

## Contextual quality of life of HIV-positive patients with cervical carcinoma at Tygerberg Hospital

**Du Toit GC**, MBChB, MMed, FCOG/LKOG(SA), Part-Time Consultant Lecturer

Unit of Gynaecological Oncology, Tygerberg Hospital; University of Stellenbosch, Stellenbosch

**Kidd M**, PhD, Statistical Consultant and Professor

Centre for Statistical Consultation; University of Stellenbosch, Stellenbosch

**Correspondence to:** George du Toit, e-mail: dutoitg@worldonline.co.za

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### Abstract

**Objective:** In South Africa, the majority of cervical carcinoma cases present when they are in the advanced stage. Concomitant HIV/AIDS further compromise patient health. Data on the impact of HIV/AIDS on the quality of life of cases with advanced cervical carcinoma are lacking. Contextual factors, e.g. patient's educational level and income, influence their experience of quality of life.

**Design:** A cross-sectional study was carried out on the quality of life of newly diagnosed cases of cervical carcinoma. Self-administered questionnaires were completed by patients and other contextual factors (e.g. age, educational level, socio-economic status and clinical information), were obtained from patient folders.

**Setting and subjects:** Newly diagnosed cases of invasive cervical carcinoma who presented at the Gynaecological Oncology Unit, Tyberberg Hospital, were included in the study. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaires (QLQ)-C30 version 3 and QLQ-CX24 were used.

**Results:** The total study cohort of 73 patients (HIV-negative and HIV-positive) had a median age of 49 (28.3- 85.2 years). Of the patients, 7.1% had no formal education. The cohort had an unemployment rate of 41.5%, and 14.2% were pensioners. The marital state was predominantly single persons (31.4%), with a mean monthly income of R 1 373 (R0-14 000). Advanced stage of the disease was present in more than 50% of cases, and 32.2% were stage IIIb. Sixteen patients were HIV positive with an HIV-positive incidence of 22%. The comparative quality-of-life domains of HIV-negative and HIV-positive cases were statistically equal. Advanced stage, as a contextual factor, impacted significantly on a number of quality-of-life domains. These domains are amenable to medication.

**Conclusion:** HIV/AIDS did not adversely influence the quality of life of the newly diagnosed cervical carcinoma cases. In this regard, stage of disease had a significant impact on the domains of pain, insomnia, nausea and vomiting, appetite loss and constipation. These aspects are amenable to treatment. Cognitive function was adversely influenced by increasing age, poor education and a low monthly income. When giving support to patients with regard to enhancing their quality of life, this should be recognised and communicated to them.

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### Introduction

The majority of advanced-stage cervical carcinoma cases occur in developing countries. In these countries, advanced stage at presentation is associated with high mortality rates. The world age-standardised incidence rate (ASIR) for cervical carcinoma is 15.2/100 000, and the age-standardised mortality rate (ASMR) is 7.8/100 000. The predominance of early-stage disease in developed countries, e.g. the USA, is reflected by an ASMR of 1.7/100 000. Southern Africa has an ASIR of 26.8/100 000, with an ASMR of 14.8/100 000. South African studies report a high

incidence of advanced disease and poor five-year survival.<sup>1</sup> Cronje reported a 65%, and Moodley an 80%, incidence of advanced disease.<sup>2,3</sup> A 35% five-year survival in stage III disease was documented.<sup>4</sup>

### Background

The quality of life of women with advanced cervical carcinoma is influenced by the disease and its subsequent treatment. In this situation, limited survival, despite treatment, warrants an assessment of treatment-related impact on quality of life. Concomitant human immunodeficiency virus (HIV)

infection further compromises health and impacts on treatment, with a possible influence on quality of life. Invasive cervical carcinoma and acquired immune deficiency syndrome (AIDS) are associated diseases. The Centers for Disease Control and Prevention identifies invasive cervical carcinoma as an AIDS-defining condition. Invasive cervical carcinoma is designated as AIDS stage IV disease in the World Health Organization clinical staging of HIV/AIDS.<sup>5,6</sup> Chemoradiation is the current treatment for advanced cervical carcinoma.

