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RESEARCH ARTICLE

QUALITY OF LIFE OF CANCER PATIENTS FOLLOWED IN THE MEDICAL ONCOLOGY DEPARTMENT OF A NATIONAL HOSPITAL CENTER OF SENEGAL AND ASSOCIATED FACTORS

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Abstract

Introduction: Faced with the highly aversive symptoms and incapacitating side effects of anticancer therapy, the assessment of patients' Quality of Life (QoL) is essential to better inform clinical decisions. Using a mixed design, the QoL of cancer patients followed in the medical oncology department of the DalalJamm University Hospital in Senegal was assessed, as well as the factors associated with it.

Method: Data collected using the EORTC QLQ-C30 version 3.0 self-administered questionnaire were analyzed according to the guidelines of the "QLQ-C30 Scoring Manual" by calculating the average of the raw scores for each of the 30 items completed, then the Standardized Scores (SN) for the multi-item dimensions ranging from 0 to 100. To determine the overall QoL level of each respondent based on their SN, an assessment scale consisting of four different levels corresponding to four class intervals with an amplitude equal to 25 was proposed: SN € [0-25[= QoL severely degraded; SN € [25-50[= QoL degraded; SN € [50-75[= QoL moderately degraded; SN € [75-100] = QoL slightly degraded. Finally, categorical variables were summarized in numbers and percentages and by calculating deviations from independence.

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Bivariate statistical analyzes (Chi-square test or Fisher's Exact test) were performed to verify the existence of a statistical dependence between socio-professional, demographic, clinical and therapeutic characteristics and the QoL of patients (P-value < 0.05 indicates a significant dependence). Results: 60 cancer patients (mean age = 54.42 years) were included in the study, 47% of whom were at SBR stage II of the cancerous disease. QoL was slightly degraded in 52% of the respondents, moderately degraded in 22%, degraded in 16% and significantly degraded in 10%. Disease stage (p=0.003), presence of metastases (p=0.004), location of metastases (p=0.004), curative chemotherapy (p=0.003), palliative chemotherapy (p=0.004), curative radiotherapy (p=0.003) and marital status (p=0.02) significantly influence their QoL. Discussions: Taking these factors into account could improve the QoL of cancer patients.

Introduction:-

Cancer is and remains a major public health problem due to its seriousness and the complexity of its therapeutic management. Its occurrence affects all aspects of the cancer patient's life, as well as those around them (AL Septans , 2014). The World Health Organization [WHO], reported by P. Aubery and BA Gauzere (2020), reminded us that cancer is responsible for one in six deaths worldwide, but that up to 50% of all its forms can be prevented. Despite the progress made in recent years in diagnosis, therapeutic management and prevention, cancer remains a serious disease that wreaks havoc (P. Amsalhemet al. , 2007) and the most common symptoms resulting from the disease itself and its treatments include: distress (PA Ganz et al. , 2002), pain (P.J. Christo and D. Mazloomdoost , 2008), depression (M. Sharpe and J. Walker, 2009), fatigue (M. Andrea et al. , 2008) and insomnia (J. Savaret al. , 2005). Cancer therefore remains a challenge for humanity, in the face of which it is still powerless.

Therapeutic management of cancer is multidisciplinary, interdisciplinary and transdisciplinary. Depending on the type of cancer and its stage of development, and given that each cancer patient is unique, it includes different types of treatment which can be offered alone or in combination, namely: oncological surgery ;chemotherapy;targetedtherapies;radiotherapy;hormonetherapy;immunotherapy. These treatments generally affect the patient's Quality of Life (QoL) and can be responsible for side effects or late sequelae , while it is crucial that cancer patients maintain the best possible QoL through adjuvant care that goes beyond the discipline of oncology, including rehabilitation, supportive care and palliative care.

