JMCH Journal of Maternal and Child Health (2025), 10(06): 377-382
Masters Program in Public Health, Universitas Sebelas Maret

Research
Open Access

The Influence of Physical Activity on the Quality of Life of Cervical Cancer Patients Undergoing Chemotherapy Treatment

Dwi Kurniasih, Elisabeth Wahyu Savitri, Yusta Angelina

[1)]Diploma of Nursing Study Program, Faculty of Health,
Universitas Katolik Santo Agustinus Hippo, West Borneo, Indonesia

Received: 9 September 2025; Accepted: 15 October 2025; Available online: 16 November 2025

ABSTRACT

Background: Cervical cancer is one of the most common types of cancer experienced by women worldwide. During treatment procedures such as chemotherapy and radiotherapy, patients often face challenges in the recovery process, both physically and emotionally, which may lead to a decline in their quality of life. One of the ways to support reproductive health recovery is through physical activity, as it can improve blood circulation and help regulate hormonal balance. This study aims to analyze the effect of physical activity on the quality of life of cervical cancer patients undergoing chemotherapy.
Subjects and Method: This is a cross-sectional study conducted at Dr. Soedarso Hospital, Pontianak, West Kalimantan. A total of 30 cervical cancer patients undergoing chemotherapy were selected in this study. The dependent variable was quality of life. The independent variable was physical activity. Data were collected by questionnaire and analyzed using Spearman rho test.
Results: Spearman's rho correlation analysis showed a strong and statistically significant relationship between physical activity and quality of life in cancer patients ($r = 0.66$; $p < 0.001$). These results indicate that higher levels of physical activity improve the quality of life in cervical cancer patients.
Conclusion: The findings demonstrate a strong and significant relationship between physical activity and the quality of life of cervical cancer patients. This indicates that the better the physical activity performed, the better the quality of life of cervical cancer patients.

Keywords: physical activity; cervical cancer; quality of life; chemotherapy.

Correspondence:
Dwi Kurniasih. Lecturer at St. Augustine Hippo Catholic University, Campus II, Jl. Merdeka No. 55, Pontianak, Indonesia. Mobile: 081351607978. Email: dwikurniasih3@gmail.com.

Cite this as:
Kurniasih D, Savitri EW, Angelina Y (2025). The Influence of Physical Activity on the Quality of Life of Cervical Cancer Patients Undergoing Chemotherapy Treatment. *J Matern Child Health.* 10(05): 377-382. https://doi.org/10.26911/thejmch.2025.10.05.06.

BACKGROUND

Cervical cancer is an aggressive type of cancer that affects women worldwide (Sravani et al., 2023). It attacks the cervix due to uncontrolled tissue growth, which damages normal cells (Kurniasih and Goratik, 2024; Kurniasih et al., 2023b). Globally, the incidence of cervical cancer is reported at 36,964 cases, with the same number of deaths, while in Indonesia the number of cervical cancer cases reached 20,708 (Ferlay et al., 2021). Cervical cancer

is one of the most common cancers in Indonesia, with high mortality rates largely due to late diagnosis and treatment. Nearly 70% of patients are diagnosed at an advanced stage. In 2023, from 3,114,505 women aged 30–50 years who underwent early detection of cervical cancer, 31,236 (1%) were found positive through IVA examination, and 324 (0.01%) were suspected cervical cancer cases (Ministry of Health, 2023).

Many patients undergo diagnostic tests, surgery, chemotherapy, or radiation for their treatment (Sravani, Ghate and Lewis, 2023). Nationally, from a cancer prevalence of 1.2 per thousand in Indonesia in 2023, 45.9% of patients underwent chemotherapy as their main treatment (Indonesian Health Survey, 2023). Chemotherapy has a significant negative impact on patients' quality of life, often causing pain (Kurniasih, Titihalawa and Cicil, 2023b), nausea, vomiting, loss of appetite, fatigue, and social functioning disorders, which collectively contribute to a decline in quality of life (Tunas et al., 2016). Cancer therapy also causes various physical, psychological, and social side effects (Kurniasih et al., 2023a; Erfina et al., 2018; Aniarti, 2024; Serarslan et al., 2019).

