Quality of life among women with cervical cancer

A descriptive literature review

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Abstract

**Background:** Cervical cancer was a cancer arising from the cervix. Cervical cancer was one of the most common malignant tumors. Cervical cancer affected the QoL of patients. It was important for nurse to pay attention to the QoL of patients.

**Aim:** To describe the QoL among women with cervical cancer and describe the QoL instruments and scale using in the selected articles.

**Method:** PubMed and Cinahl were used to identify 10 quantitative research literatures published between 2007 and 2017 to solve research question.

**Result:** The review summarized the QoL among women with cervical cancer, then identified two parts: only surgery and mix of therapy and combined physical well-being, emotional well-being, social functional well-being and sexual functions. The QoL of patients with cervical cancer was different from that after the surgery, and chemoradition therapy. The method of data collection for the selected article was detailed in Appendix 1.

**Conclusions:** The QoL of patients with chemoradition therapy and radical trachelectomy were improving. The QoL of patients with radiotherapy and radical hysterectomy were declining. Nurse should help the patients improve the QoL. In order to further improve QoL, the intervention should focus on physical rehabilitation, psychological and social support.

**Key words:** Cervical cancer, Patient, Quality of life.
摘要

背景：子宫癌是一种由子宫引起的癌症。子宫癌是最常见的恶性肿瘤之一。子宫癌影响患者的生活质量。理人重视病人的生活质量。

目的：描述子宫癌患者中生活质量的研究，同时了解不同量表。

方法：作者用数据2007~2017年发表的10篇定量研究文献行了定，以解决研究。

结果：本述了子宫癌女性患者的生活治，我分只有手和混合治两个方面，合生理、心理、社会和性功能。所文章的数据收集方法附1

结论：子宫癌，放射和根治式子宫切除后患者的生活量高于放和根治性子宫全切后，士帮助患者改善生活量，提高生活质量，采取以身体康复、心理和社会支持重点的干措施。

关键词：子宫癌，患者，生活质量。
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1. APPENDIX 1 Overview of the selected articles
2. APPENDIX 2 Aim and summery of the results of the selected articles
1. Introduction

1.1 Epidemiology of cervical cancer

Cervical cancer is one of the most common malignant tumors in human beings. It is the
most common malignant tumor in breast cancer patients with high incidence and high
mortality (Waldmann et al., 2013). Cervical cancer is the fourth leading cause of death
among women in the world, but the incidence of cervical cancer is significant. In low-
and middle-income countries, the mortality rate from cervical cancer will be much higher
in these areas than in other regions. It is due to differences in human resources, financial
resources and public health services (Momberg et al., 2017). About 70 percent of cervical
cancer occurs in developing countries, and women's risk of cervical cancer increases with
age (Slamaa et al., 2016). Cervical cancer is still common in developing countries, with
most cases occurring in developing countries. In developing countries, for example South
Africa, there is found a high incidence of advanced cervical cancer. (Arbyn et al., 2008).
In the less developed regions, cervical cancer accounts for almost 12% precent all female
cancers. High-risk regions of the cervical cancer include Eastern Africa, Melanesia,
Southern and Middle Africa. In 2012, there were an estimated 266,000 deaths from
cervical cancer worldwide, accounting for 7.5 percent of all female cancer deaths (Ferlay
et al., 2013). In the United States, cervical cancer is the fourth most common cancer
among women, there continue to be improvements after surgery, radiotherapy, and
chemotherapy in terms of progression-free and overall survival (Ferrandina et al., 2012).

1.2 The definition of Cervical cancer and QoL

Cervical cancer is a cancer arising from the cervix. It is due to the abnormalcells growth
and the ability to invade or spread to other parts of the body (Waggoner, 2003).

The concept of quality of life (QOL) first appeared in the book "rich society" (1958)
written by J.K. Galbraith, an American economist. According to The World Health
Organization (WHO). The QoL include a person’s physical health, psychological state,
degree of independence, social relationships, personal beliefs and environment (Huang
et al., 2017). QoL is the general well-being of individuals and societies (Guyatt et al.,
1993).
1.3 Etiology

1.3.1 Pathophysiology

The causes of cervical cancer is unclear. A large number of data confirm that the prevalence of early marriage, childbearing, fertility and sexual disorders of women have a higher prevalence rate (Huang et al., 2017). At present, bacteria can turn cholesterol into carcinogens, which is also the important cause of cervical cancer. In recent years, cervical cancer has also been found to be associated with certain sexually transmitted viruses, for example: Human papillomavirus type II (HSV - 2), human papillomavirus (HPV) and human cytomegalovirus (CMV) (Vistad et al., 2006; Duska, 2015).

1.3.2 Smoking

One of the risk factors for cervical cancer is active and passive smoking which increasing the risk of cervical cancer (Iyer et al., 2016). Among HPV-infected women, current and former smokers have roughly two to three times the incidence of invasive cancer. Passive smoking is also increases risk, but a lesser extent than active smoking (Bethesda, 2015).

1.3.3 Lack of physical activity, and alcohol

Lack of physical activity, and alcohol consumption are potential risk factors for cancer (Park et al., 2016). Active exercise has a positive impact and lack of exercise increases the risk of cancer. Alcohol also increases risk and has negative effects (Iyer et al., 2016).

1.3.4 Long-term use of oral contraceptives and Multiple pregnancies

Long-term use of oral contraceptives increased the risk of cervical cancer. Women took oral contraceptives for 5 to 9 years who had about three times more likely to develop invasive cancer, and women took 10 years or longer have about four times the risk (Park et al., 2016). Multiple pregnancies increased the risk of cervical cancer. HPV-infected women have seven or more full-term pregnancies who have around four times the risk of cancer compared with women with no pregnancies. Women have had one or two full-term pregnancies who have two to three times the risk (Park et al., 2016).

1.3.5 Mental state

Mental state is very important for patients with cervical cancer. A good mindset can make people happy, confident and good mood, which can reduce the rate of cervical cancer.
Negative mental state (depression, inferiority and complaining mentality) will increase the chance of cervical cancer. This is also a factor (Distefano et al., 2008).

1.4 Symptom of cervical cancer

The early stages of cervical cancer may be completely free of symptoms. Vaginal bleeding and contact bleeding are the most common form being bleeding after sexual intercourse or a vaginal mass. Later symptoms may include abnormal vaginal bleeding, pelvic pain, or pain during sexual intercourse. While bleeding after sex may not be serious, it may also indicate the presence of cervical cancer. Also, moderate pain during sexual intercourse and vaginal discharge are symptoms of cervical cancer (Frumovitz et al., 2005). In advanced disease, metastases may be present in the abdomen, lungs, or elsewhere. Symptoms of advanced cervical cancer may include loss of appetite, fatigue, weight loss, low back pain, pelvic pain, leg pain, leg swelling, vaginal bleeding and so on. Bleeding after douching or after a pelvic exam is a common symptom of cervical cancer (Momberg et al., 2017).

1.5 Treatment of cervical cancer

1.5.1 Cervical cancer surgery

With the gradual improvement of medical treatment, the new surgical method has been applied to clinical practice gradually. It improved the effect of surgery and the QoL of patients greatly. At present, the new surgical methods include extensive cervical excision, fertility preservation and extensive cervical excision, neuro-preserving laparoscopic surgery for cervical cancer lymph nodes, pelvic excision and so on. (Saadi et al., 2017).

