

# Self-Knowledge among Women with Cervical Cancer

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**Abstract Background:** Cervical cancer is the 4<sup>th</sup> most frequent cancer in women. **Aim:** The present study aimed to assess self-knowledge among women with cervical cancer. **Methods; Design:** A descriptive research design was used. **Setting:** out-patient clinic in the oncology unit at Beni-Suef University Hospital. **Subjects:** A purposive sample of 70 women. **Tools:** Data was collected through a structured interviewing questionnaire sheet and a scoring system for women's knowledge about cervical cancer. **Results:** The results of the study revealed that there was a statistically significant difference in the women's knowledge about cervical cancer, and socio-demographic characteristics. **Conclusion:** The study concluded that socio-demographic characteristics of women could affect their knowledge level regarding cervical cancer. **Recommendations:** Implement an educational program and disseminate information that focuses on educating women about cervical cancer risks, prevention, and early detection to enhance uptake of cervical cancer.

**Keywords:** cervical cancer, Women's knowledge

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## 1. Introduction

The cervix is the lower part of the uterus in the human female reproductive system. The cervix is usually 2 to 3 cm long and roughly cylindrical in shape. The narrow, central cervical canal runs along its entire length, connecting the uterine cavity and the lumen of the vagina. [1] The opening of the cervix into the uterus is called the internal os, and the opening into the vagina is called the external os. The lower part of the cervix, known as the vaginal portion of the cervix (or ectocervix) it bulges into the top of the vagina. [2]

The cervix is made up of different types of microscopic cells. Individual cells have a limited lifespan and divide to produce new cells when required by the body. Sometimes this process is disturbed and cells divide when new cells aren't required, or abnormal cells may develop. [3,4,5] This overgrowth of abnormal cells can finally lead to malignancy. Abnormal changes in cervical cells are referred to as dysplasia. [6,7]

Cervical cancer is the fourth most frequent cancer in women with an estimated 570,000 new cases in 2018 representing 6.6% of all female cancers. Approximately 90% of deaths from cervical cancer occurred in low and middle-income countries. [8]

Infection with HPV is common and in most people, the body can clear the infection by itself. [9,4] Sometimes, however, the infection does not go away and becomes chronic. Chronic infection, especially when it is caused by

certain high-risk HPV types, can eventually cause certain cancers, such as cervical cancer. Although there is currently no cure for HPV infection, there are ways to treat warts and abnormal cell growth that HPV causes. [10]

However, the American cancer society (2020) stated that these symptoms can have other causes. Still, if any of these symptoms appear, women should see a health care professional right away. [11] Ignoring symptoms may allow cancer to grow to a more advanced stage and lower the chance for successful treatment. [6]

Aldhafar et al., (2016) revealed that knowledge of the respondents about signs and symptoms of cervical cancer as following; vaginal bleeding between periods 50.6%, lower back pain 28.4%, pain during intercourse 25.8%, poly-menorrhagia 42.4%, Persistent unpleasant vaginal smell 30.4 %, post-menopausal bleeding 55.2%, persistent pelvic pain 30%, vaginal bleeding during or after sex 21.8 %, fertility affect 58.6%, blood in the stool or urine 16.7 5%, unexplained weight loss 32.4 %, and persistent diarrhea 8.2%. [12]

Working out the stage of cancer is important, as it helps the health care professional decide the most effective type of treatment. A 4-stage system is the most common way to stage cervical cancer. Stage 0: Precancerous cells are present. Stage 1: Cancer cells have grown from the surface into deeper tissues of the cervix, and possibly into the uterus and to nearby lymph nodes. [13] In Stage 2 cancer moved beyond the cervix and uterus, but not as far as the walls of the pelvis or the lower part of the vagina. In the third stage cancer cells are present in the lower part of the vagina. While in the 4<sup>th</sup> stage cancer affects the bladder or

rectum and is growing out of the pelvis. Later it may spread to distant organs. [14]

In **stage 0**; carcinoma is in situ, abnormal cells are found in the innermost lining of the cervix. These abnormal cells are found in the cervix only.

**Stage I** is divided into stages IA and IB, based on the amount of cancer that is found. Stage IA is divided into stages IA1 & IA2, based on the size of the tumor (Figure 1). [15]

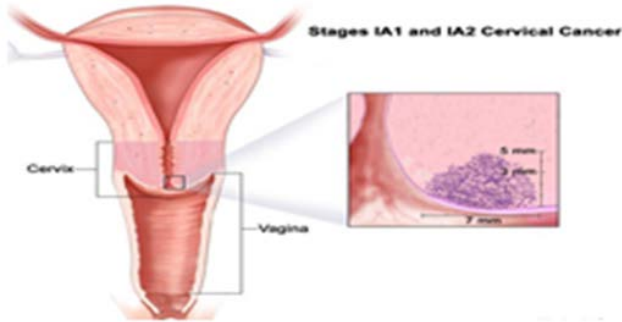


Figure 1. Stage IA1 and IA2 cervical cancer

In stage IA1, the cancer is not more than 3 millimeters deep and not more than 7 millimeters wide. In stage IA2, the cancer is more than 3 mm but not more than 5 millimeters deep and not more than 7 millimeters wide. Stage IB is divided into stages IB1 & IB2, based on the size of the tumor. In stage IB1, the cancer is more than 5 millimeters deep and more than 7 millimeters wide; or the cancer can be seen without a microscope and is not more than 4 centimeters. In stage IB2, is more than 4 centimeters. [16]

