

Nurses' Knowledge Regarding Cervical Cancer at Specialized Hospital in Dhaka, Bangladesh

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ABSTRACT

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Background: Cervical cancer is the second leading cause of death among women in Bangladesh. Nurses are important health care provider should have adequate knowledge about the disease, its development, prevention, diagnosis and treatment approaches. **Aim:** To assess the level of nurses' knowledge regarding cervical cancer at Specialized Hospital in Dhaka, Bangladesh. **Methods:** A descriptive type of cross-sectional study was conducted with a sample of 100 using purposive non-probability sampling technique from National Institute of Cancer Research and Hospital (NICRH) in Dhaka, Bangladesh. Data were collected by self-administering questionnaire with a developed cervical cancer knowledge questionnaire of 25 items in 4 dimensions. Data were analyzed using descriptive statistics (frequencies, percentages, mean) by scientific calculator.

Results: The mean age of respondents was 32.5 years with the range of 24 to 48 years, all of them were female, about 66% were Muslim by their religions. Majority (97%) of the respondents were married. More than half of the respondents (53%) were Diploma in Nursing Science & Midwifery by their professional education. About 55% and 64% respondents had 1- 5 years working experience in government service and in the cancer department respectively. Only 4% respondents had training on oncology. Overall findings showed that 51% nurses had very good level of knowledge, 28% had good level of knowledge, 11% had average level of knowledge, 5% had poor level of knowledge and only 5% respondents had excellent level of knowledge regarding cervical cancer. Mean of the total knowledge score of cervical cancer was = 77.88 out of 100 which indicates overall good level of cervical cancer knowledge. Those nurses were young adults in age, had Post Basic B.Sc. in nursing in professional education, had 6-10 years length of service in government and Cancer Hospital had more knowledge on cervical cancer than others.

Conclusion and Recommendation: Results suggested that young adults' age, length of service and professional education of the respondents influenced to the more knowledge of cervical cancer. Therefore, in-service education and training by educational program is recommended.

Key words: Cervical Cancer, Knowledge, Nurses, Bangladesh

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I. INTRODUCTION

Background of the study

Cervical cancer is a fatal disease and is the fourth most common cancer in women with an estimation of 6,04,00 new cases and 342,000 deaths in 2020 (Sung *et al.*, 2021). Cervical cancer is a disease that emerges with abnormal growth of cervical cells, is seen in all ages, and has a poor prognosis when diagnosed late

(Donmez *et al.*, 2018). Cervical cancer relates to the actual neoplasm cancerous cell changes in the cervix commonly referred to as carcinoma in situ (cancerous growth localized) and invasive cancer (cancer spreads to nearby organs) (Khan *et al.*, 2021).

The American Cancer Society's estimates for cervical cancer in the United States for 2023 are: About 13,960 new cases of invasive cervical cancer will be diagnosed. About 4,310 women will die from cervical cancer (American Cancer Society, 2023). Globally, cervical cancer was the leading cause of cancer related death in women in eastern, western, middle, and southern Africa. The highest incidence was estimated in Eswatini, with approximately 6.5% of women developing cervical cancer before age 75 years. China and India together contributed more than a third of the global cervical burden, with 106 000 cases in China and 97 000 cases in India, and 48 000 deaths in China, 60 000 deaths in India (Arbyn *et al.*, 2018).

In Bangladesh, Cervical cancer is the second leading cause of death of women aged 15-44 years (Bruni *et al.*, 2019). According to International Agency for Research on Cancer, more than 50 million Bangladeshi women are at risk of developing cervical cancer, and 17686 new cases and 10362 deaths occur annually (Arbyan *et al.*, 2018). Risk factors for cervical cancer are related to early marriage, early onset of sexual activities, multiparty, Sexually Transmitted Diseases, and low socioeconomic condition (Khan *et al.*, 2021). Persistent infection with high-risk human papilloma virus has been established as the primary cause for cervical cancer (Chen *et al.*, 2020). Clinically cervical cancer commonly presents with foul smelling and blood-stained vaginal discharge or post coital bleeding, inter menstrual bleeding and pelvic pain (Bardhan *et al.*, 2020).

World Health Organization continues supporting the Government of Bangladesh to strengthen cancer control activities in the country including community education, social mobilization, vaccination, screening, treatment, and palliative care, a comprehensive approach to cervical cancer prevention and control (Singh *et al.*, 2023). Cervical cancer is one of the preventable diseases. It can be prevented by early diagnosis, treatment and vaccination for human papilloma virus (HPV) infection at an early age (Donmez *et al.*, 2018). Early stage of detection and treatment of cervical precancerous lesion can prevent up 80% of cervical cancer (Kosambiya *et al.*, 2018).

It is also important that health care personnel are responsible for the provision of the cervical cancer services should have adequate knowledge about the disease, its development, prevention, diagnosis and treatment approaches (Ncane *et al.*, 2023) Women also need better access to screening and more education about HPV and other risk factors for cervical cancer. World Health Organization supports the Government to train health workers across the country for strengthening early detection and control of cervical cancer, the most common types of cancer among women in Bangladesh (Singh *et al.*, 2023).

Nurses' knowledge regarding cervical cancer is an indispensable thing to establish women health wellbeing. Nurses plays an integral role in educating women in prevention of disease and promotion of health, they also influence cervical cancer screening adherence and health activities among most women. Nurses are a large proportion of the health care provider workforce. Among them who had opportunity to work in cancer hospital should know better about cervical cancer than other hospitals in the country. Many studies have shown that hospitals played a title role as a source of information (Kosambiya *et al.*, 2018). Nurses' knowledge about cervical cancer can reflect in community awareness that will help to reduce the burden of morbidity, disability, and death from this disease. So, it is important to explore the level of knowledge regarding cervical cancer among the nurses' at NICRH in Bangladesh.

Justification

About 600,000 women are diagnosed with cervical cancer leading to around 280,000 deaths, across the world every year (Keah *et al.*, 2020). A recent study showed that the rates of incidence and mortality increase due to the change in the sexual behaviors that increase the risk of HPV infection. Most HPV infection are asymptomatic and the majority of the people are unaware about the infection with the virus (Donmez *et al.*, 2018). In addition to health system barriers, studies conducted among healthcare workers from tertiary hospitals in Eastern Africa have identified that most of them had lack of adequate knowledge of cervical cancer (Obol *et al.*, 2021). Despite all the efforts, problems persist in cervical cancer prevention programs due to lack of health appropriate policies based on evidence, social and personal beliefs such as women's reluctance to gynecological examination, having incorrect information regarding the smear test, lack of resources, and technical infrastructure.

