



Effect of Palliative Care Intervention on Quality of Life for Elderly Women with Cervical Cancer

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Abstract

Background: Elderly women with cervical cancer experience many physical and psychological symptoms due to disease itself and its treatment modalities. So, provision of palliative care intervention to these patients can relieve these symptoms and improve their quality of life. **Aim:** This study aimed to evaluate the effect of palliative care on quality of life for elderly women with cervical cancer. **Methods & Materials:** A quasi- experimental design was used in this study and applied on 60 elderly women who suffered from cervical cancer, purposively assigned according to study inclusion criteria, conducted at outpatients' gynecological oncology at outpatient clinic at Zagazig University Hospitals. **Tools:** Three tools were used for data collection: A structured interview questionnaire, Functional Assessment of Chronic Illness Therapy Palliative Care (FACIT- Pal questionnaire) and the MD Anderson Symptom Inventory- Korean (MDASI-K). **Results:** The study findings reveal highly statistically significant improvement in all domains of quality of life and in total quality mean score in post intervention than pre intervention. Where, the total mean was improved from 57.75 ± 4.99 pre intervention to 101.65 ± 4.28 post intervention. There was statistically significant relation between total quality of life of studied elderly women and marital status post the program. Also, the current study result reveals that, educational level had a statistically significant negative correlation with symptoms requiring palliative, and palliative care quality of life had a highly statistically significant negative correlation with symptoms requiring palliative. **Conclusion:** There was significant improvement in all domains of quality of life of studied elderly women with cervical cancer due to efficacy of palliative care intervention.

Keywords: Palliative care, quality of life, elderly women, cervical cancer

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Introduction

People worldwide are living longer. Today most people can expect to live into their sixties and beyond. By 2030, 1 in 6 people in the world will be aged 60 years or over. By 2050, the world's population of people aged 60 years and older will

double 2.1 billion. The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million (**World Health Organization" WHO", 2021**). On the same line, in Egypt, persons aged 60 and older are 6.8% of the total population. It is predicted that by 2052,

that number will increase to 17.9% (**Central Agency for Public Mobilization& Statistics 2022**).

Cervical cancer is a major public health problem; it is the 4th mostly common cancer and the 4th leading cause of deaths between females around the world. It is the second most common cancer in low- and middle-income countries and remains one of the gravest threats to women's lives (**Bray et al., 2018**). Globally, one woman dies of cervical cancer every two minutes and disproportionately afflicts the poor (**World Health Organization, 2018**). In Egypt, cervical cancer ranks the 13th most frequent cancer among women and 1320 women are diagnosed with cervical cancer and 744 die from the disease (**Egypt human Papillomavirus and Related Cancers, Fact Sheet, 2021**).

Thus, elderly women with advanced cervical cancer frequently face many physical and psychological symptoms in the course in their diseases that make compliance with treatment hard and affect negatively on their quality of life and are in need of palliative care to improve their quality of life (**Ooko et al., 2023**). Quality of life QOL refers to an individual's subjective wellbeing in relation to their health, psychological condition, beliefs, interpersonal relationships, and relationship to significant environmental conditions such as living condition, security, accessibility to medical care, opportunity for recreation, and facilities (**Defar et al., 2023**).

Meanwhile, Health Related to Quality-of-Life HRQoL is an important disease indicator in health care HRQoL can also be utilized to examine disease severity, treatment outcomes, client satisfaction with health care, effectiveness of healthcare, patients' overall wellbeing, and the expense of a specific intervention (**Kaso et al., 2021**).

The World Health Organization describes palliative care as " an approach aiming to improve the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial, and spiritual (**WHO, 2020**). So, integration of palliative care into standard gynecological cancer

treatment is associated with cost savings, increased survival, reduced symptom burden, and improved quality of life for patients and caregivers (**Lindemann et al., 2020**). Therefore, this study aimed to evaluate the effect of palliative care on quality of life for elderly women with cervical cancer.

Method

Study Design and Setting

A quasi- experimental design was utilized to conduct the current study from April 2022 up to the end of April 2023 at the gynecological oncology outpatient clinic in Zagazig University Hospitals at Zagazig City.

Sample

A purposive sampling technique consisted of 60 elderly patients with cervical cancer from the above-mentioned setting who met the following criteria: Age 60 years and older with a diagnosis of cervical cancer, self-independent women, women at second and third stage of cervical cancer, women receiving chemotherapy or radiotherapy or had a surgical treatment or a combination of them and able to communicate and accept to participate in the study.

Sample size calculation

It was calculated by statistical computer program (Epi-Info software version 6.04). It was based on assuming that the need to palliative care was 72.8 % vs 33.3% in moderate vs high quality of life (Kamel et al.,2021). At 80% power and 95 % confidence level, the sample size calculated was 60 subjects.

Tool of data collection

Three tools were used for collection of data. **Tool I:** A structured interview questionnaire that was developed by the researchers based on the literature review. It is composed of two parts: demographic characteristics and medical, obstetrical, and gynecological history of the studied elderly women. It was used to assess the characteristics of the studied elderly women which included age, age at marriage, number of marriages for husband, number of marriages for wife, marital status, occupation, residence, living with whom and educational levels. **Medical history** includes past history for hypertension, DM, heart diseases, smoking where active or passive, sexually transmitted diseases, immune diseases and other cancer than the current cervical cancer.

Obstetrical history includes mode of delivery, number of paras, abortion, had ovarian cysts, uterine fibroid, had hysterectomy, type of hysterectomy (e.g., total, partial, radical, modified radical). As well as had ovariectomy, fallopian tube excision, excision of fallopian tube and ovary. **Gynecological history** as diagnosis of cervical cancer date per months, stage of cervical cancer, current complaints, treatment regimen, number of chemotherapy doses before surgery, after surgery, number of radiotherapy session.

Tool II: Functional Assessment of Chronic Illness Therapy Palliative Care (FACIT- Pal questionnaire). (Brady et al 1997).

