility between histology and cytology was 100% in the 3 cases of the 4 cases of frank carcinoma cervix diagnosed on cytology. Study revealed greater age,
higher parity, early marriage, poor educational status, rural habitation, sexually transmitted infections (mainly HPV; Human Papilloma Virus), clinical lesions of the cervix and ethnic groups variation as the predominant factors in the path of cervical carcinogenesis.

**Jissa V Thulaseedharan (2012)** conducted a study on Socio demographic and reproductive potential risk factors for cervical cancer were studied using the data from a cohort of 30,958 women who constituted the unscreened control group in a randomized screening trial in Dindigul district, Tamilnadu, India. The analysis was accomplished with the Cox proportional hazard regression model. Women of increasing age (HR=2.4; 95% CI: 1.6, 3.8 in 50-59 vs 30-39), having many pregnancies (HR=7.1; 1.0, 52 in 4+ vs 0) and no education (HR=0.6; 0.2, 0.7 in high vs. none) were found to be at significantly increased risk of cervical cancer. This cohort study gives very strong evidence to say that education is the fundamental factor among the socio demographic and reproductive determinants of cervical cancer in low resource settings.

**Singh (2012)** conducted a prospective analysis of a total number of 813 women, those underwent gynaecological examination from May-August, 2010 at the from outpatient department (OPD), of Obstetrics and Gynaecology, JA Groups of Hospitals, Gwalior for cervical pap smears, taken as a part of their routine check-up. Smears of the women who were suspected for carcinoma on clinical examination were confirmed by the cytopathological investigations and were found to be the cases of SIL (Squamous Intraepithelial Lesion) (90; 11.68%) and carcinoma cervix (4; 0.51%). The compatibility between histology and cytology was 100% in the 3 cases of the 4 cases of frank carcinoma cervix diagnosed on cytology. Study revealed greater age, higher parity, early marriage, poor educational status, rural habitation,
sexually transmitted infections (mainly HPV; Human Papilloma Virus), clinical lesions of the cervix and ethnic groups variation as the predominant factors in the path of cervical carcinogenesis.

2.3 Signs and Symptoms of Cervical Cancer

Gyenwali et al., (2014) conducted a cross-sectional descriptive study conducted in two tertiary cancer hospitals of Nepal. Face to face interview and medical records review were carried out among 110 cervical cancer patients. Total diagnostic delay was categorized into component delays: patient delay, health care providers delay, referral delay and diagnostic waiting time. Total 110 patients recruited in the study represented 40 districts from all three ecological regions of the country. Median total diagnostic delay was 157 days with more than three fourth (77.3%) of the patients having longer total diagnostic delay of >90 days. Out of the total diagnostic delay, median patient delay, median health care provider delay, median referral delay and median diagnostic waiting time were 68.5 days, 40 days, 5 days and 9 days respectively. Majority of the patients had experienced longer delay of each type except referral delay. Fifty seven percent of the patients had experienced longer patient delay of >60 days, 90% had suffered longer health care provider delay of >1 week, 31.8% had longer referral delay of >1 week and 66.2% had waited >1 week at diagnostic center for final diagnosis. Variation in each type of delay was observed among women with different attributes and in context of health care service delivery.

Nwozor et al., (2014) conducted a study on awareness of cervical cancer screening and uptake among women in Onitsha, Anambra State, Nigeria. Data were collected using close-ended structured questionnaires. 450 questionnaires, based on
completeness were analyzed. Percentages were calculated and expressed in simple descriptive statistics. Results showed that the awareness of cervical cancer screening was 160 (35.56%), while 8 (1.78%) had done the test. The reasons for not doing the test were: cost 70 (15.84%), lack of facility 70 (15.84%), lack of awareness 228 (51.58%), distance 13 (2.94%), do not think it is necessary 52 (11.76%), no reason 9 (2.04%). Majority of the respondents were traders 120 (26.67%) and students 119 (26.44%). 133 (29.56%) had secondary education, while 284 (63.11%) had tertiary education.

Raychaudhur et al., (2012) Conducted study on community-based cross-sectional study. Among 133 women in a rural area (Kawakhali) and 88 women in an urban slum (Shaktigarh) using predesigned semi-structured questionnaires. The respondents were informed of the causes (including HPV), signs and symptoms, prevention of cervical cancer and treatment, and the procedure of the Pap test and HPV vaccination. The prevalence of risk factors like multiparty, early age of marriage, use of cloth during menstruation, use of condom and OCP, early age of first intercourse was 37.2%, 82%, 83.3%, 5.4%, 15.8% and 65.6% respectively. Awareness about the cause, signs and symptoms, prevention of cervical cancer, Pap test and HPV vaccination was 3.6%, 6.3%, 3.6%, 9.5% and 14.5% respectively. Chi-square testing revealed that in the study population, significant differential at 5% exists between rural and urban residents with respect to number of children, use of cloth/sanitary napkins, family history of cancer and awareness regarding causes of cervical cancer.

Eleanor et al., (2012) conducted a study to explore factors that contribute to delay in seeking early diagnosis and treatment of cervical cancer among women in Malawi. In-depth interviews were conducted using a semi-structured interview guide
on a purposive sample of 24 women who were diagnosed of cervical cancer at the gynaecological wards of Zomba and Queen Elizabeth Central Hospitals in Malawi between July and September, 2011. The individual factors included; limited knowledge on symptoms and signs and limited financial resources. The health facilities factors included; limited accessibility and unavailability of cancer screening facilities in the health centers. Results show that there is a need to strengthen the screening of cervical cancer among women in the country. In addition, there is a need to create community awareness on the signs and symptoms of cervical cancer and the merits of seeking early diagnosis and treatment.

**Schalkwyk, et al., (2008)** conducted a qualitative study in 2007, using semi-structured interviews with 15 women with advanced cervical cancer, to understand the routes they followed from first signs and symptoms of disease to receiving treatment. The willingness of the women to be diagnosed was a positive finding of the study. The women did seek treatment, often more than once. The average number of months from first contact with a health care professional until diagnosis was 17.3, ranging from 11.8 months for urban participants to 28.4 months for rural participants, and three to seven months from diagnosis to referral for treatment. Lack of knowledge and awareness among health care professionals resulted in a low suspicion of cancer and misdiagnosis. A national cervical cancer strategy, including health education and re-training of health professionals, should be made a priority.

### 2.4 Cervical Cancer Screening and Diagnosis

**Castanon et al., (2014)** conducted a study on 1,341 women at age 65–83 years can were randomly selected from population registers. Depended on the age mix of women because of the weakening association with time since last screen: OR =
0.11, 95% CI 0.08–0.14 at 2.5 to 7.5 y since last screen; OR = 0.27, 95% CI 0.20–
0.36 at 12.5 to 17.5 y since last screen. Screening at least every 5.5 y between the ages
50 and 64 y was associated with a 75% lower risk of cervical cancer between the ages
65 and 79 y (OR = 0.25, 95% CI 0.21–0.30), and the attributable risk was such that in
the absence of screening, cervical cancer rates in women aged 65+ would have been
2.4 (95% CI 2.1–2.7) times higher. In women aged 80–83 y the association was
weaker (OR = 0.49, 95% CI 0.28–0.83) than in those aged 65–69 y (OR = 0.12, 95%
CI 0.09–0.17).

**Change et al., (2013)** conducted a study on Chinese women experienced Pap
testing. The women were invited to partake in the focus groups from having
participated in a large-scale quantitative study. Participants were all first-generation
immigrants and their average age was 53-years-old. We used content analyses to
analyze transcripts and extract themes. The women heavily endorsed traditional
Chinese medicine philosophy, conceptualizing physical health holistically, and
valuing preventative measures over screening and interceptive measures. Pap testing
was described as qualitatively different from other screening procedures, such that
women assigned a sexually charged meaning to Pap testing, often discussing it in
relation to sexual activity and promiscuity.

**Hazra et al., (2013)** conducted a study among 300 females, 63.4% (190/300)
were aged between 40 and 59 years. Nearly, 70.7% were illiterate and 52.6% had
monthly family income between Rs. 2,000 and 5,000. Majority was married and
72.7% had parity between 1 and 3 and 58.7% had early marriages. Unaided visual
examination of the women showed 62.7% of them had visible growth and 48.7% of
them had bleeding erosions. Visible growths along with bleeding erosions were
present in 11.3% cases. Histo pathological examination of cervical biopsy specimens
revealed mild, moderate and severe dysplasia in 14, 22 and 36 cases, respectively. A total of 212 patients had invasive squamous cell carcinoma. Only 16 patients had normal histopathology findings. Nearly, 56.61% had Stage II disease; among them 27 had Stage IIa and 33 had Stage IIb disease, 26 patients had Stage I disease. Stage IIIa and IIIb have been found in 50 and 12 cases respectively. Four cases had cancer extending to urinary bladder and rectum (Stage IVa).

**Ugwu, et al., (2013)**, Questionnaires were administered 177 female health-care workers selected systematically from the University of Nigeria. The awareness of screening for cervical cancer (91%) was significantly higher than that of the HPV vaccine (62.7%) [odds ratio (OR): 0.17; 95% confidence interval (CI): 0.09-0.30]. However, the acceptability rate of the HPV vaccine (91.0%) was significantly higher than that of cervical screening (71.4%) (OR: 4.04; 95% CI: 1.94-8.42)]. Only 25 (14.1%) of the health-care workers had done cervical screening, but 30 (49.2%) of the 61 respondents with adolescent daughters had immunized their daughters with the HPV vaccine.