An adequate knowledge about cervical cancer can be prevented through vaccination with Human Papillomavirus (HPV) vaccine (Obol *et al.*, 2021). To create global awareness regarding cervical cancer observed for the entire month of January (23-29) every year in worldwide (WHO, 2023). Nurses can play important role to awareness of community people is essential for infection prevention, screening and vaccination programs to be successful (Karusa *et al.*, 2017). The nurse is a very important member of any cancer care team. In the hospital, the skills of nurse are a necessary adjunct to that of the surgeon, the radiologist and the internist. A home, the patient who is being treated for cancer may be cared for by the community health nurse. In industry, the nurse is effective in the detection and care of illness of employees and often is concerned about the health of their families as well. In all ramification of the health field, the nurse contributes knowledge and expertise in case finding, assessment, treatment, rehabilitation, and advanced care of persons who have cancer (Brunner, 1964; Kosambiya *et al.*, 2018). For this reason, this is important to assess the level of knowledge regarding cervical cancer among nurses and the result of this study will be helpful to recommended providing appropriate knowledge on cervical cancer to the nurses to prevent cervical cancer and promote women health wellbeing.

Research Question

What is the level of nurses' knowledge regarding cervical cancer at Specialized Hospital in Dhaka, Bangladesh?

Aim

The aim of this study is to assess the level of nurses' knowledge regarding cervical cancer at Specialized Hospital in Dhaka, Bangladesh.

Objectives

1. To assess the level of nurses' knowledge regarding the concept of cervical cancer.
2. To find out the level of nurses' knowledge regarding management of cervical cancer.
3. To identify the level of nurses' knowledge regarding the complications of cervical cancer.
4. To determine the level of nurses' knowledge about screening and preventive measures of cervical cancer.
5. To state the socio-demographic status of nurses at Specialized Hospital in Dhaka, Bangladesh.

Research Variables

Socio- demographic Variables

1. Age
2. Gender
3. Religion
4. Marital status
5. Professional education qualification
6. Total length of government service.
7. Working experience in oncology department.
8. Training on oncology.

Knowledge Related Variables

1. Concept of cervical cancer (meaning, cause, risk factor, signs and symptoms of cervical cancer).
2. Management of cervical cancer.
3. Complications of cervical cancer.
4. Screening and Preventive measures of cervical cancer.

Operational Definition

Nurse

“A nurse is a person who has complete a program of basic nursing education and is qualified and authorized in his / her country to provide responsible and competent professional service for the promotion of the health, the prevention of illness, the care of sick and rehabilitation” (ICN, 2010).

In this study nurses' means the respondents, those are registered nursing personnel from BNMC (Bangladesh Nursing and Midwifery Council) and who have been working in oncology ward at Specialized Hospital Dhaka, Bangladesh.

Knowledge

Knowledge is considered as a collection of experience appropriate information and skilled insight which offers a structure for estimating and integrating new experiences and information (Mohajan, 2016).

In this study, the researchers considered to explore the level of knowledge of respondents about cervical cancer which refers to the concept of cervical cancer (meaning, cause, risk factor, signs and symptoms of cervical cancer), management and complications, proper screening methods and preventive measures of cervical cancer.

II. LITERATURE REVIEW

A literature review is a comprehensive summary of previous research on a topic. It is an important part of research. Review of literature is an integral step in research process. Without literature review is not possible to conduct the study. These literatures review aims to evaluate the existing knowledge of nurses regarding cervical cancer in Bangladesh to identify gaps and suggest improvements. This review involves a comprehensive search of peer-reviewed articles, theses and reports from databases that can be utilized to provide a better understanding of cervical cancer from the following outlines:

1. Definition of cervical cancer
2. Causes of cervical cancer
3. Symptoms of cervical cancer
4. Risk factors of cervical cancer
5. Screening methods of cervical cancer
6. Preventive measures of cervical cancer
7. Treatment and management of cervical cancer
8. Complications of cervical cancer
9. Incidence and prevalence of cervical cancer in worldwide
10. Incidence and prevalence of cervical cancer in Bangladesh
11. Nurses' knowledge related to cervical cancer

1. Definition of cervical cancer: Cervical cancer is the term used to describe tumors that can grow at the lower end of the womb. These tumors usually develop from abnormal cell changes at the entrance to the womb from the vagina (the opening of the cervix) (WHO, 2017).

2. Causes of cervical cancer: Cervical cancer is usually caused by human papilloma viruses (HPV). Though almost 90 per cent of HPV infections are cleared naturally by the immune system, persistent infections can increase the risk of cervical cancer through development of precancerous lesions and that can progress to cervical cancer over a period of about 10 years (Okunade, 2020).

3. Risk factors of cervical cancer

Cleveland Clinic (2022) stated that cervical cancer can be linked with following risk factors for the disease:

Screening history: Those who haven't had Pap tests at regular intervals are at increased risk of cervical cancer.

HPV infection: Certain types of HPV are linked to cervical cancer. Lowering your risk for HPV can also lower your risk for cervical cancer.

Sexual history: Having sexual intercourse before the age of 18 and having many sexual partners puts you at higher risk of HPV infection and Chlamydia. Preventing these diseases reduces your risk of cervical cancer.

Smoking: Cigarette smoking is associated with an increased risk of cervical cancer.

HIV infection: Those who've been infected with HIV have a higher-than-average risk of developing cervical cancer.

Birth control pills: There is evidence that long-term use of oral contraceptives can increase your risk of cervical cancer.

Multiple children: Having three or more full-term pregnancies may increase your risk for developing cancer of the cervix.

Having a weakened immune system: Having a weak immune system makes your body unable to fight infections.

Family history: Cervical cancer may have a genetic component.

4. Symptoms of cervical cancer:

- Abnormal bleeding – for instance after sex, between periods or after the menopause
- Abnormal vaginal discharge that might have an unpleasant odor
- Tiredness and weight loss

- Pain in the abdomen and pelvis
- Pain when urinating (“peeing”) or defecating (WHO 2024).

5. Screening methods of cervical cancer: The screening test involves doing a “smear test” (or “Pap test”) to get a sample of cells which are then examined. From the age of 35, women are offered a combined test that includes a smear test and a test for certain human papilloma viruses (an HPV test) every three years. The sample of cells is then checked to both look for changes in the cells as well as for HPV viruses (Cleveland Clinic, 2022; WHO, 2017).

6. Preventive measure of cervical cancer: Cervical cancer usually develops as a rare consequence of a long-term infection with particular types of HPV. So, at least theoretically, there are three ways to help prevent it:

- I. Avoiding sexual contact, or using condoms
- II. HPV vaccine in girls
- III. Screening and removing abnormal tissue

7. Treatment of cervical cancer: The most appropriate type of treatment will mainly depend on the size of the tumor and whether the cancer has spread. If the tumor is discovered at a very early stage, a small surgical procedure (conization) might be enough. If the tumor has already spread to the surrounding tissue, usually recommend having surgery to remove the entire womb (a hysterectomy). The lymph nodes are removed in a wide area around the womb too. Radiotherapy might also be considered. Radiotherapy is still an option even if the tumor can no longer be removed through surgery. In some patients it can be combined with chemotherapy to follow-up rehabilitation treatment (Stelzle *et al.*, 2021; WHO, 2024).

8. Complications of cervical cancer

Complications of advanced cervical cancer include:

Pain – This is a common symptom if the cancer has spread into nerve endings, bones or muscles.

Kidney failure – In some cases, the tumor may lead to a build-up of fluid in the kidneys, which can lead to loss of kidney function.