1.5.2 Radiotherapy

Early stages (IB₁ and IIA less than 4 cm) can be treated with radical hysterectomy for lymph node or radiation therapy. Radiation therapy is an external beam radiation therapy for pelvic and brachytherapy (internal radiation). Women receive surgical treatment with high risk characteristics during pathological examination. Regardless of whether chemotherapy, women receive radiation therapy to reduce the risk of recurrence (Kumar et al., 2014).
1.5.3 Chemotherapy

Larger early-stage tumors (IB2 and IIA more than 4 cm) can be treated with radiotherapy and cisplatin-based chemotherapy hysterectomy (usually requiring adjuvant radiotherapy or after cisplatin chemotherapy hysterectomy). When cisplatin is present, it is considered to be the most active single drug in periodic diseases. Platinum chemotherapy can not only improve the survival rate, but also reduce the risk of recurrence in patients with early cervical cancer (Kumar et al., 2014).

1.5.4 Cervical Cancer vaccine

Cervical cancer vaccine can prevent human papillomavirus (HPV) infection. Medical research shows that 99.7% of cervical cancer is caused by HPV virus (Duska, 2015). The vaccine is used in 160 countries around the world which is called cervical cancer vaccines. Internationally recognized HPV vaccines have a preventive effect on women aged 9-45. If women had sex for the first time before inoculation with HPV, it would reduce the incidence of cervical cancer and precancerous lesions by 90 percent (Duska, 2015).

1.6 The nurse’s role

Nurses have four fundamental responsibilities: promoting health, preventing illness, restoring health and alleviating suffering (International Council of Nurses [ICN], 2012). Nurses play a key role in improving the QoL of cervical cancer patients. Nurses need to pay attention to some symptoms of patients. If patients have some physiological problems, nurses can take timely measures to care for the patients. It’s helpful to minimize the suffering of the patients and improve the QoL. In addition, nurses should also give psychological care to the patients who give them the greatest support and encouragement. Then, patients can face difficulties and have a positive and optimistic attitude to overcome the disease.
1.7 The Neuman Systems Model theory

The Neuman Systems Model was a dynamic, open, systems approach to client care originally developed to provide a unifying focus for defining nursing problems and for understanding the client in interaction with the environment. Four meta-paradigms of nursing were health, environment, human being, and caring which were included in the Neuman Systems Model theory (Raile & Marriney, 2014). This model focused on 4 aspects: interaction service object system with environment, pressure source, individual's response to stressors and prevention of stressors. Newman believed that human beings were an open system that continues to interact with the environment. It was called client system or individual system. This client system could be defined as a person, family, group, community, or social issue. Clients were viewed as wholes whose parts were in dynamic interaction. The model considered 5 variables simultaneously affecting the client system: physiological, psychological, sociocultural, developmental, and spiritual. As for stressor, it was the tension-producing stimuli that had the potential to disrupt system stability, leading to an outcome that might be positive or negative. (Raile & Marriney, 2014) This puts forward relevant requirements for nurses. Nurses need to pay attention to all the relevant variables that cause the patient’s stress response, and carry out an accurate nursing assessment. Take intervention measures to promote the individual system to maintain or restore stability, and improve the patient's QoL as far as possible.

Nursing activity could be expound the word “reconstitution” by Newman. The Newman system model can provide some practical significance in general nursing procedures. First, it helps nurse evaluated the contents of the individual system of cervical cancer patients, and recognizing the needs of patients. According to the primary prevention, secondary prevention and tertiary prevention, nurses could formulate specific intervention measures with the patients and their families. Then, nurses evaluate the effect of intervention, whether the cervical cancer patients’ source of stress has changed, and whether stress response symptoms are relieved. Also, nurse should provided the psychological support and social support to reduce the stressor. Finally, further revise and adjust the nursing plan to continuously improve the cervical cancer patient's QoL (Raile & Marriney, 2014).
1.8 Description of research problem

Some previous researches had been described the QoL of the cervical cancer patients focus on sexual and social functions. There was little attention to physical and psychological functions. Several articles focused on physical, psychological, social and sexual functions, but did not distinguish between different treatments. Several articles focused on patients of different ages. There were several articles that focus on patients with different levels of culture. The authors’ research is based on surgery treatment and radiotherapy and chemotherapy to induce and combine with physical well-being, emotional well-being, social well-being and sexual function. In addition, the articles were used from the last ten years, and the literature is relatively new. Now more and more women in the incidence of cancer, cervical cancer is a common malignant tumor among them. The main treatment is surgery, radiotherapy and chemotherapy. Patients may experience some difficult situations, whether in the physical or psychological. In order to solve these problems, nurses should help the patient overcome physical defects for example, the uterus and ovarian may be cut off and they lack of femininity. And they can not be pregnant that will caused some psychological problems. Therefore, it is great significance to explore the QoL of patients with cervical cancer.

1.9 Aim and specific questions

The aim was to describe QoL in patients with cervical cancer and what quality of life instrument and scale were used in the selected articles?

The specific questions:

- What is the quality of life in women with cervical cancer?

- What quality of life instrument and scale were used in the selected articles?

2. Method

2.1 Design

The authors conducted a descriptive literature review (Polit et al., 2017).
2.2 Searching strategy

Articles had been performed in the databases PubMed and Cinahl, with certain limits, see table 1. The search terms that be used were Cervical cancer, Quality of life and Patient, one by one and in different combinations with each other. When combining search terms, the Boolean term AND was used. Also, “Uterine Cervical Neoplasms” [Mesh] OR “Cervical cancer” were included in the search terms. Indexed search terms were fetched from cervical cancer and QOL (Polit & Beck, 2012).

2.3 Selection criteria


Exclusion criteria was applied by the authors which were qualitative articles (Polit & Beck, 2012). The articles related that patients with cervical cancer who also had other diseases. And this diseases were not complication but had a negative impact.

Table 1. Results of preliminary database searches.

<table>
<thead>
<tr>
<th>Database + Date of search</th>
<th>Limits</th>
<th>Search terms</th>
<th>Number of hits</th>
<th>Potential articles (excluding doubles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medline through PubMed</td>
<td>University of Gävle, Linked full text, Human, English, published latest 10 years</td>
<td>Cervical cancer (free text)</td>
<td>21139</td>
<td>21139</td>
</tr>
<tr>
<td>2017-05-05</td>
<td>University of Gävle, Linked full text, “Uterine Cervical Neoplasms”[Mesh]</td>
<td></td>
<td>21139</td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td>Search Terms</td>
<td>Results</td>
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<tr>
<td>Medline through PubMed</td>
<td>Cervical cancer (free text)</td>
<td>288</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Gävle, Linked full text, Human, English, published latest 10 years Cervical Cancer (free text) AND “Quality of life”[MeSH]</td>
<td>224 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cinahl</td>
<td>Cervical cancer (free text)</td>
<td>3658</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical cancer(free text) OR &quot;Uterine Cervical Neoplasms&quot;[Mesh]</td>
<td>3699</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cinahl</td>
<td>Cervical cancer (free text) AND Quality of life [Mesh]</td>
<td>165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cinahl</td>
<td>Cervical cancer (free text) AND Quality of life [Mesh] AND Patient (free text)</td>
<td>95 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total: 319
2.4 Selection process and outcome of potential articles