**Stage II** is divided into stages IIA & IIB, based on how far cancer has spread (Figure 2). Stage IIA: Cancer has spread beyond cervix to the upper two-thirds of the vagina but not to tissues around the uterus. Stage IIA is divided into stages IIA1 & IIA2, based on the size of the tumor. In stage IIA1, the tumor can be seen without a microscope and is not more than 4 centimeters. In stage IIA2, the tumor can be seen without a microscope and is more than 4 centimeters. Stage IIB: Cancer has spread beyond the cervix to the tissues around the uterus but not onto the pelvic wall. [17]

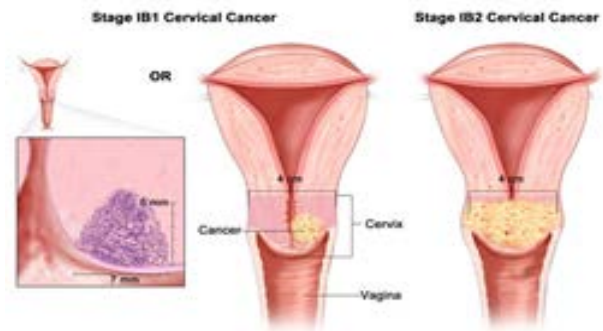


Figure 2. Stage IB1 and IB2 cervical cancer

In **stage III**, cancer has spread to the lower third of the vagina, and/or into the pelvic wall, and/or has caused kidney problems. Stage III is divided into stages IIIA & IIIB (Figure 3). Stage IIIA cervical cancer, cancer has spread to the lower third of the vagina but not to the pelvic wall. Stage IIIB; Cancer has spread into the pelvic wall; or the tumor has become large enough to block one or both ureters and has caused one or both kidneys to get bigger or stop working. [17]

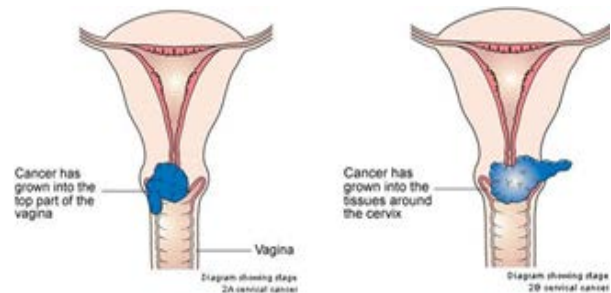


Figure 3. Stage IIIA and Stage IIIB cervical cancer

In **stage IV**, cancer has spread beyond the pelvis, or can be seen in the lining of the bladder and/or rectum, or has spread to other parts of the body (Figure 4). Stage IV is divided into stages IVA & IVB, based on where cancer has spread. Stage IVA cervical cancer, Cancer has spread to nearby organs, such as the bladder or rectum. Stage IVB cervical cancer, cancer has spread to other parts of the body, such as the lymph nodes, lung, liver, intestine, or bone. [18]

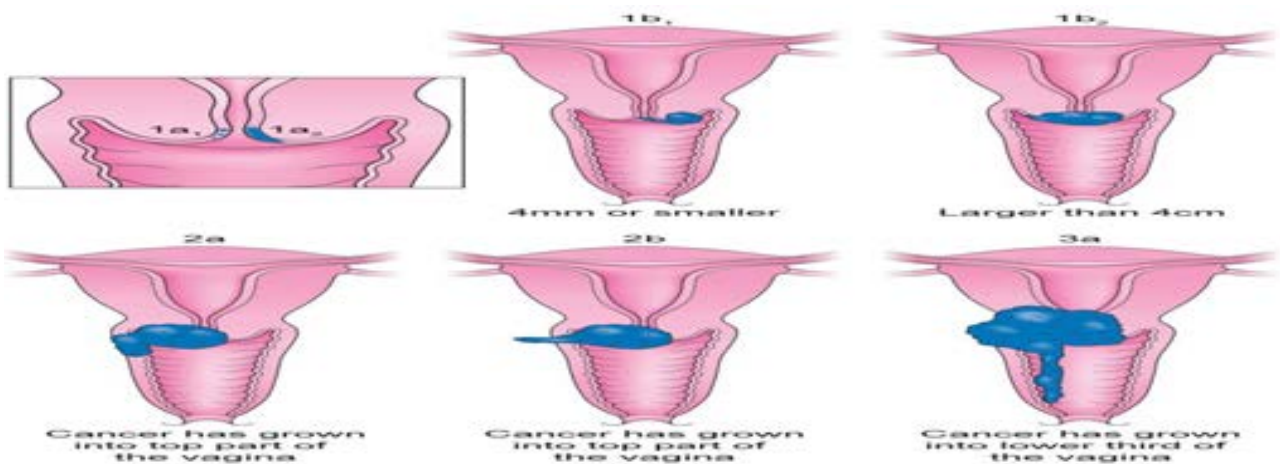


Figure 4. Stages of cervical cancer, IIA1 and IIB1 cervical cancer

A well-proven way to prevent cervical cancer is to have tested. Screening can find conditions that may lead to pre-cancers. The Pap test and human papillomavirus (HPV) test are specific tests used during screenings for cervical cancer. If a pre-cancer is found it can be treated, stopping cervical cancer before it starts. [6]