This tool was used to assess quality of life and need for palliative care regarding cancer patients and includes 46 item measures of self-reported health-related quality of life. The questionnaire contains two parts: I. The Functional Assessment of Cancer Therapy-General (FACT-G) 27-item which measures four domains of quality of life: physical well-being (seven items). Social/ family well-being (seven items), emotional well-being (six items) and functional well-being (seven items). II. Included 19 items that provide the Palliative subscale.

FACIT-pal scoring system

The FACIT-Pal scored as the sum of item responses, which range from 0 = „not at all“ to 4 = „very much“.)

- FACT –G 27 items ranged (0 -132).
- Palliative care subscale 19 items (0 – 76)
- The FACIT-Pal total score (0–184). Higher scores indicate better quality of life.

High Quality of Life (Low Affection)	Low Quality of Life (High Affection)
<60 % (<110)	>60% (>110)

Tool III: MD Anderson Symptom Inventory-Korean (MDASI-K). (YUN et al., 2006).

This tool is a 19-item questionnaire, which are divided into two parts. The first part (13 items) assesses patient symptoms during the previous 24 h. Symptoms assessed include pain, fatigue, nausea or vomiting, anorexia, sleep symptoms, and distress. Each item ranges from 0 to 10 (with 0 indicating “no symptom or interference” and 10 indicating “extreme symptom or interference. The

second part (6 items) assess how those symptoms have interfered with the patient’s general wellbeing, including their general activity, mood, ability to walk and do normal work, and relationships with others and enjoyment of life. With 0 being “does not interfere” and 10 being “completely interferes.

MD Anderson Symptom Inventory- Korean (MDASI-K) scoring system:

Individual item severity and interference were rated using the following method: none (0), mild (1–4), moderate (5, 6), and severe (≥7).

- Core symptoms ranged (0 -130).
- Interference symptoms ranged (0 -60).
- MDASI-K total score ranged (0-190). Higher scores indicate poorer quality of life.

Good Quality of Life (Low symptoms)	Fair Quality of Life (Moderate symptoms)	Poor Quality of Life (High symptoms)
<50 % (0-94)	50 - 75% (95-142)	>75% (143-190)

Palliative care Intervention

Assessment phase:

This phase included the baseline assessment before the intervention. The researcher read and explained each item of the study tools to the older women and then recorded her response to each item. Data collection took about 30-45 min to complete for each patient. The data were preliminary analyzed to provide the basis for building up according to identified needs.

Planning phase:

The intervention was designed based on the identified needs obtained from the analysis of the baseline assessment and in view of the relevant literature about elderly women with cervical cancer, the researchers developed the sessions of palliative care, the researcher developed the proper palliative care training program for elderly women with cervical cancer and sessions content. According to the elderly needs, study objectives, requirements and deficiencies. Theoretical sessions content was translated into aim and objectives of program and set in the form of an

illustrative colored booklet to be distributed to each of the studied elderly women as a guide for all of pertinent data related to intervention. The practical sessions were prepared in the form of videos and pictures that demonstrate the exercises.

Implementation phase:

The program was implemented in the study setting in the form of thirteen sessions for small groups. This was intended to give more chance for discussions, interactions, and practical training. The total sample was divided into small groups (3 to 5 elderly in each group). All groups received the same content using the same teaching methods, media, discussions, and the same booklet.

The length of each session 30-45 minutes was variable according to elderly's responses and active participation, as well as the time available, and the content of each session. To ensure that the studied elderly understand the content, each session was started by a summary about what was given through the previous session and the objectives of the new one, taking into consideration the use of simple language to suit the level of understanding of the elderly. Motivation and reinforcement techniques as praise and recognition during the session were used to enhance active participation and foster learning. The sessions were aided by using pictures, posters, as well as the booklet.

Evaluation phase:

The evaluation of the effectiveness of the training program (posttest) was done after one month of the program completion by posttest, using the same pretest tools to evaluate the degree of improvement in quality of life and most common prevalent complaints of elderly women with cervical cancer.

Ethical considerations:

The study was approved by the Research Ethics Committee (REC) of the Faculty of Nursing at Zagazig University in December 2021. An informed consent for participation was taken verbally from each of the elderly subjects after being properly informed of its purpose. Participants were given the option to decline participation and informed that they might leave at any time during the data collecting interviews. They were also given the assurance that the information would be kept private and used exclusively for the research purpose.

Statistical analysis

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed scales through their internal consistency. Quantitative continuous data were compared using the non-parametric Mann-Whitney or Kruskal-Wallis tests and paired t test. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the scores of cancer Qol, palliative Qol and symptoms Qol, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p- value <0.05.

Results

Demographic characteristics of the studied elderly women(n=60).

Table 1 displays that, mean age the studied elderly women was 66.07±2.46 years and 81.7 % of the elderly women were married at 13-20 years. As for the number of marriages for husband and wife, it was obvious that 63.3% and 45% respectively were married 2-3 times. Concerning to residence and living, the same table reveals that 55% and 96.7% of women were residing in rural area and living with one family.

level of education among the studied elderly women (n=60).

As displayed in **Figure 1**, it was presented that 30% of the elderly women with cervical cancer in the study sample were illiterate and only 6.7% had a secondary education.

Medical history of the studied elderly women (n=60).

Represents that all the studied elderly women with cervical cancer were suffered from chronic diseases and hypertension was the most common one in 83.3 % of them, followed by heart diseases in 75%. As for the previous history of STD, it was

found that 75% of the studied elderly women had a history of STD and HPV was the most common type in 80%. Meanwhile, the previous history to immune disease was present in only 18.3% (Table 2).

Obstetrical and gynecological history of the studied elderly women (n=60).

Clarifies that 63.3% of the studied elderly women with cervical cancer were delivered normally and 48.3% of them were multipara >3, while 38.3% of them were without abortion. As for the gynecological history, it was found that 60% of the studied elderly women had hysterectomy and modified radical hysterectomy was the most common type in 28.3% and ovariectomy, fallopian tube excision and excision of fallopian tube and ovary were present in 60%, 53.3% and 55% respectively (Table 3).