Blood clots – Tumors, especially large ones, may press on veins in the pelvic area, slowing the flow of blood to the legs. It can cause further complications or death if a clot travels to the lungs and blocks the flow of blood (pulmonary embolism).

Bleeding – This can occur if the cancer spreads into the vagina, bowel, bladder or rectum.

Fistula – A fistula is a channel that develops between the bladder and vagina, leading to persistent discharge of fluid from the vagina (Cleveland Clinic, 2022; Stelzle *et al.*, 2021).

Complications arising from cervical cancer surgery include:

Early menopause

Narrowing of the vagina – Radiotherapy may cause the vagina to narrow, which can make sexual intercourse painful or difficult.

Lymphoedema – Removal of the lymph nodes in the pelvis may affect the lymphatic system’s ability to drain excess fluid. This can lead to a build-up of fluid in the tissues, known as lymphoedema, which can cause swelling. In cervical cancer, this usually affects the legs (Cleveland Clinic, 2022; Stelzle *et al.*, 2021)

9. Incidence and prevalence of cervical cancer in worldwide: Cervical cancer is the fourth most common cancer in women. In 2018, an estimated 570 000 women were diagnosed with cervical cancer worldwide and about 311 000 women died from the disease. Globally with around 660 000 new cases and around 350 000 deaths in 2022. The highest rates of cervical cancer incidence and mortality are in low- and middle-income countries (Stelzle *et al.*, 2021; WHO, 2024).

10. Incidence and prevalence of cervical cancer in Bangladesh: In Bangladesh, cervical cancer is the second most common cancer of female. The number of new cases was 8,068 (10.6 per 100,000 women) and deaths was 5,214 (7.1 per 100,00 women) in 2018. Cervical cancer (CC) is one of the most prevalent cancers among Bangladeshi women. There were approximately 8,268 new cervical cancer cases in the year 2020. The prediction was that without any intervention a total of 505,703 women in Bangladesh will die from cervical cancer by the year 2070 and the number will rise to 1,042,859 by 2120 (Uddin *et al.*, 2023).

11. Nurses' knowledge related to cervical cancer

In 2023, conducted a cross-sectional study by using a structured questionnaire on knowledge of cervical cancer services and associated risk factors of health workers in South Africa among 108 health workers. A total of 91.7% of the 108 participants were female, and 25% were over the age of 50. This study displayed that about 64.8% participants were known HPV, pap smear and vaccination age and 71.3% participants were

aware about vaccine availability. Only 40.7% of workers were trained on cervical screening and 35% on pap smear. This study showed an overall knowledge score of 53%, but rest of the participants had no adequate knowledge on cervical cancer (Ncane *et al.*, 2023).

In 2023, a descriptive cross-sectional study was conducted among 284 nurses using a questionnaire on knowledge and attitude of cervical cancer screening and its associated factors in Erbil city, Iraq. The totals of 94.7% were married and 25.7% were over the age between (29-33) years. This study displayed that about 95.5% participants had a positive attitude toward cervical screening. Only 37.6% of health care workers were trained on cervical cancer screening. This study showed an overall knowledge score of 53.3%, but rest of the participants had no adequate knowledge on cervical cancer screening (Omar & Saied, 2023).

In Bangladesh, a descriptive cross-sectional study was conducted among the nurse's knowledge regarding cervical cancer working at the Dhaka Medical College Hospital with one-hundred and eighty-two (182) nurses. Respondents were recruited using the purposive non-probability sampling technique. The data were collected by face-to-face interview technique using a semi-structured questionnaire. The mean age of the respondent's was 30.6 ± 6.6 years, and almost three-quarters (71.5%) of the respondents were female. Slightly above two-fifths (40.1%) of the respondents had a diploma in nursing, and 68.7% had more than five years of working experience. This study showed that less than one-third (28.6%) of the respondents mentioned knowing about the clinical diagnosis of cervical cancer, and the majority (78.8%) said it is confirmed by seeing signs of infection on the cervix. Most of the respondents (71.4%) stated that abnormal vaginal bleeding is the warning sign of cervical cancer. Less than two-thirds (72.0%) of the respondents agreed that multiple sex partners as a risk factor for cervical cancer. About 42.3% of the respondents know about the management of cervical cancer, among which one-fifths (21.4%) reported Chemotherapy. Little above two-fifths (45.6%) of the respondents know about cervical cancer prevention, of which 35.2% said to use condoms during intercourse. Finally, this study also shows that 51.9% of the respondents had an overall moderate level of knowledge about cervical cancer (Khatun *et al.*, 2021).

In Uttar Pradesh, another cross-sectional study performed during 2020-2021 using a structured questionnaire among 320 staff nurses at rural hospital (Loni). The majority of the participants (73.44%) were between 21-35 years old. 91.56% participants were married .97.19% (N-311) were aware about cervical cancer .Among the 311 participants ,35.05% knew that Human papilloma virus is a causative organism of cervical cancer, and 33.75% were aware about HPV vaccination .89.07% knew the symptoms of cervical cancer is irregular vaginal bleeding ,68.49% provided correct answer about discomfort ,pain or bleeding during sex and 83.28% knew about vaginal bleeding after menopause .Among the 311 respondents 35.05% knew about the risk factor of cervical cancerous infection with HPV,59.49% knew about having sex at early age .In this study, the staff nurses were found to have adequate knowledge about cervical cancer (Chatterjee *et al.*, 2021).

In Pakistan, a descriptive cross-sectional study design was conducted on 122 registered nurses of Sir Gangaram Hospital, Lahore. Data was collected through a self-administered questionnaire about knowledge and attitude of respondents on cervical cancer screening. In this study shown that majority of nurses aged were between 25-30 years, 45 (36.8%) followed by 31-35 years, 40 (32.8%). Most of nurses were married, 83(68%). Near to half of the respondents 55(44.3%) had diploma nursing, while 36(29.5%) had generic BSN degree. Among all respondents more than two-third, 67(54.9%) of respondents had more than 5 year of work experience, 62 (50.8%) had less than one year of work experience in gynae, while one-third, 40(32.8%) held 1-5year of Gynae experience. More than half (54.1%) of the participants had insufficient information about cervical cancer screening. About cervical cancer screening, 32% of respondents had average knowledge and only 13.9% respondents had good knowledge. More than half (57%) of the study respondents had an average attitude towards cervical cancer screening, (21.3%) of respondents had a negative attitude towards cervical cancer screening and only 20% of the respondents had a positive attitude regarding cervical cancer screening. This study highlights that there is no association between age of participants and cervical cancer screening knowledge and attitude (Siddiqi *et al.*,2021).