The Pap test is a procedure used to collect cells from the cervix so that it can be examined to find cancer and pre-cancers. An HPV test can be done on the same sample of cells for the Pap-test. Additionally, HPV vaccines aim to prevent cervical cancer but do not treat it. For patients  $\geq 15$  years, three doses are given over 6 months (at 0, 1 to 2, and 6 months). For patients  $< 15$  years, two doses are given 6 to 12 months apart. HPV testing in the secondary prevention of cervical cancer is clinically valuable in triaging low-grade cytological abnormalities and is also more sensitive than cytology as a primary screening. If these prevention strategies were implemented in both developed and developing countries, many thousands of lives could be saved. [7,19]

Furthermore, cervical cancer can often be prevented by having regular screenings to find any pre-cancers and treat them. Preventing pre-cancers means controlling possible risk factors, such as; delaying first sexual intercourse until the late teens or older, Limiting the number of sex partners, avoiding sexual intercourse with people that have had many partners, avoiding sexual intercourse with people that are infected with genital warts or show other symptoms, and quitting smoking. [20-25]

For most types of cancer, the biopsy is the only sure way to know whether an area of the body has cancer. In a biopsy, small samples of tissues are taken for testing in a laboratory. If the biopsy is not possible, the physician may suggest other tests that will help make a diagnosis. Not all tests will be used for every person. Some or all of these tests may be helpful to plan the treatment regimen. [26-30] The doctor may consider these factors when choosing a diagnostic test: the type of cancer suspected, signs and symptoms, age and medical condition, and the results of earlier medical tests. In addition to a physical examination, a Pelvic examination also may be done. [31]

Biopsy is the removal of a small amount of tissue for examination under a microscope. Other tests can suggest that cancer is present, but only a biopsy can make a definite diagnosis. A pathologist then analyzes the sample. If the lesion is small, the doctor may remove all of it during the biopsy. There are several types of biopsies; one common method uses an instrument to pinch off small pieces of cervical tissue. [32]

In addition to the above mentioned diagnostic procedures, Cornforth & Sadaty (2019) revealed that colposcopy is useful for the diagnosis and evaluation of cervical intraepithelial neoplasia and preclinical invasive cancer. It allows magnified visualization of the site where cervical carcinogenesis occurs. It enables taking a directed biopsy and delineating the extent of lesions on the cervix in screen-positive women, thus avoiding conization. It also helps in directing treatments such as cryotherapy and loop electrosurgical excision procedure for cervical intraepithelial neoplasia. [33]

Klopp et al., (2015) stated that pelvic examination under anesthesia is a helpful diagnostic method in cases where it is necessary for treatment planning, and to see if cancer has spread to any organs near the cervix, including

the uterus, vagina, bladder, or rectum. [34] American Cancer Society (2020) revealed that computed tomography (CT) scan is also used. A CT scan creates a 3-dimensional picture of the inside of the body using x-rays taken from different angles. A computer combines these images into a detailed, cross-sectional view that shows any abnormalities or tumor and its size. [11]

Magnetic resonance imaging (MRI) uses magnetic fields, to produce a detailed image of the body. MRI can be used to measure the tumor's size. A special dye called a contrast medium is given before the scan to create a clearer picture. This dye can be injected into a patient's vein or given as a pill to swallow. [35]

Positron Emission Tomography (PET) or PET-CT scan is usually combined with a CT scan, called a PET-CT scan. A PET scan is a way to create pictures of organs and tissues inside the body. A small amount of a radioactive sugar substance is injected into the patient's body. This sugar substance is taken up by cells that use the most energy. Because cancer tends to use energy actively, it absorbs more of the radioactive substance. A scanner then detects this substance to produce images of the inside of the body [36]

Cystoscopy is a procedure that allows viewing the inside of the bladder and urethra with a cystoscope. The person may be sedated as the tube is inserted into the urethra. A cystoscopy is used to determine whether cervical cancer has spread to the bladder. Proctoscopy is a procedure that allows viewing the colon and rectum. A proctoscopy is used to see if cancer has spread to the rectum. Laparoscopy is procedure that allows seeing the abdominal area with a thin, lighted, flexible tube called a laparoscope. [37]