**Muhamed et al., (2013)** conducted a study to explore the knowledge and awareness about cervical cancer among Iraqi women living in Malaysia. A self-administrated Arabic version questionnaire distributed among 142 Iraqi women in Malaysia. One hundred and eight participants ranging in age from 18 to 61 years (Mean = 36.1) returned the completed questionnaire. A lack of knowledge on cervical cancer and the Pap smear test was found among the respondents. Many women did not have a clear understanding of the meaning of an abnormal cervical smear and the need for the early detection of cervical cancer. These findings emphasize the need to educate and promote awareness among immigrant Iraqi women in Malaysia to risk factors for cervical cancer and to the need and the purpose of Pap smear screening.
**Begum et al., (2013)** conducted a study with a quasi-experimental design. Women aged between 18 to 49 years and their husbands were randomly selected for the survey. Pre and post intervention survey was conducted to see the impact of intervention on creating awareness and utilization of Pap smear services. Multilevel intervention program was adopted to achieve the objectives. The results showed a significant increase in awareness about cervical cancer among couples was observed from pre (5.5%) to post (97.7%) intervention survey. About 32.2% women were found to be infected with HPV.

**Swaddiwudhipong et al., (2012)** conducted a study to evaluate the effect of the programme on changes in knowledge and use of screening by comparing the results of three interview surveys of women, 18-65 years old, in villages selected by systematic sampling for each survey; first in 1991 (before the operation of the programme), secondly in 1994 (one year after the first screening campaign), and last in 1997 (one year after the second campaign). This report also compares data on Pap smears taken by the mobile unit with other existing screening services in the study area. A total of 1603, 1369, and 1576 women respectively, participated in each survey. The proportion of women reported knowing of the Pap smear test increased from 20.8% in 1991 to 57.3% in 1994 and to 75.5% in 1997. The proportion of women who had ever had a Pap smear increased from 19.9% in 1991 to 58.1% in 1994 and to 70.1% by 1997. Screening by the mobile unit accounted for 85.2% of all cervical intraepithelial neoplasia (CIN) III and all invasive cancers identified among the Pap smears taken by screening services in the area between 1992 and 1996. The rate of CIN III was 3.5/1000 smears in this screening programme, which was 5.2 and 2.0 times higher than the rates in the maternal and child health/family planning clinic and the annual one-week mass screening campaign respectively.
Rathodome et al., (2011) conducted a study on large cluster-randomized, controlled trial of a single round of HPV testing, cytology testing or visual inspection with acetic acid - with appropriate treatment for those confirmed positive - as interventions to decrease mortality from cervical cancer. The control arm did not receive any screening or treatment. Several issues are brought up through the approval and conduct of this trial, which was carried out among high-risk women in rural Maharashtra, India. Specifically, this trial offers an opportunity to further discussion around clinical equipoise, identification of primary endpoints, observation of null effects, and the informed consent process, within the context of a low-income setting. Such discourse may shed light on the necessity and manner of examining a biomedical intervention in low-income settings, when the intervention is already considered efficacious in high-income settings.

D Moon et al., (2011) conducted a study on 4651 women using VIA in Zambèzia Province. VIA was judged positive for squamous intraepithelial lesions in 8% (n=380) of the women (9% if age ≥30 years (n=3154) and 7% if age <30 years (n=1497); p=0.02). Of the 380 VIA-positive women, 4% (n=16) had lesions (0.3% of 4651 total screened) requiring referral to Quelimane Provincial Hospital. Fourteen (88%) of these 16 women were seen at the hospital, but records were inadequate to judge outcomes. Of women screened, 2714 (58%) either had knowledge of their cervical cancer prevention.

Catherine et al., (2011) conducted a study on a cross-sectional self-administered questionnaire in 5 parts with 46 items regarding cervical cancer etiology and prevention was addressed to healthcare workers in six hospitals of Yaoundé, Cameroon. Eight hundred and fifty questionnaires were distributed, 401 collected. Data were analyzed with SPSS version 16.0. Chi-square tests were used and P-values
< 0.05 were considered significant. Mean age of respondents was 38 years (range 20-71 years). Most participants were aware that cervical cancer is a major public health concern (86%), were able to identify the most important etiological factors (58%) and believed that screening may prevent cervical cancer (90%) and may be performed by Pap test (84%). However, less than half considered VIA or HPV tests screening tests (38 and 47%, respectively). Knowledge about cancer etiology and screening was lowest among nurse/midwives.

**Sheona et al., (2011)** conducted a study on 300 women aged 30 to 65 years who lived and/or worked in this community. Descriptive data and multivariate modeling were used to identify the predictors of the women's willingness to collect their own cervical samples. More than 80% of the 300 participants were willing to collect their own samples. In multivariate modeling, factors positively associated with this willingness were agreement to let outreach workers deliver the necessary swab at their homes (adjusted odds ratio [AOR], 4.10; 95% confidence interval [CI], 1.83–9.18) and willingness to undergo a pelvic examination if the sample was abnormal (AOR, 3.91; 95% CI, 1.03–14.90). Factors negatively associated were embarrassment at collecting the sample at home where they lacked privacy (AOR, 0.09; 95% CI, 0.03–0.29) and concern of not collecting the sample properly (AOR, 0.1; 95% CI, 0.05–0.3).

**Ibrahim, (2011)** conducted a cross-sectional prospective study of 100 asymptomatic women. The patients underwent a complete gynecological examination and filled in a questionnaire on risk factors and feasibility and acceptability. They were screened for cervical cancer by application of 3%–5% VIA. Women with a positive test were referred for colposcopy and treatment. Sixteen percent of screened women were tested positive. Statistically significant associations were observed
between being positive with VIA test and the following variables: uterine cervix laceration (odds ratio [OR] 18.6; 95% confidence interval [CI]: 4.64–74.8), assisted vaginal delivery (OR 13.2; 95% CI: 2.95–54.9), parity (OR 5.78; 95% CI: 1.41–23.7), female genital mutilation (OR 4.78; 95% CI: 1.13–20.1), and episiotomy (OR 5.25; 95% CI: 1.15–23.8).

Hounsagaard et al., (2010) conducted a study focus-group interviews with and 2 individual interviews with Greenlandic-speaking women. The analysis involved a phenomenological-hermeneutic approach with 3 levels of analysis: naive reading, structural analysis and critical interpretation. These revealed that women were unprepared for screening results showing cervical cell changes, since they had no symptoms. When diagnosed, participants believed that they had early-stage cancer, leading to feelings of vulnerability and an increased need to care for themselves. Later on, an understanding of HPV as the basis for diagnosis and the realization that disease might not be accompanied by symptoms developed. The outcome for participants was a life experience, which they used to encourage others to participate in screening and to suggest ways that information about screening and HPV might reach a wider Greenlandic population.

Wyshak, G. (2010) Studies have shown that human papilloma virus (HPV) infection is responsible for more than 90% of the cases of invasive cervical cancer worldwide, and it is related to 80% of pre-cancerous changes in the cervix. There is a vaccine that helps prevent cervical cancer and other conditions caused by certain types of Human Papillomavirus (HPV). The best time to get vaccinated is before you come in contact with the HPV virus. Cervical cancer can be prevented by identifying pre-cancerous lesions early using repeated papanicolaou smear screening and treating these lesions before they progress to cancer. In the United States, the introduction of
the papanicolaou smear has been responsible for a 90% decrease in deaths from cervical cancer. In Australia, 85% of the women who die of cervical cancer have not had regular papanicolaou smears and about 50% of them have never had a papanicolaou smear at all.

Sasieni, et al., (2009) conducted a Population based case-control study on 4012 women aged 20-69 with invasive cancer diagnosed in participating centre’s and two controls per case individually matched on age and area of residence. cervical cancer at ages 25-29 (odds ratio 1.11, 95% confidence interval 0.83 to 1.50). Screening was associated with a 60% reduction of cancers in women aged 40, increasing to 80% at age 64. Screening was particularly effective in preventing advanced stage cancers. Cervical screening in women aged 20-24 has little or no impact on rates of invasive cervical cancer up to age 30.

Mues, et al., (2008), systematically reviewed all studies examining sociocultural factors influencing cervical cancer screening among immigrant and ethnic minorities, fatalistic attitudes, a lack of knowledge about cervical cancer, fear of Pap smears threatening one's virginity, as well as beliefs that a Pap smear is unnecessary unless one is ill. Beliefs unique to specific cultural groups included: as childbirth, menses, sex, and stress were considered to play a role in one's susceptibility to cancer. African Americans identified administrative processes in establishing health care as barriers.

Ezem (2007) conducted a cross sectional study in which self administered questionnaires returned by eight hundred and forty six respondents were analysed using simple percentages. The level of awareness of cervical screening was 52.8 % (447), while 7.1 % (60) had ever done the test. The major sources of information about
cervical smear were hospital /health facilities (31.3%) and friends (30.9%). The most common reasons given for not doing the test were lack of awareness 390(46.1%), no need for it 106(12.5%) and fear of a bad result 98(11.6%).

**Castellsague, et al., (2002)** conducted a study on 1913 couples enrolled in one of seven case–control studies of cervical carcinoma in situ and cervical cancer in five countries. Circumcision status was self-reported, and the accuracy of the data was confirmed by physical examination at three study sites. The presence or absence of penile HPV DNA was assessed by a polymerase-chain-reaction assay in 1520 men and yielded a valid result in the case of 1139 men (74.9 percent). Penile HPV was detected in 166 of the 847 uncircumcised men (19.6 percent) and in 16 of the 292 circumcised men (5.5 percent). After adjustment for age at first intercourse, lifetime number of sexual partners, and other potential confounders, circumcised men were less likely than uncircumcised men to have HPV infection (odds ratio, 0.37; 95 percent confidence interval, 0.16 to 0.85). Monogamous women whose male partners had six or more sexual partners and were circumcised had a lower risk of cervical cancer than women whose partners were uncircumcised (adjusted odds ratio, 0.42; 95 percent confidence interval, 0.23 to 0.79).