A descriptive cross-sectional study was conducted among the health workers knowledge, attitudes and practice of cervical cancer prevention in rural health centers of Northern Uganda. Two- hundred and eighty-six (286) health workers were recruited using the purposive non-probability sampling technique. The data was collected by using a self-administered questionnaire. The mean age of the participants was 35 years, 54% participants were nurses, 66% participants were female, participants average work experience were 9.8 years, 78% participants were from HC level III, only 33% participants were conduct training, 45% participants

were conducting outreach health education, only 21% participants had HC guideline for cervical cancer screening, 74% participants had HPV vaccination guideline, and only 2% participants know about plan for cervical cancer prevention and control. This study shows that, 16.43% female participants not undertaking cervical cancer screening, 60% participants had adequate knowledge on cervical cancer and 66% participants had positive attitudes (Obol *et al.*, 2021.).

In 2020, to assess awareness of Cervical Cancer among staff nurses working in national institute of cancer Research and Hospital (NIRCH) in Bangladesh conducted a descriptive cross-sectional study with 154 participants with the range of age 20-30 years, 76.6% were married. All the respondents (100%) heard the name of cervical cancer and also known that if early diagnosis is possible then it can be cured but 35.7% did not know about any of its risk factors of cervical cancer. Foul smelling vaginal discharge and irregular abnormal vaginal bleeding as a symptom was known to 51.9% nurse but only 16.88% aware about post coital bleeding as a symptom. Among all of the respondents about only 23.37%, 22.7%, 39.6% were aware about the screening age, screening time for sexually active women, and screening interval for cervical cancer detection respectively. Results found that a major proportion of nurses were having poor knowledge about cervical cancer and 57.2% did not know about VIA as a screening test for cervical cancer (Bardhan *et al.*, 2020).

In China, conducted a cross-sectional study using survey questionnaires among 258 intern nurses in Nursing and oncology department in Mianyang Central Hospital. The mean age of the participating nurses were 20.45 years. In this study shown that only 63.6% of the participants knew that cervical cancer is the 2nd cause common female cancer in China and 56.6% knew that most cervical cancer is caused by HPV infection. Most participants agreed that cervical screening could prevent morbidity and morbidity from cervical cancer (88.0%) and correctly identified risk factors for cervical cancer such as smoking (89.9%), having multiple sexual partners (84.5%) and sex at an early age (82.9%). However, only 7.0% of the participants knew that early-stage cervical cancer is commonly asymptomatic. In this study the intern nurses lacked knowledge about female cancer, as 36.4% did not know the cervical cancer is the second most common female cancer in China (Puet *et al.*, 2020).

In 2018, a cross-sectional study was conducted at King Fahad Medical City (KFMC) in Saudi Arabia, using a self-administered questionnaire among 395 participants among 395 participants. The mean age of the participant's was 34.7% years and 239 (60.5%) participants was married. The study participants were randomly selected from healthcare professional. A total of 261 (66.1%) respondents were nurses, 63 (16.0%) respondents were physicians and the remaining 71(18.0%) respondents included pharmacist, dietitians, technicians, health educators, physiotherapists and therapist. In this study, many of the participants were not knowledgeable about cervical cancer. Only 8.9% of the participants knew that having multiple sexual partners and only 8.6% participants knew that women older than 50 years of age are at risk of cervical cancer. About 50% of the study participants were aware of the early signs and symptoms and risk factors of cervical cancer. A majority of the participants did not have knowledge about the different ways of screening for cervical cancer. However, near about 90% of the participants had lacking knowledge about cervical cancer (Heena *et al.*, 2019).

In our neighboring country India, conducted a study among 103 nurses with the mean age of 34.29 years, among them 90.3% were married. This study showed that 98% participants heard about cervical cancer while 73.8% agreed that it could be prevented. 49.5% participants considered Human Papilloma Virus (HPV) and 14.7% participants considered poor personal hygiene as risk factor for cervical cancer. 94% participants knew that Pap smear can be used for detection of cervical cancer but only 54% participants knew the correct meaning of positive Pap smear. About 65.3% participants knew that excessive bleeding during menses or menorrhagia is a symptom for cervical cancer, only 31.7% recognized irregular bleeding and 34.2% recognized foul smelling vaginal discharge as major symptoms of cervical cancer. This study highlights major knowledge gap among nursing staff regarding cervical cancer (Kosambiya *et al.*, 2018).

In 2018, conducted a hospital-based study by using a semi-structured questionnaire on knowledge and practice about cervical cancer among nursing staff of the tertiary care hospital in Ahmedabad, India. One-hundred (100) nurses were recruited using the purposive non-probability sampling technique. A total of 100 participants, 79% were over the age group of 21-30years, 61% were unmarried, and 62% participants belonged were upper class. This study displayed that 88% participant were aware about CA cervix. In this, aware participants 61% were knowledge about risk factors of CA cervix, 63% participants were knowledge about sign and symptoms, and 67% participants were knowledge about preventive measures of CA cervix. In practice and attitude by the participants about Pap test and HPV vaccination, only 1% participants had been screened for CA cervix by Pap test and no one went for HPV vaccination. This study showed an overall knowledge score out of the total 88 participants, 5% had good knowledge, 39% had average and 56% had poor knowledge on cervical cancer (Thakar *et al.*, 2018.).

III. METHODOLOGY

Methodology is crucial parts which made the study scientific and provided a way to reach the objectives of the research. For achieving the objectives, the study was conducted systematically and followed the methodology mentioned below:

Study Design

A descriptive type of cross-sectional study was conducted at National Institute of Cancer Research and Hospital (NICRH) at Dhaka, Bangladesh.

Study period

The study was conducted from July 2023 to June 2024.

Study setting

The place of this study was conducted at National Institute of Cancer Research and Hospital at Mohakhali in Dhaka, Bangladesh. It is only one specialized hospital for cancer patients in Bangladesh. This hospital was established in 1986 and the bed capacity is 500 beds where all kinds of cancer treatment facilities are available. There are 556 of nurses are working at different oncology wards namely Medical- surgical wards, Gynae wards, Out Patient Department, Palliative care wards, Operation Theatre, Post-operative wards, Chemotherapy wards, Radiotherapy wards, Day care center for outpatient chemotherapy. There are lots of facilities for cancers patients including advanced diagnostic procedures.

Study population

The entire populations of the selected study area (National Institute of Cancer Research and Hospital, Mohakhali, Dhaka) are 556 nurses. About 400 (four hundred) nurses was considered as a study population in this study. The nurses who have been working in this hospital namely Medical- surgical wards, Gynae wards, Out Patient Department, Palliative care wards Operation Theatre, Post-operative wards.

Sample size

The sample size of the study was 100 according to 25% proportion of estimation from the total number of study population (N=400) (Polit & Beck, 2008).

Sampling technique

Non-probability purposive sampling technique was adopted for selecting the sample of the study by the researchers to fulfill the purpose of the study who were met the inclusion criteria.

Selection criteria of the study

Inclusion criteria

Nurses who were available at National Institute of Cancer Research and Hospital in Dhaka.

Nurses who were agreed voluntary to participation.

Nurses those who were psychologically and physically sound.

Exclusion criteria

Nurses were excluded from the study who did not meet the inclusion criteria.

Research Instrument

A structure questionnaire was developed by the researchers according to the objectives and variables of the study after reviewing the relevant literatures.