Indeed, according to the WHO (1993), QoL is an individual's perception of their place in life, in the context of the culture and value system in which they live, in relation to their goals, expectations, standards and concerns; QoL is a very broad concept that can be influenced in a complex way by the subject's physical health, psychological state and level of independence, social relationships and relationship to the essential elements of their environment. As for QoL related to health, it is defined as a state of well-beingwhich is based on two components: 1- the ability to carry out daily activities which reflect thewell-beingphysical,psychological Andsocial and;2 the satisfaction of patient with her level of functioning,control of hisdiseaseandrelated symptomshasher treatment(R. Feld , 1995; CC Gotayet al. , 1992). For Anon (2018), the concept of health-related quality of life refers to the subject's judgment of their own health. It includes physical, emotional, psychological and social dimensions as well as symptoms related to the disease and treatments and is based on objective (living conditions, functional health) and subjective (satisfaction, happiness, well-being) items integrating the person as a whole and their environment.

Improving the QoL of cancer patients is one of the two criteria used by the Food and Drug Administration (FDA) for the marketing authorization of new cancer drugs (JR Johnson and R. Temple, 1985). Better still, among the judgment criteria used in cancerology, after overall survival, is the evaluation of QoL which reports a direct clinical benefit as perceived and quantified by the patient (A. Bryandet al. , 2015). The question of the evaluation of QoL therefore seems to be a major issue today and its study is currently part of most therapeutic trials validating new molecules or therapeutic protocols (KA Reiss et al., 2015). Also, according to DF Cella (2007), the measurement of quality of life in cancer patients is done for three main reasons: 1- the evaluation of rehabilitation needs; 2- as a parameter in the evaluation of treatment results and; 3- as a predictive factor of response to future treatment . The evaluation of the QoL of cancer patients is therefore essential to better inform clinical decisions, hence the interest of this study whose objectives are to: 1- evaluate the impact of cancer and its treatments on the different dimensions of QoL and; 2- determine the factors associated with the quality of life of patients with cancer and followed in the medical oncology department of the Dalal National Hospital Center Jam m in the Republic of Senegal.

Materials and Methods:-

To achieve the objectives of the study, the philosophical orientation chosen (research design) and which seems to us to be the most suitable is that of a mixed study (qualitative and quantitative). The qualitative approach of the study is inspired by hermeneutic or interpretative phenomenology (HG Gadamer , 1976 and P. Ricœur, 1976) in which descriptive and interpretative perspectives coexist. As a qualitative research method in Nursing Sciences and Social Sciences, phenomenology aims at understanding and describing the human experience as lived by the participants (here, the participants in the study are cancer patients followed in the medical oncology department of the Dalal National Hospital Center Jam m in the Republic of Senegal) to a study (PL Munhall , 2012) and it seeks to discover the essence of phenomena, their nature and the meaning that human beings attribute to them (M. Van Manen , 1990) .

Indeed, the phenomenon under study, within the framework of this research, concerns the quality of life of cancer patients. In other words, what are the experiences of cancer patients of the impact of the cancerous disease and its treatments on the different dimensions [1- symptomatological; 2- physical; 3- psychological (mental) and emotional; 4- social and environmental; 5- economic; 6- sexual and body image and; 7- spiritual and psychological] of their quality of life?

Through documentary analysis (analysis of patient records) and on the basis of simple random probability sampling, patients of both sexes diagnosed with cancer and receiving therapeutic care for at least six months before the survey period (July 1 ^{to} August 31, 2021), followed in the medical oncology department of the Dalal National Hospital Center Jamm from Senegal, who gave their free and informed consent to participate in the survey and who are physically and mentally able to complete the data collection tool (self-questionnaire) themselves in order to observe the greatest neutrality, were included in the study.

