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Effectiveness of Nurse Led Intervention on Quality of Life Among Cancer Survivor in Selected Village in Madurai

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Abstract **Background:** Cancer survivorship is often accompanied by complex challenges that extend beyond physical health to emotional, psychological and social well-being. These multidimensional issues can significantly compromise quality of life (QoL). Nurse-led interventions, with their patient-centered and holistic approach, have been increasingly recognized as effective strategies to address these challenges and support survivors in achieving better health outcomes. **Aim:** The present study aimed to evaluate the effectiveness of a structured nurse-led intervention in enhancing the quality of life among women with cervical cancer living in rural communities of Madurai, Tamil Nadu. **Methods:** A quasi-experimental pretest-posttest design was adopted, involving 140 women with cervical cancer who were purposively assigned to either an experimental group (n = 70) or a control group (n = 70). The intervention comprised tailored health education, psychosocial counseling and symptom management strategies delivered by trained community nurses. Quality of life was assessed before and after the intervention using validated tools. Statistical analysis included descriptive and inferential tests, with significance set at $p<0.05$. **Results:** Participants in the experimental group demonstrated a significant improvement in overall QoL following the intervention. Posttest scores (107.16±39.91) were considerably higher compared to the control group (86.60±38.81), reflecting notable gains in physical, emotional and social well-being domains ($p = 0.001$). **Conclusion:** The findings confirm that nurse-led interventions are highly effective in improving the quality of life among cervical cancer survivors, particularly in underserved rural populations. Integrating such community-based strategies into standard survivorship care could play a pivotal role in addressing unmet needs and promoting long-term well-being in this vulnerable group.

Key Words Quality of Life, Cervical Cancer, Nurse-Led Intervention, Survivorship, Rural Health

INTRODUCTION

Cancer is a complex and heterogeneous group of diseases characterized by uncontrolled cell proliferation, which remains one of the leading causes of morbidity and mortality worldwide. Advances in early detection, treatment modalities and supportive care have markedly improved survival rates, resulting in a rapidly growing population of cancer survivors [1,2]. While survival represents a major success in oncology, it also introduces new challenges. Survivors frequently encounter a wide spectrum of physical, psychological and social issues that extend well beyond the treatment phase, significantly impacting their quality of life (QoL) [3,4].

The transition from active treatment to survivorship is a particularly vulnerable period. During this stage, survivors may experience lingering physical symptoms such as fatigue, pain or treatment-related complications, coupled with psychological challenges including anxiety, depression and fear of recurrence. Social disruptions, including strained family dynamics, financial burdens and reduced community participation, further compound these difficulties. These multifaceted challenges necessitate tailored, evidence-based interventions that holistically address survivors' unique needs and enhance their overall well-being [3,4].

Among the diverse models of survivorship care, nurse-led interventions have emerged as a highly effective approach. These programs emphasize patient-centered, holistic care, integrating medical follow-up with psychosocial counseling, lifestyle modification support and health education [5,6]. Evidence demonstrates that nurse-led

interventions significantly improve multiple dimensions of quality of life, including functional capacity, emotional resilience and social well-being, while reducing common symptoms such as fatigue, depression and anxiety [7]. Such interventions highlight the critical role of nurses, not only as caregivers but also as coordinators of survivorship plans who bridge medical and psychosocial domains of care [8].

The relevance of nurse-led interventions is especially pronounced in rural settings, where access to specialized oncology care remains limited. Studies have shown that community-based, nurse-led programs can effectively address immediate post-treatment concerns while equipping survivors with sustainable strategies for long-term symptom management and emotional support [9]. This is particularly important in low-resource regions, where structural inequities often exacerbate survivorship challenges.

Moreover, systematic reviews confirm that nurse-led survivorship models not only enhance patients' quality of life but also reduce unnecessary healthcare utilization, thereby supporting both patient well-being and healthcare system efficiency [10]. In addition, the incorporation of psychoeducational components within nursing interventions has been shown to yield substantial improvements in emotional adjustment, coping capacity and psychological resilience among survivors [11,12].