The questionnaire was divided into two parts-

Part 1: Socio-demographic information consisted of 8 items. The questionnaire was designed to collect the following data: age, gender, religion, marital status, professional educational qualification, total length of government service, working experience in oncology department, and training on oncology.

Part 2: Knowledge related question on Cervical Cancer consisted of 04 domains. Domain -1= concept of Cervical Cancer which contain 10 questions, domain-2= management of Cervical Cancer with 04 questions, Domain-3= complications due to Cervical Cancer which contains 04 questions. Domain 4 =Screening and Preventive measure of cervical cancer which contains 07 questions. Each question has 04(four) options and 01(one) option is considered as correct answer. One mark is allocated for correct answer and thus total marks are 25 (twenty-five). Then 25(twenty-five) marks will be converted in 100% by respondents during analysis.

Validity

The validity of the questionnaire was assessed and maintained by the subject teachers and experts in related area in College of Nursing Mohakhali, Dhaka.

Reliability

A pre-test was conducted at Gynae oncology departments in Dhaka Medical College Hospital on the same characteristics of 10 samples to check acceptance and consistency of the instrument (The mean of total score of cervical cancer knowledge was 72.4). After that necessary correction was done before finalization of the questionnaire

Ethical consideration

Informed consent: A written permission was taken from the Principal, College of Nursing Mohakhali, Dhaka. After approval of the study proposal by IRB committee (Memo no;/ NICRH/ IRB/2024/234) and also clearance was taken from the Hospital authority as well as permission was taken from the both Hospital authority and respondents for data collection.

Voluntary participation: Objectives of the study were explained to the respondents to participate voluntarily then written consent was taken from the respondents by the researchers.

Confidentiality, anonymity, and privacy: Participants were assured about human rights of them and confidentiality, anonymity and privacy were strictly maintained. They will be assured that accumulated data was utilized only for academic purpose.

No harm: Participants were assured that there is no any harm to participate in this study.

Right to withdrawn: The participants were assured that the participant could be withdrawn from the study at any time without any hesitation.

Data Collection Procedure

After approval of the study proposal, permission was taken from the Hospital authority as well as respondents for data collection. The researchers collected data through self-administering questionnaire after considering all kinds of ethics. It was taken 15-20 minutes per respondent.

Data Management

Collecting data was checked, organized, entered into the master sheet then was analyzed manually by the researchers with the help of scientific calculator and excel sheet.

Data Processing and Analysis

The descriptive statistics were used for the analysis of the respondents' characteristics, distribution and level of knowledge of cervical cancer in terms of frequency,

Percentages range and mean. The important variables were analyzed to fulfill the objectives of the study.

Data Presentation

The results were presented by using tables with interpretation.

Grading criteria

To assess the level of nurses' knowledge regarding cervical cancer, Researchers developed a structured questionnaire with 04 domains with 25 questions, each question contains 04 marks. Participants who answered all questions correctly obtained 100% marks.

S/NO	Knowledge level (Grade)	Percentage%
01	Excellent	90-100%
02	Very good	80-89%
03	Good	70-79%
04	Average	60-69%
05	Poor	<60%

IV. RESULTS

This chapter provides a detailed description of the result with appropriate interpretation according to objectives and variables of this study. The results were presented by simple frequency, percentage, mean in tables.

Table 1
Distribution of the Respondents' Socio-Demographic Characteristics

		n=100	
Variables	Categories	(f)	(%)
Age	Mean= 32.5 years with the range of 24 to 48 years	100	100%
Religion	Islam	66	66%
	Hindu	23	23%
	Christian	11	11%
Gender	Female	100	100%
Marital status	Married	97	97%
	Unmarried	3	3%
Professional Educational Qualification	Diploma in Nursing Science & Midwifery	53	53%
	Basic Bachelor of Science in Nursing	09	09%
	Post Basic Bachelor of Science in Nursing	24	24%
	Master Degree in Nursing	14	14%
Length of Government Service	1- 5 years	55	55%
	6- 10 years	41	41%
	>10 years	04	04%
Worked in the Cancer Department	1-5years	64	64%
	6 – 10 years	36	36%
Training on oncology	Yes	4	4%
	No	96	96%

Table 1. Presents the socio-demographic characteristics of the respondents. It shows that, the respondents mean age was 32.5 years with the range of 24 to 48 years. Among all of the respondents 66% were Muslim, 23% Hindu and 11% Christian by their religion. The total subjects were female. Majority (97%) of the respondents were married. About 53% had Diploma in Nursing Science & Midwifery, 9% had Basic Bachelor of Science in Nursing, 24% had Bachelor of Science in Post Basic Nursing and Public Health Nursing and only 14% had Master of Science in Nursing by their level of professional education. More than half (55%) of the respondents' total length of government service had 1- 5 years, 41% had 6-10 years and 4% had more than 10 years working experience respectively. On the other hand, 64% respondents had 1-5 years and 36% had 6-10 years working in the cancer department. Among all of them, only 4% respondents had training on oncology whereas 96% of the respondents had no training on oncology.

Table 2
Distribution of the Nurses Knowledge Regarding Concept of Cervical Cancer

Sl. NO	Items	n = 100			
		Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
1.	Cervical cancer means malignant cell of the cervix.	98	98	02	02
2.	Cervical cancer is caused by Human Papilloma virus (HPV).	96	96	04	04
3.	HPV is transmitted by sexual contact	88	88	12	12
4.	The age of risk for cervical cancer is between 35-44 years.	46	46	54	54
5.	Early marriage and early coitus are the social factor of cervical cancer.	83	83	17	17
6.	Unsafe multiple sex partner is the vulnerable for having cervical cancer.	85	85	15	15
7.	History of untreated STD is the risk for getting cervical cancer	98	98	02	02
8.	The first symptom of cervical cancer is vaginal bleeding after intercourse or interval periods or after menopause.	96	96	04	04
9.	Menstrual bleeding that is heavier and longer than usual is another vital symptom of cervical cancer.	96	96	04	04
10.	Heavy foul-smelling vaginal discharge can present during cervical cancer.	96	96	04	04

The above table 2. shows that near about 100% of the respondents (98%) provided correct answer about meaning and risk factor of cervical cancer. The most of the respondents 96% of the respondents gave correct answer to the causative organism and symptoms of cervical cancer. About 88%, 85% and 83% of the respondents provided correct answer about the way of HPV transmission, unsafe multiple sex partner is the vulnerable groups and early marriage, early coitus are the social factors of cervical cancer respectively. On the other hand, more than half (54%) of the respondents gave incorrect answer to the age of risk for cervical cancer.

Table 2.1
Level of Nurses Knowledge Regarding Concept of Cervical Cancer n = 100

Variabes	Level	Grading Criteria	(f)	(%)	Mean
Concept of Cervical Cancer	Excellent	90-100%	74	74	37.2
	Very good	80-89%	17	17	32
	Good	70-79%	04	04	28
	Average	60-69%	03	03	24
	Poor	<60%	02	02	20

Mean of Total Knowledge Score = 35.24 (88.1% = Very Good Level of Knowledge)

Table 2.1 shows that the level of nurse's knowledge regarding concept of cervical cancer. Among all of the respondents 74% had excellent level of knowledge, 17% had very good level of knowledge, 4% had good level of knowledge, 3% had average level of knowledge, and only 2% had poor level of knowledge regarding concept of cervical cancer. Mean of the total knowledge score was = 35.24 out of 40 marks (Ten items) which indicates (88.1%) the very good level of knowledge in the area on concept of cervical Cancer.