The self-administered questionnaire "Quality of Life of Cancer Patients " from the European Organization for Research and Treatment of Cancer (European Organization for Research and Treatment of Cancer) [EORTC QLQ-C30], version 3.0 (EORTC, 1995), was adapted and used as the data collection tool for the study. Developed in 1996 by the EORTC (1995), this tool was chosen for the study because it is currently the most widely used in French and European studies on QoL (NK Aaronson et al.,1993). Validated in 2009 (S. Gentile et al., 2008); D. Beauger et al., 2013), the EORTC QLQ-C30 version 3.0 (EORTC, 1995) is a standard data collection tool for all types of cancer and consists of a main questionnaire that allows exploring several dimensions of QoL (NW Scott et al.,2008). Also, it is a general questionnaireusable for all cancer locations, a useful, reliable, interesting measurement tool in current clinical practice and suitable for routine use in measuring QoL in cancer patients and having been the subject of a long development which has approved its validity and reproducibility (A. Georgakopoulos , 2013). The European Organization for Research and Treatment of Cancer (EORTC) has also demonstrated that the quality of life measurement system based on the QLQ-C30 questionnaire is a practical, reliable, valid and intercultural method (NK Aaronson et al., 1993). It is a tool widely recognized for its high reliability and validity (BA Ayana et al., 2016; MN Azmawati et al., 2014; B. McCarthy, 2011; Michels et al., 2014).

The EORTC QLQ-C30 questionnaire version 3.0 (EORTC, 1995) consists of thirty (30) items whose responses allow the establishment of different scales, each of them exploring a different dimension of quality of life. It is structured as follows :

Five (5) functional scales to explore the dimensions: physical (items 1 to 5); executive (items 6 and 7); social (items 26 and 27); cognitive (items 20 and 25) and; emotional (items 21 to 24) of the quality of life of the person interviewed;

Nine (9) symptomatic scales to explore: fatigue (items 10, 12 and 18); nausea symptoms (items 14 and 15); pain (items 9 and 19); dyspnea (item 8); insomnia (item 11); anorexia (item 13); diarrhea (item 17); constipation (item 16) and; financial difficulties (item 28) felt by the patient and;

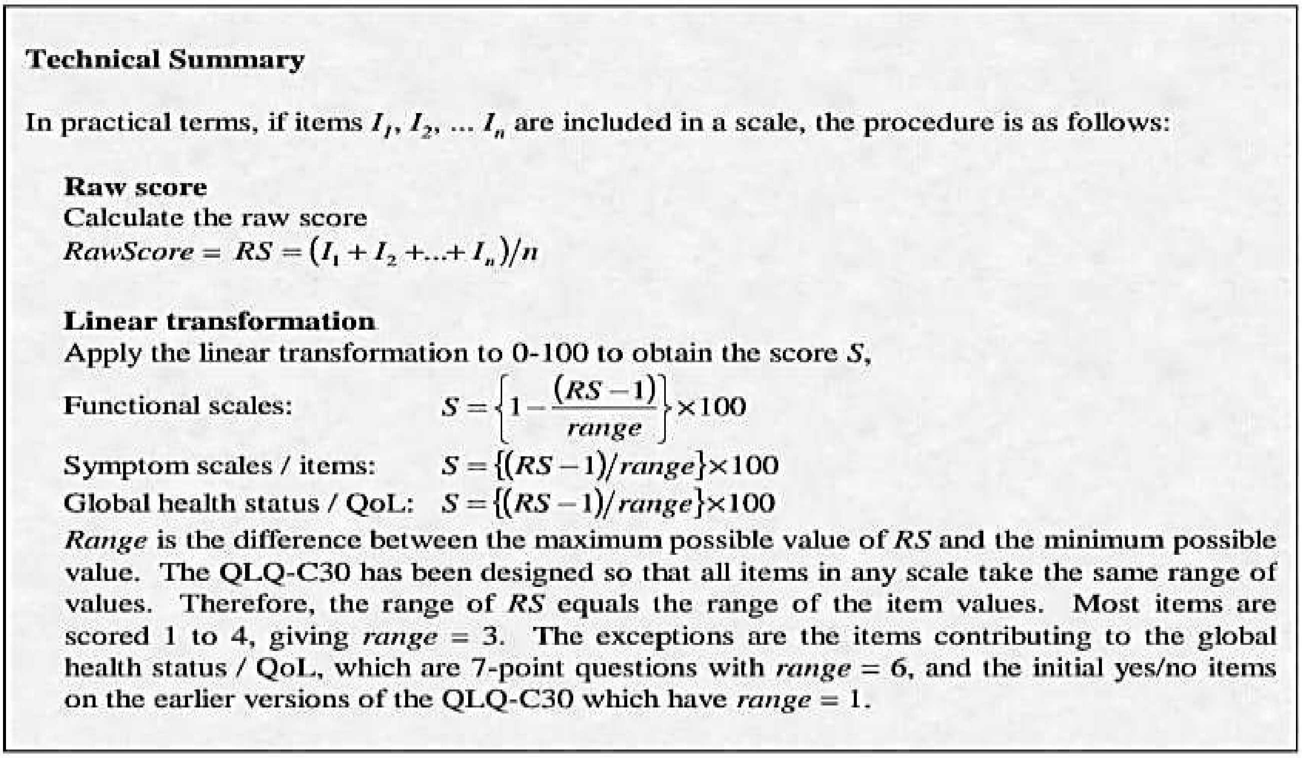
One (1) scale measuring the overall quality of life of each patient (items 29 and 30).