**Smita et al., (2013)** a carried out cross sectional community based study 415 women, of them 263(63.4%) had one or more symptoms of reproductive tract infections. On examination, 69(35%) had cervicitis and 30(15.2%) pelvic inflammatory disease, 39(19.8%) bacterial vaginosis and candidiasis in 61(31%). Cervical erosion was present in 147(74.6%) women. On Pap smear, 20(10.2%) women had ASCUS (Atypical squamous cells of undetermined significance). Only 2(1%) women found HIV positive. No woman was found VDRL reactive.
Sankaranarayanan et al., (2013) conducted a study on a cluster randomized controlled trial in south India. Women aged 30-59 years in 113 clusters in Dindigul District were randomized to VIA screening by nurses (57 clusters, 48,225 eligible women) and to a control group (56 clusters, 30,167 women). 30,577 (63.4%) eligible women participated in screening. Younger, educated, married, multi parous, low-income women and those who have had tubal sterilization had a higher compliance with screening. Of the 2069 women diagnosed with CIN and invasive cancer, 1498 (72.4%) received treatment. Young women, those who practiced contraception and women with high-grade precursor lesions and invasive cancers were more likely to comply with treatment.

Aswathy et al., (2012) conducted a cross-sectional study in Vypin Block of Ernakulam District, Kerala, India where four of the seven Panchayats were randomly chosen. Households were selected by systematic random sampling taking every second house in the tenth ward of the Panchayat till at least 200 women were interviewed. Thus, 809 women were interviewed from four Panchayats. Mean age of the study population was 34.5 ± 9.23 yr. Three fourths of the population (74.2%) knew that cervical cancer could be detected early by a screening test. Majority of respondents (89.2%) did not know any risk factor for cervical cancer. Of the 809 women studied, only 6.9 per cent had undergone screening. One third of the population were desirous of undergoing screening test but had not done it due to various factors. These factors related to knowledge (51.4%) such as no symptoms, not being aware of Pap test, not necessary, etc. This was followed by resource factors (15.1%) like no time, no money, etc. and psychosocial factors (10.2%) included lack of interest, fear of procedure, etc. Independent predictors for doing Pap test included age >35, having knowledge of screening for cervical cancer and Pap test (P<0.05).
Singh et al., (2012) conducted a study on through an in-depth questionnaire used in Obstetrics and Gynecology OPD, Gwalior, India on a total of 813 women with a modal average age of 35.51 ± 10.64 years. We found a large amount of lack in awareness and perception in Indian women. Surprisingly all women presented were married. Only 9.59% of women had ever heard of cervical cancer, mostly belonging to upper socioeconomic group with only 11.62% underwent at least one cervical screening in their life time. None of them reported exact purpose of the Pap test. Male partner were the sole decision maker of the family in 47.20% women. 73.65% of the respondents were using clothes instead of tampons or sanitary pads during menstruation.

Shetty (2011) conducted a community based cross-sectional study among 30-65 years old married women in the field practice area of a tertiary health care center. A pre-designed questionnaire was administered to collect information on socio-demographic and reproductive characteristics from 316 women. They were tested for the presence of pre-malignant lesions of the cervix using Pap smear and VILI as screening tools. The VILI test was positive among 24 (7.6%) women and positivity was found to be more in the age group of 50 years and above, and among women from low socio-economic status. But the observed variations were statistically insignificant. None of the Pap smears showed any epithelial cellular abnormalities.

Elizabeth et al., (2011) conducted a study on Cervical cancer is a common disorder worldwide. Screening and treatment paradigms in highly developed countries have dramatically decreased disease prevalence and the implementation of preventive vaccination against high risk human papillomavirus (HPV) subtypes should decrease prevalence even further. Promising advances are also being made toward the development of a therapeutic vaccine for cervical neoplasia. Under-resourced
countries suffer from an inability to implement many of the approaches to prevention and diagnosis that have proved successful in countries with adequate resources. Several protocols are presently being developed that are low cost and require minimal training and infrastructure that may allow low-resource areas to begin to improve the early diagnosis of low and moderate grade cervical neoplasia.

**Pragya Sharma (2011)** conducted a community based cervical cancer screening programmed among women of Delhi using camp approach, Maulana Azad Medical college. Cross section studies were carried out in field practice areas. The awareness campus were organized, majority 98.7% of the women attending the camp were in reproductive age group 15-44 years and illiterate. A significant association between high parity and cervical cancer had been reported.

**Chankapa et al., (2011)** conducted a study on Nine hundred and sixty-eight adult women in the age group 15–60 years by simple random sampling technique in a population based descriptive cross-sectional study in a cervical cancer screening camp in a primary health center at the East Sikkim. Main outcome measures were the extent and correlates of cervical cancer without any interventions. Information on socio-demographic and reproductive variables was collected by interview method using this questionnaire. Out of 968 women in the study population, overwhelming majority 921 (95.15%) had no overt or pre-cancerous cervical lesion. Only 47 were found to have changes in their cervical epithelium. None of these 47 women was proved dyskaryotic on cytopathological screening of the cervical smear.

**Rengaswamy et al., (2009)** conducted a study on in this cluster-randomized trial, 52 clusters of villages, with a total of 131,746 healthy women between the ages of 30 and 59 years, were randomly assigned to four groups of 13 clusters each. The
groups were randomly assigned to undergo screening by HPV testing (34,126 women), cytologic testing (32,058), or VIA (34,074) or to receive standard care (31,488, control group). Women who had positive results on screening underwent colposcopy and directed biopsies, and those with cervical precancerous lesions or cancer received appropriate treatment. In the HPV-testing group, cervical cancer was diagnosed in 127 subjects (of whom 39 had stage II or higher), as compared with 118 subjects (of whom 82 had advanced disease) in the control group (hazard ratio for the detection of advanced cancer in the HPV-testing group, 0.47; 95% confidence interval [CI], 0.32 to 0.69). There were 34 deaths from cancer in the HPV-testing group, as compared with 64 in the control group (hazard ratio, 0.52; 95% CI, 0.33 to 0.83).

**Eleanor Chadza et al (2012)** conducted a semi-structured interview guide on a purposive sample of 24 women who were diagnosed of cervical cancer at the gynaecological wards of Zomba and Queen Elizabeth Central Hospitals in Malawi between July and September, 2011. Results show that there is a need to strengthen the screening of cervical cancer among women in the country. In addition, there is a need to create community awareness on the signs and symptoms of cervical cancer and the merits of seeking early diagnosis and treatment.

**Aruna Nigam et al., (2014)** conducted a study to know role of human papilloma virus (HPV) in the genesis of cervical carcinoma is well documented. The HPV 16 and 18 are found to be most commonly associated with invasive cervical carcinoma. The advent of cervical carcinoma vaccine has advanced the hopes that eradication of cervical carcinoma might be possible in future. The scenario of prevention of cervical carcinoma is completely different in developed and developing countries. The implementation of the vaccination as a routine in India is still controversial. Here we have tried to critically analyse these issues in Indian context.
However it is clear that cervical cancer vaccine is not an immediate panacea and cannot replace the cervical cancer screening which is mandatory in Indian context.

**Chukwuemeka Anthony Iyoke et al (2013)** Cervical cancer accounts for over 60% of the gynaecological cancer burden in developing countries despite being preventable by current technologies. This is due to the absence of effective nationally organized screening programmes in most developing countries. Institution of such programmes, therefore, has the potential to dramatically reduce gynaecological cancer burden in these countries. Subsidized human papilloma virus (HPV) vaccine and HPV typing as well as cheap screening techniques such as visual inspection aided with acetic acid hold the key to effective prevention of cervical cancer in these countries. This is because a significant proportion of patients in developing countries are unable to access and avail themselves of the few available preventive, diagnostic and treatment services because of poverty. Although, advocacy and the political will to invest in the development of human resources and healthcare infrastructure appear critical to gynaecological cancer control and reducing the burden of disease in many developing countries, the proposition assumes that resources are truly available for this investment.

### 2.5 Barriers and Benefits of Cervical Cancer Screening

**Jia et al., (2013)** conducted a cross-sectional survey of women conducted to determine their knowledge about cervical cancer and screening, demographic characteristics and the barriers to screening. Women who were willing to undergo screenings had higher knowledge levels. “Anxious feeling once the disease was diagnosed” (47.6%), “No symptoms/discomfort” (34.1%) and “Do not know the benefits of cervical cancer screening” (13.4%) were the top three reasons for refusing
cervical cancer screening. Women who were younger than 45 years old or who had lower incomes, positive family histories of cancer, secondary or higher levels of education, higher levels of knowledge and fewer barriers to screening were more willing to participate in cervical cancer screenings than women without these characteristics.

**Williams et al., (2013)**, conducted a Semi-structured interviews with 49 Ghanaian women with cancer and 171 Ghanaian women who did not have cancer. The quantitative analysis indicated that cancer patients were not more likely to have greater knowledge of cancer signs and symptoms than women without cancer. Analysis of the qualitative data revealed several psychological barriers to cervical cancer screening including, common myths about cervical cancer, misconceptions about cervical cancer screening, the lack of spousal support for screening, cultural taboos regarding the gender of healthcare providers, and the stigmatization of women with cervical cancer.

**Garbanati, et al., (2013)** conducted study on ninety-seven women of Mexican origin participated in 12 focus groups exploring barriers to screening. All participants knew what a Pap test was and most knew its purpose. More acculturated participants understood the link between HPV and cervical cancer. More recent immigrants did not. Most frequently mentioned barriers were lack of time and concern over missing work. Lower income and less acculturated women were less likely to be aware of free/low-cost clinics. Older and less acculturated participants held more fatalistic beliefs, were more embarrassed about getting a Pap test, were more fearful of being perceived as sexually promiscuous, and were more fearful of receiving disapproval from their husbands.
Julinawati et al., (2013) conducted a study perceived barrier constructs within the aforementioned model in order to understand reasons that might contribute to the consistency of Pap smear uptake. Previous use of HBM has shown that the main cause underpinning in affecting change is to alter behavior (Webb and Sheeran, 2006). While use of HBM has made a positive influence on behavioral change by way of ‘cues to action’ element in its construct, the cues to action effect could be as good or as bad as the receivers’ perception (Rosenstock et al., 1994). It appears that HBM does not work when it comes to non-health behavior prediction (GALVIN KT, 1992) through a comprehensive literature review was carried out to identify, analyze, synthesize and evaluate the best-published information scholars, researchers and practitioners published in this subject area (Fink, 2009).