Table-3
Distribution of the Nurses Knowledge Regarding Management of Cervical Cancer n= 100

Sl. NO	Item	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
11.	The management of cervical cancer are combination of surgery, radiotherapy or chemotherapy.	97	97	03	03
12.	Providing support, education and connecting patients with resources are the special role of oncology nurse in cervical cancer treatment.	94	94	06	06
13.	Administering chemotherapy correctly and safely is the nursing responsibility during cancer drug administration.	98	98	02	02
14.	Reporting any abnormal signs immediately to the physician is the role of oncology nurse during radiation therapy.	98	98	02	02

Above table 3 shows that most of the (98%) respondents provided correct answer to the Administering chemotherapy correctly and safely is the nursing responsibility during cancer drug administration and Reporting any abnormal signs immediately to the physician is the role of oncology nurse during radiation therapy, 97% respondents gave correct answer to the management of cervical cancer are combination of surgery, radiotherapy or chemotherapy and 94% respondents provided correct answer to the providing support, education and connecting patients with resources are the special role of oncology nurse in cervical cancer treatment.

Table 3.1
Level of the Nurses Knowledge Regarding Management of Cervical Cancer n = 100

Variabes	Level	Grading Criteria	(f)	(%)	Mean
Management of cervical cancer	Excellent	90-100%	87	87	16
	Very good	80-89%	-	-	-
	Good	70-79%	12	12	12
	Average	60-69%	-	-	-
	Poor	<60%	1	1	8

Mean of Total Knowledge Score = 15.44 (96.5% = Excellent level of knowledge)

Table 3.1 represents that among all the respondents most of the respondents' (87%) had excellent level of knowledge, 12% had good level of knowledge, and only 1% had poor level of knowledge regarding management of cervical cancer. Mean of total knowledge score was =15.44 (96.5 %) out of 16 (Four items) which indicates the excellent level of knowledge in the area of management of cervical cancer.

Table 4

Distribution of the Nurses Knowledge Regarding Complications of Cervical Cancer n=100

S/No	Items	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
15.	Kidney failure and blood clots are the complications of advanced cervical cancer.	34	34	66	66
16.	The most complication is urinary bladder dysfunction in radical hysterectomy for cervical cancer.	24	24	76	76
17.	Hypersensitivity and anaplastic reaction are the most common life- threatening complications after chemotherapy during cervical cancer.	78	78	22	22
18.	Late complication of cervical cancer is a fistula that develops between the bladder and the vagina.	87	87	13	13

Above table 4 shows that among all of the respondents' 87% provided correct answer to late complication of cervical cancer is a fistula that develops between the bladder and the vagina and 78% respondents gave correct answer to Hypersensitivity and anaplastic reaction are the most common life- threatening complications after chemotherapy during cervical cancer. On the other 66% respondents provided incorrect answer to Kidney failure and blood clots are the complications of advanced cervical cancer and 76% respondents provided incorrect answer to the most complication is urinary bladder dysfunction in radical hysterectomy for cervical cancer.

Table-4.1

Level of the Nurses Knowledge Regarding Complications of Cervical Cancer

n = 100					
Variables	Level	Grading Criteria	(f)	(%)	Mean
Complications of Cervical Cancer	Excellent	90-100%	09	09	16
	Very good	80-89%	-	-	-
	Good	70-79%	25	25	12
	Average	60-69%	-	-	-
	Poor	<60%	62	62	7.23

Mean of total Knowledge Score = **8.92 (55.75%=Poor level of knowledge)**

Table 4.1 Shows that among all of the respondents more than half (62%) had poor level of knowledge, 25% had good level of knowledge, and only 9% respondents had excellent level of knowledge regarding complications of cervical cancer. Mean of total knowledge score was = 8.92 (55.75%) out of 16 (four items) which indicates the poor level of knowledge in the area of complications of cervical cancer.

Table-5

Distribution of the Nurses Knowledge Regarding Screening and Preventive Measures of Cervical Cancer

n = 100

S/No	Items	Correct Answer		Incorrect Answer	
		(f)	(%)	(f)	(%)
19.	Cervical cancer should be screened for those who are sexually active for last 3 years.	23	23	77	77
20.	The most effective screening method of cervical cancer are both Pap Smear test and HPV DNA test	67	67	33	33
21.	Cervical cancer needs to do screening (Pap test) for every 3 years interval.	42	42	58	58
22.	The four preventive interventions for cervical cancer are community education, social mobilization, HPV vaccination and screening (VIA, PAP & HPVDNA test).	88	88	12	12
23.	The age of 9-26 years is appropriate for giving HPV vaccine.	95	95	05	05
24.	There are 3 doses of HPV vaccines.	63	63	37	37
25.	Pregnant women and severely ill people should not get the HPV vaccine	83	83	17	17

Table 5 presents that the respondents' knowledge regarding the screening and prevention measures of cervical cancer. Among all of the respondents' 95% provided correct answer to The age of 9-26 years are appropriate for giving HPV vaccine, 88% respondents provided correct answer to the four preventive interventions for cervical cancer are community education, social mobilization, HPV vaccination and screening (VIA, PAP & HPVDNA test), 83% respondents provided correct answer to pregnant women and severely ill people should not get the HPV vaccine, 67% respondents provided correct answer to the most effective screening method of cervical cancer are both Pap Smear test and HPV DNA test and, 63% respondents provided correct answer to the 3 doses of HPV vaccines. On the other hand, 77% respondents provided incorrect answer to cervical cancer should be screened for those who are sexually active for last 3 years.

Table 5.1

Level of the Nurses Knowledge Regarding Screening and Preventive Measures of Cervical Cancer

n = 100

Variables	Level	Grading Criteria	(f)	(%)	Mean
Screening and Prevention measure of cervical cancer	Excellent	90-100%	03	03	28
	Very good	80-89%	20	20	24
	Good	70-79%	33	33	20
	Average	60-69%	-	-	-
	Poor	<60%	44	44	13.72

Mean of Total Knowledge Score = **18.28 (65.2%=Average Level of Knowledge)**

Table 5.1 Shows that among all the respondents less than half (44%) of the respondents had poor level of knowledge, 33% had good level of knowledge, 20% had very good level of knowledge, and only 3% respondents had excellent level of knowledge regarding screening and preventive measures of cervical cancer. Mean of total knowledge score was = 18.28 (65.2%) out of 28 (seven items) which indicates the average level of knowledge in the area of screening and preventive measures of cervical cancer.