Cervical cancer data of the studied elderly women (n=60).

Shows that the mean age of duration of cervical cancer diagnosis per month was around 8.90 ± 4.22 , and all the women 100% were treated with chemotherapy and 80% of them were had 2-7 cycle of chemotherapy before surgical treatment. As for the radiotherapy session it was found that 50% of women were receiving radiotherapy and 23.3% had 6-9 session (Table 4).

Stage of cervical cancer.

Figure 2 demonstrates that 53.3% of elderly women with cervical cancer were in third stage, while 46.7% of them were in second stage.

Total palliative quality of life domains percentage among cervical cancer elderly women' pre and post the program n=60.

Portrays that physical wellbeing was the lowest quality of life pre intervention 86.7% followed by functional wellbeing 85% and palliative care quality 78.3% pre intervention and these was improved post intervention to become 55%, 51.7 and 43.3% respectively with highly statistically significant. Also, the total quality of life was low in 76.7% pre intervention and improved post intervention to become 41.7% with highly statistically significant (Table 5).

Palliative quality of life domains mean score among cervical cancer elderly women' pre and post the program n=60.

Reveals highly statistically significant improvement in all domains of quality of life and

in total quality mean score in post intervention than pre intervention. Where, the total mean was changed from 57.75 ± 4.99 pre intervention to 101.65 ± 4.28 post intervention (Table 6).

Level of quality of life among cervical cancer elderly women' pre-post the program n=60.

Shows a highly statistically significant at level of quality of life and MD Anderson score among studied elderly women through the intervention phase, it was found that only 16.7% of studied women had good quality of life at pre intervention and post intervention these percentage was improved to 43.3%, additionally the total mean score for quality of life was 129.20 ± 8.42 at pre intervention compared to 86.52 ± 12.82 post intervention with highly statistically significant. (Table 7).

Relation between characteristics and cervical cancer data of the studied participants and their total cancer quality post the program n=60.

Indicates statistically significant relation between total cancer quality of studied elderly women and marital status post the program. As observed from the table, married elderly women had the highest total cancer quality of life (Table 8).

Correlation matrix of participants 'palliative care quality of life and symptoms requiring palliative care.

Indicates highly statistically significant negative correlation between palliative care quality of life and symptoms requiring palliative (Table 9).

Correlation matrix of participants' cancer quality of life, palliative care quality of life, symptoms requiring palliative care and their characteristics

Educational level had a statistically significant negative correlation with symptoms requiring palliative (Table 10).

Predictor of MD Andersons symptoms scores and interference of symptoms with daily life (interference score).

Regarding predictors of MD Andersons symptoms scores and interference of symptoms with daily life (interference score), table 11 illustrates that marital status of studied elderly women was statistically significant independent positive predictor of MD Andersons (symptoms and interference scores). While total quality palliative score was a negative predictor. The model explains 35% of the variation in this score as the value of r- square indicates.

Discussion

It is obvious from the present study, all studied elderly women had chronic diseases as more than half of studied elderly women had hypertension, this is attributed to comorbidities increase with age, as aging reduces vascular resistance and cardiac output, aging results in the narrowing of the vessel lumen and stiffening of the vessel walls through a process known as atherosclerosis eventually leading to hypertension.

In agreement with this finding, **Birge et al. (2022)** in **Turkey** showed that 78.4% of elderly women with cervical cancer had comorbid diseases, and the largest group was hypertension. Also, a study on **Shanghai of China** carried by **Wu et al. (2023)** revealed that hypertension is a chronic disease generally occurring in the elderly, because aging reduces vascular resistance and cardiac output, eventually leading to hypertension. Similarly, **Caraballo et al. (2021)** in **China** showed that blood pressure has a strong association with age and its elevation is one of the most important modifiable cardiovascular risk factors worldwide. mediated by several structural and physiological changes, hypertension prevalence progressively increases with age.

Concerning smoking or exposure to smoking, it was found that about more than half of studied elderly women were smoker or exposed to passive smoking. These findings could be attributed to nicotine had been found to suppress the immune system, allow HPV infections to persist, which had been verified to be an essential causative factor for cervical cancer, and thus increasing the risk. Besides, nicotine and its metabolite cotinine had been proved to cause DNA damage in squamous epithelial cells and thus promote tumor development.

The findings are in agreement with a study carried by **Wen et al. (2022)** in **China** who mentioned that higher daily exposure level was associated with higher risk of cervical cancer. On the same line, **Malevoti et al. (2023)** added that risk of precancerous lesions also increased rapidly after few years of smoking duration, whereas the risk of invasive cervical cancer showed a slower linear increase. On the other hand, risks of both invasive cervical cancer and preinvasive lesions linearly decreased by time since quitting, reaching the risk of never smokers about 15 years since quitting.

As regards previous history of STD, it was found that about three quarter of the studied elderly women had a history of STD and HPV was the most common type in more than three quarter of them. This could be attributed to HPV types that are transmitted through sexual contact and infect primarily the cervix, vagina, vulva, penis, and anus have been identified. One or more of these HPV types has been implicated in most cases of squamous cell carcinoma of the cervix. In agreement with this, a study in **USA** done by **Hermansson et al. (2018)** demonstrated that. Forty-three women aged 60–89 years (4.1%, 95% CI 3.0–5.5) were positive for HPV in their first test. In a second test, on average 3.5 months later, 27 women (2.6%, 95% CI 1.7–3.8) were still positive. Likewise, **Bessa et al. (2023)** in **Brazil** found that older women with multiple sexual partners were more susceptible to HPV infection and HPV was detected in 14 (13.2%) of the 106 women assessed in the study. In the same line, a systematic review done by **Sausen et al. (2023)** found that the link between HPV and cervical malignancy has been well established, with it being estimated that HPV is responsible for approximately 99.7% of cases of cervical cancer. Disagreement with this result, **Mancebo et al. (2022)** in **Spain** found that when comparing age specific relative contribution of HPV, “Other” genotypes and HPV negative cases was significantly higher in ≥ 65 years group than in the < 65 years ($P < 0.031$).

