CHAPTER II

REVIEW OF RELATED LITERATURE

"It’s hard enough to generate one's own ideas without the 'rich' derailment
provided by the literature in the same field."

Glaser

INTRODUCTION:

A review of literature gives a vision into the numerous aspects of the problems under the study. The review aids as an integrated function that allows the growth of knowledge. Hence, review of literature is significant to a research in order to know what has been detected and documented.36 It helps to find out what is existing, which is not yet tested and is to be explored.37 Scientific research is an integral component of review of published and unpublished research and no research literatures.38

Cervical cancer is irregular, malignant cell growth on cells of cervix and it extents to the different parts in the body. 95 % of it, can be prevented by examining the women by Pap test and other cervical screening procedures. However cervical cancer is preventable and treatable, still the mortality rate is too high in India.

The Investigator has broadly reviewed the literature on cervical cancer and its preventive measures to provide the comprehensive understanding and context about the present study, the literature reviewed has been categorized the following manner;

1. Need for cervical screening and HPV vaccine
2. Guidelines for screening and HPV vaccine
3. Knowledge and attitude of women regarding cervical cancer
4. Reasons for Participation and non-participation of women in cervical screening
5. Effect of verbal, written and video based education cancer screening programmes.

6. Effect of reminders

2.1 NEED FOR CERVICAL SCREENING:

NHS (2015), a cervical screening test is an investigative procedure, used for detecting abnormal cells on the cervix. Cervical cancer can be prevented if we could detect and remove the irregular cells from the cervix. Cervical screening should be done to identify the irregular cells on the cervix. The reviews proved that around 1 in 20 women detected atypical deviations on the cervix. Most of these changes may not cause cervical cancer and cells may become customary on their own. Nevertheless in some patients, these deviations may become cancerous cells and lead to cervical cancer. Therefore early detection of abnormal cells required through cervical screening.39

According to WHO 2014 guidelines, cervical cancer screening is a test for detecting the pre-cancerous lesions in a woman who does not show sign and symptoms of disease condition and feels healthy. When screening detects the premalignant cells and these cells can be easily treated before they become malignant cells. Precancerous lesions take 5-10 years to convert in to malignant cells. Woman keeps healthy without exhibiting cues of cervical cancer during this period. Therefore screening is recommended for all target women age group between 30 to 49 years minimum once in their life time.40

According to Cancer Institute NSW 2017 guidelines, Human papillomavirus (HPV) is a common infection, 80 % of people will be effecting with this agent at some stage of their lives. Literature says that, out of 100 types HPV, 40 types of HPV s are spreaded by sexual contact. It usually takes round ten to fifteen years for this virus to develop into malignancy. Therefore it is very essential for women to go for cervical screenings repeatedly once in three years in case of Pap test and once in 5 years in case of HPV DNA test.41
As per American cancer society 2015 guidelines, stated that if the woman does regular screening practices, it is best practice for her to detect the cervical cancer cells at an initial phase and likely to start treatment and can save her life. Screening can also prevent the cervical cancer by discovering the precancerous cells in the cervix and can start the treatment as early as possible. It is proved that, this disease is one of the most curable cancers if it is diagnosed at an early stage. The death rate due to cervical cancer has reduced almost to 50%, it was achieved by effective practices of cervical screening Pap test, visual inspection with acidic acid etc.\textsuperscript{42}

Srinivasan S, conducted an experimental study and three clinical trials organized in the different places of Mumbai. The aim of the project was to identify, whether health care professionals are able to perform cervical screening at health centres. The trials were administered on roughly on 3,74,00 women and 1,41,00 women were detailed in the control group. 154 women died from the control group died with cervical cancer.\textsuperscript{43}

Bobdey S et al had conducted a meta-analysis to find the incidence and responsible barriers for poor attendance of women in cervical screening. Extensive review was done in the MEDLINE and Web of Science and electronic databases. Cervical cancer, early identification, Cervical and visual inspection were the searching words. The investigators have selected the studies which were published in English version. 11 studies were eligible to include in this study. The results showed that, cervical cancer contributes 6 – 29 % of all cancers in women. This study found that, due to lack resources for conduct of screening programmes and lack of quality control are responsible factors for not attending the screening programmes by women.\textsuperscript{44}