Table-6

Distribution of the Nurses' Overall Level of Knowledge Regarding Cervical Cancer

n = 100

Variables	Level	Grading Criteria	(f)	(%)	Mean
Overall, Knowledge of Cervical Cancer	Excellent	90-100%	5	5	92
	Very good	80-89%	51	51	83.13
	Good	70-79%	28	28	74.43
	Average	60-69%	11	11	68.73
	Poor	<60%	5	5	45.6

Mean of total knowledge score = **77.88 (77.8% = Good Level of Knowledge)**

Table 6 reveals that among all of the respondents' half of the respondents (51%) had very good level of knowledge, 28% had good level of knowledge, 11% had average level of knowledge, 5% had poor level of knowledge and only 5% respondents had excellent level of knowledge regarding cervical cancer. Mean of the total knowledge score of cervical cancer was = 77.88 out of 100 which indicates good level of Cervical Cancer knowledge in current study.

Table 7

<i>Distribution of Nurses' Knowledge Regarding Cervical Cancer by Age</i>				n=100
Variable	Categories	(f)	(%)	Mean
Age	24-39 years (Young Adults)	87	87	78.01
	40-59 years (Middle Age Adults)	13	13	71.38

Table 7 represent that the respondents' overall cervical cancer knowledge by age. Those respondents had 24-39 years (Young Adults) their mean of total knowledge score was 78.01 and 40-59 years (Middle Age Adults) respondent's mean score was 71.38. So, this table indicates that young adult respondents were more knowledgeable regarding cervical cancer than middle age adult respondents.

Table 8

<i>Distribution of Nurses' Knowledge Regarding Cervical Cancer by Professional Level of Education</i>				n=100
Variable	Categories	(f)	(%)	Mean
Professional Level of Education	Diploma in Nursing Science & Midwifery	53	53%	74.33
	Basic Bachelor of Science in Nursing	09	09%	80.44
	Post Basic Bachelor of Science in Nursing	24	24%	81.16
	Master Degree in Nursing	14	14%	80.28

Table 8 shows that the respondents' overall cervical cancer knowledge by professional level of education. The mean of total knowledge score of Post Basic Bachelor of Science in Nursing was 81.16, Basic Bachelor of Science in Nursing was 80.44, and Master Degree in Nursing was 80.28 whereas Diploma in Nursing Science & Midwifery total knowledge score was 74.33. So, this table indicates that more professional educational level and background influence more knowledge on cervical cancer.

Table 9

<i>Distribution of Nurses' Knowledge Regarding Cervical Cancer by Religion</i>				n=100
Variable	Categories	(f)	(%)	Mean
Religion	Islam	67	67%	77.31
	Hindu	22	22%	81.45
	Christian	11	11%	72.36

Table 9 shows that the respondents' overall cervical cancer knowledge by religion. The mean of total knowledge score for Hindu was 81.45, Islam 77.31, and Christian 72.36. So, this table indicates that Hindu respondents were more knowledgeable regarding cervical cancer than Islam and Christian respondents.

Table 10

<i>Distribution of Nurses' Knowledge Regarding Cervical Cancer by Length of Government Service</i>				n=100
Variable	Categories	(f)	(%)	Mean
Length of Government Service	1-5years	55	55	77.16
	6-10 years	41	41	79.21
	11-15years	04	04	71

Table 10 presents that the respondents' overall cervical cancer knowledge by length of government service. Those respondents had 6-10 years length of government service their mean of total knowledge score was 79.21- and 1-5-years length of government service respondent's mean score was 77.16, whereas those respondents had 11-15 years length of government service the mean score was 72.36. So, this table indicates that those respondents had 6-10 years length of government service had more knowledge cervical cancer than others.

Table 11
Distribution of Nurses' Knowledge Regarding Cervical Cancer by Length of Service in Cancer Hospital

Variable	Categories	(f)	(%)	Mean
Length of service in Cancer Hospital	1-5 years	64	64	77.43
	6-10 years	36	36	78.05

n=100

Table 11 shows that the respondents' overall cervical cancer knowledge by length of service in cancer hospitals. Those respondents had 6-10 years length of service in cancer hospitals their mean of total knowledge score was 78.05- and 1-5-years length of service in cancer hospitals their mean of total knowledge was 77.43. So, this table indicates that those respondents had 6-10 years length of service in cancer hospitals had more knowledge on cervical cancer than others.

V. DISCUSSION

Socio-Demographic Characteristics:

The present study involved 100 nurses with the mean age of 32.5 years with the range of 24-48 years; most of the (97%) respondents were married. Near to similar observation was revealed in studies with the mean age and marital status which was conducted in Bangladesh and India (Khatun et al., 2021; Kosambiya et al., 2018). In current study among all of the respondents near about two third respondents (66%) were Muslim by their religion. The total subjects were female. More than half of the respondents (53%) held Diploma in Nursing Science and Midwifery by their professional education. This study demonstrates that more than half (55%, 64%) of the respondents had 1- 5 years of working experience in government service including in the cancer department respectively. This result is supported by a study which was conducted among female nurses in Erbil City, Iraq (Omar & Saied, 2023). In contrarily, a study reported in India, more than two-thirds (79.4%) of the respondents were Hindu by their religion (Pegu et al., 2017). Another, a study reported in India, more than two-thirds (68.9%) of the respondents held B.Sc. in nursing by their professional education (Shekhar et al., 2013). On the other hand, a study by Getahun et al., 2019 in Ethiopia found that the majority of the respondents had 1-9 years of working experience. In present study only 4% respondents got training on cervical cancer, In contrast a study reported that 33% health workers got training on cervical cancer in Uganda (Obol et al., 2021). Researchers assume that in Cancer Hospital nurses had more exposure to cervical cancer patients during management that's why authority did not provide any training on cervical cancer.

Knowledge Related to Concept of Cervical Cancer:

This study shows that the most of the respondents 74% had excellent level of knowledge about cervical cancer, 88% known about HPV as a causative organism of cervical cancer, 96% known bleeding after sexual intercourse, bleeding after menopause, and foul-smelling vaginal discharge are the symptoms of cervical cancer, which is relatively similar (85%, 93%, 90%, 81% respectively) to a study conducted among health workers in rural health centers of Northern Uganda in Africa. On the other hand, this study showed that about 83%-85% respondents known early coitus and having multiple sexual partners are the risk factors of cervical cancer. Near to similar a study from Uganda reported that 91%-100% respondents known early coitus and having multiple sexual partners are the risk factors of cervical cancer (Obol et al., 2021).

Knowledge Related to Management of Cervical Cancer:

This study shows that 87% respondents had very good level of knowledge on overall management of cervical cancer at specialized hospital in Bangladesh. About 97% respondents gave correct answers to the management of cervical cancer are combination of surgery, radiotherapy or chemotherapy. On the other hand, a study conducted at Dhaka Medical College Hospital in Bangladesh, reported that 42.3% nurses managed the cervical cancer patients but 2.7% knew cervical surgery is a management procedure, 21.4% knew chemotherapy is a management procedure, 10.9% knew radiotherapy is a management procedure, 7.1% knew conservative treatment is a management of cervical cancer (Khatun et al., 2021). Researchers think that in this study's specialized cancer hospital nurses had more scope to manage cervical cancer patients in different ways that's why present study's respondents' cervical cancer knowledge was more than other nurses of Dhaka Medical College Hospital.