Firstly, the titles and abstracts of the articles were looked up in order to have an judgment of whether they might be useful in order to answer the literature review’s research questions. Later, closer reading the articles’ introduction and result were undertaken in order to determine whether they were relevant for the literature review. The authors carefully accounted for every step of the selection process under the condition of patients’ QoL with cervical cancer. In the preliminary search (see table 1) the titles and abstracts of 319 articles were skim-read. In the 319 articles, there were 277 articles were irrelevant with the study’s aim and research questions. 7 articles were literature reviews and 19 articles were qualitative studies which were conformed to the exclusion criteria. Then, 16 articles remained and 6 was found to be irrelevant to the present study’s aim after reading the full articles. Total of 10 articles included in the results (Polit & Beck, 2012).
319 articles

42 articles remained

16 articles remained

10 articles remained

Total of 10 articles included

277 articles were irrelevant with the study’s aim and research questions.

7 articles were literature reviews and 19 articles were qualitative studies.

After reading the full articles, 6 was found to be irrelevant to the present study’s aim.

Figure 1: Exclusion process of articles.
2.5 Data analysis

The articles were all read patiently, and authors discussed and summarize the content for many times to give own thoughts and common themes and pattern. According to Polit & Beck, using a matrix was a good way of organizing the information found in the articles (Polit et al., 2017). One of the templates were used to collect the results sections of the articles, and the other were used to chose the methodological aspect. The results sections of the articles were read and carefully classify in order to realize the cervical cancer patients’ QoL. Then, the findings were structured according to emergent categories and presented under the corresponding category.

2.6 Ethical considerations

Authors had read these related articles objectively. The results were presented according to the outcome of potential articles without authors’ subjective ideas. All the words were written by authors own, rather than copped from others (Polit & Beck, 2012).

3. Results

The authors’ results were based on 10 articles with quantitative approaches. These articles were about the QoL of patients with cervical cancer. According to the data collection method of these articles, the authors’ result would be combined with all aspects of these articles. The authors summarized some different data collection method and some of the diseases about cervical cancer. The authors’ results were mainly divided into only surgical treatment and mixed treatment. The authors divided each piece into several key points: physical well-being, emotional well-being, social well-being and functional well-being and sexual function. The articles on which the results were based are marked with an asterisk (*) in the reference list.

3.1 Only surgery

This section had six articles including the type of surgical treatment (radical trachelectomy (RT), radical hysterectomy (RH), general hysterectomy, systematic nerve-sparing (SNSRH), modified radical hysterectomy (MRH)) (Fleming et al., 2016; Carter
et al., 2010; Bae & Park, 2016; Xie et al., 2015; Prasongvej et al., 2017; Barnas et al., 2012). There were two articles about RT (Fleming et al., 2016; Carter et al., 2010), and four articles were about RH (Bae & Park, 2016; Xie et al., 2015; Prasongvej et al., 2017; Barnas et al., 2012). One article was about SNSRH, the other was about general hysterectomy. One article showed the changes of the QoL in the three times (T1, T2, T3) after surgery, preoperative period (T1), three months (T2) and six months after surgery (T3). In this part, the QoL about four subcategories (physical well-being, emotional well-being, social and function well-being, sexual function) about surgery only.

3.1.1 Physical well-being

Cervical cancer survivors had lower physical function scores which means the lower QoL after surgery (Fleming et al., 2016; Bae & Park, 2016; Prasongvej et al., 2017). Studies of short-term outcomes after surgery showed that physical well-being had the greatest impact on patients, and there was significant improvement after radical trachelectomy (Fleming et al., 2016; Carter et al., 2010). Specially, comparing patients after either modified radical hysterectomy or nerve-sparing radical hysterectomy, the QoL was all improved (Xie et al., 2015). However, cervical cancer survivors’ physical function was declined about global health, fatigue, pain, appetite loss and had lower physical function after surgery ((Bae & Park, 2016; Prasongvej et al., 2017). Patients would have different QoL after surgery at different time, the worsen symptom experience reduced at T2 and T3 (Barnas et al., 2012).

3.1.2 Emotional well-being

Different type of surgeries had differ impact in patients’ emotion. Patients had worsening of symptoms about emotion well-being after RT and RH, and they all got the varying degrees of depression and anxiety (Fleming et al., 2016; Bae & Park, 2016; Prasongvej et al., 2017). However, the RT group and the RH groups showed improvements in mood, depression, and cervical cancer specific concerns in the first year after surgery, and thereafter, between 1 and 2 years by Carter et al. (2010). The emotional did not differ significantly between SNSRH and MRH patients (Xie et al., 2015). While, the patients’ emotional functions improved from T2 until T3 (Barnas et al., 2012).
3.1.3 Social and functional well-being

After RT, RH and SNSRH, the patients’ social and function well-being declined (Fleming et al., 2016; Bae & Park, 2016; Xie et al., 2015; Prasongvej et al., 2017). The patients’ social functioning showed significantly worsened symptoms at the 6-week postoperative visit then returned to baseline by 6 months (Fleming et al., 2016). Most people preferred the RT rather than RH, and the few persons who choose the RT reported that had adequate time to complete childbearing (Carter et al., 2010). The role and social functioning improved at T3, indicating the QoL was improving (Barnas et al., 2012).

3.1.4 Sexual function

One article showed the declining sexual function after radical hysterectomy (RH) (Bae & Park, 2016). But survivors who underwent RH and SNSRH had improvement, suggesting better QoL (Carter et al., 2010; Xie et al., 2015). As for choosing the radical trachelectomy (RT), the arousal, lubrication, orgasm, pain, satisfaction and total showed the improvement sexual function (Fleming et al., 2016).

3.2 Mix of therapy

In this section, there were about four articles on the QoL after mixed therapies (Dahiya et al., 2016; Toit et al., 2015; Bjelic-Radisic et al., 2012; Azmawati et al., 2014). Three of the articles were about radiotherapy and chemoradiation therapy (Dahiya et al., 2016; Toit et al., 2015; Bjelic-Radisic et al., 2012 ). One was about mixed therapy (Azmawati et al., 2014).

3.2.1 Physical well-being

Studies of the results of different treatments had shown that the quality of life of patients after chemoradiation therapy was an improvement in terms of pain, loss of appetite, and fatigue (Dahiya et al., 2016; Toit et al., 2015). Improvements in the QoL domains of nausea and vomiting in the chemoradiation therapy group by Toit et al (2015). However, diarrhea worsened after chemoradiation therapy (Bjelic-Radisic et al 2012; Dahiya et al., 2016 ). Examining different treatment, it had been clearly identified that the more
significant the improvement in the physical well-being of patients after chemoradiation therapy. However, after radiotherapy, the physical well-being of patients were decreased. Those patients underwent chemoradiation therapy who had specifically improved significantly in physical function, pain, loss of appetite, and fatigue (Dahiya et al., 2016). But there was also an article in which the conclusion was different. It was compared between active treatment group and follow-up group. Active treatment had the greatest negative impact on different areas of QoL: physical: fatigue, nausea/Vomiting, pain, anorexia, constipation (Bjelic-Radisic et al 2012). In addition to the effects of different treatments on the QoL of patients, patients treated with mixed treatment also had different QoL performance at different periods. Patients with cervical cancer IV and III had the lowest overall physical well-being (Azmawati et al., 2014).