Mishra GA had reviewed the previous studies and found the incidence of cervical cancer. He has stated that, globally, cervical cancer is forth most commonly occurring disease condition, while it stood with second mostly occurring disease condition. Twenty three percent of global cancers are bearing India alone. In less economic nations, due to absence of sufficient health care amenities, inadequate budgetary support and inadequate numbers of health care trained professionals. Therefore, most of the cases with cervical cancers are presenting in the hospitals at advanced stage, which will increase the mortality rate and reduces the survival rates. It is concluded to state that , the mortality rate with cervical cancer cases had reduced by conduct of
cervical screening with HPV DNA, minimum at one time in the life time, one time screening with VIA by trained nurse and four times VIA by any of the primary health workers.45

2.2 GUIDELINES FOR HPV VACCINE AND CERVICAL SCREENING:

WHO, has released new guidelines regarding HPV vaccination, nine to thirteen year old girls must be vaccinated with two doses of HPV vaccine to avert the HPV infection. The HPV virus is accountable for occurrence of cervical cancer. Currently, majority of girls are hoarded by routine administration of HPV vaccine. This is the way how primary prevention approach for cervical cancer should be done. Secondary prevention of cervical cancer must be done for women beyond 30 years by cervical screening in terms of cytology, visual inspection with acetic acid (VIA) or HPV DNA test followed by the treatment of spotted precancerous lesions.46

WHO had recommended to administer two doses of HPV vaccine with the interval of 6 months for teenagers ie between nine to thirteen years. It should be done before the sexual exposure. Due to some causes if the gap is less than 5 months in between two doses, then third should be given after the 6 months of first dose. If the girls are older than 14 years and not exposed sexually, should be vaccinated with three doses of HPV vaccine.47

UNITED states recommended that, HPV vaccine is also of the routine vaccine for adolescent’s age between 11 to 18 years (can start at the age of 9). If a girl is vaccinated at age between 9-14 years, 2 doses must be given. Minimum interval must be 5 months. Dose must be repeated if the dose is given too early before 5 months after 1st dose. If the vaccine is given at the age of 15 years or above, three doses must be given, 0, 1–2 months, and 6 months. In case of sexual abuse, vaccination must be started at the age of 9 years. No vaccination should be given in case of pregnancy.48

According to American Cancer Society recommendations, HPV vaccine must be administered for boys and girls at the age of 11 to 13 years, and it can be started from the age of 9 years. Vaccine is recommended for girls age group between 13 to 26 years and for boys 13- 21 years. The effect of vaccine will be reduced, if it is given in the older ages.49
American Academy Pediatrics 2017 guidelines suggests that, two doses of vaccines must be administered to females at the age of nine to fourteen years. The second dose must be given between six to twelve months of the first dose. The vaccine also can be suggested for girls of 13 to 26 years who has not immunized earlier. 9vHPV and 4vHPV can be given to the boys who have not vaccinated previously. These vaccines also are recommended for twenty two to twenty six old men, who has sex with men or not immunized before.\textsuperscript{50}

Krishnan S, et al had reviewed the research literature to detect efforts that were made by policy makers to prevent the cervical cancer. Though the WHO has recommended HPV vaccination for primary prevention, it was possible to execute only resourcefully in financially developed countries, while it was not able to accomplish in low income nations. In developing countries it was not accomplished effectively due to lack of resources. However, investigator has suggested that, more research and advocacy efforts are required to find the strategies for implementing and sustained use screening practices in country. There was significant evidences were found that systematic screening schedules had reduced the mortality rates of cervical cancer.\textsuperscript{51}

According to WHO guidelines, screening must not be suggested to a woman whose age is less than 30 years. HPV infections are quietly high in all women. But these infections become transient and they will destructed by woman’s body with in few days. Screening for women aged between 30-49 years, even once should be screened to reduce the deaths from cervical cancer. Screening may be advised to women below 30 years, if there is any evidence of cervical cancer. Among women whose test is negative with VIA/ Pap should be advised for rescreen every 3- 5 years. Among women whose screening is negative with HPV test should be advised to rescreen after 5 year minimal interval. When a woman’s Pap test results are negative in subsequent tests, the screening interval can be lengthier than usual. The women who has undertaken treatment for pre-cancerous lesions should have the regular follow up visits.\textsuperscript{52}