Regarding previous history to immune disease, it was found that about one quarter of studied elderly women had previous history to immune disease especially rheumatoid. This might be contributing to immune diseases and treatment-related impaired immunity, are more susceptible to HPV which cause cervical cancer. In agreement with this present study finding, a study in **Australia** by **Foster et al. (2020)** who found that most autoimmune conditions appear to increase the risk of cervical HPV infection and related disease. On the same line, a study carried in **France** by **Beydon et al. (2023)** clarified that disease burden of rheumatoid arthritis remains particularly affected by an increased cancer risk and cervical cancer was noticeably more frequent in rheumatoid arthritis. In the same stream, a study by **Bowden et al. (2023)** revealed that increased risk of cervical cancer for other autoimmune diseases, including

Systemic lupus erythematosus (SLE) and rheumatoid arthritis.

Concerning obstetrical and gynecological history, about half of studied elderly women were multipara and more than half of them were delivered normally these findings may be due to concentrations of estrogen and progesterone level in blood are known to increase during pregnancy and reach the highest levels in the last weeks of gestation. These hormonal changes are perhaps responsible for the alterations in the junction between the squamous and columnar epithelium (transformation zone) occurring during pregnancy. Squamous metaplasia of the transformation zone also increases during pregnancy to reach a maximum during the third trimester. Also, association between multiple pregnancies and cervical cancer could be due to high detection of cervical abnormalities among pregnant women, probably due to migration of endocervix during pregnancy. There are also assumptions that traumas to the uterine cervix during vaginal delivery could be responsible for cervical cancer developments.

These results go in line with the study carried by **Tekalegn et al. (2022)** mentioned that women with high parity had higher odds of developing cervical cancer compared to those with relatively low parity. Similarly, **Pimple & Mishra, (2022)** found that high parity is known to increase the risk of cervical cancer since parity and pregnancy associated hormonal changes maintains the transformation zone on the ectocervix for longer durations facilitating the direct exposure to HPV and to other cofactors. It is obvious from the present study, more than half of studied elderly women had hysterectomy, this might be due to hysterectomy with chemotherapy was more effective in treatment of cervical cancer than concurrent chemo radiotherapy CCRT and associated with higher survival rate.

In agreement with this present study finding, a systematic review done by **Kokka et al. (2022)** showed that meta-analysis of three trials of neoadjuvant chemotherapy NACT with hysterectomy versus radiotherapy alone, assessing 571 participants, found that women who received neoadjuvant chemotherapy NACT plus hysterectomy had less risk of death than those who received radiotherapy alone.

Additionally, a systematic review done by **Wang et al. (2020)** found that minimally invasive radical hysterectomy was associated with poor survival outcomes compared to open surgery. Patients with FIGO 2009 stage \leq IB1 cervical cancer who underwent minimally invasive surgery have lower OS and DFS rates than those who underwent open surgery. Similarly, a systematic review done by **Sun et al. (2022)** a retrospective analysis involving 116 Japanese centers, where 5964 women with FIGO IB1-IIB cervical cancer underwent radical hysterectomy, revealed a significantly decreased risk for recurrence (HR 0.69; 95% CI 0.57–0.84) and death.

The present study revealed that more than half of studied elderly women were in third stage, these findings could be attributed to lack of screening in elderly women and less visible transformation zone that delay collection of sufficient cervical samples so, elderly women are only diagnosed once they become symptomatic which is typically at later stages.

These results go in line with the study carried by **Neumeyer et al. (2023)** in **German** found that elderly women (≥ 65 years) are more often diagnosed with late-stage disease and have worse outcomes than younger patients. In the same context, a study conducted in **Turkey** by **Birge et al. (2022)** revealed that several studies reported that cervical cancer is detected in elderly population and diagnosed in advanced stages because of the delayed screening tests and its prognosis is poor. Similarly, **Xie et al. (2020)** in **China** demonstrated that patients aged ≥ 65 tended to be diagnosed with advanced stage disease, the proportion of non-treatment in them was relatively high and a few of them adopted surgery actively as main treatment.

As regards treatment regimen, all of studied elderly women were treated with chemotherapy. These findings could be attributed to chemotherapy improve the success rate of surgical resection. The findings are in agreement with **You et al. (2019)** in **China** who found that for elderly cervical cancer patients with advanced stage, definitive RT may be acceptable for patients with negative lymph nodes. However, in patients with positive lymph nodes, concurrent chemotherapy could bring about improved survival. This result is in agree with **Patel et al. (2023)** in **India** revealed that the

primary treatment for patients with locally advanced cervical cancer LACC is still cisplatin combined with radiotherapy, whereas the treatment of metastatic and recurring cancer has changed more, with the addition of more advanced chemotherapeutic agents.

The findings of the current study revealed that, more than three quarters had low physical wellbeing at pre intervention. This might be due to effect of disease itself and complication of treatment as surgery, chemotherapy and radiotherapy.

In agreement with this present study finding, **Pasek et al. (2021)** in **Poland** showed that physical functioning was assessed as best before the treatment started and reached its lowest five years after treatment. This may be related to fatigue, insomnia pain and dyspnea. Similarly, **Beltran et al. (2023)** in **Spain** found that only physical functioning was affected in the control group. Significant differences ($p < 0.05$) were observed between the control group and patient group in all role functioning scales except cognitive functioning. The treatments have physical, psychological and sociocultural consequences that deteriorate the quality of life of patients. Also, cervical cancer affects all aspects of women's health, including sexual function and physical wellbeing.

After implementation of palliative care intervention, there was statistically significant improvement in physical wellbeing of the studied elderly women from about more than three quarters at pre intervention to about more than one half at post intervention. This might be attributed to efficacy of palliative intervention in relieving symptoms.