There are different types of treatment options for patients with cervical cancer. Five types of standard treatment are used: surgery, radiation therapy, chemotherapy, targeted therapy, and immunotherapy. New types of treatment are being tested in clinical trials. Treatment for cervical cancer may cause side effects. Patients may want to think about taking part in a clinical trial. Patients can enter clinical trials before, during, or after starting their cancer treatment. [5,7,38]

### 1. Surgery:

Surgery is sometimes used to treat cervical cancer. The following surgical procedures can be used: Conization; a procedure to remove a cone-shaped piece of tissue from cervix and cervical canal. A pathologist views the tissue under a microscope to look for cancer cells. Conization may be used to diagnose or treat a cervical condition. [39]

Conization may be done using one of the following procedures: Cold-knife conization; a surgical procedure that uses a scalpel (sharp knife) to remove abnormal tissue or cancer. Loop electrosurgical excision procedure (LEEP); a surgical procedure that uses electrical current passed through a thin wire loop as a knife to remove abnormal tissue or cancer. Laser surgery is a surgical procedure that uses a laser beam as a knife to make bloodless cuts in tissue or to remove a surface lesion such as a tumor. [40]

If cervical cancer is invasive to the surrounding tissues total hysterectomy is performed. If the uterus and cervix are removed through the vagina, the operation is called a vaginal hysterectomy. If the uterus and cervix are removed through a large incision in the abdomen, the operation is called a total abdominal hysterectomy. The

uterus and cervix may be taken out through abdomen using laparoscope; the operation is called a total laparoscopic hysterectomy. Radical hysterectomy a surgery of removal of the uterus, cervix, part of the vagina, ligaments, ovaries, fallopian tubes, and nearby lymph nodes may also be removed (Figure 5). [40]

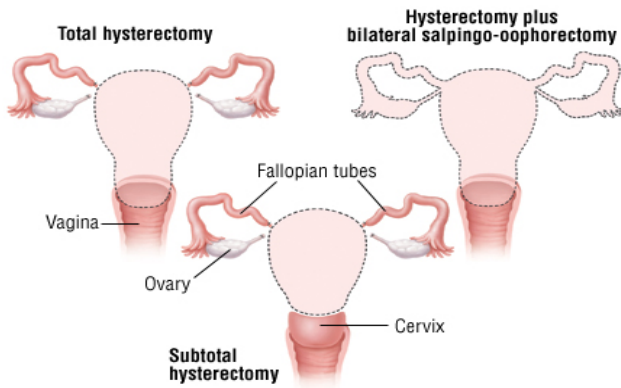


Figure 5. Types of hysterectomy

Radical trachelectomy; Surgery to remove the cervix, nearby tissue, lymph nodes, and the upper part of the vagina, uterus, and ovaries are not removed. Bilateral salpingo-oophorectomy is a Surgery to remove both ovaries and both fallopian tubes. Pelvic exenteration a surgery to remove the lower colon, rectum, bladder, cervix, vagina, ovaries, and nearby lymph nodes are also removed. Stoma is made for urine and stool to flow from the body to a collection bag. Plastic surgery may be needed to make an artificial vagina after this operation. [41]

## 2. Radiation therapy:

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing. There are two types of radiation therapy: External radiation therapy uses a machine outside the body to send radiation toward cancer. [42] Certain ways of giving radiation therapy can help keep radiation from damaging nearby healthy tissue. Intensity-modulated radiation therapy (IMRT) is a type of 3-dimensional (3-D) radiation therapy that uses a computer to take pictures of the size of the tumor from many angles. [41]

Internal radiation therapy uses a radioactive substance sealed in needles, seeds, wires, or catheters that are placed directly into or near the cancer. The way the radiation therapy is given depends on the type and stage of cancer being treated. External and internal radiation therapies are used to treat cervical cancer, and may also be used as palliative therapy to relieve symptoms and improve quality of life. [40]

## 3. Chemotherapy:

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing. When chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body (systemic chemotherapy). When chemotherapy is placed directly into the cerebrospinal fluid, an organ, or a body cavity, the drugs mainly affect cancer cells in those areas (regional chemotherapy). The way the chemotherapy is given depends on the type and stage of the cancer being treated. [43]

Moreover, the National cancer institute (2019) revealed that chemotherapy is often given with radiation, also known as concurrent chemo-radiation. Research has verified that giving chemotherapy and radiation simultaneously works better at killing cancer cells than having these treatments on their own. Concurrent chemo-radiation not only kills cancer cells but also lowers the risk of malignant cells from spreading to other parts of the body. Although this treatment form works better in eradicating cancer, it often has more severe side-effects for the patient. [42]

## 4. Targeted therapy:

Targeted therapy is a type of treatment that uses drugs or other substances to identify and attack specific cancer cells without harming normal cells. Monoclonal antibody therapy is a type of targeted therapy that uses antibodies made in the laboratory from a single type of immune system cell. These antibodies can identify substances on cancer cells or normal substances that may help cancer cells grow. The antibodies attach to the substances and kill the cancer cells, block their growth, or keep them from spreading. [44]