The American cancer society, has forwarded endorsements for cervical screening at various age groups, women aged between twenty one to twenty nine years, they must be screened for Pap smear examination, and these women do not have to go for HPV
DNA test. Women aged between 30-65 years, Pap test should be done along with HPV DNA test and it is advised for every 5 years, or Pap test alone can be done every three years. Women beyond 65 years, who had regular practices of cervical screening and had clean findings in the past 10 years, they are advised to quit the cervical screening. If women had shown some abnormal cells or precancerous cells in their past 20 years, she is directed to continue screening another 20 years after the date she has found with abnormal cells in the cervix. It also recommends that women whose uterus was removed and cervix was still not removed, these women also are advised for screening. Women who had vaccinated with HPV vaccine are also advised for regular cervical screening.53

U.S. Preventive Services Task Force, had passed some endorsements regarding cervical screening, women age below 21 years do not require screening, women old of 21 to 29 years, should be screened every 3 years, women aged between 30 to 65 years, they are advised for HPV DNA screening every 5 years alternatively on other hand every three years for cervical cytology, women after 65 years of age do not have to go for cervical screening and women who had undergone for total hysterectomy no need to go for cervical screening.54

FOGSI suggested that, in health care industry where the good resources for cervical screening are available, women aged between 25-65 years should be screened with HPV test /with Pap smear every 5 years and only with Pap test should screen every three years. In health care settings where the recourses for cervical screening are less, women aged between 30-65 years should undergo for cervical screening with VIA test every five years, at least one-three times in their lives.55

2.3 KNOWLEDGE AND ATTITUDE REGARDING CERVICAL CANCER

Zoa SA et al have conducted a study to assess the association between demographic characteristics with knowledge regarding cervical cancer. Relations were statistically found significant at p < 0.05. Findings were, 91.6% (414/452) women heard of cervical cancer and only 27.9% of women heard about Pap smear test. Majority of women have never screened for cervical cancer. The reason for not taking up the cervical screening was, 50% of women said because of negligence, 13.6%, of women
said due to lack of financial resources, 13.6%, of women said, it is not important for me to take up the cervical screening.\textsuperscript{56}

Yitagesu HA et al conducted a cross sectional study and 583 was the sample size and used systematic random sampling technique. SPSS descriptive statistics were used for logistic regression analysis. The outcomes showed that, about 46.3% of women had poor awareness. Only 9.9% women had participated for cervical screening. About 34.8% of study subjects had negative attitude regarding nominated proxy variables. Poor knowledge score was related with poor attitude. Researcher fashioned awareness on cervical cancer after a pretest and proved that, how awareness programmes will improve the knowledge score and increase the participation number in cervical screening.\textsuperscript{57}

Abdulaziz SA conducted a cross-sectional study to explore the level of knowledge on cervical cancer amongst school teachers working in urban schools. The data was collected by administering standardized survey forms. Simple random sampling technique was executed to select the subjects. The results showed that, 36.4 years was the mean of the teacher's age and all of them were professionally educated. A large proportion of subjects were not knowing about the threatening signs, clinical features and responsible causes for cervical cancer. Only 36.3% of subjects knew regarding signs and symptoms, 47.2% of women had knowledge on cervical screening. Ninety percent of women were not aware of HPV vaccination. It was concluded that, school teachers do not have adequate data on cervical cancer and had negative attitude towards Pap smear test.\textsuperscript{58}

A cross-sectional study and used validated interview schedule by Himadri B to find the prevalence of cervical cancer and 289 subjects were executed in the study by implementing the systematic random sampling technique. Descriptive statistics and chi square test was used to analyze the data. P value was measured statistically significant. Results revealed that, 61.9% of women knew that it is a preventable disease, 59.2% of knew that the occurrence is more in many sex spouses, 42.6% of women knew that, sexual exposure at early age is high risk factor, only 16.3% knew that vaccine is accessible for prevention, only 15.57% have heard about Pap smear test and lack of medical advice was one of the reasons for not attending screening
programmes and the foremost source of data was the television and newspaper to get information on cervical screening.\textsuperscript{59}

Agam BB et al had conducted a cross-sectional study to find level of knowledge of women regarding cervical cancer. Sample size was 400 women. Structured survey forms were administered to gather the information. Information was documented and analyzed using Epi-Info version 7. Results revealed that only 65.5\% of women heard about cervical cancer. Only 35.25\% and 39.75\% participants were known at least one symptom and one risk factor of cervical cancer. Only 9.5\% women had screened for Pap test, however, 76.25\% of the subjects had demonstrated a favorable attitude for screening after education. Education level influences attitude toward screening. Nevertheless, uptake for cervical screening is significantly low at real practice. Strategic communication on cervical screening by health care professionals specially to targeting eligible women may increase the uptake of screening.\textsuperscript{60}