HIV-positive women with cervical carcinoma have a poor prognosis when compared to their HIV-negative counterparts. This is because of the advanced stage of the disease on presentation and a lesser chance of completing treatment. Chemoradiation confers a limited survival benefit of 3%, compared to radiation alone in stage IIIB cervical carcinoma. A lower CD4 count is associated with failure to complete chemotherapy in HIV-positive women. Simonds suggests omitting chemotherapy as a reasonable option to enable the completion of radiotherapy.<sup>7</sup> The identification of treatment-related changes of quality of life should further influence future treatment decisions. To assess these changes, it is necessary to determine quality of life prior to treatment.

HIV status is a confounding, contextual factor in the quality of life of women with cervical carcinoma. Ashing-Giwa introduced the concept of contextual quality of life as a comprehensive framework, developed to expand the traditional quality-of-life framework.<sup>8</sup> This means that the cultural and socio-economic status of patients should be taken into account when assessing their quality of life. The inclusion of these contextual domains may increase the validity and utility of the quality-of-life framework to assess overall functioning in ethnically and socio-economically diverse patients with cancer. Contextual factors in this framework include socio-ecological factors, cultural background, demographic details and the healthcare system within which the patient is managed.<sup>8</sup> Contextual quality-of-life factors, identified in patients with breast carcinoma, could be improved with interventions such as community-based support groups.<sup>9</sup> Contextual factors that are relevant to a quality-of-life study in a developing country include age, education, monthly income and stage of cervical carcinoma.<sup>10</sup>

In a Thai study, the quality of life of women with newly diagnosed cervical carcinoma was lower than that of the general healthy population. This study identified lower socio-economic status and lower educational levels in women with cervical carcinoma. The mean age of these women was 52.4 years and 37% presented with stage III and IV disease.<sup>11</sup> In contrast to these results, Pasek et al reported that Polish women with newly diagnosed cervical carcinoma had a better educational level and socio-economic status. In the

Polish study, stage III and IV disease occurred in 53% of cases.<sup>12</sup> In comparison to these studies, the mean age of South African women diagnosed with stage III and IV cancer (58-94%) was 50-53 years.<sup>2,3</sup>

Current studies on the quality of life in women with newly diagnosed cervical carcinoma in South Africa are lacking. Studies on the contextual quality of life of HIV-positive and HIV-negative women with cervical carcinoma in a developing country, such as South Africa, are limited. The main objective of the study was to compare the quality of life of these women at the time of diagnosis. A second aim was to determine the influence of contextual factors on quality of life in this cohort of women with newly diagnosed cervical carcinoma.

## Method

This was a cross-sectional study that compared the quality of life of HIV-positive and HIV-negative cervical carcinoma cases at diagnosis. The study also describes the influence of the contextual factors on the quality of life of these patients. All women with newly diagnosed cervical carcinoma, presenting at the Unit of Gynaecological Oncology of Tygerberg Hospital from October 2012 to March 2013, were approached for enrolment in the study. The patients received written information, in the language of their choice, on the method and goal of the study. This included the nature of the questionnaire content. Subsequent informed consent was obtained.

The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (QLQ)-C30 version 3 and QLQ-CX24 were used. The 30-item QLQ-C30 is a psychometrically validated, cross-culturally accepted questionnaire, and is applicable to a broad spectrum of patients with cancer as a core questionnaire. This instrument consists of five function scales (physical, role, emotional, cognitive and social); three symptom scales (fatigue, nausea or emesis and pain); six single-item scales (dyspnoea, sleep disturbance, appetite loss, constipation, diarrhoea and financial impact), and a global quality-of-life scale. The QLQ-CX24 is a cervical carcinoma-specific questionnaire. Its 24 items are summarised in three scales, namely symptom experience, body image, and sexual and vaginal functioning. The other dimensions of this questionnaire are single-item scales of lymphoedema, peripheral neuropathy, menopausal symptoms, sexual worry, sexual activity and sexual enjoyment.<sup>13</sup>