In summary**,** nurse-led interventions represent a pivotal strategy in survivorship care, offering comprehensive support that spans medical, psychological and social dimensions. Their adaptability and accessibility make them particularly valuable in rural populations, where cancer survivors often face unique barriers to care. By addressing the complex and interrelated needs of survivors, these interventions foster not only improved health outcomes but also greater empowerment, resilience and overall quality of life.

Aim of the Study

The primary aim of this study was to assess the quality of life (QoL) of women with cervical cancer attending selected Primary Health Centres (PHCs) in rural Madurai, Tamil Nadu and to evaluate the effectiveness of a structured nurse-led intervention in improving QoL among this population.

METHODS

Study Design and Setting

A quasi-experimental pretest-posttest intervention design was adopted to evaluate the impact of nurse-led interventions on quality of life (QoL) among cervical cancer survivors. This design allowed for comparison of QoL before and after the intervention within the experimental group and against a control group that received routine care. The study was conducted in selected PHCs situated in rural villages of Madurai district, Tamil Nadu, India.

Sample Size and Sampling

The sample size was calculated using a prevalence estimation formula, assuming a cervical cancer survivorship prevalence rate of 82.3%, with a 90% confidence level and a 5% margin of error. The required sample size was 140 participants, divided equally into an experimental group (n = 70) and a control group (n = 70). A purposive sampling technique was employed to recruit participants who met the eligibility criteria.

Inclusion Criteria

- Women aged 30 years and above, diagnosed with cervical cancer
- Survivors who had completed primary treatment (surgery, chemotherapy, and/or radiotherapy)
- Residents of rural areas in Madurai district for a minimum of three months prior to the study
- Participants who were willing to provide written informed consent

Exclusion Criteria

- Women with severe psychiatric or cognitive impairments that could affect comprehension or participation
- Individuals unwilling to participate or provide informed consent

Intervention

The nurse-led intervention was designed to enhance QoL by integrating health education, psychosocial support and symptom management into survivorship care. Key components included:

- **Health Education:** Guidance on self-care practices, nutrition, lifestyle modification and awareness of cancer-related health issues
- **Psychosocial Support:** Counseling sessions to address emotional challenges, fear of recurrence, stigma and stress related to survivorship
- **Symptom Management:** Strategies to manage pain, fatigue, sleep disturbances and treatment-related side effects
- **Follow-Up and Monitoring:** Regular home or PHC-based visits by trained nurses to review progress, provide reinforcement and address emerging needs.
- This holistic, patient-centered model aimed to strengthen survivors' coping mechanisms, reduce psychological distress and improve overall QoL

Data Collection Tools

- **Demographic and Clinical Data Form:** Captured participant details such as age, marital status, education, occupation, income, family type, duration of survivorship, stage of cancer and treatment history
- **Functional Assessment of Cancer Therapy-Cervix (FACT-Cx):** A validated tool used to measure QoL across physical, emotional, social and functional domains. Scores were categorized based on mean cut-offs, with higher scores reflecting better QoL

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee. Written informed consent was secured from all participants after the study objectives, procedures, potential risks and benefits were explained in the local language (Tamil). Confidentiality and anonymity of data were strictly maintained throughout the study.

Statistical Analysis

Data were coded, entered and analyzed using SPSS (version 25) and Microsoft Excel. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to summarize socio-demographic and clinical characteristics. Inferential statistics included:

- **Independent t-test** to compare mean QoL scores between groups
- **Paired t-test** to assess pre- and post-intervention changes within groups
- **Chi-square test** to explore associations between categorical variables
- **Pearson's correlation coefficient** to examine relationships between QoL domains and selected demographic or clinical variables

A p-value of <0.05 was considered statistically significant.