Monoclonal antibodies are given through infusion. They may be used alone or to carry drugs, toxins, or radioactive material directly to cancer cells. Bevacizumab is a monoclonal antibody that binds to a protein called vascular endothelial growth factor (VEGF) and may prevent the growth of new blood vessels that tumors need to grow. Bevacizumab is used to treat cervical cancer that has metastasized and recurrent cervical cancer. [41]

## 5. Immunotherapy:

Immunotherapy is a treatment that uses the patient's immune system to fight cancer. Substances made by the body or made in a laboratory are used to boost, direct, or restore the body's natural defenses against cancer. This type of cancer treatment is also called biotherapy. Immune checkpoint inhibitor therapy is a type of immunotherapy. Immune checkpoint inhibitor therapy: PD-1 is a protein on the surface of T cells that helps keep the body's immune responses in check. When PD-1 attaches to another protein called PDL-1 on a cancer cell, it stops the T cell from killing the cancer cell. PD-1 inhibitors attach to PDL-1 and allow the T cells to kill cancer cells (Figure 6). [45]



Figure 6. Immunotherapy for cervical cancer treatment

### Treatment Options of cervical cancer by Stage:

**Carcinoma in Situ (Stage 0):** Treatment of carcinoma in situ (stage 0) may include the following; Conization, such as cold-knife conization, loops electrosurgical excision procedure (LEEP), or laser surgery. Hysterectomy for women that cannot or no longer want to have children can be used. This is done only if the tumor cannot be completely removed by conization. Internal radiation therapy for women that cannot have surgery also can be performed. [46]

**Stage IA Cervical Cancer;** Stage IA cervical cancer is divided into stage IA1 & IA2. Treatment for stage IA1 may include the following; conization or total hysterectomy with or without bilateral salpingo-oophorectomy. Treatment for stage IA2 may include the following; modified radical hysterectomy with removal of lymph nodes or radical trachelectomy and or internal radiation therapy for women that cannot have surgery. [39]

**Stages IB & IIA Cervical Cancer;** Stage IB1 & IIA cervical cancer are managed by either radical hysterectomy or radiotherapy with similar recurrence and survival rates. In patients with a tumor less than 4 cm in diameter, the decision between radical surgery and radiotherapy depends on the patient's overall health and treatment choices. For younger women, radical surgery is preferred because ovarian function can be preserved and vaginal stenosis secondary to radiation can be avoided. Radiation therapy is preferred for women that may not tolerate radical surgery. Primary radiation therapy with or without concurrent chemotherapy is preferred for patients with a tumor larger than 4 cm in diameter. [47]

**Stages IIB, III, and IVA Cervical Cancer;** Treatment of stage IIB, stage III, and stage IVA cervical cancer may include the following; radiation therapy with chemotherapy given at the same time. Surgery to remove pelvic lymph nodes followed by radiation therapy with or without chemotherapy, internal radiation therapy, clinical trial of chemotherapy to shrink the tumor followed by surgery and clinical trial of chemotherapy and radiation therapy given at the same time, followed by chemotherapy. [37]

**Stage IVB Cervical Cancer,** Treatment of stage IVB cervical cancer may include the following; radiation therapy as palliative therapy to relieve symptoms caused by cancer and improve the quality of life, chemotherapy/targeted therapy. Chemotherapy as palliative therapy to relieve symptoms caused by cancer and improves quality of life, Clinical trials of new anticancer drugs or drug combinations. [46]

**Treatment Options for Recurrent Cervical Cancer;** Treatment of recurrent cervical cancer may include the following; Immunotherapy, radiation therapy/chemotherapy, or chemotherapy/targeted therapy. Chemotherapy as palliative therapy to relieve symptoms caused by cancer and to improve quality of life can be used. Additionally, pelvic exenteration, clinical trials of new anticancerous drugs or drug combinations can be applied. [37,38].

## 2. Aim of the Study

The current study aims to assess women's self-knowledge regarding cervical cancer

## 3. Subjects and Methods

### 3.1. Research Design

A descriptive design was used for the current study.

### 3.2. Setting

The oncology unit at Beni-Suef university hospital.

### 3.3. Subjects

The sample size was 70 women; were diagnosed and undergoing treatment of cervical cancer

### 3.4. Tools of Data Collection

To attain the aim of this study, one tool was used for data collection;

**3.4.1. A Structured interviewing questionnaire** sheet was developed by the researchers in the Arabic language based on a review of recent literature. It was consisting of two parts:

1. **Part 1:** Socio-demographic characteristics of women as age, level of education, occupation, and residence.
2. **Part 2:** Medical & surgical history: how cervical cancer was detected, stage of cervical cancer, type of treatment regimen, types of surgery performed.

### 3.4.2. Scoring System for Women's Knowledge about Cervical Cancer

This part was designed to assess women's knowledge about cervical cancer such as (definition, causes, signs, symptoms, risk factors, methods of prevention, diagnosis, treatment). This part consists of seven questions in the form of multiple-choice questions. Responses were scored zero for "incorrect" answers and one for "correct" answers. Scores were summed up and converted to percent.