Physical activity is closely related to both physical and psychological health in cancer survivors (Rissanti, 2021). Optimizing physical activity during cervical cancer treatment can improve patients' quality of life (Millet et al., 2022a; Millet et al., 2022b). In fact, cervical cancer patients after chemotherapy who maintain good physical activity have a 13.2 times greater chance of achieving a better quality of life compared to those with low physical activity (Sulastri and Rahayu, 2024). One of the instruments that can be used to assess quality of life in cervical cancer patients is the Functional Assessment of Cancer Therapy – Cervix (FACT-Cx) (Peerawong et al., 2020).

This study is considered essential in the health field, especially in cervical cancer treatment, because physical activity may reduce the adverse effects of therapy and help patients cope with intensive care such as chemotherapy. Moreover, it provides the basis for developing more effective physical rehabilitation programs for cervical cancer patients. The research problem is formulated as follows: "Is there a relationship between the level of physical activity and the quality of life of cervical cancer patients?" The aim of this study is to analyze the effect of physical activity on the quality of life of cervical cancer patients undergoing chemotherapy.

SUBJECTS AND METHOD

1. Study Design

This study used a quantitative correlational design with Spearman's rho test to analyze the relationship between physical activity and quality of life. The sample used total sampling, namely all over patient cancer chemotherapy during the research period.

2. Population and Sample

Samples used total sampling, namely all over patient cancer chemotherapy During the research data collection period from June to August 2025 at Dr. Soedarso General Hospital, Pontianak. Total patients were 30.

3. Study Variables

There are two variables in this study with the same level, namely the physical activity variable is the GPAQ (Global Physical Activity Questionnaire) score with a range of <600 up to >3000 and the Quality of Life variable for cervical cancer patients is the Functional Assessment of Cancer Therapy - Cervix (FACT-Cx) questionnaire score with a range of 0-168.

4. Operational Definition of Variables

Activity physical: value frequency and intensity activity physique somebody in a week, including activity work, travel, and recreation, as well sedentary behavior.

Quality of Life*:* Response respondents in 7 days after chemotherapy.

5. Study Instruments

Instruments used in study This there are 2, namely for measure activity level physique patient use use using the patient's GPAQ (Global Physical Activity Questionnaire) and Functional Assessment of Cancer Therapy - Cervix (FACT- Cx) to evaluate quality of life patient cancer cervix,

6. Data Analysis

Spearman rho correlation test was employed to analyze the relationship between physical activity and quality of life (r= 0.66; p<0.001).

7. Research Ethics

Study This has approved by the Committee Ethics Health Research of Dr. Soedarso Regional General Hospital Pontianak with number Letter: NO. 60/RSUD/KEPK/VI/-2025.

RESULTS

1. Analysis Univariate

Activity physique respondents shows the average score as big as 1169.17 with standard deviation 795.56. Activity value physique lowest is 110, while the highest reach 3200. The size variations in scores activity physique This show existence difference level sufficient activity significant between respondents, starting from activity very low physical until tall.

Temporary that, quality respondents' quality of life average score obtained as big as 79.90 with standard deviation 20.33. Quality score life lowest is 52, whereas highest reach 121. This data describe that quality life respondents are in various categories, where there are respondents with quality low life or high.

Table 1. Distribution of Physical Activity and Quality of Life Values

Variable	Mean	SD	Minimum	Maximum
Physical activity (score)	1169.17	795.56	110	3200
Quality of life (score)	79.90	20.33	52	121

2. Analysis Bivariate

Analysis results correlation Spearman rho obtained coefficient correlation (r) = 0.66 is said strong, p= <0.001 indicating that there is a significant relationship between physical activity and the Quality of Life of Cervical Cancer Patients, n = 30.