Watkins et al., (2012) conducted a study using direct interviews to learn about factors that may influence cervical cancer screening among rural Mexican women. We interviewed 97 rural women between the ages of 16 and 66 were interviewed and found that 52% had not received a Pap smear within the last 2 years (of that group, 62% had never received a Pap smear). In our sample, the most frequent reason for not obtaining a Pap smear was anxiety regarding physical privacy (50%). Less frequent reasons were lack of knowledge (18%) and difficulty accessing health care (14%). Women who had delivered children were significantly more likely to have received a Pap smear (71%) than women who had no children (10%), P < 0.05. The responses of many women suggest that compliance with cervical cancer screening would be enhanced by addressing cultural beliefs, encouraging conversations about women's health issues, and increasing the number of female health care providers.
**Fort et al., (2011)** study was to know how women in rural Malawi make health-seeking decisions regarding cervical cancer screening using qualitative research methods. This study found that the primary cue to action for cervical cancer screening was symptoms of cervical cancer. Major barriers to seeking preventative screening included low knowledge levels, low perceived susceptibility and low perceived benefits from the service. Study participants did not view cervical cancer screening as critical health care. Interviews suggested that use of the service could increase if women are recruited while visiting the hospital for a different service.

**Were et al., (2011)** conducted a Cross-sectional questionnaire survey involving a consecutive sample of 219 consenting women about perceptions on cervical cancer risk, barriers to screening and previous screening. Out 219 women interviewed, 12.3% of participants had screened before. Women of over 30 years were more likely to have screened before (p=0.012). While 22.8% felt that they were at risk of the cervical cancer, 65% of all participants, nevertheless, wished to be screened. Perception of being at risk was significantly associated with a felt need for screening (p=0.002), an association that persisted only for women reporting multiple lifetime sex partners (p=0.005). Fear of abnormal results and lack of finances were the commonest barriers to screening reported by 22.4% and 11.4% of respondents, respectively.

**Banda et al., (2009)** conducted a quantitative design among 196 women from the population of women aged 18 and over in two Reproductive Health clinics, a structured questionnaire was used to collect data. The questionnaire was translated from English into the local Chichewa language so that respondents were interviewed and responded in a language that they were able to comprehend. The study revealed that the main barrier to CCS was that women lack knowledge and information about
cervical cancer and there is a lack of publicity about CCS services. Lack of knowledge was found in relation to - risk factors, prevention of, detection of and benefits of cervical cancer screening with a greater knowledge deficit being found in the rural women.

Eduardo, et al., (2009) conducted a qualitative study to know barriers to use of the detection program from the point of view of actual and potential program users. Four focus groups were organized in standard conditions in Mexico City (urban, developed) and in the southern state of Oaxaca (rural, economically disadvantaged area). Participants were either women with at least one previous Papanicolaou (Pap) test or women who had never had the test. Barriers to Pap test use included (1) lack of knowledge about cervical-uterine cancer etiology, (2) not knowing that the Pap test exists, (3) the conception that cancer is an inevitably fatal disease, (4) problems in doctor/medical institution-patient relationships, (5) giving priority to unmet needs related to extreme poverty, (6) opposition by the male sexual partner, (7) rejection of the pelvic examination, (8) long waits for sample collection and receiving results, and (9) perceived high costs for care. To increase coverage of the early detection program for cervical-uterine cancer in Mexico, the needs, perceptions, and beliefs of women and their partners must be taken into account when developing policy and planning, given the role these factors play in the decision-making process that leads to their participation or nonparticipation in this program.

2.6 Cervical Cancer Treatment

Anas Gamal et al., (2014) Conducted a study 355 patients with histologically confirmed ICC were recruited at the Departments of Gynaecology and Radiotherapy at Kenyatta National Hospital (KNH). Structured questionnaires were completed
recording socio-demographics, tumour response and overall survival following
treatment with combinations of external beam radiation (EBRT), brachytherapy and
adjuvant chemotherapy. Of the 355 patients, 42% (146) were lost to follow-up while
18% (64) died during the two year period. 80.5% of patients presented with advanced
stage IIB disease or above, with only 6.7% of patients receiving optimal combined
EBRT, brachytherapy and adjuvant chemotherapy. Kaplan Meier survival curves
projected two year survival at <20%.

**Basel, (2013)** conducted a study on women who received Avastin plus
chemotherapy compared to those who received chemotherapy alone (HR=0.71,
p=0.0035). Women who received Avastin plus chemotherapy lived a median of 3.7
months longer compared to those who received chemotherapy alone; the median
overall survival (OS) was 17 months with Avastin plus chemotherapy compared to
13.3 for chemotherapy alone. No new safety signals related to Avastin were observed
and overall safety was consistent with that seen in previous pivotal studies of Avastin
across different tumour types.

**Maranga et al., (2013)** conducted study on between 2008 and 2010, 355
patients with histologically confirmed ICC were recruited at the Departments of
Gynaecology and Radiotherapy at Kenyatta National Hospital (KNH). Structured
questionnaires were completed recording socio-demographics, tumour response and
overall survival following treatment with combinations of external beam radiation
(EBRT), brachytherapy and adjuvant chemotherapy. Of the 355 patients, 42% (146)
were lost to follow-up while 18% (64) died during the two year period. 80.5% of
patients presented with advanced stage IIB disease or above, with only 6.7% of
patients receiving optimal combined EBRT, brachytherapy and adjuvant
chemotherapy. Kaplan Meier survival curves projected two year survival at <20%.
**Chai et al., (2013)** conducted a study on Medical records of FIGO stage IIB cervical cancer patients treated between July 2008 and December 2011 were retrospectively reviewed. A total of 148 patients underwent radical hysterectomy with pelvic lymph node dissection followed by adjuvant radiotherapy (surgery-based group). These patients were compared with 290 patients that received radical radiotherapy alone (RT-based group). Recurrence rates, progression-free survival (PFS), overall survival (OS), local control rates, and treatment-related complications were compared for these two groups. Similar rates of recurrence (16.89% vs. 12.41%, \( p = 0.200 \)), PFS (log-rank, \( p = 0.211 \)), OS (log-rank, \( p = 0.347 \)), and local control rates (log-rank, \( p = 0.668 \)) were observed for the surgery-based group and the RT-based group, respectively.

**Vasilevska et al., (2012)** conducted a systematic review and meta-analysis on identified 35 studies published in 1969–2008. In findings, indigenous populations did not have an elevated risk of cervical dysplasia or carcinoma in situ relative to non-indigenous populations, but had elevated risks of invasive cervical cancer (pooled RR=1.72) and cervical cancer-related mortality (pooled RR=3.45). There was a log-linear relationship between relative risk and disease stage. In conclusion, the indigenous women have a markedly higher risk of cervical cancer morbidity and mortality than non-indigenous women, but no increased risk of early-stage disease, suggesting that structural, social, or individual barriers to screening, rather than baseline risk factors, are influencing poor health outcomes.

**Khaemba et al., (2012)** conducted a descriptive non-intervention study on 211 patients with an initial diagnosis of cancer of the cervix between January 2010 and June 2011 were followed up for five years respectively. Total 108 (51.18%) patients were confirmed dead within that period, 15 (7.11%) were still alive and 88
(41.70%) were lost to follow up. The patients’ median age was 46 years. The probability of surviving beyond five years was estimated at 0.198. The cumulative proportion surviving at the end of the study interval was 0.67 at stage I, 0.36 at stage II, 0.15 at stage III and 0 at stage IV. The age of patients, stage at diagnosis and level of education significantly affects the survival. As is the trend in developing countries most of the patients were diagnosed at advanced stages. Only 15 (7.11%) had an initial diagnosis at stage I. In this study survival is poor compared to results from other developing countries such as Uganda.

**Sidath et al., (2011)** conducted a study on clinical staging has inherent deficiencies in evaluating several parameters that are critical for treatment planning. It is now widely accepted that cross-sectional imaging, and in particular MRI, has an important role to play in the staging of these tumors. MRI is an excellent modality for depicting invasive cervical cancer: it can provide objective measurement of tumor size and provides a high negative predictive value for parametrial invasion and stage IVA disease. MRI and positron emission tomography (PET)/computed tomography (CT) play key roles in identifying recurrent disease. PET/CT is also useful in detecting nodal and distant metastases and in radiotherapy planning. Diffusion-weighted MRI is an emerging imaging technique that is currently being evaluated for the detection of primary and recurrent disease and in the assessment of treatment response.

### 2.7 Cervical Cancer Prevention

**Wright et al., (2014)** conducted a descriptive cross-sectional study on 317 consecutively recruited consenting participants at a medical outreach using a pretested, interviewer-administered, semi structured questionnaire. Data analysis was
done using statistical package for social sciences version 19. Tests of significance were performed using 95% confidence interval with level of significance. The majority of respondents were within 30–49 years of age (46.7%) and female (62.1%) and 70.3% had secondary level education and above. About 37.2% of respondents had heard about cervical cancer with 84.5% of the participants willing to attend a cervical cancer health education program. Among the female respondents, 4.1% had received the HPV vaccine, while 5.1% had undergone a Pap test.