Knowledge Related to Complications of Cervical Cancer:

This study shows that among all more than half (62%) of the respondents had poor level of knowledge, 25% had good level of knowledge, and only 9% respondents had excellent level of knowledge in the area of complication of cervical cancer. Researchers assume that in this study's most of respondents (96%) had no any

training on cervical cancer including complications of cervical cancer that's why the respondents show poor level of knowledge in this area.

Knowledge Related to Screening and Prevention of Cervical Cancer:

In current study shows that 67% respondents provided correct answer to both Pap smear test and HPV DNA test are the most effective screening method of cervical cancer, 96% provided correct answer to the appropriate age for giving HPV vaccine, and 63% respondents provided correct answer to the doses of HPV vaccines. This study shows that near to half of the respondents (44%) had poor level of knowledge on screening and prevention of cervical cancer. A study conducted by Pegu *et al.*, 2017 in India found that 79% respondents' knowledge about screening methods and 91% had knowledge about HPV vaccine which is near to similar to current study.

Another study conducted in Ahmedabad hospital on Indian nurses to assess knowledge of cervical cancer, reported that PAP smear test (40.29%) as a screening method, and 43.28% knew HPV vaccination as a preventive measure of cervical cancer (Thakar *et al.*, 2018). In present study shows 23 % respondents knew about the age for screening of cervical cancer which is consistent (25.2%) to a study conducted among Nurses of a Tertiary Care Centre in Western India (Kosambia *et al.*, 2018).

Overall Cervical Cancer Knowledge of the Respondents:

In present study among four dimensions of cervical cancer knowledge the respondents had very good level of knowledge on the concept of cervical cancer. In contrast the area of concept including symptoms and risk factors of cervical cancer 67.4% women had poor level (Tekle *et al.*, 2020), Researchers think that as current study's nurses are health professionals, they were more aware to the health care including cervical cancer that's why their knowledge had more than the knowledge of women in southern Ethiopia.

In current study, the respondents had excellent level of knowledge in the area of management of cervical cancer. In contrary only 43.3% respondents had satisfactory level of knowledge during the management of cervical cancer in a tertiary level of hospital (Khatun *et al.*, 2021). Researchers think that specialized cancer hospital nurses had more scope to manage cervical cancer patients in different ways that's why their cervical cancer knowledge were more than others nurses of DMCH.

Present study reveals that the respondents had average level of knowledge during screening and preventive measures of cervical cancer. A study in India, 79% of the nurses had satisfactory level of knowledge about screening methods for cervical cancer and 91% had satisfactory level knowledge about HPV vaccine (Pegu *et al.*, 2017).

The present study reveals that among all half of the respondents (51%) had very good level of knowledge, 28% had good level of knowledge, 11% had average level of knowledge, 5% had poor level of knowledge and only 5% respondents had excellent level of knowledge regarding overall knowledge of cervical cancer. A study conducted among nurses at tertiary level Hospital, in Dhaka, Bangladesh revealed that 51.9% nurses had an overall moderate level of knowledge about cervical cancer which is consistent with the current study (Khatun *et al.*, 2021). In current study, mean of the total knowledge score of cervical cancer was = 77.88 out of 100 which indicates overall good level of knowledge about cervical cancer in current study. A cross-sectional study was done on female health workers regarding cervical cancer in southern Ethiopia in 2017; they found that 86.9% respondents had good level of knowledge of cervical cancer which is near to similar to present study (Dulla *et al.*, 2017).

Overall Cervical Cancer Knowledge Related to Socio-demographic Characteristics of the Respondents:

The current study shows that young adult respondents were more knowledgeable than middle age adult respondents. A study was conducted in Tanzania which is consistent to this result. They found that younger nurses were more likely to have more knowledge than older nurses (Urasha, 2011). Present study shows Postgraduate nurses in professional educational level influence to have more knowledge on cervical cancer. In contrary, studies conducted in Istanbul by Karasu *et al.*, 2017 and Erbil City, Iraq by Omar & Saied, 2023 among nurses, these studies showed Intern and Diploma nurses had significantly more knowledge than Bachelor and Postgraduate nurses about cervical cancer. In current study shows that respondents who had 6-10 years length of government service as well as service in Cancer Hospital had more knowledge on cervical cancer than others. This result is similar to a study conducted on female nurses in Iraq, they revealed that those respondents had 6-10 years working experience had satisfactory cervical cancer knowledge than other nurses (Omar & Saied, 2023).

Limitation of the study:

During conduct the research project the researchers faced some limitations that are listed follows-

1. This study focused on the assessment of knowledge but not the attitude and practice of nurses'. So, this study did not explore the management of cervical cancer.
2. Researchers used structured developed questionnaire without measuring internal consistency to maintain reliability of the instrument due to limitation of advanced statistical analysis (SPSS).
3. Data collection procedure was conducted for five days only and purposive sampling technique was adopted for selecting the respondents.
4. Had found limited study on nurses' knowledge regarding cervical cancer in Bangladesh perspective.
5. The study was conducted only at NICRH, Dhaka that's why these results may not be generalized to the all setting in Bangladesh.

VI. CONCLUSION AND RECOMMENDATION

Conclusion

The present study showed that among all half of the respondents (51%) had very good level of knowledge, 28% had good level of knowledge, 11% had average level of knowledge, 5% had poor level of knowledge and only 5% respondents had excellent level of knowledge regarding overall knowledge of cervical cancer. Mean of the total knowledge score of cervical cancer was = 77.88 out of 100 which indicates good level of knowledge in current study. But there was a knowledge gap in area of complications of cervical cancer due to lack of proper training on cervical cancer. Cervical cancer knowledge influenced by the respondents' young adult age, higher level of professional education, total 6-10 years length in government service and cancer hospital. Only 4% respondents had training on cervical cancer, from the study findings highlighted that it is needed to arrange in- service training on cervical cancer to oncology nurses to increase the level of nurses' knowledge regarding cervical cancer so that nurses can play a vital role to provide holistic care to the patient with cervical cancer.

Recommendation

According to these study findings, to improve the present situation in improving nurses' knowledge regarding cervical cancer in NICRH, the following recommendation were proposed by the researchers-

1. Provide continuing in-service education and special training on oncology nursing for those nurses who are involve in caring for cervical cancer patients.
2. Encourage and motivate the staff to attend educational programs by offering all kind of facilities for that.
3. Create available facility to join in the workshop, seminar and awareness programs etc for oncology nurses to facilitate advance information regarding cervical cancer.
4. Design a nursing guideline for care specially for cancer disease in each gynecological department.
5. The area of oncology nursing should be included in Diploma curriculum for increase the nurses' knowledge.
6. Study is recommended to the assessment of nurses Knowledge, Attitude and Practice (KAP) on cervical cancer in various settings to explore the management of cervical cancer.
7. Further correlation and interventional study are recommended in various setting to find out the real situation and also for generalization of the study.

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