RESULTS

Demographic Variables

The demographic breakdown of the sample, comprising 140 participants (70 in the experimental and 70 in the control group), shows that the majority are aged between 30-50 years (57.1%), followed by those above 50 years (28.6%) and below 30 years (14.3%). Most participants are married (78.6%), with fewer being widowed (14.3%) or divorced (7.1%). In terms of education, 35.7% have primary education, 28.6% have secondary education and 14.3% have no formal education, while higher education is less common (21.4% in the experimental group and 7.1% in the control group). A large proportion (57.1%) are homemakers and 28.6% work as agriculture workers. Income levels vary, with 42.9% earning below ₹10,000 per month, followed by 35.7% earning ₹10,000-₹20,000. Regarding cancer survival, 42.9% have survived for 1-3 years and 50% of the participants have undergone surgery, while 42.9% received chemotherapy and 7.1% had radiotherapy (Table 1).

Comparison of QOL Score-Pretest

This table presents the pretest Quality of Life (QOL) scores for the experimental and control groups, showcasing the mean and standard deviation for various aspects of well-being. The parameters assessed include Physical Well-being, Social/Family Well-being, Emotional Well-being, Functional Well-being, Additional Concerns and the overall pretest score. The mean differences and statistical significance (t-values and p-values) were calculated to compare the two groups. The p-values indicate that there were no significant differences between the groups in the pretest phase (all p-values>0.05), suggesting that the baseline characteristics were similar between the groups (Table 2).

Comparison of QOL Score-Post-test

This table compares the posttest QOL scores for the experimental and control groups, with mean and standard deviation values for the same parameters as in Table 2. The posttest results highlight significant differences in various

Table 1: Demographic Characteristics of the Participants (n = 140)

Demographic Variable	Category	Experimental Group (n = 70)	Control Group (n = 70)
Age (in years)	Below 30	10 (14.3%)	10 (14.3%)
	30-50	40 (57.1%)	40 (57.1%)
	Above 50	20 (28.6%)	20 (28.6%)
Marital Status	Married	55 (78.6%)	55 (78.6%)
	Widowed	10 (14.3%)	10 (14.3%)
	Divorced	5 (7.1%)	5 (7.1%)
Education Level	No formal education	10 (14.3%)	20 (28.6%)
	Primary education	25 (35.7%)	25 (35.7%)
	Secondary education	20 (28.6%)	20 (28.6%)
	Higher education	15 (21.4%)	5 (7.1%)
Occupation	Homemaker	40 (57.1%)	40 (57.1%)
	Agriculture worker	20 (28.6%)	20 (28.6%)
	Government employee	5 (7.1%)	5 (7.1%)
	Private sector worker	5 (7.1%)	5 (7.1%)
Income Level (Monthly)	Below ₹10,000	30 (42.9%)	30 (42.9%)
	₹10,000 - ₹20,000	25 (35.7%)	25 (35.7%)
	₹20,000 - ₹30,000	10 (14.3%)	10 (14.3%)
	Above ₹30,000	5 (7.1%)	5 (7.1%)
Duration of Cancer Survival	1-3 years	30 (42.9%)	30 (42.9%)
	4-6 years	20 (28.6%)	20 (28.6%)
	More than 6 years	20 (28.6%)	20 (28.6%)
Type of Cancer Treatment	Surgery	35 (50.0%)	35 (50.0%)
	Chemotherapy	30 (42.9%)	30 (42.9%)
	Radiotherapy	5 (7.1%)	5 (7.1%)

Table 2: Comparison of QOL Score-Pretest (n = 140)

QOL Score	Group (Mean±SD)	Control (Mean±SD)	Mean Difference	t-value	p-value
Physical Well-being	17.09±7.48	17.27±6.93	0.18	t = 0.15	p = 0.87 (NS)
Social/Family Well-being	15.61±7.77	15.97±6.59	0.36	t = 0.29	p = 0.77 (NS)
Emotional Well-being	12.94±6.65	13.26±5.52	0.32	t = 0.30	p = 0.76 (NS)
Functional Well-being)	13.20±8.01	14.33±6.73	1.13	t = 0.90	p = 0.36 (NS)
Additional Concerns	24.21±14.87	24.51±15.03	0.3	t = 0.12	p = 0.91 (NS)
Pretest Score	83.06±34.03	85.34±39.64	2.28	t = 0.37	p = 0.72 (NS)