3.2.2 Emotional well-being
Different treatments had different psychological effects including radiation therapy and chemoradiation therapy. Patients treated with radiation therapy reported a stronger negative impact in emotional functioning (Bjelic-Radisic et al., 2012). The patients after Chemo-radiotherapy, their QoL of patients in the functional scales comprising emotional and cognitive functioning improved by Bjelic-Radisic et al. (2012). About the patients were in active treatment and in follow-up. Being in active treatment had an active impact on all QoL of cognitive functioning (Bjelic-Radisic et al., 2012). In addition, the patients were treated with mixed therapy who also had different psychology at different stages. The lower emotional functioning was among cervical cancer patients stage IV while for stage III (Azmawati et al., 2014).

3.2.3 Social and functional well-being
Social function were significantly better in the radiation and chemo-radiation therapy group by Toit et al. (2015). The patients had low role functioning (Azmawati et al., 2014).

3.2.4 Sexual function
Both chemoradiation therapy and radiation therapy could have negative impacts on sexual functioning among cervical cancer patients. Compared to patients without radiation
therapy, in sexual/vaginal functioning after treatment decrease, these patients also reported more problem (Bjelic-Radisic et al., 2012; Dahiya et al., 2016). But in sexual activity, it was not change significantly by Dahiya et al. (2016), after treatment decreased in sexual activity and sexual enjoyment by Bjelic-Radisic et al. (2012).

3.3 Summarize the quality of life scales

The 10 articles were screened out by the authors. There were basically used: The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30), the Cervix Cancer Module (QLQ-CX24), The General Health-Related Quality of Life (SF-12) instrument, The Functional Assessment of Cancer Therapy-Cervical (FACT-Cx) and the functional assessment of Cancer Therapy–General version 4(FACT-G), The Female Sexual Functioning Index (FSFI). In five of the chosen articles used the EORTC QLQ-C30 and QLQ-CX24 (Azmawati et al., 2014; Dahiya et al., 2016; Toit et al., 2015; Bjelic-Radisic et al., 2012; Barnas et al., 2012). In two of the chosen articles used QLQ-CX24 (Xie et al., 2015; Prasongvej et al., 2017). In two of chosen articles used the FACT-G (Carter et al., 2010; Bae & Park, 2016). One chosen article used FACT-Cx (Fleming et al., 2016). In three of chosen articles used the FSFI (Carter et al., 2010; Fleming et al., 2016; Bae & Park, 2016). One chosen article used SF-12 (Fleming et al., 2016).

The EORTC EORTC QLQ-C30 divide into 5 functional scale (i.e. physical, role, emotional, social and cognitive), 3 symptom scale (i.e. fatigue, nausea, vomiting, pain), the overall quality of life scale, and 6 individual projects (i.e., difficulty breathing, insomnia, loss of appetite, constipation. Diarrhea, and financial difficulties) (Azmawati et al., 2014; Dahiya et al., 2016; Toit et al., 2015; Bjelic-Radisic et al., 2012; Barnas et al., 2012; Xie et al., 2015; Prasongvej et al., 2017).

The EORTC QLQ CX - 24 divide into 24 specific problems is divided into function table. Including more than 3 items scale (symptoms, body image and sexual function) and 5 single indexes (lymph edema, lumbago, menopausal symptoms, tingling and numbness, and enjoy more) (Azmawati et al., 2014; Dahiya et al., 2016; Toit et al., 2015; Bjelic-Radisic et al., 2012; Barnas et al., 2012).

The FACT-G and the FACT-Cx. The FACT-G is the generic core to measure QoL for patients with cancer. This instrument contains 27 questions from 4 domains: physical
well-being, social/family well-being, emotional well-being, and functional well-being (Carter et al., 2010; Bae & Park, 2016; Fleming et al., 2016).

The FSFI covers six dimensions, including 2 items of sexual desire, 4 items of sexual arousal, 4 items of vaginal lubrication, 3 items of orgasm, 4 items of sexual arousal, 4 items of sexual arousal and 3 items of sexual activity. There were 6 items of sexual satisfaction and 3 items of sexual intercourse pain (Carter et al., 2010; Fleming et al., 2016; Bae & Park, 2016).

The SF-12: The instrument is a 12-item questionnaire estimating 8 health domains including physical functioning, role-physical, role-emotional, mental health, bodily, pain, vitality, social functioning, and general health. Scores are given in each domain and summary scores for overall physical and mental status (Fleming et al., 2016).

4. Discussion

4.1 Main result

The authors’ main result summarized the QoL in women with cervical cancer. With regard to surgery therapy in physical, social well-being, sexual function, patients’ QoL were improving with RT, and undergoing RH patients’ QoL are declining. In psychological aspect, the patients had varying degrees of depression undergoing RH or RT patients with RH. With regard to mixed therapy, in physical and emotion function, the QoL of patients with chemoradioation therapy were improving significantly, but the QoL of patients with radiation therapy were opposite. In the social well-being of mixed treatment of patients was improved and their sexual function were decreased. Besides, the authors also learned about the scales who used to measure the QoL of patients with cervical cancer, such as EORTC QLQ-C30, QLQ-CX24, SF-12, FACT-Cx, FACT-G, FSFI.
4.2 Result discussion

4.2.1 Quality of life after only surgery

In the aspect of the physical well-being, similar results were found in another review that the body image that may gradually recover after treatment from its poor status during treatment is a component of QOL (Xiao et al., 2016). The reasons were patients would have different QoL after surgery at different time. This was due to fewer persistent symptoms, such as insomnia or decreased appetite between T1 and T2 after surgery, and the worsen symptom experience reduced at T2 and T3 (Barnas et al., 2012). In surgery therapy, the total quality of life score has improvement with RT, and the total quality of life score declines with RH. With the improvement of anesthetic technique and surgical technique, the possibility of complications after operation, cystitis and rectum function decline, is decreased (Brooks et al., 2009). After undergoing the RT, the symptom of the less bleeding during operation, shorter hospital stay after operation and faster recovery (Li et al., 2016). The patients global health and physical functioning are declining in the patients who undergo the RH (Li et al., 2016). According to the Newman system model, may the intrapersonal stressors were decrease, related to the wider the scope of the surgical resection leading to the lower quality of life score (Raile Alligod & Marriney Tomey, 2014). However, incidence rates of postoperative complications were higher in the RT group, and RH group has lower the quality of life (Li et al., 2016). May reason are the sample object who are older age, the difference of postoperative recovery time and don’t need to be pregnant. And they have higher flexible line of defense to protect the individual’s basic structure, and they may adjust the state to resist pressure sources (Raile Alligod & Marriney Tomey, 2014). Nurses needed to observe carefully, observe the needs of patients in time, give corresponding nursing care to patients in different periods after operation, and adjust nursing plan in time. According to the Newman system model, nurses should pay attention to the intrapersonal stressors which were increasing, that related to the wider the scope of the surgical resection leading to the lower QoL score (Raile & Marriney, 2014).