### 3.5. Administrative & Ethical Considerations

Approval was got from the Beni-Suef University hospital director. All engaged women were informed that participation is voluntary and have the right of accepting or refusing participation in the study.

### 3.6. Pilot study and Data Collection Phase

A pilot study was conducted on 10% (7women). The pilot sample was excluded from the main study sample. The data was collected from the start of August 2019 till the end of January 2020.

### 3.7. Statistical Analysis

The collected data was revised, coded, tabulated, and introduced to a PC using a statistical package for social sciences (IBM SPSS 25.0). Data was presented as:

- Mean and Standard deviation (SD) and range, Frequency and percentage, and Chi square ( $\chi^2$ )
- Colum & Pie charts were used for graphic presentation

### 4. Results

Figure 7 reveals that approximately slightly less than one quarter (21.4%) of the study sample their age was (30:< 40) years old, and more than half (51.4%) their age more than (50) years old with a mean age of (49.4± 9.38). Regarding the educational level of women slightly less

than half (48.6%) had secondary education. Regarding occupation more than half (64.3%) of women were housewives. Regarding the educational level of the spouse, slightly less than one-third (30%) had basic education. Regarding residence, more than half (52.8%) of women was from urban areas and the mean marriage age of women was 19. ± 4. 23

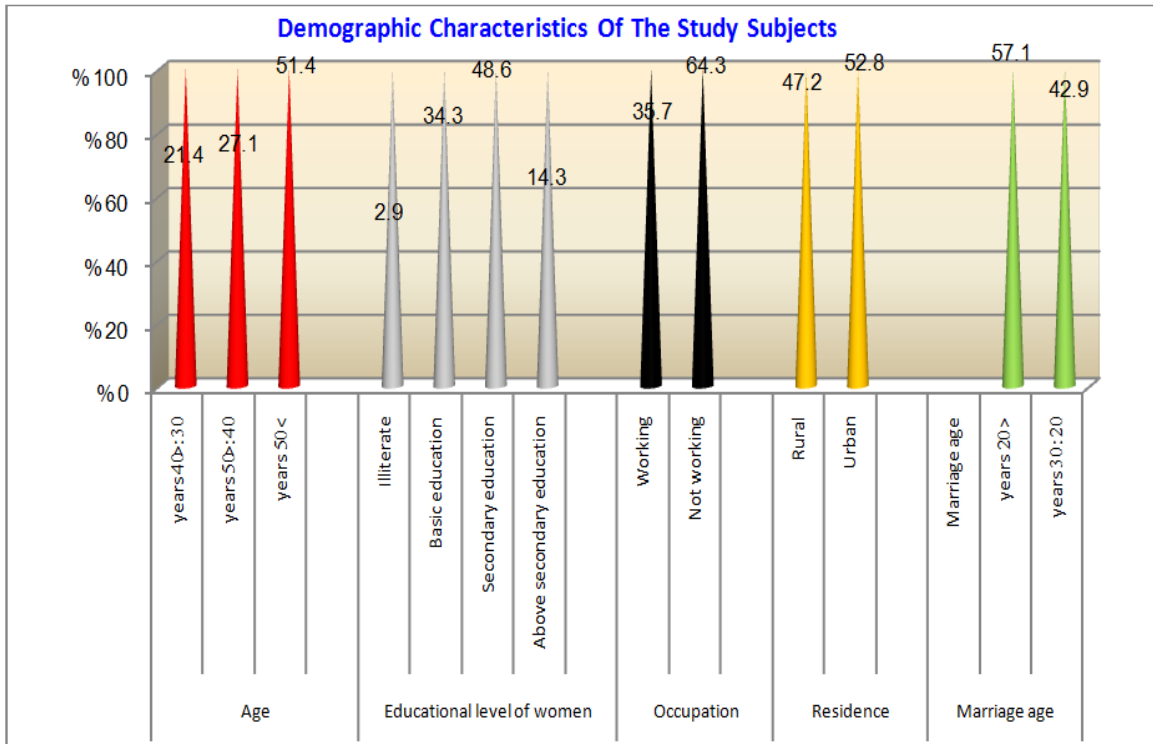


Figure 7. Socio-demographic characteristics of the studied sample

Table 1. Distribution of the study subjects according to their medical-surgical history (n=70)

Medical surgical history	No	%
<b>1. Detection of cervical cancer</b>		
• When regular screening	11	15.7
• During delivery	8	11.4
• From signs and symptoms	51	72.8
<b>2. Degree of disease when detected</b>		
• Zero degree	16	22.9
• 1 <sup>st</sup> degree	25	35.7
• 2 <sup>nd</sup> degree	22	31.4
• 3 <sup>rd</sup> degree	4	5.7
• 4 <sup>th</sup> degree	3	4.3
<b>3. Type of disease intervention</b>		
• Radiotherapy	4	5.7
• Surgical	9	12.9
• Chemotherapy and surgical	14	20
• Radiotherapy and surgical	17	24.3
• Radiotherapy, Chemotherapy and surgical	26	37.1
<b>4. Surgery type</b>		
• Local tumor surgery	6	8.6
• Partial hysterectomy	7	10
• Total hysterectomy	57	81.4
<b>5. Medications side effects</b>		
• Nausea, vomiting, diarrhea, and hair loss	22	31.4
• Nausea, vomiting, tiredness, and anemia	14	20
• diarrhea, hair loss, tiredness, and anemia	28	40
• Cystitis, dyspnea, and narrow vagina	6	8.6