Table 2. Results of the Spearman rho correlation test between physical activity and quality of life in cervical cancer patients undergoing chemotherapy

Variable	Activity Score Physique	
	r	p
Quality of Life Score	0.66	< 0.001

DISCUSSION

One of the main treatments for cervical cancer is chemotherapy. Chemotherapy uses drugs to stop the growth of cancer cells, either by killing the cells or inhibiting their division. It can be given alone or in combination with other treatments (Bethesda, 2025). However, chemotherapy often has a negative impact on patients' quality of life, leading to a decline in physical well-being such as pain, as well as psychological and social aspects (Ratna et

al., 2021).

The quality of life of cervical cancer patients can be assessed using the Functional Assessment of Cancer Therapy – Cervix (FACT-Cx) instrument, which evaluates multiple domains of well-being (Peerawong et al., 2020). Physical activity is closely related to both physical and psychological health in cancer survivors (Rissanti, 2021). Optimizing physical activity during cervical cancer treatment contributes to better coping and improved quality of life (Millet et al., 2022a; Millet et al., 2022b). Patients who maintain good physical activity after chemotherapy have a 13.2 times greater chance of achieving better quality of life compared to those with low physical activity (Sulastri and Rahayu, 2024).

In addition to general exercise, relaxation-based physical activities such as Progressive Muscle Relaxation have been shown to reduce physical complaints after chemotherapy, including pain (Kurniasih, et al., 2023b). Findings from recent analyses also demonstrate a strong and significant relationship between physical activity and the quality of life of cervical cancer patients. This indicates that the better the physical activity is carried out, the better the quality of life achieved.

Previous studies have also reported that physical activity has a positive effect on cervical cancer outcomes (Kim et al., 2021). Although chemotherapy can negatively affect quality of life, patients who are able to continue daily activities as usual tend to maintain a good quality of life after treatment (Ladesvita and Sari, 2023).

AUTHOR CONTRIBUTION

Dwi Kurniasih: Served as the principal investigator, coordinated the entire research process from planning to implementation and data analysis, supervised the preparation of the scientific manuscript, and ensured its submission to a reputable journal.

Elisabeth Wahyu Savitri: Assisted in the collection and analysis of research data related to physical activity and quality of life of patients.

Yusta Angelina: Contributed to the data collection process.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

Study This is funded by the Directorate of Research, Technology and Community Service to the Public, Directorate Research and Community Service to the Community, Directorate General of Research and Development Ministry of Higher Education, Science and Technology Year 2025 Budget, Dr. Soedarso Hospital and St. Augustine Hippo Catholic University

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to all parties who have supported this study, particularly Dr. Soedarso Regional General Hospital, for providing the necessary assistance so that this research could be conducted optimally.

REFERENCES

Aniarti RP (2024) Psychological well-being and quality of life of cervical cancer patients with chemotherapy. [Jurnal Ilmu Kesehatan]. 5(4): 15–21.

Bethesda MD (2025). Cervical cancer treatment: patient version. National Cancer Institute. Available at: https://www.ncbi.nlm.nih.gov/books/NBK65985/.

Erfina, Afiyanti Y, Rachmawati IN (2018). Women's experiences after undergoing cervical cancer therapy. Jurnal Antara Kebidanan. 1(2): 1–9.

Ferlay J, Colombet M, Soerjomataram I, Parkin DM, Piñeros M, Znaor A, Bray F, 2021. Cancer statistics for the year 2020: An overview. International Journal of Cancer. 149(4): 778–789. doi:10.1002/ijc.33588.

Indonesian health survey (2023). Indonesian health survey (SKI). Health Development Policy Agency. 1–965.

Ministry of Health (2023). Health profile. Jakarta: Ministry of Health of the Republic of Indonesia.