During the study, the questionnaires were self-administered by patients in their language of choice (English, isiXhosa and Afrikaans). Illiterate patients were assisted during completion of the questionnaires. Demographic, clinical and socio-economic data were

obtained from patient folders. Ethics approval was acquired from the Health Research Ethics Committee of Stellenbosch University (No S12/06/174). Means and standard deviations were employed to describe the study groups in the case of continuous data. Frequencies and percentages were used for categorical data. Statistical analyses were carried out using the chi-square test or Fischer's exact test for categorical data, and Student's t-test for continuous data. Pearson's correlation coefficient and Spearman's rank correlation coefficient were used to correlate domains of quality of life with contextual factors. A p value of  $\leq 0.05$  was regarded as statistically significant.

### Results

The total study cohort of 73 patients (HIV negative and HIV positive) had a median age of 49 (28.3-85.2) years. 7.1% of the patients had no formal education (Figure 1). The cohort had an unemployment rate of 41.56%. 14.2% were pensioners. The marital state was predominantly single persons (31.43%), with a mean monthly income of R1 373 (R0-14 000). Advanced stage of disease was present in more than 50% of cases, and

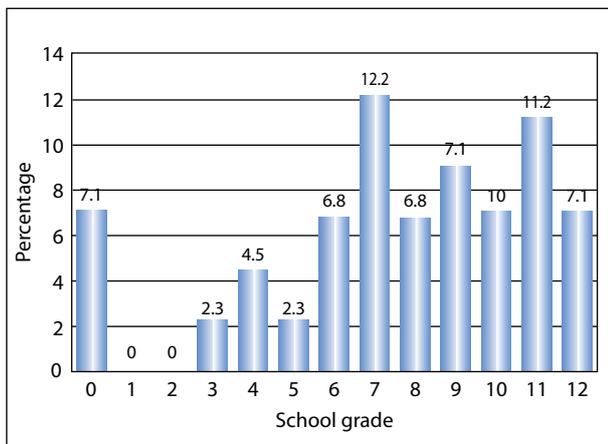


Figure 1: Education level of the study group

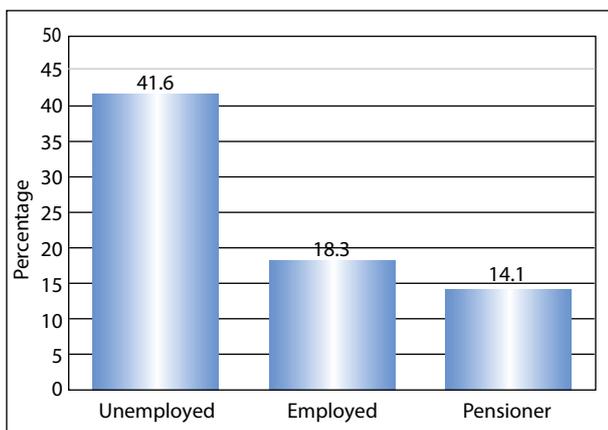


Figure 2: Employment status of the study group

32.2% were stage IIIb (Figure 2). A total of 16 patients were HIV positive, with an HIV incidence of 22%. The demographic features of the HIV-negative and HIV-positive groups were statistically similar (Table I).

The comparative quality-of-life domains of HIV-positive and HIV-negative cases were statistically equal (Table II). The contextual influence of age, educational level, monthly income and stage on the quality of life of the total study group is depicted in Table III. Advanced stage of cancer had a statistically significantly negative impact on the domains of pain, fatigue, insomnia, nausea and vomiting, appetite loss and constipation. Cognitive function was adversely influenced by increasing age, poor education and low monthly income.

### Discussion

In the current study, HIV-positive and HIV-negative women with newly diagnosed cervical carcinoma had a similar quality of life. Advanced stage of carcinoma and low levels of education influenced the quality of life of the total study cohort. The quality-of-life domains that were influenced by advanced-stage cancer included pain, fatigue, insomnia, appetite loss, nausea, vomiting, constipation, body image, sexual activity and sexual enjoyment. Educational levels influenced the domains of physical symptoms, cognitive function and menopausal symptoms.