In the aspect of the emotional well-being, the patients had worsen of symptom of emotional well-being (Fleming et al., 2016; Bae & Park, 2016; Prasongvej et al., 2017;
Carter et al., 2010; Barnas et al., 2012). No matter which kinds of the surgeries, most patients showed the symptoms of depression and anxiety because they feared of a recurrence of cancer (Distefano et al., 2008; Xiao et al., 2016). Some patients were worried about losing jobs (Bae & Park, 2016). Patients with high education level accompanied by relatives who had strong psychological endurance (Raile & Marriney, 2014). Nurses should also provide psychological support and social support to reduce the stressor from emotion. Also, telephone follow-up could increase the patient's sense of security and reminded them to review on time (Raile & Marriney, 2014).

In the aspect of the social and functional well-being, the patients’ social and functional well-being was declining after surgery at early stage (Fleming et al., 2016; Prasongvej et al., 2017). The result was similar in the review (Xiao et al., 2016). This stage, patients may have the interpersonal stressor (the relationship between husband and wife, Nurse-patient relationship), and extra-personal stressor (Economic pressure and Environment unfamiliar) (Raile & Marriney, 2014). Nurses should provide social support to the cervical cancer survivors. It’s helpful to encourage the survivors participation in collective activities.

In the aspect of the sexual function, the authors found most patients had not resumed any sexual behavior after surgery; the main causes for not resuming sexual intercourse included lack of sexual partner, fear of recurrence or pain, and low sexual desire caused by treatment (Xiao et al., 2016). Because of the vaginal shortening, some researches expounded patients had the symptom of unhappiness or fear of sexual intercourse after surgery and had the lower QoL (Carter et al., 2008; Guth et al., 2010). Similarly, patients had anxiety and worry about postoperative sexual performance after surgery (Xiao et al., 2016). Nurses could provide the knowledge and the postoperative precaution about the sexual function after surgery. Encourage the patient’s husbands given more attention to the patient and accompanied her more time. Helping balance the interpersonal stressor (conjugal relation) was great significance (Raile & Marriney, 2014). One article mentioned the a few survivors have enough time to give birth after RT, indicated it is feasible to carry out radical trachelectomy to preserve fertility function (Carter et al., 2010). For younger patients who want to be pregnant, RT can be recommended.
4.2.2 Quality of life after the mix therapy

In the physical well-being, Bjelic-Radisic et al. (2012) showed the QoL of the cervical cancer patients were declining. Bjelic-Radisic et al. (2012) referred to age as a potential factor, but did not explain the stage of age. So it was possible that age was old. The age was older, the physical conditions were worse and the more physical symptoms were obvious after treatment. The overall symptom experience also declined (Pfaendler et al., 2015). Dahiya et al. (2016) and Toit et al. (2015) showed the patients’ QoL was improving after chemoradiation therapy, but diarrhea was getting worse. Chemoradiation therapy could cause gastrointestinal disorder. Some of the bowel dysfunction and other gastrointestinal symptoms are also covered by Pfaendler et al. (2015). The authors thought patients with cervical cancer who had some physiological problem or symptoms, such as pain and diarrhea. If the patient's physiological comforted increases, they would increase continued comfort care comfort levels and healthy behaviour, as well as a good assessment of the health care structure. This was in line with the Neuman Systems Model theory (Raile & Marriney, 2014). Nurses should pay attention to observing the symptoms of the patients and taking certain measures to alleviate the symptoms of the patients.

In the emotional well-being, Bjelic-Radisic et al. (2012) showed the QoL of patients had lower emotional functioning after radiation therapy. Cervical cancer patients with depression and anxiety was serious after radiation therapy (Pfaendler et al., 2015). This is the same as the result of the authors’ chosen article (Bjelic-Radisic et al., 2012). However, Cervical cancer patients with depression and anxiety declined to the control level at 6 months (Pfaendler et al., 2015). It might be that the patients with chemoradiation therapy was better in physical than radiotherapy, which lead to a higher psychological aspect than that of radiotherapy patients. Cancer patients' negative emotions such as anger could also had a negative effect on the disease as intrapersonal stressor and produce interpersonal stress, such as husband and wife relationships, coworker relationships, even the nurse-patient relationship was tense. This was also in line with the Neuman Systems Model theory (Raile & Marriney, 2014). Psychotherapy could improve immune function and improve QoL effectively (Distefano et al., 2008). So nurses should strengthen psychological counselling to patients and enhance their confidence.
For the social side, Toit et al. (2015) and Azmawati et al. (2014) proved the QoL of patients were improving in social function. Patients had ability to share problems with others decreased over time, which mean less social support (Pfaendler et al., 2015). Wenzel et al. (2015) found that poor mental state and poor social support and maladaptive coping (Wenzel et al., 2015). This was the different from the result of the authors’ chosen article (Toit et al.,2015; Azmawati et al., 2014). This aspect was worth discussing. The authors should pay attention to inquire into this aspect in future research. The authors believed that the social support for cancer diagnosis, treatment and subsequent economic consequences are important. Patients pointed out that their partner's social support was particularly valuable, relative to the tool or practical support and emotional support the value was very high. Seeking social support was very important from the family members. It put forward extra-personal stressor, for example, poor economic situation, low social health care. These extra-personal stressor also reduced the QoL with cervical cancer (Raile & Marriney, 2014). Nurse should help the patient acquire more extensive sources of social support in order to strengthen the flexible line of defense. The flexible line of defense was better, and the QoL was higher (Raile & Marriney, 2014).

In sexual function, Bjelic-Radisic et al. (2012) and Dahiya et al. (2016) proved the QoL of patients were declining. Cervical cancer patients still experienced more sexual discomfort, pain with penetration, and vaginal dryness, the sexual enjoyment and function of patients was decreased (Pfaendler et al., 2015). The same sexual problem was proved (Bjelic-Radisic et al., 2012; Dahiya et al., 2016). Nurses need to focus on patients' sexual function and sexual activity and take relevant measures to improve the QoL of patients with sexual function. At the same time, it was necessary to strengthen the knowledge and understanding of patients and improve their preventive ability, which was in line with the Neuman Systems Model theory (Raile & Marriney, 2014).

4.2.3 Discussion of the selected articles’ data collection methods

In quantitative studies, data collection was performed through the different QoL scales. With the help of the multiple readings of literature and summary, the authors evaluated questions and procedure as the researches reach new insights. There was an increase in the understanding of the QoL in women with cervical cancer patients (Polit & Beck, 2012).
The EORTC QLQ-30 had advantages: the scale for cancer patients involved more dimensions, it was more comprehensive. And there were three scoring methods, scoring methods are diverse, the reliability, validity and feasibility of the scale and a certain degree of response were relatively good (Aaronson et al., 1993). The high score was equivalent to less or more symptoms, with higher scores indicating better quality of life (Sprangers et al., 1993). These researches showed that EORTC QLQ-C30 had good reliability, validity, feasibility and response, and it could be used as a scale to evaluate the QoL of cancer patients. So that clinicians could better choose the treatment plan and took targeted management measures for patients with advanced cancer (Aaronson et al., 1993; Aaronson et al., 1994). About deficiency, this was a scale for cancer patients rather than a scale for patients with gynecological neoplasms, much less a scale for patients with cervical cancer, who were different from normal cancer patients. The use of these scales was bound to have limitations. Just as Speca M used EORTC QLQ-30 to evaluate the QoL and asked patients to evaluate the scale, patients thought it was not sufficient to use QLQ-C30 to evaluate the QoL. There are four reasons, the first was that the scale can not reflect the patient's conscious control of the body. The second was that can not reflect the prognosis of disease and treatment. The third was that can not reflect the routine of life and the impact of norms on patient. The fourth was that can not reflect the injury caused by medical intervention (Speca et al., 1994).