Kim SY, Yoo DM, Min C, Choi HG, 2021. Association between coffee consumption/ physical exercise and gastric, hepatic, colon, breast, uterine cervix, lung, thyroid, prostate, and bladder cancer. Nutrients. doi:10.3390/nu13-113927.

Kurniasih D, Titihalawa EM, Vivin RTS (2023a). Family support in cervical cancer patients treated: A qualitative case study. Minh, 6(5): 399–404. doi:10.33024/minh.v6i5.12629.

Kurniasih D, Goratik M, Siskawati (2024). Exploring women's experiences with cervical cancer: Sexual life changes, emotional responses, and physical adaptations. Journal Matern and Child Health. 09(05): 779-786. https://doi.org/10.26911/thejmch.2024.09.05.02

Kurniasih D, Titihalawa EM, Cicil T (2023b). Progressive muscle relaxation as an effort to reduce pain scale in cervical cancer patients at Dr. Soedarso Regional Hospital, Pontianak. Mahesa: Malahayati Health Student Journal, 3. 2201–2211. doi: 10.33024/mahesa.v3i8.10656.

Ladesvita F, Sari SJ (2023). Activity daily living and quality of life of cancer patients undergoing chemotherapy. Indonesian Journal of Health Development. 5(1): 30–38. doi: 10.52021/-ijhd.v5i1.115.

Millet N, McDermott HJ, Moss EL, Edwardson CL, Munir F (2022a). Increasing physical activity levels following treatment for cervical cancer: An intervention mapping approach. Journal of Cancer Survivorship. 16(3): 650–658. doi: 10.1007/-s11764-021-01058-y.

Millet N, McDermott HJ, Munir F, Edwardson CL, Moss EL (2022b). ACCEPTANCE: Protocol for a feasibility study of a multicomponent physical activity intervention following treatment for cervical cancer. BMJ Open. 12(1): 1–9. doi: 10.1136/bmjopen-2020-048203.

Peerawong T, Suphasynth Y, Kongkamol C, Rordlamool P, Bridhikitti J, Jiratrachu R, Sangtawan D, Atjimakul T, Chicharoen S (2020). Validation of the functional assessment of cancer therapy with cervical cancer subscale (FACT-CX) for quality of life in thai patients prior to chemoradiotherapy. Asian Pac J Cancer Prev. 21(7):1891-1897. doi: 10.31557/APJCP.2020.21.-7.1891.

Ratna R, Supadmi W, Yuniarti E (2021). Quality of life of outpatient cancer patients undergoing chemotherapy at Yogyakarta City Hospital. Farmaseutik Magazine. 17(2): 278–286. doi: 10.22146/farmaseutik.v17i2.62832.

Rissanti DL (2021). The relationship between self-care and quality of life of cervical cancer patient. Jurnal Health Sains, 2(6): 6. doi: 10.46799/jhs.-v2i6.189.

Serarslan A, Gursel B, Meydan D, Ozbek, Okumus N (2019). Radical radiotherapy in patients with cervical uteri carcinoma: Experience of Ondokuz Mayis University. BMC Cancer, 19(1), pp.1–8. doi: 10.1186/s12885-019-64-

02-x.

Sravani AB, Ghate V, Lewis S (2023). Human papillomavirus infection, cervical cancer and the less explored role of trace elements. Biological Trace Element Research, 201(3): 1026–1050. doi: 10.1007/s12011-022-032-26-2.

Sulastri L, Rahayu D (2024). Relationship between physical activity and quality of life in post-chemotherapy breast cancer patients at RUSP Dr. Hasan Sadikin Bandung. Journal kesehatan. 1–8.

Tunas IK, Yowani SC, Indrayathi PA, Noviyani R, Budiana ING (2016). The assessment of quality of life for patients with cervical cancer using chemotherapy paclitaxel-carboplatin in Sanglah. Indonesian Journal of Clinical Pharmacy. 5(1): 35–46. doi: 10.15416/ijcp.2016.5.1.35.