Table 3: Comparison of QOL Score-Post-test (n = 140)

QOL Score	Group (Mean±SD)	Control (Mean±SD)	Mean Difference	t-value	p-value
Physical Well-being	20.64±6.81	17.61±6.88	-3.03	t = 2.62	p = 0.01** (S)
Social/Family Well-being	19.69±6.75	16.17±6.79	-3.52	t = 3.07	p = 0.01** (S)
Emotional Well-being	15.87±5.82	13.43±5.91	-2.44	t = 2.46	p = 0.05* (S)
Functional Well-being	17.51±6.77	14.49±7.00	-3.02	t = 2.60	p = 0.01 (NS)
Additional Concerns	33.44±14.88	24.90±14.58	-8.54	t = 3.43	p = 0.01** (S)
Posttest Score	107.16± 39.91	86.60±38.81	-20.56	t = 3.08	p = 0.001***(S)

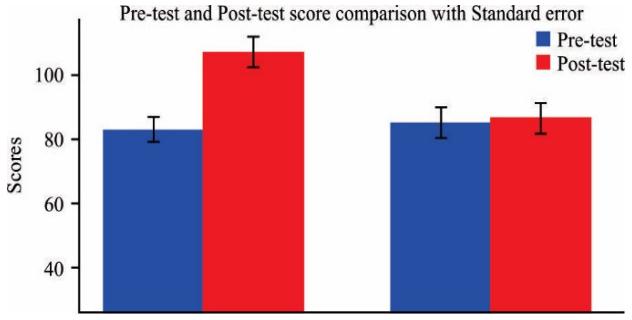

Figure 1: Comparison of QOL mean and SD Score

areas, particularly in Physical Well-being, Social/Family Well- being, Emotional Well-being, Additional Concerns and the overall posttest score, where the experimental group showed considerable improvement. Statistical analysis (t-values and p-values) demonstrates that the experimental group had significantly better outcomes in these areas (p-values<0.05), indicating the effectiveness of the intervention (Table 3, Figure 1).

DISCUSSION

The present study provides compelling evidence that nurse-led interventions can significantly improve the quality of life (QoL) of cervical cancer survivors in rural Madurai, Tamil Nadu. At baseline, QoL scores between the experimental and control groups were statistically comparable (83.06±34.03 vs. 85.34±39.64; p = 0.72), indicating homogeneity in participant characteristics prior to intervention. Following the structured nurse-led program, however, the experimental group demonstrated a substantial increase in QoL scores (107.16±39.91), while the control group showed no meaningful improvement (86.60±38.81). This significant difference (p = 0.001) underscores the effectiveness of the intervention in addressing survivors' multidimensional health needs.

These findings are consistent with existing literature, which emphasizes the positive impact of structured psychosocial and supportive interventions in oncology survivorship. Morais *et al.* [13] identified a strong inverse association between anxiety and QoL, highlighting that interventions which alleviate psychological distress can directly enhance overall well-being. In the current study, the nurse-led program provided not only health education and symptom management strategies but also psychosocial support that likely reduced anxiety and improved coping mechanisms, thereby elevating QoL scores.

Similarly, Amstel *et al.* [14] demonstrated the value of nurse-led interventions employing psychological assessment tools such as the distress thermometer in breast cancer survivors. By systematically identifying and addressing sources of emotional distress, nurses play a pivotal role in fostering resilience and empowering patients to adapt to the challenges of survivorship. The present study's results mirror these outcomes, reinforcing the importance of psychological support as a cornerstone of survivorship care.