**Joshi, et al., (2013)** conducted a descriptive study was designed in order to access the knowledge, attitude and belief of rural women based in rural setup of B. G. Nagara. A sample size of 1000 women attending Gynaecology OPD between 25-55 years was targeted. Simple random sampling technique was adapted for the sample collection. Pre tested questionnaire were used for data collection. The study, albeit small and simple has thrown out a gamut of realizations related to the complete lack of knowledge and awareness not only regarding cervical Cancer but also other aspects of women's health among the populations.

**Frazer (2013)** conducted a study on Cervical Cancer Prevention in the 21st Century, Vaccines that prevent infection with two of the commonest human papillomaviruses associated with cervical cancer are available, and point of care tests for high risk human papillomavirus infection in cervical samples are likely to be available within the next year. Mapping of genetic polymorphisms predisposing to persistent HPV infection and cervical cancer is underway. However, strategies will likely be adopted that involve vaccination as the primary preventative measure, and detection of persisting high risk HPV infection as the first line secondary measure, perhaps with particular focus of secondary screening on women at increased genetic risk.
Cassidy, et al., (2012) reviewed the predictors of knowledge about human papillomavirus (HPV), HPV vaccine, and factors related to HPV vaccine uptake and report a quality assurance project that evaluated HPV vaccine uptake and three-dose completion rates. The setting was a small private urban pediatric practice. Chart review was used to describe HPV vaccine uptake and dose completion rates in 2007. The convenience sample included 189 girls aged 12 to 21 years with HPV vaccine uptake. During 2007, 153 girls aged 12 to 17 years and 42 girls aged 18 to 21 years were seen at well-child care visits. HPV vaccine uptake was 72% (n = 110) for the younger group and 79% (n = 33) for the older group. There was no significant difference in HPV vaccine uptake by group. One quarter (24%, n = 46) received the HPV vaccine dose at an episodic visit. The dose completion rate was 64% (n = 120).

Farooq et al., (2012) conducted a study prevalent types of human papillomavirus in cervical cancer in India are HPV 16 and HPV 18, found in 60.7 per cent and 16 per cent of cases respectively. A comprehensive strategy with a judicious mix of interventions on health promotion, specific protection (vaccination), early diagnosis (screening), and treatment should be instituted to prevent and control cervical cancer in India. Proponents of vaccination and screening argue for enhanced investments on these interventions based on their relative cost-effectiveness. For policymakers, the major concerns about these interventions remain affordability and cost to government.

Kobetz, et al., (2011) conducted a study on Women in Haiti and throughout the Haitian Diaspora shoulder a disproportionate burden of cervical cancer morbidity and mortality. The widespread Human Papillomavirus (HPV) vaccination holds promise for helping to attenuate this disparity. However, previous research has not fully examined Haitian women’s perceptions of, and barriers to, HPV vaccination,
which is essential for informing future intervention. The current paper aims to fill this gap. As part of ongoing Community-Based Participatory Research (CBPR) efforts, we conducted a series of focus groups with Haitian immigrant women in Little Haiti, the predominantly Haitian neighborhood in Miami, Florida, U.S. Focus group questions assessed women’s knowledge and beliefs about cervical cancer and HPV, their opinions of vaccines in general, their knowledge and perceptions of the HPV vaccine specifically and health communications preferences for cervical cancer prevention.

Results: Among the participants who had heard of HPV, many held misconceptions about virus transmission and did not understand the role of HPV in the development of cervical cancer. Virtually all participants expressed support for vaccines in general as beneficial for health. Some women had heard of the HPV vaccine, primarily as the result of a contemporary popular media campaign promoting the Gardasil® vaccine.

Nagan et al., (2011) conducted a study to provide evidence-based recommendations for health professionals, to develop a comprehensive cervical cancer program for a clinic, a community, or a country. Ensuring access to healthcare is the responsibility of all societies, and the Asia Oceania Research Organization in Genital Infections and Neoplasia (AOGIN) is committed to working collaboratively with governments and health professionals to facilitate prevention programs, to protect girls and women from cervical cancer, a disease that globally affects 500,000 and kills nearly 300,000 women annually, just over half of whom are in the Asia Oceania region. We share the vision that a comprehensive program of vaccination, screening, and treatment should be made accessible to all girls and women in the world.

Nour, (2009), conducted a study on cervical cancer kills 260,000 women annually, and nearly 85% of these deaths occur in developing nations, where it is the
leading cause of cancer deaths in women. Disparities of health and poverty play a large role in this high mortality rate. Whereas routine Papanicolaou and human papillomavirus (HPV) testing has dramatically reduced cervical cancer deaths in Western nations, without proper infrastructure, facilities, and medical training, the rates of cervical cancer in developing nations will remain high. Studies on HPV DNA testing and the low-technology method of “screen and treat” are promising. In addition, reducing the cost and increasing the availability of HPV vaccines in developing nations brings hope and promise to the next generation of women.

Ayinde and Omigbodun (2005) conducted a study on Knowledge, attitude and practices related to prevention of cancer of the cervix among female health workers in Ibadan. A 20-item questionnaire containing items on characteristics and knowledge of respondents on aetiology and prevention of cervical cancer was administered to a total of 205 female doctors, nurses and hospital maids in these hospitals within Ibadan metropolis. Knowledge about the condition was high among doctors, surprisingly inadequate among nurses and predictably poor among hospital maids (possibly due to lack of formal paramedical training). However, 93.2 percent of respondents had never had Pap smear performed. The poor utilization of the test was independent of respondent’s profession, marital status or hospital. Therefore, the study felt that there is a need to intensify campaign towards prevention of cervical cancer even among health workers.

According international agency (2010) the study was conducted to determine the prevalence of human papilloma virus among females in the United States. The National Health and Nutrition Examination Survey uses a representative sample of the US noninstitutionalized civilian population. Females aged 14 to 59 years who were interviewed at home and examined in a mobile examination center
and provided a self collected vaginal swab specimen. Swabs were analyzed for human papilloma virus and sexual behavior information was obtained from all participants. The result of overall human papilloma virus was 26.8% among US females aged 14 to 59 years. Human papilloma virus prevalence was 24.5% among females aged 14 to 19 years, 44.8% between 20 to 24 years, 27.4% between 25 to 29 years, 27.5% in 30 to 39 years, 25.2% in 40 to 49 years, and 19.6% in 50 to 59 years.

Satiya (2009), conducted a survey that cervical cancer is one of the most common among women worldwide. Its mortality exemplifies health in low and middle income countries and in low socio economic groups within the countries. About 80% of global cervical cancer cases in low and middle income countries. The prevention of cervical cancer is on the women themselves. Therefore it is the women knowledge level, motivation for screening and psychological factors that determine her health seeking behavior. In India, most of studies have either addressed compliance rate attendees of the specially arranged screening programmes or have been done in hospital setting.

Kathleen et al., (2014) conducted a study on preventing cervical cancer, it is one of the leading causes of cancer and cancer-related deaths among women worldwide. More than 85% of cases and deaths occur in the developing world where the availability of effective screening is limited. In this issue of the journal, Pierce and colleagues describe a novel technique using a high-resolution micro endoscope to diagnose cervical dysplasia. This perspective reviews the limitations of existing cervical cancer screening methods currently in use in low-resource settings and the potential for imaging to contribute to cervical cancer prevention in the developing world.
Dabash et al., (2013) conducted a systematic assessment included a review of the available literature, observations of services, collection of hospital statistics and the conduct of qualitative research (in-depth interviews and focus group discussions) to assess the perspectives of women, providers, policy makers and community members. There were gaps in provider knowledge and practices, potentially attributable to limited provider training and professional development opportunities. In the absence of a state policy on cervical cancer, screening of asymptomatic women was practically absent, except in the military sector. Cytology-based cancer screening tests (i.e. pap smears) were often used to help diagnose women with symptoms of reproductive tract infections but not routinely screen asymptomatic women. Access to appropriate treatment of precancerous lesions was limited and often inappropriately managed by hysterectomy in many urban centers. Cancer treatment facilities were well equipped but mostly inaccessible for women in need. Finally, policy makers, community members and clients were mostly unaware about cervical cancer and its preventable nature, although with information, expressed a strong interest in having services available to women in their communities.

2.8 Awareness on Cervical Cancer

Omotara et al., (2013) conducted a study a cross sectional descriptive study was conducted among 1600 rural women aged 15-55 years (randomly selected from 28 villages) who were interviewed using a structured questionnaire between April and June, 2010. The majority (82.2%) were married before the age of 20 years and 19.3% before 15 years, 40% in polygamous union, 22.6% have had 2 or more sexual partners, 71.3% were primi and grand multiparous, 7.5% have had previous treatment for STIs and 10.1% were on various types of contraceptive. 454 (28.4%) have heard
of Ca cervix, 358 (22.4%) knew the location of the cervix. 2.3% had Pap smear test of which 72.6% were within 2 years. The majority (89.9%) will avail themselves for screening.

Hong et al., (2013) conducted a study on 200 women’s longitudinal evaluative study on 70.8% of the participants ever heard of cervical cancer, and as few as 22.1% and 13.3% ever heard of HPV and HPV vaccine, respectively. The mean score on a 7-item knowledge scale was 2.2 (SD=2.4). Less than 10% of FSW perceived any risk of cervical cancer, and only 15.3% ever had a Pap smear. About 40.8% of FSW would accept HPV vaccine if it is free, and 21.8% would accept it even with a charge. Multivariate regression suggested that women with better knowledge of cervical cancer were more likely to have a Pap smear (aOR=1.35); women who had tested for HIV were 11 times more likely to have a Pap smear, and women who had worked longer in commercial sex (aOR=1.01) and had regular health check-ups (aOR=1.95) were more likely to accept HPV vaccine.