In congruence with these findings, a systematic review by **Millet et al. (2022)** showed that physical activity PA intervention in gynecological cancer survivors, with some representation of cervical cancer, was found to improve physical wellbeing after treatment. Likewise, a systematic review by **Rose et al. (2023)** demonstrated that there were significant improvements noted in the sub-domains of physical function and physical component scores due to exercise intervention.

The findings of the current study showed that, more than three quarter of studied elderly women had low quality of life at pre intervention by using

FACIT PAI. Several reasons might explain the poor quality of life among studied women with cervical cancer. **Firstly**, due to impact of disease and treatment on the health status of the patients as nearly more than half of studied elderly women had lack of energy, had trouble in meeting family needs, had pain, felt ill and spend time in bed. **Secondly**, the ability of studied elderly women to work and sleep within previous week were little. Also, about more than half of women was never able to enjoy life, enjoy things for fun and content quality of life within previous week. **Thirdly**, the vast majority of studied elderly women suffered from fatigue, nausea, disturbed sleep, distress, shortness of breath, difficulty in remembering, lack of appetite, dry mouth, drowsy, sad, vomiting, numbness, or tingling. **Finally**, limited palliative-care resources and lack of knowledge about disease and palliative care among health care providers.

The preceding results go in the same line with **Kamel et al. (2021)** in **Assiut** showed that quality of life of studied women with gynecological cancer was 48.0% of studied women have low quality of life, 22% moderate and 30% have high quality of life. Additionally, a study carried in **USA** by **Klapheke et al. (2019)** who implemented their study to assess changes in health-related quality of life in older women after diagnosis with gynecological cancer in America and reported that less than one third of patients had a "poor" or "fair" quality of life. On the same line, **Rahman et al. (2024)** in **Bangladesh** revealed that patients with metastatic cancer reported low HRQOL outcomes in terms of physical, functional, emotional, social, and spiritual well-being. These results might be due to Bangladesh's limited treatment and palliative-care resources as well as limited medical infrastructure, educated workforce, and service availability (e.g., radiotherapy units, radiation treatment).

After implementation of the educational program, the present study findings showed that a statistically significant improvement in total mean score of quality of life at post intervention as measured by FACIT-PAL questionnaire. This is due to effectiveness of an educational program about the palliative care for cervical cancer on quality-of-life improvement in women undergoing treatment for cervical cancer to improve awareness

of women and their families through different media.

The results were consistent with **Silva et al. (2019)** in **Brazil** showed that the FACIT-Pal-14 instrument shows better QoL in the palliative therapy group, with higher means in total score, diverse items from the scale of physical, functional, social/family, and palliative wellbeing. On the same line, a systematic review done by **Majdabadi et al. (2022)** observed a significant positive impact of palliative care PC on QOL in 1–3 months follow-up, as well as in 4–7 months follow-up. Similarly, **Dey et al. (2023)** in **India** highlights the positive impact of early integration of palliative care EIPC in locally advanced cervical cancer which has led to better QoL, especially emotional and social well-being.

Regarding quality of life of the studied elderly women about cervical cancer using MD Anderson symptoms tool at preintervention, the current study findings revealed that the total mean score of quality of life was high which indicated poor quality of life. This may be related to two reasons, one is related to inflammatory process caused by cervical cancer itself and its treatment, and cancer fatigue may last for months or years after the end of treatment. The other reason is related to factors such as the patient's age, psychological state, and social pressure. In addition to fatigue, disturbed sleep, memory loss, dry mouth, distress, shortness of breath, and poor appetite.

The present study agreed with a study conducted in **Uganda** by **Asiimwe et al. (2023)** demonstrated that higher mean scores of MD Anderson symptoms inventory indicate greater symptom severity/interference which indicates poor quality of life. Also, results were consistent with a randomized controlled trial by **Frumovitz et al. (2020)** reported that when we assessed quality of life in patients who had a grade 2 cervical cancer or worse adverse events associated with the surgical procedure, we found worse quality of life across all scales, regardless of surgical approach.

Likewise, a study done by **Zhang et al. (2021)** in **China** showed that cancer-related symptoms greatly influence the patients' quality of life and might cause postoperative complications and delayed rehabilitation. Disagree with these results **Saab et al. (2023)** in **Texas** found that according to that categorization, the total MDASI-Cx

symptom severity and interference scores in this study were relatively low, indicating minimal cancer symptoms and interference of these symptoms with daily activities. Good QOL pertaining to minimal symptoms among neuroendocrine carcinoma of the cervix NECC patients.

After implementation of the educational program, the present study findings revealed that a statistically significant improvement in total mean score of quality of life with lower mean score at post intervention as measured by MD Anderson Symptom Inventory- Korean (MDASI-K) tool. This is due to effectiveness of an educational program and introducing palliative care in gynecological oncology outpatient clinic resulted in a significant improvement of the extensive symptom burden, especially in the extent of pain symptoms, which were reduced. Also, reduction in psych emotional stress that is correlated with higher patient satisfaction.

In harmony with the present result, **Zhang et al. (2021)** in **China** mentioned that symptom severity changed dramatically within seven days after surgery, the results also showed that surgery had little effect on the patient's mood, relations, and enjoyment of life. With the effective control of pain, walking rapidly recovered within one week. Similarly, a randomized controlled trial done by **Frumovitz et al. (2020)** indicated that lower scores on the MDASI correlate with better functioning or better quality-of-life outcome. Moreover, **Flöther et al. (2021)** in **Germany** reported that an improvement in MDASI-core-items after treatment completion with significant ($P < .05$).

Regarding relation total cancer quality of studied elderly women and marital status post the program, the present study results revealed that there was a statistically significant relation between total cancer quality of studied elderly women and married elderly women post the program. This due to patients with stable marriage can get more family support during treatment, and they will get more satisfaction in terms of emotional comfort and financial support.

In the same line with this result, a study conducted in **China** by **Zhao et al. (2021)** reported that HRQoL of married patients is higher than that of single patients. Similarly, **Yuan et al. (2021)** in

China mentioned that results of subgroup analyses for cervical cancer patients, there was an elevation in the risk of late-stage diagnosis and worse survival outcomes in all the unmarried statuses (single, divorced and widowed) compared with being married, with the increase being statically significant for most comparisons based on the 95% CI.