Table 1 shows that slightly less than three-quarters (72.8%) of the studied women had a diagnosis of cervical cancer from signs/symptoms, and more than one-third (35.7%) of women were in the 1<sup>st</sup> degree when diagnosed with cervical cancer while (4.3%) were in the 4<sup>th</sup> degree. Regarding treatment type, more than one-third (37.1%) of women had received radiotherapy, chemotherapy, and surgical operation, and more than three-quarters (81.4%) of women had a total hysterectomy. Regarding medication side effects, more than one-third (40%) of the studied sample had diarrhea, hair loss, tiredness, and anemia.

Table 2 indicates that only 22.9% of the studied women know the definition of cervical cancer, 10.0% able to mentioned causes of cervical cancer, most of them (71.4%) mentioned manifestations & management, 20.0% known predisposing factors, 11.4% the diagnostic procedures of cervical cancer, while only 2.9% known preventive measures of cervical cancer.

Table 2. Percentage distribution of women’s knowledge regarding cervical cancer (n = 70)

Items	N	%
1. Definition of cervical cancer	16	22.9
2. Causes of cervical cancer	7	10
3. Manifestations of cervical cancer	50	71.4
4. Predisposing factors of cervical cancer	14	20
5. Prevention of cervical cancer	2	2.9
6. Diagnosis of cervical cancer	8	11.4
7. Management of cervical cancer	50	71.4

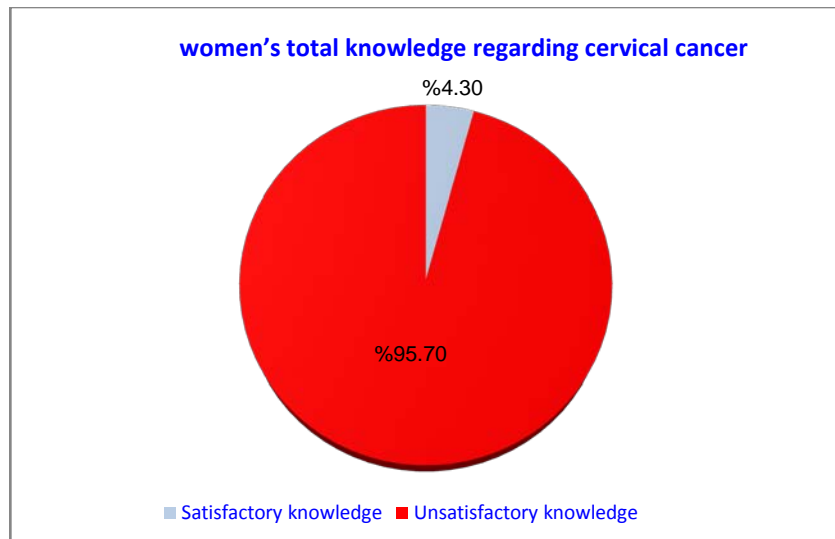


Figure 8. Percentage distribution of women's total knowledge regarding cervical cancer

Table 3. relationship between demographic characteristics of the study subjects and their total knowledge

Demographic Characteristics	N	Satisfactory Knowledge		Unsatisfactory Knowledge		X <sup>2</sup>	P-value
		No	%	No	%		
<b>1. Age</b>							
• 30:<40 years	15	1	1.4	14	20	1.21	0.549
• 40:<50 years	19	0	0	19	27.2		
• > 50 years	36	2	2.8	34	48.6		
<b>2. Educational level of women</b>						18.8	0.000**
• Illiterate	2	0	0	2	2.8		
• Basic education	24	0	0	24	34.4		
• Secondary education	34	0	0	34	48.6		
• Above secondary education	10	3	4.2	7	10		
<b>3. Residence</b>						1.03	0.608
• Rural	33	2	2.8	31	44.3		
• Urban	37	1	1.4	36	51.5		
<b>4. Marriage age</b>						7.51	0.036*
• < 20 years	40	33	4.2	37	52.9		
• 20: 30 years	30	8	11.3	22	31.6		

(\*) statistically significant  $p < 0.05$ , (\*\*) high statistically significant  $p < 0.01$ .

Figure 8 illustrates the percentage distribution of women's total knowledge regarding cervical cancer. The majority of them (95.7%) had unsatisfactory score of knowledge, while only 4.3% of women had satisfactory knowledge regarding cervical cancer.