Hwaid (2013) conducted a cross sectional study in Diyala, Iraq. This study included 198 women, the mean age was (27.29±9.63) years, the age range was (17-60) years, the participants were divided into two groups, group I, (students group) includes (99) female college students who studies in Diyala university, group II, (health care workers group), includes (99) female physicians and nurses who worked in AL-Batol Maternity and Children Teaching Hospital. Data was collected using questionnaire that was adopted from previous studies. All data were statistically analysis. The present results showed that the women demonstrated poor levels of knowledge about HPV and cervical cancer, 106(53.54%) of them had heard about HPV, while, only 73(36.87%), 60(30.30%) knew that the cervical cancer and genital
warts caused by HPV respectively. This study showed that the participants had very limited knowledge about pap smear, only 57(28.79%) knew that pap smear is the test to detect abnormal cervical cells, the results show highest level of knowledge and awareness about HPV, cervical cancer was among health care workers group, participants who live in urban and married with statistically significant difference (P<0.05), (P<0.01).

Abiodun, et al., (2013) study was an insight into women’s understanding of cervical cancer risk factors, symptomatology, prevention and screening. Quantitative Data was collected using questionnaires administered to 2000 women (aged 20 to 64 years) who were selected by multi-stage sampling technique across the 20 local government areas in Ogun State, Nigeria. The study showed that the awareness of cervical cancer and screening was very low (6.5% and 4.8% respectively). The knowledge about cervical and screening was very poor. Only 2.3% of the women could identify a virus as the cause of cervical cancer while 4.1% identified cervical screening as a way to prevent cervical cancer. 97.7% and 97.9% had no or poor knowledge of risk factors and knowledge of symptoms of cervical cancer. 90.5% identified lack of awareness as the barrier to uptake of cervical screening. 1.4% of the women have had cervical screening done.In order to step up the campaign for the control of cervical cancer in Nigeria, it is therefore very important to concentrate much of the effort on creation of awareness and enhancing the knowledge of women about cervical cancer and screening. Keywords: cervical cancer, cervical screening, barriers.

Hoque (2013) conducted a cross-sectional study among 180 full time final year undergraduate female university students A multistage sampling technique was used to select the sample and self administered questionnaire was used to collect the
information. Statistical Analysis Used: Chi-square test and logistic regression were used to find association and the significant predictor for doing Pap smear test. Over half (53.3%) of the participants had heard about cervical cancer and its detection method. More than half (60%) and over a third (37.8%) of the participants knew about human papilloma virus (HPV) and multiple sexual partner respectively as risk factors for cervical cancer. More than half (55.3%) indicated that they were not aware if cervical cancer can be prevented. Majority (76.7%) knew that Papanicolau's (Pap) smear test is used for detection or prevention of cervical cancer. Among those who were sexually active and knew about Pap smear test 79.3% did not do the test mainly because of personal factors such as fear of the procedure, or were not ill.

**Eze et al., (2012)** A questionnaire-based descriptive cross-sectional study. Structured questionnaires were administered to female attendees to the antenatal and gynecological clinics of a secondary hospital in the outskirts of Afikpo, Southeast Nigeria over a six-month period (1st July to 31st December 2007). Data analysis was by SPSS. Five hundred questionnaires were given out. Three hundred and sixty were correctly filled (72%) and analyzed. The mean age of respondents was 36.2 years, 25.0% had tertiary education and 40.3% were self-employed. All the respondents were sexually active. There were high incidences of premarital sex, multiple sexual partners and abnormal vaginal discharge and low condom use. Awareness of cervical cancer (37.5%), its preventable nature (31.9%), cervical screening (25%) and screening centers (20.8%) were generally low and screening uptake (0.6%) was abysmally low. Lack of awareness, non-availability of screening centers locally, cost and time were the main reasons adduced by respondents for not being screened. Overall, 62.5% of all the respondents indicated willingness to be screened.
Mail, et al., (2012) study in Nairobi, Kenya showed that only 14% of the 409 women (67% HIV-positive; median age 29 years) had ever had a Pap smear prior to study enrollment and very few women had ever heard of HPV (18%). Although most women knew that Pap smears detect cervical cancer (69%), very few knew that routine Pap screening is the main way to prevent ICC (18%). Most women reported a high level of cultural acceptability for Pap smear screening and a low level of physical discomfort during Pap smear collection. In addition, over 80% of women reported that they would feel comfortable using a self-sampling device (82%) and would prefer at-home sample collection (84%). Nearly all women (94%) reported willingness to be vaccinated to prevent cervical cancer if offered at no or low cost.

Balogun et al., (2012) conducted a study on Cervical cancer is the commonest gynaecological cancer in Nigeria and women of low socio-economic status are at high risk of this condition. A study was conducted on the awareness of cervical cancer, attitude towards the disease and screening practice of major risk factors for cervical cancer among the women. Multistage sampling was used to select 240 women who were interviewed with a structured questionnaire and data collected was analyzed with Epi-info version 3.5.1 statistical software. Only 10 (4.2%) women in this study were aware of cervical cancer and none of them believed they were at risk of developing the disease. Most (73.3%) were willing to undergo a cervical cancer screening test Age, education and previous history of vaginal examination were positively associated with willingness to undergo screening (p < 0.05).

Quet, et al., (2012) conducted a study on 320 women aged 25 to 65, living. Controls were 320 women matched for age and place of residence Cases had a greater number of sexual partners and used condoms more often than controls. Only 36.6% of women had consulted a gynecologist (47.5% among cases and 25.6% among controls,
and 3.9% had benefited from at least one Pap smear screening (5.6% cases and 2.2% controls, p = 0.02). The average knowledge score was 3.5 on a 0 to 13 scale, significantly higher in cases than in controls (p < 0.0001). Despite having a lower education level and economic status,

**McCarey et al., (2011)** conducted a cross-sectional self-administered questionnaire in 5 parts with 46 items regarding cervical cancer etiology and prevention was addressed to women’s in six hospitals of Yaoundé, Cameroon. Eight hundred and fifty questionnaires were distributed, 401 collected. Data were analyzed with SPSS version 16.0. Chi-square tests were used and P-values < 0.05 were considered significant. However, less than half considered VIA or HPV tests screening tests (38 and 47%, respectively). Knowledge about cancer etiology and screening was lowest among women’s .Knowledge of cervical cancer and prevention by screening showed several gaps and important misconceptions regarding screening methods.

**Kobetz et al., (2011)** conducted a study on Women in Haiti and throughout the Haitian Diaspora shoulder a disproportionate burden of cervical cancer morbidity and mortality. As part of ongoing Community-Based Participatory Research (CBPR) efforts, we conducted a series of focus groups with Haitian immigrant women in Little Haiti, the predominantly Haitian neighborhood in Miami, Florida, U.S. Focus group questions assessed women’s knowledge and beliefs about cervical cancer and HPV, their opinions of vaccines in general, their knowledge and perceptions of the HPV vaccine specifically and health communications preferences for cervical cancer prevention. Virtually all participants expressed support for vaccines in general as beneficial for health.
Muhamed et al., (2010) conducted a study to explore the knowledge and awareness about cervical cancer among Iraqi women living in Malaysia. A self-administrated Arabic version questionnaire distributed among 142 Iraqi women in Malaysia. One hundred and eight participants ranging in age from 18 to 61 years (Mean = 36.1) returned the completed questionnaire. A lack of knowledge on cervical cancer and the Pap smear test was found among the respondents. Many women did not have a clear understanding of the meaning of an abnormal cervical smear and the need for the early detection of cervical cancer. These findings emphasize the need to educate and promote awareness among immigrant Iraqi women in Malaysia to risk factors for cervical cancer and to the need and the purpose of Pap smear screening.

Voltraki et al., (2010) the sample-studied consisted of 100 adult women attended in outpatient settings. The data were collected by the completion of a questionnaire referring to the knowledge of the women regarding the prevention of the cervical cancer, and the Pap test. Statistical analysis was conducted using the Statistical Package for Social Sciences 13.0 and the methods used were X2 test along with Yates’ correction for 2x2 tables. 81% of the participants belonged to the group of 20-45 years old. Regarding the demographic characteristics, 53% of the sample-studied were High School graduates, 59.2% were not employed, and 71% lived in urban areas. Regarding the perception of women towards the disease, 63.2% considered it common, 17.3% very common, whereas 19.4% responded it was rare or very rare. 64.3% of the participants reported the doctor as the main source of information, 15.3% the family and 20.4% reported other sources of information. Regarding the frequency of having the Pap test, 79% had conducted it at least once in their life. 71.3% had the test in the last 1-3 years, whereas 28.7% within the last year. In regard to the precise knowledge for the purpose of the test, 23.6% reported the
prevention of the cancer, 19.1% the prevention of the cancer of the genitals, 55.1% the cervical cancer and 2.2% reported other reasons. Single women knew to a smaller extent what the Pap test was compared to married, divorced or widowed with statistical significant difference, p= 0.000. Regarding the place of residence, women living in urban area knew better what the test was, with statistical significant difference compared to the village residents, p=0.000. In terms of the causes for not having conducted the test, 40% reported negligence, 25% lack of information and 35% reported other reasons as the main causes for not having the test.

**Abotchie, et al., (2009)** A cross sectional survey among college women in a university in Ghana elicited information about sociodemographics, knowledge and beliefs and acceptability of cervical cancer screening, screening history, and sexual history. Bivariate analyses were conducted to identify factors associated with screening. 140 females were recruited; the age range was 20-35 years. The prior pap screening rate was 12.0%; Women were unaware of local screening initiatives and only 7.9% were aware of the link between HPV and cervical cancer. The most prevalent barriers were lack of awareness that the purpose of pap screening is to diagnose cancer, concerns about what others may think, and lack of information about how to obtain screening services. Although women perceived the benefits of screening, only about half perceived themselves to be at risk. Women received few screening cues. Three barriers were negatively associated with screening in bivariate analyses: lack of belief that cervical screening diagnoses cancer, belief that pap test is painful and belief that the test will take away virginity.