The findings also resonate with the principles of comprehensive palliative care described by Becker *et al.* [15], which advocate for collaborative, multidisciplinary care models in which nurses occupy a central role. By integrating education, symptom management and emotional support, nurse-led programs offer holistic benefits that extend beyond physical health, encompassing psychosocial and spiritual well-being. This holistic approach is particularly relevant in rural and resource-constrained settings, where access to specialized oncology and mental health services is often limited.

Moreover, the improvement in QoL observed in the experimental group underscores the broader potential of nurse-led interventions as cost-effective, scalable and culturally adaptable models of care. By leveraging the accessibility and trustworthiness of community-based nurses, these programs can bridge gaps in healthcare delivery and reduce disparities in survivorship outcomes.

Taken together, the study not only confirms the efficacy of nurse-led interventions in improving QoL among cervical cancer survivors but also aligns with a growing body of global evidence emphasizing patient-centered, nurse-driven survivorship models [16,17]. The results highlight the urgent need for healthcare policymakers to recognize and integrate

such interventions into routine cancer care, particularly in underserved rural communities where survivorship challenges are compounded by socioeconomic and cultural barriers.

CONCLUSIONS

This study demonstrates that nurse-led interventions significantly improve the quality of life among cervical cancer survivors, with the experimental group showing a marked increase in QoL scores compared to the control group. The results highlight the critical role of nurses in addressing the multifaceted needs of cancer survivors by integrating health education, psychosocial support and symptom management into routine care.

The findings strongly advocate for the incorporation of structured nurse-led survivorship programs into standard oncology care pathways, particularly in rural and resource-limited settings. Such programs not only improve psychological and emotional well-being but also foster empowerment, resilience and long-term adaptation among survivors.

Future research should build upon these findings by employing larger and more diverse samples, extending follow-up periods to assess long-term outcomes and incorporating qualitative methodologies to capture survivors' lived experiences. Additionally, evaluating cost-effectiveness and scalability will be critical to informing policy decisions and ensuring sustainable integration of nurse-led interventions into national cancer control strategies.

Ultimately, adopting nurse-led survivorship models represents a pivotal step toward improving holistic health outcomes, reducing disparities and enhancing the overall quality of life for women with cervical cancer.

Acknowledgement

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Conflicts of Interest

The authors declare no conflicts of interest related to this study.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee, ensuring compliance with national and international ethical research guidelines (Declaration of Helsinki). Written informed consent was obtained from all participants after a clear explanation of the study objectives, procedures, potential benefits and risks in the local language. Participation was voluntary and confidentiality and anonymity were strictly maintained throughout the study. Participants retained the right to withdraw from the study at any stage without any consequences to their routine medical care.

REFERENCES

[1] Rodríguez-Matesanz, I. *et al.* "Are Nursing Interventions Effective in Improving Quality of Life in Cancer Survivors? A Systematic Review." *Cancer Nursing*, vol. 45, no. 1, 2020, pp. E134-E145. https://doi.org/10.1097/ncc.0000000000000901.

[2] Lans, M. *et al.* "Evaluation of a Nurse-Led Patient Navigation Intervention." *Cancer Nursing*, vol. 45, no. 4, 2021, pp. 287-296. https://doi.org/10.1097/ncc.0000000000001012.

[3] Elizondo, N. *et al.* "Role of the Nurse in the Design, Delivery, Monitoring and Coordination of Cancer Survivorship Care Plans: An Integrative Review." *Journal of Advanced Nursing*, vol. 78, no. 1, 2021, pp. 48-62. https://doi.org/10.1111/jan.14962.

[4] Lanfear, C. and S. Harding. "The Effectiveness of Nurse-Led Care in Supporting Self-Management in Patients with Cancer: A Systematic Review." *Journal of Clinical Nursing*, vol. 32, no. 23-24, 2023, pp. 7996-8006. https://doi.org/10.1111/jocn.16895.