A cross-sectional study was conducted by Ghufran J to find the knowledge and opinion regarding cervical screening, with the sample size 300. Investigators have administered the tool which was validated by experts, tool had the 45 items and it was administered face-to-face talks. The results showed that, about 64\% had never heard of a screening and only 3.7\% had heard of HPV vaccine. The majority (83.3\%) of participants felt embarrassed when they are examined by health care professionals and a very few were screened. Finally it was concluded that the participants in this study established a varied range of responsiveness and attitudes towards programme after intervention.\textsuperscript{61}

Shrestha S, et al conducted a study to measure the knowledge and attitude regarding cervical cancer among women. Ninety six samples were randomly selected from Gynec OPD of educational hospitals. Standard structured interview survey forms were administered to gather the information. Data were evaluated by means of SPSS version 20.0 and interpreted in terms of descriptive and inferential statistics. The findings were, 91.6 \% of women had involved in screening programmes. 2.1 women had the family history of disease condition, 34.4\% and 27.8\% had adequate information respectively while all women had favorable attitude. Only education levels of women had statistical significance with high levels of knowledge (p =
Therefore cervical cancer screening health camps and awareness programs should be organized at community level for women to improve the knowledge level.\textsuperscript{62}

Narayana G et al, implemented a cross-sectional, hospital-based survey in the women attending Obstetrics and Gynecology department of a secondary care referral hospital with an aim to assess knowledge and attitude on screening, and prevention. Sample size was 403 and data was collected by using structured interview questionnaire and descriptive statistics were used. Findings of the study revealed that, 35.4\% of women had never heard about cervical cancer, radio and friends were the main sources for getting information about cervical cancer. Most of women knew about symptoms, risk factors but majority of women (86.6 \%) have never screened for cervical screening. It was concluded that though women are having good knowledge, positive attitude toward cervical cancer screening and prevention still there is a gap to transform it into practice. There is a need for more educational programs to join identified knowledge slits and uplift of regular practice of cervical cancer screening.\textsuperscript{63}

Nayak AU et al conducted a research study to find the knowledge and attitude about the cervical cancer. Investigators have 200 samples, whose age is between 18 to 65 years. Samples were able to communicate effectively in their local regional language. Simple random technique was applied for the selection of the samples and survey questionnaire forms were administered to assemble the data. The results showed that, a large portion (96.5\%) of the subjects were not known screening. Only 6 \% of women heard of the Pap test and only 8\% of women knew about the HPV vaccine, it shows that women had poor awareness about cervical cancer. Finally it was concluded that mass media campaign drives can be elongated in spreading the information on cervical cancer.\textsuperscript{64}

Koshy G & Gangadharan V, conducted a survey questionnaire based study to find the knowledge and attitude of female graduate students. Investigators had chosen four groups of samples from different streams, comprising of nursing, technical, MBBS and nonprofessional degree student’s age group between 18 to 25 years. Findings of this study showed that, 7 \% of MBBS, 25 \% of nursing, 61 \% of technical and 91 \% of nonprofessional degree students were never heard the term cervical cancer. 87 medical, 91 nursing, 25 technical and 15 non-professional degree students were not
having information about causes of cervical cancer. 96 medical, 67 nursing, 90 technical and 91 nonprofessional students had positive attitude that, cervical cancer is curable disease condition. It is concluded that, ignorance of numerous facets of cervical cancer observed in non-medical professional women. It is important to note that periodical enlightening educational interventions at institute level is essential to improve the knowledge levels in young women.65

2.4 REASONS FOR PARTICIPATION AND NON PARTICIPATION OF WOMEN IN CERVICAL SCREENING

Harder E & Juul KE, conducted a research study to assess the reasons for non-participation in cervical screening. Total subjects were 402,984 and active non subjects were 10,251 and passive nonparticipants were 63,435 in 4 years. Multiple regression test was applied to find out the possible factors of passive non-participation. It was found that active and passive non-participants varied in relation to demography. The odds of passive non participants were raised among women who has come from low income groups, who has not exposed sexually, who had only less education, who had less income, had high parity, more abortions and had smoking habit. However it is concluded that, countrywide, forthcoming, population-based study, variances in socio-demographic features between passive and active non-participants were found.66