Concerning correlation between palliative care quality of life and symptoms requiring palliative, the present study revealed a highly statistically significant negative correlation between palliative care quality of life and symptoms requiring palliative. This is due to advanced cervical cancer and its treatment brings to the lives of patients and their relatives changes in multidimensional aspects that affect the quality of life.

The present study results agreed with **Özer et al. (2021)** in **Istanbul** pointed out that the physical, functional, and emotional losses of palliative care patients affect life quality negatively. Patients' sadness, nausea, anxiety, feeling unwell and dyspnea symptoms are the variables that negatively affect life quality. In the same context, the results of study conducted in **Brazil** by **Silva et al. (2019)** revealed that, there is a significant negative correlation between the total score of symptoms of the Edmonton symptoms assessment system ESAS and the QoL of the FACIT-Pal-14 in both groups, which indicates the interference of burden and of the intensity of symptoms in QoL. Likewise, **Karaman et al. (2022)** in **Turkey** showed that there is a significant negative correlation between patient's symptom severity and disease level, and quality of life scores, it was seen that patients with cancer experiencing severe symptoms had a poor quality of life.

Regarding correlation between educational level and symptoms requiring palliative of studied elderly women, the present study revealed educational level of studied elderly women had a statistically significant negative correlation with symptoms requiring palliative. This might be due to highly educated women have more resources to devote to preventive and curative health care, prefer longer and healthier lives, are more able to detect cervical cancer early, and are better informed on how to seek and respond to the cervical cancer treatments earlier.

In harmony with the present result, **Mathew et al. (2020)** in **India** found that data from this population-based study in south India has established that patients from lower educational background are more likely to be diagnosed with advanced-stage cancer and are more likely to have inferior survival. Similarly, a study done in **Estonia** by **Šavrova et al. (2023)** showed that in multivariate analysis, advanced stage cervical cancer risk increased overtime and was significantly higher among women who were older, with lower educational level and single. Moreover, **Begoihn et al. (2023)** in **Ethiopia** found that a cervical cancer education group effectively reduced the ratio of advanced stage diagnoses and increased the number of women diagnosed at early tumor stages.

The current study finding confirmed by multiple linear regression models in which marital status of studied elderly women statistically significant positive predictor of MD Anderson symptoms score and interference of symptoms with daily life (interference score). In accordance with this result, **Kashyap et al. (2019)** in **Chandigarh, India** found that marital status associated with risk of cervical cancer. These results go in line with the study carried by **Hosary et al. (2022)** in **Menoufia** who mentioned that cervical cancer is one of the leading causes of cancer death in married women.

Conclusion

The study findings were concluded that, more than three quarter of studied elderly women had low quality of life at pre intervention. This might be due to impact of disease and treatment on the health status of the patients and limited palliative-care resources and lack of knowledge about disease and palliative care among health care providers. Also, educational level and palliative care quality had a statistically significant negative correlation with symptoms requiring palliative. Additionally, there was a statistically significant relation between total cancer quality of studied elderly women and marital status at post the program. Finally, applied educational program was effective in improving studied elderly women quality of life.

Recommendations

On the basis of the most important findings of the study, the following recommendations are suggested:

- Introduction of palliative care as early as possible in the course of illness to increase the quality of life of elderly women and to positively influence the course of illness, in conjunction with other therapies, which are intended to prolong the life, such as chemotherapy or radiotherapy.
- There is the need for education at all levels and throughout society, so that patients and families are able to receive the care they need so that their outcomes may improve, and their quality of life is maximized.
- Ensuring that palliative care operates in association with other medical disciplines

such as oncology, neurology, and geriatrics so that patients experience seamless care.

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Declaration of Conflicting Interests

The Author(s) declare(s) that there is no conflict of interest.

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Table (1): Demographic characteristics of the studied elderly women (n=60).

Demographic characteristics	Frequency	Percent
Age group: /year		
60-67	44	73.3
68-73	16	26.7
Mean ± SD (range)	66.07 ± 2.46 (60 – 73)	
Age at marriage:		
13-20	49	81.7
21-30	11	18.3
Mean ± SD (range)	18.33 ± 3.43 (13 – 20)	
No. of marriages for husband:		
1 time	22	36.7
2-3 times	38	63.3
No. of marriages for wife:		
1 time	33	55.0
2-3 times	27	45.0
Marital status:		
Married	47	78.3
Widower/ divorced	13	21.7
Women occupation:		
Work	3	5.0
Not work\housewife	57	95.0
Residence:		
Rural	33	55.0
Urban	27	45.0

Living with whom:		
Alone	2	3.3
With one of family	58	96.7

Figure (1): level of education among the studied elderly women (n=60):

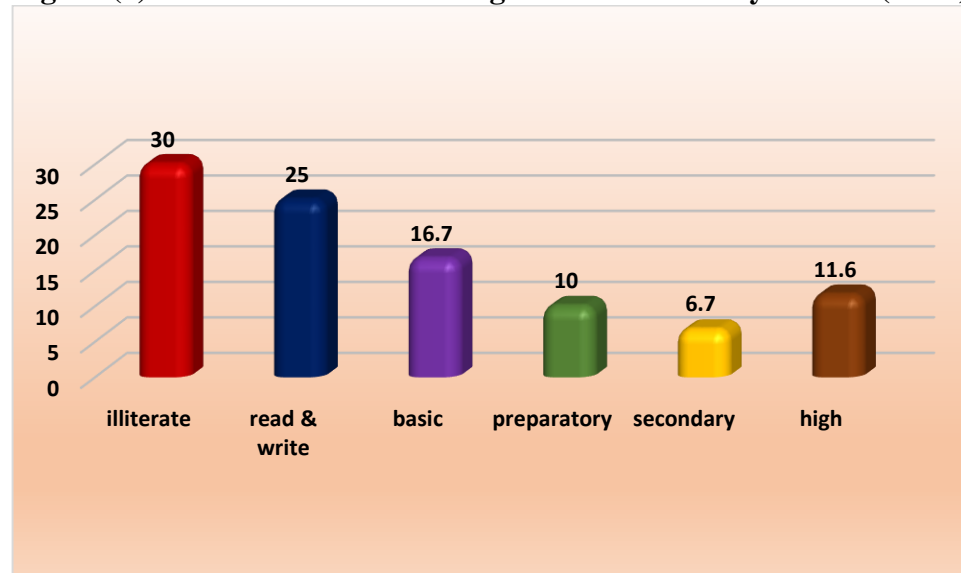


Table (2): Medical history of the studied elderly women (n=60)