Demographic data from previous studies on cervical carcinoma in South Africa have consistently documented the younger age of HIV-positive cervical cases (Table IV). A consistent mean age of 41-44 years of HIV-positive cases was reported in these studies. In the current study, the nine-year age difference between the HIV-negative and HIV-positive subjects was similar to that reported in these studies. In

Table I: Demographic data of HIV-negative and HIV-positive patients with newly diagnosed cervical carcinoma

Demographic data	HIV-negative (n = 57)	HIV-positive (n = 16)	p-value
Age (years)	51.23	44.44	0.06
Monthly income (Rands)	1 733.06	1 272.06	0.46
Stage of disease			0.55
Education (grade passed)	7	8	0.16
Marital status			0.03
Race			0.00042*
Employment			0.15

HIV: human-immunodeficiency virus

\* Coloured patients (50% were HIV-positive) and black patients (80% were HIV-positive)

**Table II:** Comparative quality-of-life domains in HIV-negative and HIV-positive patients with newly diagnosed cervical carcinoma

Quality-of-life domains	HIV-negative (n = 57)	HIV-positive (n = 16)	p-value
Physical functioning	9.68 ± 3.66	10.87 ± 3.59	0.25
Role functioning	3.89 ± 1.82	4.06 ± 2.14	0.75
Emotional functioning	8.31 ± 3.75	9.68 ± 3.68	0.18
Cognitive functioning	3.73 ± 1.57	4.20 ± 1.97	0.34
Social functioning	3.50 ± 1.59	4.00 ± 1.75	0.28
Global health and quality of life	9.40 ± 6.85	6.18 ± 2.97	0.07
Fatigue	6.73 ± 2.49	7.81 ± 2.92	0.14
Nausea and emesis	2.73 ± 1.38	3.33 ± 1.49	0.15
Pain	4.66 ± 2.29	4.87 ± 2.33	0.75
Dyspnoea	1.70 ± 1.05	1.62 ± 1.20	0.80
Insomnia	2.05 ± 1.25	2.31 ± 1.30	0.47
Appetite loss	1.64 ± 1.00	1.81 ± 1.10	0.58
Constipation	2.42 ± 1.26	2.43 ± 1.36	0.97
Diarrhoea	1.17 ± 0.46	1.43 ± 0.96	0.13
Financial difficulties	1.73 ± 1.02	2.06 ± 1.06	0.27
Symptom experience	20.64 ± 5.95	23.00 ± 5.54	0.16
Body image	5.26 ± 2.49	6.68 ± 2.79	0.05
Sexual and vaginal function	8.38 ± 0.91	8.33 ± 1.34	0.93
Lymphoedema	1.52 ± 0.88	1.81 ± 1.22	0.30
Peripheral neuropathy	1.59 ± 0.12	2.38 ± 0.23	0.0042
Menopausal symptoms	1.92 ± 0.13	2.43 ± 0.25	0.09
Sexual worry	2.04 ± 0.17	2.06 ± 0.32	0.94
Sexual activity	1.36 ± 0.09	1.31 ± 0.18	0.78
Sexual enjoyment	2.46 ± 1.05	2.00 ± 1.09	0.39

HIV: human immunodeficiency virus

the aforementioned studies, Simonds recorded statistically significant, higher-percentage, advanced-stage presentation in HIV-positive cases. The Moodley and Lomalisa studies showed no difference in stage distribution.<sup>3,7,14</sup> The current study's findings on stage concur with the latter two studies. In the current study, a high incidence of stage IIIb cases occurred (32%). In previous South African studies, Cronje reported a 59%, and Moodley a 93%, incidence of advanced-stage cancer upon presentation.<sup>2,3</sup>

In the current study, HIV/AIDS infection did not impair the quality of life of patients with invasive cervical carcinoma. The impact of HIV/AIDS on other malignancies, e.g. lymphoma, revealed that HIV-positive patients had a worse overall quality of life and survival than that of uninfected patients. Quality-of-life differences were more marked in the areas of functional, physical and social well-being than in the area of emotional well-being. HIV-positive lymphoma patients had a lower income than uninfected patients.