A study was conducted by Kristensson JH with an objective to find the demographic and socio economic predictors of non-attendance in screening and to approximate the influence of health care interventions to improve the attendance in screening. The data was collected from central population register. The participants were the women aged between 25-54 years. The total sample size was, 52,447. The results showed that high age, primary school education, not married and low socioeconomic rank are the significant causes for non-participation in the cervical screening. It was concluded that, augmented screening compliance is improved after intervention, therefore implementation of healthcare interferences at public level will be highly beneficial to reduce the prevalence of cervical cancer.67
Augusto EF et al conducted a cross-sectional and prospective project to investigate the barricades for screening in women. The sample size was 351 women and demographic data was gathered by using designed household questionnaire. The results revealed that, the self-determining barricades to have screening at regular periods in this project were lack of literacy and the absence of indicative occurrences of STDs. The women who does not have the adequate education more likely to be absent in clinics for screening. A large portion of women had no history of using contraceptive aids, had more than two children on average, more than four gravidas in demographic characteristics. Embarrassment was the extreme barricade obstacle for non-attendance in medical examination at the clinics irrespective of level of education qualification. 68

Tand A et al conducted a qualitative study to explore reasons for non participation of women in the programme. Sample size was 144. During the field work observation of participants, qualitative interview and focus group discussions were done. Four questions were identified, they are; is the free national screening programme is happening, is the women of that particular place need to be involved or not in screening and at what level of quantity, will the screening benefits the women’s health. This study will make to understand health and health interrelated surroundings of the major minority. Majority of women stated that, they are healthy, no discomfort and pain, therefore they did not attend the screening programme.69

Maarit K et al, conducted a retrospective record observational based study to assess the how the personal and provider level factors stimulate the women for cervical screening. The women age group between twenty three to sixty nine were included in this study. The study was conducted in the years between 2008-2012. These women were assessed by dividing them like, women who have screened immediately after intervention and who have participated after reminders. The results showed that, thirty four percent of women were non adherent, thirty one percent were Norwegians, non-adherent, matched to fifty percent of migrants. Immigrant grade was a solid predictor of non-adherence but the a large portion of non-adherent women were still native Norwegians. 70
Health survey by Gyulai A had conducted a study to find out the socioeconomic and lifestyle factors for the involvement of women in cervical screening. Samples were, women aged between twenty five to sixty five years. A logistic regression enquiry was used to find the correlation between participation and socioeconomic lifestyle factors. The results showed that, seventy four percent of the target women attended a screening checkup within the past three years. Only fifteen percent of the women, who received an invitation letter and took part in the organized screening programme, but had never been previously examined by gynaecologist before intervention.71

Sharp L, conducted a study to investigate the causes why women accepted, or rejected to join in randomized clinical trials. Questionnaires were sent by post. About 56 % of women has completed questionnaires on reasons for participation and 38% who has resisted participating in study. 80 % of women have reported that, they wanted to know about the Pap smear results, so they have participated in study. 94% of subjects had taken part in the randomized clinical trials as it was a valuable input to the cervical screening programme. 32 % of subjects said participation in cervical screening may motivate me to take care myself better. The most common reasons for non-participation was inconvenient appointment, less keenness for follow-up, lack of time for travelling, job, frightening of test.72

2.5 EFFECT OF EDUCATIONAL INTERVENTION ON CANCER SCREENING PROGRAMMES:

Effect of verbal education:

Aziza S et al, executed a study with an objective to find an impact of individual counseling to change the beliefs and practices of women towards screening. The sample size was 100 and administered a structured survey questionnaire. Health Belief Model Scale was implemented to conduct the study. The study findings showed that, statistical significant results (11.649; p = .02) were found in the improvement of knowledge regarding symptoms of cervical cancer after attending the counseling sessions. 45.0% of women said that, they are ready to visit the hospital at least once in a year for screening and general examination. 63.0% of women agreed that, teenage marriages, more number of full term pregnancies are major risk factors for occurrence of cervical cancer. Practices regarding screening enhanced in all
participants after attending the counselling sessions specially immunization with HPV vaccine, perineal hygiene and balanced diet. It is concluded there is a need for education and individual counseling to the general community about the disease to reduce the morbidity and mortality.\textsuperscript{73}

Chibuike OC et al, conducted a prospective population based interventional study to examine the outcome of skilled public wellbeing instructor’s by houses to house education by mouth for attending cervical screening. Pretest was administered from the participants before executing interventions. One to one education was implemented by health educators. The total sample size was 1327. Only 3.2% of women had undergone for Pap test and it was increased to 67.6% after intervention. Before intervention, only 0.9% of children have received the HPV vaccine, it has increased to 33.2% after intervention. It was concluded that, the education given by health educator for houses to house cervical prevention education was connected with important increases in the acceptance for cervical cancer screening and HPV vaccination.\textsuperscript{74}