**Waller et al., (2006)** in his study focused on women attending a well woman clinic were asked to complete a questionnaire assessing HPV awareness and specific knowledge about the virus. Questionnaires were completed by 1032 women, of whom
30% had heard of HPV. Older women, non-smokers, and those with a history of candida, genital warts, or an abnormal smear result were more likely to have heard of HPV. Even among those who had heard of HPV, knowledge was generally poor, and fewer than half were aware of the link with cervical cancer. There was also confusion about whether condoms or oral contraceptives could protect against HPV infection.

**Neilson et al., (2008)** conducted a study on assessment of women’s knowledge of cervical screening and cervical cancer women’s knowledge of screening, 187 women in a general practitioner practice in Lothian, Scotland were targeted by questionnaire. As with other studies in this field 50% of those contacted were ineligible for a variety of reasons. Seventy-two women completed the questionnaire, providing a mix of qualitative and quantitative data. Although the majority of women felt the invitation to attend screening was clear and easy to understand, there was a lack of knowledge with regard to both the screening itself and the possible causes of cervical cancer. The main ‘causes’ were seen as higher sexual activity among those aged under 37 and smoking and a virus by those over 37. The majority of women showed preference for a female professional to take the smear. Practical problems of time and venue were not considered insurmountable. The main reasons cited for non-compliance were the fear and dislike of the test itself.

**Morton, (2001)** conducted a study on the study was conducted in Malaysian women aged 21-29 years and who have never had a paponicolaou smear, to explore their knowledge and awareness of prevention of cervical cancer and it’s screening. A qualitative study was undertaken using face-to-face in-depth interviews. The study found that a lack of knowledge on cervical cancer and the paponicolaou smear among women. Many women did not have a clear understanding of the meaning of an abnormal cervical smear and need for the early detection of cervical cancer. After
interview the women got accurate information about cervical cancer and the purpose
of paponicolaou smear screening.

Mani et al., (2014) conducted a descriptive, cross-sectional study among 100
women attending a rural health centre, in Kancheepuram district, Tamil Nadu
between May and July 2012, using a semi-structured schedule. Among the 100
participants, 74% were aware of the term cervical cancer. This awareness was
positively associated with higher levels of education, socioeconomic status and
occupational status (p< 0.05). Awareness about symptoms (29.7%), risk factors
(1.35%), Pap smear (14.9%), other screening methods (13.5%) and treatment (4%)
was low. None of the participants were aware of human papilloma virus (HPV)
vaccine and none had undergone screening or immunisation with HPV.

Prutt et al., (2005) conducted a study on knowledge of cervical dysplasia and
human papilloma virus among women seen in a colposcopyh clinic, in USA.
Demographic factors, Knowledge, and psychological distress were assessed in
structured interviews with 175 women before, during, and after colposcopy.
Respondents had low knowledge sores before and after colposcopy: however, their
overall knowledge improved slightly (P=0.013) following the exam. When responses
were examined by question, respondents demonstrated a significant increase of
correct answers to only one question: Does dysplasia, or precancerous cells on the
cervix, always goes away without treatment? Pre-exam knowledge was positively
associated with educational level and was lower among Hipanics and patients
recruited at the clinic. Post-exam knowledge was positively Associated with pre-exam
knowledge and educational level. Routine clinical education during colposcopy can
improve patients understanding of cervical cancer; however, the low level of
knowledge that persisted after colposcopy was a cause for concern.
Ralston et al., (2003) conducted a community-based survey on knowledge of cervical cancer risk factors among Chinese immigrants in Seattle, U.S.A. They assessed knowledge of cervical cancer risk factors and history of Pap smear testing along with socioeconomic and acculturation characteristics. The study sample included 472 women. Most cervical cancer risk factors were recognized by less than half of the participants. Factors independently associated with knowledge of cervical cancer risk factors included marital status, employment, and education. Respondents with the highest knowledge had greater odds of ever receiving a pap smear, compared to those respondents with the lowest knowledge (OR 2.5; 95% CI: 1.1, 5.8). Finding suggests a need for increased recognition of cervical cancer risk factors among Chinese American immigrants. Culturally and linguistically appropriate educational interventions for cervical cancer risk factors should be developed, implemented and evaluated.

Kidanto et al., (2002) conducted a hospital based cross-sectional study on cancer of the cervix: knowledge and attitude of female patients admitted at Muhimbili National Hospital; Dares Salaam, Tanzania. Eighty nine cervical cancer patients and 178 controls were interviewed between August 1999 and January 2000. At Muhimbili National Hospital most patients are admitted in very advanced stages of the disease (stage IIb and IV). Using a structured questionnaire, knowledge of basic symptoms of cancer of the cervix, attitude and reasons for late presentation among female patients admitted at Muhimbili National Hospital gynecological ward were studied. The mean age of cases was 48.8 years and the mean parity was 6.7 years compared to that of control group, which were 45 years and mean parity of 6.6 respectively, mean age in years at marriage was lower for cases 17.5 than controls 18.8. Majority of cases (50.6%) and controls (23.6%) were illiterate, and 21.3 percent of cases and 33.7
percent of controls had incomplete primary education. Majority of both cases (47.23%) and controls (56.7%) had no routine gynecological examination and they do not find it necessary. More than 90 percent of the cases were in advanced stages of the disease (sage IIb-IV). Both cases and controls had low knowledge of basic symptoms of cancer of the cervix and as a result most of those who happen to have problems reported late with advanced disease.

Pitts and Clarke (2002) conducted a study on Human papilloma virus infection and risks of cervical cancer; what do women know? The entire female work force of a medium-sized UK university received a questionnaire concerning knowledge of cervical screening, treatment for abnormalities and HPV. Four hundred women returned completed questionnaires. Knowledge of early cervical cancer detection and screening methods was good. However, risk factors for cervical cancer were not well known. Awareness and knowledge of HPV was very limited.”Past experience of an abnormal smear result and colposcopy was significantly associated with good knowledge of cervical screening”, but not with knowledge of HPV. It was essential to Improve women’s understanding of this area in the context of plans to include screening for HPV in the UK’s national cervical screening programme.

Wellensiek et al., (2002) conducted a study on knowledge of cervical cancer screening and use of cervical screening facilities among women from various socioeconomic backgrounds in Durban, Kwazulu Natal, South Africa. The study was carried out among women from different socioeconomic circumstances (low, middle, and upper social/financial backgrounds). The assessment was performed by means of a questionnaire. The majority of patients from lower socio-economic circumstances with multiple risk factors were not aware of cervical screening or facilities available for this purpose. However, in spite of knowledge of cervical screening and the
availability of such services, the majority of women (87%) from higher social and educational backgrounds did not undergo cervical screening. Most patients resided within a 12 kilometer radius of a facility that either provided or could potentially provide screening. Although some patients 36.7 percent had a screening test performed at some time in the past, only 27.3 percent of patients reported having had a pap test. This was due to failure on the part of the healthcare giver to disseminate information of the patient regarding the reason and value of cervical screening.

Dell et al., (2002) conducted a study on knowledge about Human-Papilloma virus among adolescents, USA. They administered written surveys to 523 inner-city high school students in Toronto, Canada, that asked about HPV, other sexually transmitted diseases (STDs) and papanicolaou testing. They also asked them to report doctor or clinic visits and whether they received sexual health information at those visits. The predictor variables used in analysis were gender and sexual experience. Eighty-seven percent of our population had not heard of HPV. Only 39 percent of sexually experienced adolescent women knew who should get a papanicolaou test. Sexually experienced and inexperienced adolescents failed to identify correctly their STD risk. Both genders showed greater knowledge about human immunodeficiency virus (HIV) than other diseases. Among adolescent women, 85 percent had visited a doctor or clinic within the past year, but only 29 percent had talked about sexual health. Knowledge of HPV infected and cervical cancer screening was low in this urban adolescent population. Improved efforts are needed for prevention of HPV infection and HPV-related cervical changes.
2.9 **Structured teaching programme on cervical cancer**

*Latifa et al., (2013)* conducted a self–control intervention study among 125 women their ages ranged from 16 to 54 years. The studied population was chosen for being women as well as for being a part of the corner stone of the community which is in need for such education and knowledge. The study was conducting from the first of October (2011) to end of January (2012) among women in the four MCH centers of Tanta city. In the baseline interview all the women received an interview questionnaire for the pre-test and post test. It included personal data about women, cervical cancer, screening and vaccine assessment tool, and perception of women toward cervical cancer by applying Health belief Model (HBM), Intervention implemented through a health education program, for four weeks duration followed by a post-test. It shows that more half of the women was aged 26-35 years and lived in urban areas. There was a significant improvement post intervention in all items of knowledge regarding cervical cancer. There was also a significant improvement post intervention in all items regarding (seriousness, susceptibility of disease, benefits of early detection, vaccination, total perception towards cervical cancer respectively), except the barriers which faced them.

*Utoo et al., (2013)* conducted a study a cross-sectional study using interviewer administered questionnaires to women attending the outpatient gynecological clinic at the Benue State University Teaching Hospital, average age and parity of respondents was 35±11.2 years and 2.4±2.3 respectively. Most 48.3% were civil servants, Married 89.0% and had post-secondary education (64.5%). About 65% were aware of cancer of the cervix. Fifty one percent were aware of cervical cancer screening. Main source of information was through the mass media (35.5%). Among the 'aware' group for
screening services, only 13.6% had utilized the services (X2=12.2, p=0.0004, OR=3.7). Overall, only 7% of the study population have ever screened for the disease. Education significantly affected awareness for both cancer of the cervix (p=0.0001) and screening services (P=0.0002).