Each dimension explored includes between one and five different items. For the majority of questions, there are four possible response types: 1 - Not at all; 2 - A little; 3 - Quite a bit; 4 - A lot . The response methods, however, are different for the two items constituting the measurement of the patient's overall health status, the latter having to self-assess their overall health status and quality of life on a scale ranging from 1 (very poor) to 7 (excellent) .

In addition to the 30 different specific variables (items) constituting the EORTC QLQ-C30 version 3.0 questionnaire (EORTC, 1995) for the assessment of the patient's QoL , we adapted the questionnaire to the study by supplementing sociodemographic and clinical variables of each patient included in the study from the documentary analysis of their care file in order to look for possible significant associations between them (sociodemographic and clinical variables) and the quality of life of the cancer patient (Factors associated with the quality of life of the cancer patient). These include the following variables: Age; Sex; Place of residence; Marital status; Professional status; Level of education; Cancer locations; Types of treatment received; Types of analgesics received; Stages of development (SBR [Scarff Bloom Richardson] grade of the cancerous disease and; Surgical and medical history of the patient (See the adapted questionnaire in appendix 1).

raw scores for each of the 30 items completed, then the Standardized Scores (SN) ranging from 0 to 100, were calculated according to the procedure described in the EORTC QLQ-C30 Scoring Manual (P. Fayerset al, 2001)

(Figure 1)Figure 1:Method of calculating raw scores and standardized scores



Technical Summary

In practical terms, if items I_1, I_2, ... I_n are included in a scale, the procedure is as follows:

Raw score

Calculate the raw score

$RawScore = RS = (I_1 + I_2 + ... + I_n)/n$

Linear transformation

Apply the linear transformation to 0-100 to obtain the score S,

Functional scales: $S = \left\{1 - \frac{(RS - 1)}{range}\right\} \times 100$

Symptom scales / items: $S = \{(RS - 1)/range\} \times 100$

Global health status / QoL: $S = \{(RS - 1)/range\} \times 100$

Range is the difference between the maximum possible value of RS and the minimum possible value. The QLQ-C30 has been designed so that all items in any scale take the same range of values. Therefore, the range of RS equals the range of the item values. Most items are scored 1 to 4, giving $range = 3$. The exceptions are the items contributing to the global health status / QoL, which are 7-point questions with $range = 6$, and the initial yes/no items on the earlier versions of the QLQ-C30 which have $range = 1$.

To determine the overall quality of life level of each patient surveyed from their Normalized Score obtained, an assessment scale consisting of four different levels corresponding to four class intervals with an amplitude equal to 25, was proposed (table 1).

Table 1: Ranking scale of each cancer patient surveyed according to their overall quality of life level based on the standardized score obtained

Total Normalized Score obtained for the patient for the multi-item dimensions between	The overall quality of life of the cancer patient is:
[0-25[	Heavily degraded
[25-50[	Degraded
[50-75[	Moderately degraded
[75-100]	Little degraded

It should be noted that the standardized scores range from 0 to 100: a standardized score of zero corresponds to the worst quality of life and a standardized score of 100 reflects the best quality of life for the multi-item dimensions (NK Aaronson et al., 1993). In other words, a high global health score reflects good health and quality of life and a high score for a functional scale reflects optimal function of the measured variables. On the other hand, a high score for a symptomatic scale reflects, conversely, a high level of symptoms.