Medical history	(n=60)	
	Frequency	Percent
Having any chronic diseases:		
Yes	60	100
No	0	0.0
Type of chronic diseases:		
Hypertension	50	83.3
Diabetes Mellitus	36	60.0
Heart	45	75.0
*Others	41	68.3
Smoker or passive smoker:		
Yes	34	56.7
No	26	43.3
Had sexually transmitted diseases:		
Yes	45	75.0
No	15	25.0
Types of sexually transmitted diseases: n=45		
Chlamydia	5	11.1
Human papilloma	36	80.0
Trichomonas vaginalis	4	8.9
Having immune diseases:		
Yes No	11	18.3
	49	81.7
Types of immune diseases: n=11		
Bean anemia	2	18.2
Mediterranean anemia	2	18.2
Systemic lupus Erythematosus	3	27.3
Rheumatoid Arthritis	4	36.3
Having other cancer than the current cervical cancer:		
Yes	16	26.7
No	44	73.3
Type of cancer: n=16		
Breast	5	31.3
	8	

Colon	3	50.0
Lymphoma		18.7

@responses are not mutually exclusive *others [arthritis, cataract, osteoporosis, disc herniation, C virus, chest diseases, peptic ulcer, thyroid deficiency, brain electricity, gallbladder stones / inflammation]

Table (3): Obstetrical and gynecological history of the studied elderly women (n=60).

Obstetrical & gynecological history	(n=60)	
	Frequency	Percent
No. of para:		
Nullipara	6	10.0
Para 1	4	6.0
Para 2-3	21	35.0
Para >3	29	48.3
No. of abortion:		
None	23	38.3
One	12	20.0
Two	20	33.3
Three	5	8.3
Mode of delivery:		
None	6	10.0
Normal vaginal delivery	38	63.3
Cesarean section	1	1.7
Both of NVD & CS	15	25.0
Had ovarian cysts:		
Yes	16	26.7
No	44	73.3
Had uterine fibroids:		
Yes	5	8.3
No	55	91.7
Had Hysterectomy:		
Yes	36	60.0
No	24	40.0
Type of hysterectomy: n=36		
Partial	7	11.7
Total	1	1.7
Radical	11	18.3
Modified radical	17	28.3
Had ovariectomy:		
Yes	36	60.0
No	24	40.0
Fallopian tube excision:		
Yes	32	53.3
No	28	46.7
Excision of fallopian tube and ovary:		
Yes	33	55.0
No	27	45.0

Table (4): Cervical cancer data of the studied elderly women (n=60)

Cervical data	(n=60)	
	Frequency	Percent
Duration of cervical cancer (months):		
3 -11	35	58.3
12 -18	25	41.7
Mean ± SD (range)	8.90 ± 4.22	
	(3 – 18)	
Current treatment regimen:		
Chemotherapy	60	100.0
Radiotherapy	30	50.0
Surgery	30	50.0
No. of chemotherapy doses before surgery:		
2- 7	48	80.0
8-12	6	10.0
No. of chemotherapy doses after surgery:		
2- 5	14	23.3
6-9	15	25.0
No. of radiotherapy session: n=30		
6 – 9 session	14	23.3
12 session	4	6.7
20-23 session	12	20.0

@responses are not mutually exclusive

Figure 2: Stage of cervical cancer

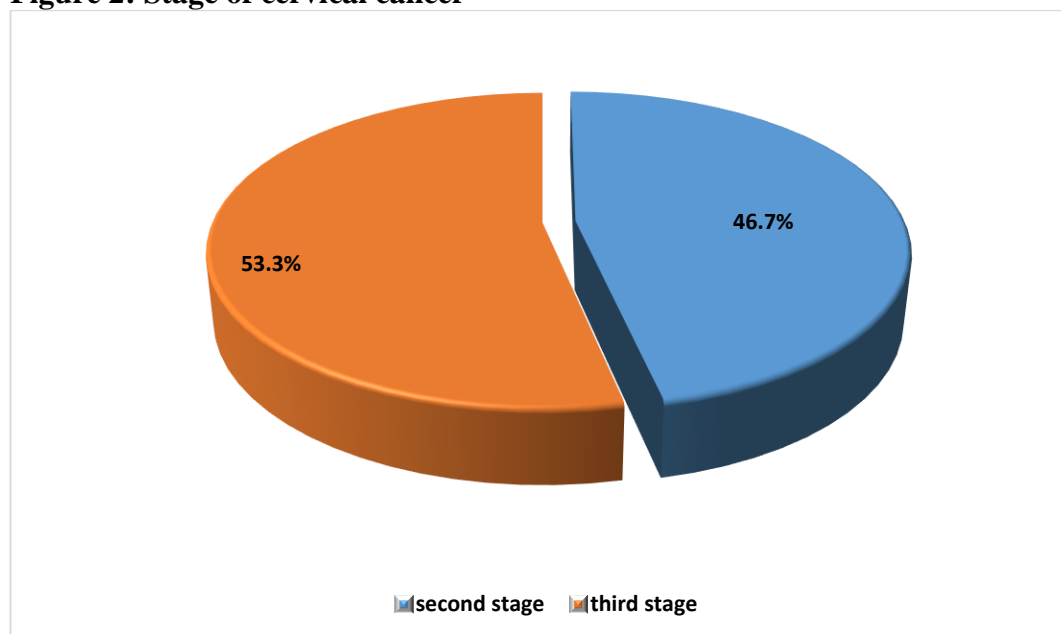


Table (5): Total palliative quality of life domains percentage among cervical cancer elderly women’ pre and post the program n=60.