_Urrutia et al., (2013)_ conducted a cross sectional study on the Beliefs About Cervical Cancer and Pap Test among the women. The purpose of this study was to develop and validate a questionnaire to examine women's beliefs about cervical cancer and the Pap smear test. The sample included 333 women recruited from a women's healthcare center in Santiago, Chile. It was concluded that questionnaire will have important implications on research, education, and administration across disciplines and Nursing curricula and healthcare providers must stress the importance and reinforce the importance of prevention of cervical cancer and regular Pap test screenings.

_Birhanu et al., (2012)_ study on Health seeking behavior for cervical cancer. Focus group discussions were conducted with men, women, and community leaders in the rural settings of Jimma Zone southwest Ethiopia and in the capital city, Addis Ababa. Data were captured using voice recorders, and field notes were transcribed verbatim from the local languages into English language. Key categories and thematic frameworks were identified using the health belief model as a framework, and presented in narratives using the respondents own words as an illustration. Participants had very low awareness of cervical cancer. However, once the symptoms were explained, participants had a high perception of the severity of the disease. The etiology of cervical cancer was thought to be due to breaching social taboos or undertaking unacceptable behaviors. As a result, the perceived benefits of modern treatment were very low, and various barriers to seeking any type of treatment were
identified, including limited awareness and access to appropriate health services. Women with cervical cancer were excluded from society and received poor emotional support.

**Wagstaff, (2012)** A study was conducted among 300 women in rural area, concluded that in the pre teaching phase, a majority of woman lacked knowledge regarding prevention of cervical cancer, In the post teaching phase the woman have gained knowledge and basic skills for prevention of cervical cancer.

**Shepherd, et al., (2010)** conducted a study o interventions to promote sexual risk reduction behaviours amongst women in order to reduce transmission of human papillomavirus (HPV), Studies were included in the review if they evaluated educational interventions targeting women only and measured the impact on either a behavioral outcome such as condom use for sexual intercourse, partner reduction or abstinence, educational interventions targeting socially and economically disadvantaged women in which information provision is complemented by sexual negotiation skill development can encourage at least short-term sexual risk reduction behavior. This effect has the potential to reduce the transmission of HPV and thus possibly reduce the incidence of cervical carcinoma.

**Wyshak, (2010)** conducted study stated that cervical cancer is one of the most preventable malignant tumor and 90% of cases can be identified and treated in its early stages in a simple outpatient procedure using health education about prevention of Cervical cancer is one of the most preventable dieses through vaccines, paponicolaou test(smear), use of barrier contraceptives and male circumcision. The other measures include avoid getting infected with human papilloma virus (HPV) and certain vitamins protect benefits against cervical cancer.
Shepherd et al., (2010) A systematic review was conducted to determine the effectiveness of health education interventions to promote sexual risk reduction behaviours amongst women in order to reduce transmission of human papillomavirus (HPV), a leading agent in the development of cervical cancer. A comprehensive search was conducted to identify relevant studies. Studies were included in the review if they evaluated educational interventions targeting women only and measured the impact on either a behavioural outcome such as condom use for sexual intercourse, partner reduction or abstinence, or a clinical outcome such as incidence of a STD. Thirty studies met the inclusion criteria for the review; all had the primary aim of preventing HIV and other STDs rather than cervical cancer. Ten of the 30 studies were considered to provide the strongest evidence for a causal relationship between the intervention and the change in outcomes measured. Each of these 10 most rigorous studies showed a statistically significant positive effect on sexual risk reduction, typically with increased use of condoms for vaginal intercourse. This positive effect was generally sustained up to 3 months after intervention.

Rebecca et al., (2007), conducted a study on the effectiveness radio broadcasts was assessed using across-sectional design (control groups n = 124, n = 243; intervention group n = 233). A pre-/post-test design was used to evaluate the nurses’ training program (n = 32). A subset of nurses (n = 16) was retested two years later. Evaluation included t tests, chi-square and Fisher exact analyses. The radio broadcast increased the proportion of women who were familiar with the term “cervical cancer,” who could identify means of preventing cervical cancer, and who understood the purpose of the Pap smear. In addition, older and under-screened women were successfully recruited for screening via radio. The nurses’ program improved understanding of the correct use of the Pap smear, the age-related risk of
dysplasia, and the proper triage of abnormal results. The nurses retained a significant amount of knowledge two years after this training.

Mock et al., (2007) conducted a study on conducted a media-based education. Lay health workers met with the combined intervention group twice over 3 to 4 months to promote Papanicolaou (Pap) testing. The questionnaires were sued to measure changes in awareness, knowledge, and Pap testing. Testing increased among women in both the combined intervention (65.8% to 81.8%; P<.001) and media-only (70.1% to 75.5%; P<.001) groups, but significantly more in the combined intervention group (P=.001). Among women never previously screened, significantly more women in the combined intervention group (46.0%) than in the media-only group (27.1%) obtained tests (P<.001). Significantly more women in the combined intervention group obtained their first Pap test or obtained one after an interval of more than 1 year (became up-to-date; 45.7% to 67.3%, respectively; P<.001) than did those in the media-only group (50.9% to 55.7%, respectively; P=.035).

Manivannan (2014) conducted study on Impact of different health educational modalities in screening for cervical cancer in selected areas of Chennai, India”. The focus of primary prevention has been health education and we need to stress on this using various means to motivate women undergo pap smear test. The survey technique was used to collect the baseline information and for issuing the pamphlets and quasi experimental design was used for conducting the second part of the study. Betty Newman’s’ systems theory was used for conceptualization of the study. Husbands found to be unaware of the reproductive tract related sickness symptoms. Health educating only husbands could get 5 times more the response than motivating only wives. Educating couples get 10 times more the response than motivating only wives. Reinforced teaching has better success rates.
Indra, (2013) has studied on 520 women under the age group of 35-55 years. Knowledge of the women was assessed by giving pre-test followed by teaching intervention (N=520). First phase was conducted as one group pre and post test only design. Experimental approach of repeated measures design was used in the II phase of the study. Setting of the study was selected villages in Puducherry covered by Villianur Health Center and Community Health Centre, Mannadipet And Thirubhuvani. Participants. Educational intervention was given in the form of structured teaching and its impact was tested by giving post test within a week. The health seeking behavior of the women was identified by their acceptance for screening (N = 204) The health seeking behavior of women of subjecting themselves for cervical cancer screening is increased by creating awareness by imparting educational intervention.

Suneetha et al., (2011) conducted a study on with a Quasi-experimental research design pretest-posttest was used. The study was conducted by using multistage sampling. The data was collected through a Structured Interview schedule using demographic proforma, structured knowledge questionnaire. Majority of married women 84% in urban area, 76% in rural had moderate knowledge. The pretest attitude score for all the married women 100% in urban, 92% in rural was favorable. The study showed that there was significant improvement between pretest and posttest knowledge.

Kriti, (2011) conducted a 490 women of reproductive age group were interviewed using a structured questionnaire to assess their knowledge of Cervical cancer. Basic data regarding awareness, risk factors, screening techniques and preventive measures were included in the questionnaire. The data has been analyzed using SPSS - 20 software Simultaneously women were told about the effectiveness of
preventive strategies, benefits to the entire family and were motivated to get screened for the cervical cancer. Results A total of 490 females of the age group 20-45 years were interviewed. Of them, only 19% reported that they "had ever heard about cervical cancer". Of those who had heard of ca cervix, only 9% considered foul smelling discharge, post coital bleeding & irregular vaginal bleeding could be symptoms of Carcinoma Cervix. Though 3% thought smoking, alcohol & STDs including HIV could be associated with cervical cancer, other risk factors like 'sexual intercourse before 18yrs of age', 'having multiple sex partners', 'multiple parity', 'poor personal hygiene', 'first delivery before 20 yrs of age' were recognised by only 1.4%, 0.8%, 1.6%, 2.4% and 1% respectively. The term 'Pap test' & 'HPV' had been heard by 0.40% and 0% of the women respectively. Only 0.20% of the women interviewed were aware of vaccines available against cervical cancer.

**Swamy, (2010)** conducted a study on an evaluative study was conducted to determine effectiveness of a teaching programme on knowledge about cancer prevention and early detection of cancer among 200 women, Udupi Taluk, Karnataka State. The instruments used for the study were demographic questionnaire and knowledge questionnaire. The results found that the pretest score was 43.75% and posttest score was 79.15%. This clearly indicated the effectiveness of structured teaching programme.

**Nicola Sharon Grabam et al., (2008)** conducted a study on The study was conducted to assess the prevalence of cervical cancer among 100 women selected by convenient random sampling at Rani Annanagar Village, Chennai. Screening women for cervical characteristics was done by Visual Inspection of cervix with Acetic Acid. The result was found that most of the women 29% had infection of the cervix, 5% benign conditions, with precancerous lesions on cervix 5%, severe anemia
6% and ectopy of cervix 12%. It indicates screening has helped in early identification of precancerous lesions and other cervical characteristics.

**Jajamohanraj et al., (2008)** conducted a study on the study was conducted to assess the effectiveness of structured teaching programme on knowledge of women regarding early detection and prevention of cervical cancer at Family welfare centre and hospital through experimental design, among women between the age group of 35 to 55 years. The pre-test results showed that out of 60 women in overall knowledge on cancer cervix 41(68%) had inadequate knowledge 19(32%) moderate, and no one of them had adequate knowledge. The post-test result showed that, the knowledge of the women had increased through structured teaching programme, compared with the pre-test knowledge. In post-test 51(55%) had adequate knowledge and 9(15%) moderate adequate knowledge regarding cancer cervix this data proved that the knowledge of the women had been markedly improved after structured teaching programme.

As there is a dearth of literature on the cervical cancer especially in Indian context, it is a significant that this study bridge the gap by providing effective teaching program on cervical cancer to increase the knowledge levels among women. It will in turn help to develop appropriate policies and new innovative approaches to address and prevent the cervical cancer among women.