Devi S, conducted an experimental project to assess an outcome of individual counseling and documentary film based experiment regarding cervical screening. A structured interview questionnaire was administered. According to the researcher survey no participant had never screened. The t value for this test is 7.34 at 16 degrees of freedom, and the corresponding p-value of the test is extremely negligible (0.00000001). 70.58% of women from individual counseling and 82.35% of women from video based education, have participated in cervical screening after attending the educational programmes. It is concluded that educational intervention increases the number of participants in the cervical screening.\textsuperscript{75}

Chinyere M, et al, conducted a before and after interventional study to measure the effect of peer educational intervention on insight and practice of subjects in screening. 300 samples were selected by using multi stage sampling technique. Individual face to face education was given, 3 sessions were conducted for period of three months. Pretest and posttest was administered. Intervention was executed after collecting a base line data. Descriptive and significant test are used to refine and find the results. It was concluded that, face to face health education one of most important
methodologies to enhance the knowledge and improve the insight of women regarding advantages of identification of cervical cancer at primary stage. 

Chizoma MN, gave a counseling process framework of cervical cancer screening. Pre-counseling was given to the women who would want to screen for cervical cancer. Woman should be given the adequate information on history, high risk factors. Reinforcement was done by disseminating the information on procedures of cervical screening. It will help the women to cope with the results if it is positive and it will realize the women to understand the importance of regular screening if it is negative. Post screening counseling is also very important, it should be given based on the screening results, and it could be either negative or positive. During procedure also women should be explained about the procedure and inform what to expect at each phase of the screening.

Jonah M conducted a systematic review to evaluate the impact of cervical cancer education on screening rates. The enclosure of databases are Pubmed, Embase, Cochrane Systematic Reviews and Cochrane CENTRAL. Data synthesis and reporting was done by PRISMA. Total 3072 reports were screened and 28 articles were found to be qualified to comprise in the study. Increased cervical cancer was amplified to more than double in case of theory based educational interventions. Self-sampling rate also increased by two times. Sending invitation letter and reminders to the subjects who have not partook / overdue for screening had significant outcome in increasing the cervical cancer screening rates.

Parsa p et al accomplished a quasi-experimental project to find the impact of group counseling based on the HBM among women in an aim to encourage women to participate in cervical screening. Sample size was 80 and multistage sampling technique was adopted and researcher made questionnaire was used. Group counseling was performed based on the elements of HBM in three sessions in the experimental groups. Control group and experimental groups were followed up after of two months of group counselling. In pretest, no remarkable variation in the two study groups on HBM cervical screening practices. After attending the intervention, significant changed is noticed susceptibility (P<0.001), severity (P=006), benefits (P=012), barriers (P<0.001), and self-efficacy (P=002). The investigators have
approached the participants after two months of intervention and found that 42.5% of women from experimental group and 10% of women from control group had participated in screening (P<0.001).79

**Effect of video-based education**

A quasi experimental study was conducted by Mary JJ to assess the impact of documentary film based education on cervical screening learning outcomes in wedded females. Sample size was 50 and simple random sampling technique was adopted. Quasi experimental research design was used. Structured questionnaire was administered followed by the video assisted education. Before intervention most of the women had poor knowledge and after intervention 96% of women had satisfactory knowledge and 4% had moderate knowledge. Before intervention 86% of women had poor attitude and 14% of women had moderate attitude. After intervention the attitude of women was improved that is 70% had good knowledge and 30% of women had moderate knowledge. Majority of participants have never gone for cervical screening. The reasons were husband was not willing, it is very painful and cause discomfort.80

A comparative quasi-experimental study was conducted by Marina SL, three study groups were included in this study, and they are control, video and SMS. The main objective was to assess the efficiency of SMS with video education in raising the women’s attendance for cervical screening. Random sampling technique was adopted and 144 samples were selected for study. The multi-dimensional survey questionnaire for cancer prevention was used. Pretest and post test data was collected. The results showed that, the efficiency of intervention was amplified more with collective intervention over the video based only involvement for cervical screening.81

A study was conducted by Ornelas IJ with an aim to create and review educational videos to stimulate women for cervical cancer screening. The researchers have developed ethnically custom-made narrative videos for each ethnic group. About 40 subjects were willing to take part in the study. Researchers have identified the participation of women in cervical screening after attending video based education. It was found that the intention to attend cervical screening was significantly high after attending video based education. The knowledge on cervical cancer was significantly
high and acceptability for video also increased significantly. It was suggested that, ethnically custom-made narrative educational videos were suitable to the targeted age groups (30 to 49 years) and effective in improving the cervical cancer screening.  