In three articles, the authors used the FACT-G and FACT-Cx (Carter et al., 2010; Bae & Park, 2016; Fleming et al., 2016). The FACT-G was the generic core to measure QoL for patients with cancer. The FACT-Cx was developed by the Northweatern University and the Center on outcomes research and education for the functional assess ment of center therapy (Cella et al., 1993; Monk et al., 2005). The higher the score was, the better the QoL of patients were (Fleming et al., 2016). The advantage of FACT-G was that it could be combined with the specificity scale, which is mainly used to evaluate the QoL of the patients who received chemotherapy and radiotherapy with a certain degree of education. Also, it has good internal consistency reliability and retest validity (Bonumi et al., 1995).

In three articles, the authors used the FSFI (Carter et al., 2010; Fleming et al., 2016; Bae & Park, 2016). The FSFI was an effective tool for evaluating the sexual function of women put forward by Professor Rosen in 2000 (Kim et al., 2002). The higher the score of the symptom item was, the better the sexual function was, the higher the score of the reverse entry was, the worse the sexual function was (Kim et al., 2002). The FSFI could
not only evaluate the severity of female sexual dysfunction, but also provided the basis for FSD classification. It had good reliability and validity. However, people in different countries had different social culture, customs, and economic conditions, especially the great differences in cultural backgrounds between the East and the West. It might lead to different criteria for the same question item (Ma et al., 2014; Thiel Rdo et al., 2008).

Only one article used the SF-12 (Fleming et al., 2016). The SF-12 was a universal QoL assessment tool had been verified by many countries which had good reliability, validity and practicality. It could be used to evaluate the health status of the population and the disease health economics evaluation. It’s beneficial to the choice of clinical therapy and the evaluation of clinical therapeutic effect (Lam et al., 1999; Behavioral Epidemiology Unit, 1995).

4.3 Methods discussion

Literature reviews can be used in research reports or in the form of independent publications, for example, in this article. According to Polit & Beck (2012), a literature Review was a good way to critically review and summarize previous studies.

According to Polit & Beck (2012), the authors of this study had used clear and specific criteria for inclusion and exclusion, thus strengthening the reproducability of the study. These articles should be published between 2007 and 2017. In order to limit search results. This might result in the authors missing out on early research, which was a limitation of current literature reviews. However, it might also be seen as an advantage that the articles had been excluded for more than a decade. The reason was that it ensured a more up-to-date and modern outcome Polit & Beck (2012). One of the inclusion criteria was that the article must be written in English. This might be seen as an advantage and a limitation. As for the limitation stems, English might not be the author's first language which mean might be a misunderstanding. The author had ignored studies written in other languages which might be seen as a limitation. The articles must be available free of charge from Gavle University which might be seen as a restriction. Because the author of the article might have missed the article due to lack of resources. The search for these articles was mainly from two databases, and the database scope was small. The author of the article might have missed the relevant article because of lack of resources, and this might be seen as a limitation.
In order to improve the credibility of the research, the author conducted a search in two different databases named Cinahl and Medline, which might help to strengthen the results of the review. In order to get more the results in this paper, the author used the grid spell language and title and vocabulary. Also, the authors chose Boolean search operators combined search terms and the free text search. According to the Polit & Beck (2012) said, the results would be smaller was an advantage. However, because of the more related objectives and research questions, and the results would be more reliable. A synonym for selected search words might help provide important materials. Without these words in the search, it might be ignored the relevant materials which might be regarded as a limitation.

According to the Polit & Beck (2012), all of two authors selected the articles separately by reading, which prevented to influence the understanding of the article between each other. Besides, the authors prevented the risk losing important information. After this step, the authors got conclusion through the discussion. In the literature retrieval process, the title and abstract were chosen by reading a large number of this articles. May the material had not been completely understood. Relevant content could be ignored.

All articles in this literature review had been reviewed and approved by the Ethics Committee. However, it was not clear that different countries might have different ethical commitments, due to time constraints. The authors of this study studied the problem. This might be seen as a relevant limitation.

4.4 Clinical implication

According to the most of articles, the QoL of patients with radiotherapy and radical hysterectomy are low in the result. Patients with cervical cancer need nurses who provide good care to improve their QoL.

Surgery is the main means of radical cure of cervical cancer. Surgery can cause the loss of fertility, bladder or intestinal irritation symptoms, vaginal dryness, sexual dysfunction and other physiological problems, which seriously affect the QoL of patients. The complications of radiotherapy are mainly skin changes, nausea and vomiting, fatigue, diarrhea, pain, decreased libido, sexual dysfunction, etc. These symptoms seriously affect the normal life of patients. Nurses should pay close attention to the changes of patients' vital signs (body temperature, pulse, breathing, blood pressure), actively prevent and cure
complications. Take hormone replacement therapy in patients with severe symptoms while radiotherapy. Use of painkillers and vaginal dilatation. Nurses can guide patients use lubricant. It can improve sexual function to some extent.

Because of the various sources of stress, cervical cancer patients after surgery or after chemotherapy will produce psychological problems, such as depression and anxiety. The nurses should be professional as much as possible and be able to gradually let the patient know what they are suffering from. Then, nurses strengthen the patients’ psychological care, improve the patient's psychological state, and enhance his confidence in curing the disease. By actively asking the patients about their sexual life after surgery, nurses can combine with the collection materials to give corresponding psychological guidance. Nurses inform women of the changes in the anatomical structure and functions of the female genital organs before and after the operation. What’s more, nurses encourage patients to remain optimistic, and build up confidence in treatment and change their psychological status.

Treatment has huge medical costs, patients have financial difficult which can also make social tension. The nurses should communicate fully with the patients' families, strengthen the health education of the patients' family members, and make them treat the patients correctly. What’s more, nurses provide support to the patients, and share with the patients about different kinds of the stressor which caused by the disease. Family members try to stay with the patient and give them more care and understanding. At the same time, nurses should encourage the social support system of the family, relatives, friends, colleagues, and partners. Community and organizations give material and spiritual help which support to improve the patients’ QoL.

4.5 Recommendations for future research

This review shows that the QoL of patients with cervical cancer is different with different treatments, and there is no general conclusion of other cervical cancer patients except in this respect. In order to better understand the impact of cervical cancer on QoL, better research methods are needed. These studies should include more patients with cervical cancer at different levels, as well as patients of different ages and different educational levels. Future research should focus more on anxiety and depression in patients with cervical cancer, and physical problems such as lymphedema and intestinal dysfunction,
which are less widely reviewed in the authors’ review. At the same time, future research also needs to focus on fatigue, pain, loss of appetite which is more evident in the authors’ article. There is little knowledge of the later stages of cervical cancer affecting hematological, biological changes or genetic predisposition. Further research should pay more attention to the combination of QoL and biology.