HIV-positive lymphoma patients had a worse quality of life and survival than uninfected patients, because of a combination of co-morbidity, aggressive histology and lack of social support. However, their emotional well-being was comparable to that of uninfected lymphoma patients, and better than the historical norms for HIV-positive subjects.<sup>15</sup>

Developing regions of the world, such as South-East Asia, Central America and the Caribbean, have incidence rates of cervical carcinoma which are similar to those in South Africa.<sup>1</sup> Demographic data from Thailand show that people with cervical carcinoma had a poor education. Twenty-one per cent had no education and 58% cases had attained an education level lower than that of high school.<sup>11</sup> The current study documented a high unemployment rate of 41.6%, and an uneducated rate of 7.1%. This, together with the study findings from Thailand, confirms advanced-stage cervical carcinoma as a disease that occurs predominantly in lower socio-economic population groups with poor educational

**Table III:** Correlation between the contextual factors and quality-of-life domains

Quality-of-life domains	Age	Education	Monthly income	Stage
Physical	0.31*	-0.4*	-0.12	0.21
Role	-0.02	-0.08	-0.17	-0.01
Dyspnoea	0.22	-0.24*	-0.05	-0.08
Pain	0.04	-0.29	-0.17	0.34*
Fatigue	0.13	-0.26	-0.11	0.29*
Insomnia	0.07	-0.12	-0.15	0.27*
Appetite loss	-0.07	-0.2	-0.11	0.34*
Nausea and vomiting	-0.11	-0.08	-0.16	0.31*
Constipation	-0.03	-0.15	-0.21	0.28*
Diarrhoea	0.03	0.08	-0.01	0.01
Cognitive	0.27*	-0.36*	-0.24*	0.14
Emotional	-0.16	0.06	0	0.12
Social	-0.15	-0.07	-0.03	0.02
Financial difficulties	-0.25*	0.21	-0.06	-0.16
Global health status	0.23	-0.16	0.07	-0.07
Symptom experience	0.02	-0.12	-0.06	0.24*
Lymphoedema	0.28	0	-0.08	0.22
Peripheral neuropathy	0	-0.14	-0.06	-0.1
Menopausal symptoms	0.04	-0.25*	0.1	0.09
Body image	-0.09	-0.11	-0.11	0.25*
Sexual worry	-0.34*	0.08	-0.06	0
Sexual activity	-0.37*	0.21	0.06	-0.32*
Sexual enjoyment	-0.13	-0.02	-0.36	-0.14

\* Statistically significant

**Table IV:** Previous South African studies on cervical carcinoma in patients who were human immunodeficiency virus-positive

Author	N	HIV-positive (%)	Mean age (years)		Stage III and IV (%)	
			HIV-negative	HIV-positive	HIV-negative	HIV-positive
Lomalisa <sup>10</sup>	836	7.2	53*	44*	55	65
Moodley <sup>11</sup>	271	21.8	54*	41*	94	64
Simonds <sup>12</sup>	383	18.2	50*	41*	58*	65*

HIV: human immunodeficiency virus

\* Statistically significant

levels. The contextual factors of poor education level and unemployment had a direct effect on the quality of life of the patients at diagnosis in the Thai study.

The limitation of the current study was the low number (16) of HIV-positive cases. The stage of AIDS and CD4 counts could also be relevant to the quality of life experienced by the women. This was a further limitation of the current study.

## Conclusion

The current study documented that the presence of HIV/AIDS in newly diagnosed cases of cervical

cancer did not influence their quality of life. The most important contextual factor that negatively influenced their quality of life was advanced-stage cancer and education level. Specific attention to alleviating the symptoms of pain, constipation, nausea and vomiting in these cases is required to improve their quality of life. A further finding was the significant impact of menopausal symptoms which had a direct correlation with the poor education level of the patients. Adequate patient information with regard to menopausal symptom treatment options is an easily attainable intervention. Cognitive function was adversely influenced by increasing age, poor education

and low monthly income. To enhance the quality of life of patients, this should be recognised when communicating with them. Future research could include tailored support to improve quality of life. This must focus on supporting patients and take cognisance of their poor socio-economic circumstances and low education level.

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