Janak A and Sharma PA executed a study to detect the quality of authenticated data accessible in YouTube regarding cervical cancer. The investigator had made extensive search on YouTube for videos on the topic. The videos were validated for their quality of the content, language and source of information used for making videos. The findings were, total 172 documentary films were reviewed and studied. A large number of the videos had mainly focused to narrate the personal stories of cervical cancer patients, risk factors and advantages of screening. None of the videos were given the systematic information in local languages, most of the video were western cultured type. However, these videos have not explained all aspects of cervical cancer. At the same time videos were not well authenticated. It was concluded that quality of videos from reputed organizations via YouTube can help lower the burden of disease.  

Mary B and Linnette JD, conducted a pre-experimental research study with an aim to develop an informative bundle on cervical cancer. It contained the videos, written material, slides, and different types of AV aids as a bundle to identify the effectiveness in improving the knowledge of women. Sample size was 30 and they were selected from rural community. Structure survey forms were administered to collect the data from subjects. Pretest was administered and on 8th day of intervention posttest data also was collected. Results showed that mean knowledge score of participants significantly in the women after attending the interventions.

**Effect of written education:**

A qualitative study was conducted by Sadler L with an aim to detect the significant information to encourage young women for screening. There were 6 focused groups identified, five groups were young women age group between seventeen to twenty five and one was the registered nurse. A few women had participated in two additional assemblies to discuss leaflet design. There was a less information on cervical screening and some planned to be screened but not instantly after an invitation. Subsequently none of the subjects had faith that they will be having
cervical cancer, screening will not be required for them. The well informed written material was designed and distributed to the participants. At the end the attendance of women for screening was assessed.\textsuperscript{85}

Davey C and Austoker J conducted a study to assess the impact of written information regarding screening by conducting the systematic review. Written information is one of the effective interventions, as the participants will be having an opportunity to read material at their convenient place and time. This study also revealed that, letter reminders, written information will be more useful to stimulate women to take part in screening campaigns.\textsuperscript{86}

Devi S M, conducted a quasi-experimental study to discover husband’s knowledge on signs and symptoms of cervical cancer and impact of involvement of men in the study to encourage women to take part in smear tests. Structured survey questionnaires were used to collect baseline data before intervention. The quasi experimental design was used to organize the study. The written reading material was supplied to women and husband after showing a small video. Results of the study showed that, majority of husbands did not have the knowledge regarding features before intervention. Educating husbands, the response was 5 times more than educating only wives. Educating couples had 10 times more response educating only wives. Reinforcement of teaching had better results.\textsuperscript{87}

2.6 EFFECT OF REMINDERS FOR SCREENING:

Kathy L, Kristi M et al, conducted a project to find the impact of letter reminders to increase the attendance of women in screening. The sample size was sixteen hundred and thirteen in one group and one thousand eighty eight in the second group. Over a period of six months first group was given reminder. Results showed that higher screening rates were recorded in the group one than in the second group.\textsuperscript{88}

A cohort study was conducted by Tavasoli SM to find the impact of invitation and reminder letters to improve the attendance of women in cervical screening. Only 14.1 \% of subjects from an interventional group and 8.5\% of subjects from non-experimental groups have participated in screening over a period of nine months only with an invitation. When the participants received invitation along with reminder
improved the screening rates. The screening rates had great impact with invitation and multiple reminder letters by health care professionals.\textsuperscript{89}

Lantz PM, conducted a randomized trial to estimate the impact of doctor reminder letter and a telephone reminder for uptake of Pap tests. Women age group between 40 to 79 years were randomly selected who had not screened on the day of intervention and remained due. Medical claims were used to determine the impact of reminders after 6 months. The chances of getting all needed cancer screening tests through follow-up were four times higher in the experimental group.\textsuperscript{90}