4.6 Conclusions

The QoL of patients with chemoradition therapy and radical trachelectomy were improving. The QoL of patients with radiotherapy and radical hysterectomy were declining. Nurse should help the patients improve the QoL. In order to further improve QoL, the intervention focusing on physical rehabilitation, psychological and social support.
Reference


**Cervical Cancer Prevention Archived National Cancer Institute.**

Date last modified 12/17/2015. Accessed 05/20/2015


Undergoing Treatment for Advanced-stage Cervical Cancer. Clinical Therapeutics 37-10


APPENDIX 1 Overview of the selected articles

<table>
<thead>
<tr>
<th>Authors</th>
<th>Titles</th>
<th>Design and approach</th>
<th>Sample</th>
<th>Data collection method for measuring Quality of life (QoL)</th>
<th>Method of data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prasongvej et al (2017)</td>
<td>Quality of Life in Cervical Cancer Survivors and Healthy Women: Thai Urban Population Study</td>
<td>Quantitative approach</td>
<td>Number: 192 participants 97 Age: 30-70 Participants: 97 cervical cancer survivors; 37 after radical hysterectomy (RH), 43 with concurrent chemoradiation (CRT), and 17 featuring both RH and CRT; and 95 control subjects from the same</td>
<td>The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30)</td>
<td>SPSS, version 17</td>
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</table>


| **Dahiya et al.** (2016) | Quality of Life of Patients with Advanced Cervical Cancer before and after Chemo-radiotherapy | A cross-sectional study and a quantitative study | Number: 67 participants  
Age: 30-75  
Participants: all women who were newly registered and diagnosed cases of cervical cancer of any histological type and advanced cancer stages (2b to 4b). | The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30), the Cervix Cancer Module (QLQ-CX24) | Qualitative data was expressed in proportions while mean and standard deviation were calculated for quantitative data.  
The student’s t test and Chi-square tests were used for comparing the characteristics of the study participants and the quality of life scores before |
Fleming *et al* (2016)  
Country: The United States  
Quality of life after radical trachelectomy for early-stage cervical cancer: A 5-year prospective evaluation  
A cross-sectional study and a quantitative study  
Number: 39 participants  
Age: age between 18–40  
Participants diagnosed with histologically confirmed early-stage primary adenocarcinoma, squamous cell carcinoma, or adenosquamous carcinoma of the cervix who were eligible for radical trachelectomy were approached for study participation. Patients had the General Health-Related Quality of Life (SF-12) instrument, The Functional Assessment of Cancer Therapy-Cervical (FACT-Cx), The Female Sexual Functioning Index (FSFI).  
Descriptive statistics and after chemo-radiotherapy.
to be suitable candidates for surgery.

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Study Title</th>
<th>Study Design</th>
<th>Number</th>
<th>Age Range</th>
<th>Participants</th>
<th>Quality of Life Instruments</th>
<th>Statistical Analysis</th>
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<tr>
<td>Xie et al (2015)</td>
<td>China</td>
<td>Quality of life in cervical cancer treated with systematic nerve-sparing and modified radical hysterectomies</td>
<td>A cross-sectional study and a quantitative study</td>
<td>127 participants</td>
<td>Age: Age between 33-55. Participants had undergone RH in the Department of Gynaecology and Oncology from 2009 to 2012 were enrolled in the study.</td>
<td>The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30)</td>
<td>Statistical analysis was done using the Student's t-test. * P &lt;0.05 versus SNSRH group ; * P &lt; 0.01 versus SNSRH group</td>
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<tr>
<td>Bae &amp; Park (2015)</td>
<td>Korea</td>
<td>Sexual function, depression, and quality of life in patients with cervical cancer</td>
<td>A cross-sectional study and a quantitative study</td>
<td>137 participants</td>
<td>Age: Age between 21-59 women who were diagnosed with cervical cancer,</td>
<td>The functional assessment of Cancer Therapy – General version 4(FACT-G), The Female Sexual Functioning Index (FSFI).</td>
<td>The data were analyzed using SPSS WIN version 21.0 (SPSS, IBM Inc., Chicago, IL), and the significance</td>
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### Study Details

**Toit et al. (2015)**

**Country:** South African

**Study Title:** Prospective Quality of Life Study of South African Women Undergoing Treatment for Advanced-stage Cervical Cancer

**Study Type:**
- Cross-sectional study
- Quantitative study

**Participants:**
- Number: 219 participants
- Age: No information about the participant’s age
- Participants that 219 women. Forty-four women were treated with primary surgery. A total of 102 women completed primary radiation

**Assessment Tools:**
- The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30)
- The Cervix Cancer Module (QLQ-CX24)

**Data Analysis:**
- Data are presented as medians and were analyzed using the nonparametric Kruskal-Wallis test to detect

**Survey Timing:**
- The participants had been treated with surgery more than 2 months before the survey, and for patients who received radiotherapy, treatment terminated at least 1 month before the survey

**Statistical Significance:**
- Level was set to be $p < 0.05$. 
therapy and 73 women completed primary chemo-radiation therapy.

change in the different domains during the study period. In case of statistical difference, post hoc analysis was done with Fisher’s Least Significant Difference test. $\chi^2$ Tests were used for categorical data.

<p>| Azmawati et al (2014) | Quality of Life by Stage of Cervical Cancer among Malaysian Patients | A cross-sectional study and a quantitative study | Number: 122 participants | The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30) | Mean and standard deviation (sd) was used to describe the characteristics | Country: Malaysia | Age: No information about the participant’s age | Participants that Malaysian | | | | | |</p>
<table>
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<tr>
<th>Barnas et al (2012)</th>
<th>The quality of life of women treated for cervical cancer</th>
<th>A cross-sectional study and a quantitative study</th>
<th>Number: 100 participants</th>
<th>The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30), the Cervix Cancer Module (QLQ-CX24)</th>
<th>The statistical analysis employed Statistica software, version 7.0.</th>
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<tr>
<td>Country: Poland</td>
<td>The quality of life of women treated for cervical cancer</td>
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<td>A cross-sectional study and a quantitative study</td>
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<td>Number: 100 participants</td>
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<td>Age: No information about the participant’s age</td>
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<td>Participant was hospitalized, diagnosed with cervical cancer and qualified for surgical treatment, without any cognitive disorders, aware of their cancer diagnosis, having signed a consent form.</td>
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<td>The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30), the Cervix Cancer Module (QLQ-CX24)</td>
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<td>The statistical analysis employed Statistica software, version 7.0.</td>
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<td>Ithadtheaimofidentifyingcorrelationsbetweenchangesinquality</td>
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<td>oflifeinselectedperiodsofsoftimeusingthe Wilcoxon test.</td>
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<td>results</td>
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<tr>
<td>Study</td>
<td>Quality of life characteristics</td>
<td>A cross-sectional study and a quantitative study</td>
<td>Number: 346 participants</td>
<td>The European Organisation for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30), the Cervix Cancer Module (QLQ-CX24)</td>
<td>Descriptive statistics and analysis of covariance. Differences in age and follow up time between the groups were analysed by means of t-test or analysis of variance, respectively.</td>
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<tr>
<td>Bjelic-Radisic et al (2012)</td>
<td>Quality of life characteristics inpatients with cervical cancer</td>
<td>Age: No information about the participant’s age</td>
<td>Participants from 14 countries with various stages of cervical cancer</td>
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</table>
Differences in stage between the groups were analysed by means of an exact chi-square test.