Domains	Pre (n=60)		Post (n=60)		(p-value)#
	No.	%	No.	%	
Physical wellbeing					
High	8	13.3	27	45.0	< 0.001**
low	52	86.7	33	55.0	
Social wellbeing					
High	20	33.3	48	80.0	< 0.001**
low	40	66.7	12	20.0	
Emotional wellbeing					
High	16	26.7	37	61.7	< 0.001**
low	44	73.3	23	38.3	
Functional wellbeing					
High	9	15.0	29	48.3	< 0.001**
low	51	85.0	31	51.7	
Palliative care quality					
High	13	21.7	34	56.7	< 0.001**
low	47	78.3	26	43.3	
Total quality of life					
High	14	23.3	35	58.3	< 0.001**
low	46	76.7	25	41.7	

#:Macnemar-test

*: Significant

** : Highly significant

Table (6): Palliative quality of life domains mean score among cervical cancer elderly women’ pre and post the program n=60.

Domains	Pre (n=60)	Post (n=60)	(p-value)#
	Mean ± SD	Mean ± SD	
Physical wellbeing	4.03 ± 1.73	14.08 ± .74	< 0.001**
Social wellbeing	11.32 ± 1.65	14.22 ± .99	< 0.001**
Emotional wellbeing	6.27 ± .63	13.32 ± 1.65	< 0.001**
Functional wellbeing	5.22 ± 2.35	14.20 ± .94	< 0.001**
Palliative care quality	30.92 ± 1.38	45.83 ± 1.91	< 0.001**
Total quality mean score out of 184	57.75 ± 4.99	101.65 ± 4.28	< 0.001**

#:t-test

*: Significant

** : Highly significant

Table (7): Level of quality of life among cervical cancer elderly women' pre-post the program n=60.

Level of Qol	Pre (n=60)		Post (n=60)		(p-value)#
	No.	%	No.	%	
Poor	20	33.3	9	15.0	< 0.001**
Fair	30	50.0	25	41.7	
Good	10	16.7	26	43.3	
Total mean score	129.20±8.42		86.52±12.82		t-test < 0.001**

0-94 good 95-142 fair 143-190 poor #: friedman-test *: Significant **: Highly significant

Table (8): Relation between characteristics and cervical cancer data of the studied participants and their total cancer quality post the program n=60.

Characteristics		Total cancer quality				χ ²	P
		High (n=48)		Low (n=12)			
		No	%	No	%		
Age group (years)	60 – 67	36	81.8	8	18.2	.341	.559
	68 – 73	12	75.0	4	25.0		
Age at marriage:	13-20	39	79.6	10	20.4	Fisher	1.00
	21 -30	9	81.8	2	18.2		
Marital status:	Married	35	58.3	12	20	4.15	.042*
	Widower/divorced	13	21.7	0	0.0		
Residence	Rural	24	72.7	9	27.3	2.42	.119
	Urban	24	88.9	3	11.1		
Education	Illiterate	11	84.6	2	15.4	4.79	.441
	Read and write	8	72.7	3	27.3		
	Primary	5	83.3	1	16.7		
	Preparatory	10	100.0	0	0.0		
	Secondary	9	75.0	3	25.0		
	University/post	5	62.5	3	37.5		
Women occupation:	Work	3	100.0	0	0.0	.789	.374
	Not work	45	78.9	12	21.1		
With whom you live	Alone	2	100.0	0	0.0	Fisher	1.00
	With family	46	79.3	12	20.7		
Cervical cancer data							
Diagnosis of cancer date	3-11 month	26	74.3	9	25.7	1.71	.190
	12 -18	22	88.0	3	12.0		
Cancer stage	The second	24	85.7	4	14.3	1.07	.301
	The third	24	75.0	8	25.0		
Treatment with radiotherapy	Yes	22	73.3	8	26.7	1.67	.197
	No	26	86.7	4	13.3		
Treatment with surgery	Yes	26	86.7	4	13.3	1.67	.197
	No	22	73.3	8	26.7		

(*) statistically significant at $p \leq 0.05$

Table (9): Correlation matrix of participants’ palliative care quality of life and symptoms requiring palliative care Scores.

Scores	Total mean score	
Palliative care quality of life	Palliative care quality of life	Symptoms requiring palliative=MD Anderson
Symptoms requiring palliative=MD Anderson	-.455**	

R: Pearson's correlation coefficient (*) statistically significant at $p < 0.05$ (**) statistically significant at $p < 0.01$

Table (10): Correlation matrix of participants’ palliative care quality of life and symptoms requiring palliative care and their characteristics

Scores	Spearman's rank correlation coefficient	
	Palliative care quality of life	Symptoms requiring palliative
Age	-.110	-.019
Educational level	.115	-.293*
Marital status	.024	.230
Residence [urban]	-.130	-.066

(*) statistically significant at $p < 0.05$

(**) statistically significant at $p < 0.01$

Table (11): Best fitting multiple linear regression model for [MD Anderson] for symptoms and interference score.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	278.750	63.570		4.385	.000	151.065	406.435
Age	-1.245	.695	-.238	-1.790	.080	-2.641	.152
Educational level	-.847	1.038	-.117	-.816	.418	-2.931	1.237
Marital status	5.030	2.048	.326	2.457	.018	.917	9.142
Diagnosis date	-1.408	3.527	-.055	-.399	.691	-8.492	5.676
Uterine cancer level	2.956	3.483	.116	.849	.400	-4.040	9.952
Total quality palliative score	-.973	.368	-.325	-2.644	.011	-1.712	-.234

R-square=0.35

Model ANOVA

F=3.04 $p < 0.05$

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