Tamuzi LJ et al, implemented a study to determine the impact of various Heath (SMS, calls, letters and emails reminders) experiments to improve the screening rates. The researcher had observed the data on MEDLINE, Scopus, PsychINFO, Cochrane Central Register of Controlled Trials (CENTRAL), CINAHL, Mobile Active http://www.mobileactive.org, Web of Science and Grey literature. 4731 studies were found in the databases. 3004 studies were included in the study after excluding the similar kind of studies. The findings of the study showed that, 44 % of screening rates increased by call reminders and the p value was 0.01. 8 readings were comprised in the met analysis and the subjects were 29477. 89 % of screening rates amplified by call reminders (Z = 5.23, P < 0.00001). 3 readings were included and had 1340 subjects. 20% of call reminders corresponding with regular care. 8 readings and 345835 subjects were found in all the results. The results were not statistically found significant (P=0.15).\textsuperscript{91}

Catherine Uy et al, had conducted meta-analysis to find the effect of SMS interventions for uptake of smear tests. Researchers have gathered data from various databases such as PubMed, EMBASE, and the Cochrane Library were included to find the controlled trials that measures the impact of SMS on screening. The quality of the study was evaluated, using the Cochrane risk of bias tool. Results revealed that, screening rates are increased after experiment 0.6% to 15.0%. Unadjusted virtual screening rates for SMS receivers were 4% to 63% greater compared with controls. It was concluded that, SMS experiments seem to discreetly expand screening rates.\textsuperscript{92}
Karwalajtys T conducted a survey to determine the effect of reminder letters for screening. It was conducted in family and primary health care networks. Two focus groups were conducted for volunteer respondents. The sample size the women age group between 35 to 69 years. Two third of women have completed the survey which was mailed. 71.4% of women responded that, letter reminders have stimulated them to take decision to participate in cervical screening. The most of the participants said that they want to receive the further reminders for Pap test from doctors or nurses. Some of the participants were very interested to receive the extra information about cervical cancer. It was determined that, reminder letters in family practice were detected as appreciated and susceptible women’s choices to undertake Pap smear examination.93

Tseng DS et al was conducted a meta-analysis to find the impact of letter reminders on improving cervical screening. The review was done between the periods 1966 to 2000 and included the published and unpublished studies. 10 article were fitted in the inclusion criteria. The results revealed that, the women from low income groups had lesser response for reminders than those with mixed population. The significance of participation of women in cervical screening found to be great among women who has received collective interventional reminders.94

Soares MBO & Silva SR, had conducted a systematic review to identify the inventions that had increased the participation of women in screening. The search was mainly conducted in LILACS, SciELO and pubmed databases. Results showed that, there are several interventions recycled to increase the uptake of screening. Telephone calls, invitation letters, media outreach works, case menagements etc. had administered to improve the attendance of women in cervical screening. At the end it was concluded that the interventions which were used in the studies had focused mainly to generate the knowledge and encourage the women to participate in cervical screening.95

Lonnberg S et al. conducted an interventional study to assess the impact of scheduled appointments on cervical screening attendance. One thousand eighty seven women were randomly selected and letters were sent to the participants with in the 2 - 4
weeks of appointments. The attendance was recorded on 1st and 3rd month. 37% of participants had participated in screening from experimental group, while 20% of women from control group had participated in screening. It was concluded that, the participation of women in cervical screening was increased with multiple letter reminders.96
2.8. SUMMARY:

Investigator has reviewed more than 300 theoretical & empirical reviews, out of which 76 reviews are included in this chapter. Seven are theoretical references and remaining 69 are empirical including national journals, international journals, WHO, UNICEF, FOGSI, American cancer association reports, published thesis, newspaper articles etc.

After intense review of literature, the Investigator had identified, that women do not have adequate awareness on cervical cancer and its preventive measures. No proper educational material is available for women to read regarding cervical cancer particularly in their regional language. A very few documentary films on cervical cancer are available in Marathi and Hindi but the information is very short and not focused to inspire the women to take part in cervical screening programmes.

A large proportion of research studies discovered that, least individual attention was given to women and no encouragement was given to women to participate in cervical screening programmes. Previous studies were not designed an extensive modules on cervical cancer with comprehensible pictures in their educational interventions. Many of the studies have used one or two pages pamphlets with no adequate pics and the information was very short. In majority of Indian studies, reminders played a minimum role in motivating the women for cervical cancer. Except the studies of apex bodies and government organizations, no systematic treatment was established after screening.

Therefore the researcher decided to prepare the three educational interventions in terms of verbal, written and video mode in the local language to disseminate clear cut information on cervical cancer. The investigator has taken decision to send reminders in the form of letters, SMS and telephonic calls to women those who have not participated in the cervical screening on the day of intervention. Investigator would like to establish systematic follow up visits for a woman whose Pap test is found to be abnormal.