Table 3 reveals that there was a statistically significant relationship between the educational level of women and their total knowledge level, and a statistically significant relationship between the marriage age of women and their total knowledge level. There was no statistically significant relation between age and residence and their total knowledge scores.

## 5. Discussion

Cervical cancer occurs when the cells of the cervix grow abnormally, and invade other tissues and organs of the body. [48-52] Regarding demographic characteristics of the study subjects, the present study indicated that 21.4% of the study sample their age 30-40 years old, moreover, 47.6% had secondary education. Study findings of

Said, et al., (2018) that study "Effect of an Educational Intervention on Women's Knowledge and Attitude Regarding Cervical Cancer", found that one-half of women their age ranged from (30-40) years old, and 46.2% had secondary education. [9]

Concerning women's knowledge about cervical cancer, the current study revealed that the majority (95.7%) of women had unsatisfactory knowledge, this may be related to that a large slid (64.3%) of them were housewives, so may not have an accessible source of information getting by contact. This result is in accordance with Said et al., (2018) who studied "Effect of an Educational Intervention on Women's Knowledge and Attitude Regarding Cervical Cancer", found that 89.2% of studied woman have poor knowledge regarding cervical cancer. [9] In the same line Getahun et al., (2013) that study "Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia" revealed that knowledge about cervical cancer was poor though the majority of the women. [53]

Regarding women's knowledge about details of cervical cancer as definition, causes, manifestations, predisposing

factors, prevention, diagnosis, management, the current study revealed that 22.9% know the definition, 10.0% know the causes, 71.4% know the manifestation, 20.0% know the predisposing factors, 2.9% know the preventive measures, 11.4% know the diagnosis, 71.4% know the management. In the same line Atwa et al., (2019) studied "The impact of a hospital-based awareness program on the knowledge of patients about breast cancer and cancer cervix" and found 8.0% of women know risk factors, 12.2% of them know manifestations, 15.0% know diagnostic and screening tests. [7] Additionally, Getahun, et al., (2013) that study "Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia" revealed that knowledge about cervical cancer was poor though the majority of the women; specifically, the knowledge of women on risk factors, signs, and symptoms. [53]

Regarding the relation between knowledge and personal characteristics of the studied sample; the present study findings showed that there was no statistically significant relation between studied women's knowledge and their age. This is in line the study conducted by Said et al., (2018). [9] Although there are no statistical differences between women's knowledge and their age, it was observed that older women having a higher score of knowledge score than younger ones. In the present study, the women's age was an important factor for her knowledge score. Older women scored better grades of satisfactory knowledge. They were more knowledgeable than younger ones. This is may be attributed to older women had more experience with cervical cancer, hence get them more information. The findings are in line with the fact that day-by-day life enhances the experiences and improve knowledge. [54,55]

The present study revealed that there was a high statistically significant relationship between the educational level of women and their total knowledge level and statistically significant relationship between the marriage age of women and their total knowledge level. There was no statistically significant relation between age and residence of women and their total knowledge scores. In consistent to our study findings, Mitiku & Tefera (2016) found that level of education was significantly associated with women's knowledge about cervical cancer. Women with higher level of education were more likely to have sufficient and satisfactory knowledge about cervical cancer than those that had no formal education, primary, and secondary level of education. On bivariate analysis, six socio-demographic characteristics were found to be significantly associated with having sufficient knowledge about cervical cancer: age, educational level, marital status, occupation, average monthly income, and parity. This can be explained by as with increasing age and educational level the women can experience situations that may help to gain knowledge. [56]

A statistical difference between women's knowledge and their level of education, it was observed that generally women who have secondary educational having a higher score of knowledge score than basic ones. This is due to that the higher educated women may have better chances for scientific information. [54,55] These findings are supported by Sabilu et al., (2016) as cited in Hassan et al., (2017) who reported, the level of education affects the

learning process, the higher the person's level of education the easier person to receive information. [57,58]

As regards age at marriage of the studied subjects, the results of the present study presented that more than half of them (57.1%) married at age less than 20 years. Furthermore, a significant difference was noticed between women's age at marriage and their knowledge regarding cervical cancer ( $p=0.036$ ). This might be ascribable to the fact that day by day life enhances women's experience and improves their knowledge. Early marriage could have a negative effect on the women's education; this had exposed these women not only to ignorance of their condition but also to complications. Early marriage has hindered women to complete their education and to getting an appropriate job and had become financially dependent on their kin. Therefore, teen women were more likely to live in poverty than women who were in delayed the marriage age. Moreover delaying age at marriage was a key to improving women's status and may be a way of increasing their leverages in the decision-making process. [59,60]

## 6. Conclusions

Based on the finding of the present study, it can be concluded that; socio-demographic characteristics of women could affect their knowledge level regarding cervical cancer.

## 7. Recommendations

In the light of the findings of the study, the following are suggested:

1. Implement an educational program and disseminate information that focuses on educating the women about cervical cancer risks, prevention, and early detection to enhance uptake of cervical cancer.
2. A cervical cancer education program should be provided for all women of all different ages in Egypt.

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