[5] Hwang, K. *et al.* "The Effect of Comprehensive Care Program for Ovarian Cancer Survivors." *Clinical Nursing Research*, vol. 25, no. 2, 2014, pp. 192-208. https://doi.org/10.1177/1054773814559046.

[6] Monterosso, L. *et al.* "Systematic Review and Meta-Analysis of Patient-Reported Outcomes for Nurse-Led Models of Survivorship Care for Adult Cancer Patients." *Cancer Treatment Reviews*, vol. 73, 2019, pp. 62-72. https://doi.org/10.1016/j.ctrv.2018.12.007.

[7] Çolak, S. and F. Vural. "Effect of Nurse-Led Interventions on Patient Outcomes in Patients with Prostate Cancer: A Systematic Review." *International Journal of Urological Nursing*, vol. 16, no. 2, 2021, pp. 105-113. https://doi.org/10.1111/ijun.12310.

[8] Gunn, K. *et al.* "Improving Survivors' Quality of Life Post-Treatment: The Perspectives of Rural Australian Cancer Survivors and Their Carers. "*Cancers*, vol. 13, no. 7, 2021, p. 1600. https://doi.org/10.3390/cancers13071600.

[9] Chang, H. and Y. Park. "Cancer Rehabilitation from the Perspectives of Oncology Nurses in Korea." *Nursing and Health Sciences*, vol. 15, no. 2, 2012, pp. 144-150. https://doi.org/10.1111/nhs.12007.

[10] Chan, R. *et al.* "Nurses' Attitudes and Practices Towards Provision of Survivorship Care for People with a Haematological Cancer on Completion of Treatment." *Supportive Care in Cancer*, vol. 25, no. 12, 2017, pp. 3972-3980. https://doi.org/10.1007/s00520-017-3972-5.

[11] Lawler, S. *et al.* "Follow-Up Care after Breast Cancer Treatment: Experiences and Perceptions of Service Provision and Provider Interactions in Rural Australian Women." *Supportive Care in Cancer*, vol. 19, no. 12, 2010, pp. 1975-1982. https://doi.org/10.1007/s00520-010-1041-4.

[12] Chung, V. *et al.* "Improving Palliative Care and Quality of Life in Pancreatic Cancer Patients." *Journal of Palliative Medicine*, vol. 25, no. 5, 2022, pp. 720-727. https://doi.org/10.1089/jpm.2021.0187.

[13] Morais, S. *et al.* "Studying the Relationship between Life Quality and Anxiety, Depression, and Stress in People with Prostate Cancer." *Clinical Cancer Investigation Journal*, vol. 12, no. 5, 2023, pp. 60-63. https://doi.org/10.51847/rdokcbq8tr.

[14] Amstel, F. *et al.* "The Effectiveness of a Nurse-Led Intervention with the Distress Thermometer for Patients Treated with Curative Intent for Breast Cancer: Design of a Randomized Controlled Trial." *BMC Cancer*, vol. 16, no. 1, 2016, p. 222. https://doi.org/10.1186/s12885-016-2565-x.

[15] Becker, C. *et al.* "A Cluster Randomized Trial of a Primary Palliative Care Intervention (CONNECT) for Patients with Advanced Cancer: Protocol and Key Design Considerations." *Contemporary Clinical Trials*, vol. 54, 2017, pp. 98-104. https://doi.org/10.1016/j.cct.2017.01.005.

[16] Laird, B. *et al.* "Quality of Life in Patients with Advanced Cancer: Differential Association with Performance Status and Systemic Inflammatory Response." *Journal of Clinical Oncology*, vol. 34, no. 23, 2016, pp. 2769-2775. https://doi.org/10.1200/jco.2015.65.7742.

[17] Yılmaz, G. *et al.* "Effect of a Nurse-Led Intervention Programme on Professional Quality of Life and Post-Traumatic Growth in Oncology Nurses." *International Journal of Nursing Practice*, vol. 24, no. 6, 2018, e12687. https://doi.org/10.1111/ijn.12687.