| Carter et al (2010) | A 2-year prospective study assessing the emotional, sexual, and quality of life concerns of women undergoing radical trachelectomy versus radical hysterectomy for treatment of early-stage cervical cancer | A cross-sectional study and a prospective quantitative study | Number: 123 participants | The functional assessment of Cancer Therapy – General version 4 (FACT-G), The Female Sexual Functioning Index (FSFI). | Categorical variables were examined by surgical type using Fisher's exact test. Qualitative data were reviewed by multiple readers to identify thematic categories, and frequencies were computed for the themes. At each of... |
the 6 measurement times, we tested for significant differences between the means of the two groups on each empirical measure using Wilcoxon rank-sum tests, calculated using SAS software (Version-9)
# APPENDIX 2 Aim and summery of the results of the selected articles

<table>
<thead>
<tr>
<th>Authors</th>
<th>Aim</th>
<th>Results</th>
</tr>
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<tbody>
<tr>
<td>Prasongvej <em>et al</em> (2017)</td>
<td>To determine a baseline quality of life (QoL) in cervical cancer survivors compared to that of healthy subjects in the tertiary Thammasat University Hospital, Thailand.</td>
<td>There were significant differences in physical, role, emotional and social functions between cervical cancer survivor and control groups. Global health, fatigue, pain, appetite loss, and financial difficulties also demonstrated statistically significant variation. Cervical cancer survivors treated by RH had higher scores for emotional and social function and global health. Moreover, they had less appetite loss, fatigue and financial difficulties. However, patients treated with CRT experienced more pain. All cervical cancer survivors had lower physical function scores than the control group. Cervical cancer survivors had higher score in emotional and social function, global health and pain. They also reported lower score in physical and role function,</td>
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<tr>
<td>Study</td>
<td>Country</td>
<td>Description</td>
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<tr>
<td>Dahiya et al (2016)</td>
<td>India</td>
<td>This study assessed the QOL in such patients before and after treatment with chemotherapy and radiotherapy.</td>
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<tr>
<td>Fleming et al (2016)</td>
<td>The United States</td>
<td>To longitudinally assess quality of life (QOL) in women undergoing radical trachelectomy for</td>
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early-stage cervical cancer. Cx functional well-being and physical well-being, SF-12 bodily pain, physical functioning, role physical, role emotional, social functioning, and MDASI total showed significantly worse symptoms at 6 weeks then returned to baseline by 6 months. The scores for FACT-Cx emotional well-being showed significant worsening of symptoms that persisted at 6-weeks, 6 months, 1 year, 2 years, and 4 years. There was no difference in SWD.

Xie et al (2015)
Country: China

To compare the quality of life (QoL) between cervical cancer patients treated with systematic nerve-sparing radical hysterectomy (SNSRH) and modified radical hysterectomy (MRH)

Cervical cancer patients had a low QoL in postoperative period compared with preoperative period in this study. The overall QoL scores were no different between the SNSRH and MRH groups in preoperative period. In postoperative period, there was no difference between two groups. Latin-American and European-American patients with cervical cancer were found to be with decreased function in QoL after surgery. Patients with early
cervical cancer subjected to SNSRH or MRH are satisfied with their overall QoL scores. QoL may be negatively impacted by the cancer itself, surgery and adjuvant therapy. Reduction of overall QoL in patients may be caused by trauma, incision pain and decreased self-care ability after surgery in this study. Furthermore, life burden assessed by financial strains, family stress and neighbourhood stresses was also one of the important predictors associated with QoL in cervical cancer patients.

Bae & Park (2015)
Country: Korea
To examine the level of sexual function, depression, and quality of life in cervical cancer patients.

The participants experienced sexual dysfunction and moderate to severe depression. The mean score of quality of life was $57.33\pm8.47$. Sexual function had a negative relationship with depression, while having a positive one with quality of life. Also, in relation with subcategories of quality of life, sexual function was positively correlated with physical well-being, social well-being, and functional well-being, but not with psychological well-being.
**Toit et al. (2015)**

**Country: South African**

<table>
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<tr>
<th>This prospective study compares the quality of life for women with cervical cancer and treated with radiation or chemoradiation therapy at Tygerberg Hospital, South Africa.</th>
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<td>Women receiving chemoradiation therapy had a higher educational level and had less advanced stage (III or IV) cervical cancer. Radiation therapy was used significantly more in HIV-positive women. The presiding clinicians chose treatment options based on clinical factors unrelated to quality of life. Chemoradiation therapy resulted in statistically more improvement in the pain, fatigue, appetite loss, and nausea and vomiting quality of life domains. In these domains, pretreatment quality of life scores were significantly higher in the radiation therapy group, implying a poorer quality of life status at the initiation of treatment. In post hoc analysis, the global health domain was significantly more improved by chemoradiation. Peripheral neuropathy was not increased by chemoradiation.</td>
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<td><strong>Azmawati et al (2014)</strong></td>
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<td><strong>Barnas et al (2012)</strong></td>
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</table>
Based on the modules of the QLQ-CX 24 questionnaire, a reduction in symptom experience was observed at T2 and T3. The opposite tendency was noted in the case of body image.

| **Bjelic-Radisic et al (2012)** | The present study investigated the extent to which different quality of life (QoL) domains in patients during and after treatment for cervical cancer are affected according to menopausal status, treatment status and treatment modality. | Active treatment had the strongest negative impact on 13 different QoL domains: physical, role, emotional, cognitive, social functioning, global health/QoL, fatigue, nausea and emesis, pain, appetite loss, constipation, symptom experience and sexual enjoyment. Irradiation alone ± other therapy was associated with most symptoms of diarrhoea. Age had the most negative impact on sexual activity and the strongest positive effect on sexual worry. |
| **Country:** Austria, Denmark, Croatia, Sweden, Germany, Taiwan, United Kingdom |

| **Carter et al (2010)** | To prospectively assess and describe the emotional, sexual, and QoL concerns of women with early-stage cervical cancer undergoing radical surgery | At preoperative assessment, women choosing RH reported greater concern about cancer recurrence than women choosing RT. Forty-eight percent undergoing RH compared to 8.6% undergoing RT. |
reported having adequate “time to complete childbearing”. Both groups demonstrated scores suggestive of depression (based on the CES-D scale) and distress (based on the IES scale) preoperatively; over time, however, CES-D and IES scores generally improved. Scores on the Female Sexual Functioning Inventory (FSFI) for the total sample were below the mean cut-off (26.55), suggestive of sexual dysfunction; however, the means increased from 16.79 preoperatively to 23.78 by 12 months and 22.20 at 24 months.