Regarding the quantitative approach of the study, the categorical variables were summarized in numbers (absolute frequencies) and percentages (relative frequencies) and by calculations of arithmetic mean and deviations from independence (P. Cibois , 2003). Bivariate statistical analyses (Chi2 test or Fisher 's Exact test) were carried out to verify the existence of a statistical dependence between the socio-professional, demographic, clinical and therapeutic characteristics and the quality of life of the patients (P-value < 0.05 indicates a significant dependence).

Results:-

60 cancer patients, 51% of whom were male, were included in the study. Their average age was 54.42 years, with extremes of 13 and 84 years.

Epidemiological profile of patients and therapeutic management methods

Table 2: Distribution of respondents according to the location of the cancer, the types of treatment and the types of analgesic received (n=60)

No.	Cancerous locations	Frequency	Percentage
01	Cervical cancer	19	31%
02	Prostate cancer	16	27%
03	Cancer of the ENT sphere	08	13%
04	Cavum cancer	04	06%
05	Breast cancer	05	09%
06	Rectal cancer	04	07%
07	Other cancerous locations	04	07%
	Total	60	100%
No.	Types of treatment received	Frequency	Percentage
01	Radio-chemotherapy	33	55%
02	Chemotherapy alone	11	18%
03	Exclusive radiotherapy for curative purposes	10	17%
04	Hormone therapy	03	05%
05	Adjuvant chemotherapy	03	05%
	Total	60	100%
No.	Types of painkillers received	Frequency	Percentage
01	1st ^{level} analgesics	11	19%
02	2nd ^{level} analgesics	08	13%
03	3rd ^{level} analgesics	02	03%
04	No pain therapy received	39	65%
	Total	60	100%

According to the data in Table 2, the most common cancers were cervical (31%) and prostate (27%). Radiochemotherapy was the most dominant type of treatment (55%), and the majority of patients had not received any pain relief therapy.

Furthermore, still from the documentary analysis of patient files, 11% of cancers were SBR grade I or low grade (least aggressive tumors for total histoprognostic scores of 3, 4 or 5); 47% were SBR grade II (for histoprognosticscores of 6 or 7) and; 42% were SBR grade III or high grade (most aggressive tumors for histoprognostic scores of 8 or 9) . Also, 42% of patients had a secondary cancer location (metastasis), 54% had a history of surgery, 43% had various medical histories and 3% had neither a history of surgery nor a medical history.

Overall quality of life of cancer patients surveyed (n = 60)

Table 3: Raw mean scores and standardized scores calculated according to the procedure described in the EORTC QLQ-C30 Scoring Manual (P. Fayers et al, 2001)

Items/scales	Raw Average Scores (n = 60)	Normalized scores (n = 60)	ddl	Test p	alpha
	M(SD)	M(SD)			
Global Health Scale / QoL	59.2	61.7	19	t = -424	.676
Functional scales					
Physical functioning	72.3	68.3		z = -0.803	.422
Daily activity	65.8	56.7		z = -1.31	.190
Emotional functioning	53.8	67.5		z = -2.033	.042
Cognitive functioning	57.5	72.5		z = -1.807	.071
Social functioning	65.0	65.8		z = -0.045	.964
Symptom scales/items					
Fatigue	42.8	46.7	19	t = .694	.496
Nausea and vomiting	13.3	12.5		z = -0.503	.615
Pains	30.0	28.3		z = .000	1,000
Dyspnea	16.7	28.3		z = -1.725	.084
Insomnia	50.0	50.0		z = -0.064	.949
Loss of appetite	13.3	21.7		z = -0.85	.396
Constipation	21.7	28.3		z = -0.791	.429
Diarrhea	11.7	16.7		z = -1.134	.257
Financial difficulties	18.3	20.0		z = -0.214	.831

Notes. M: mean; SD: standard deviation; df: degrees of freedom; Student 's t for paired samples; Wilcoxon's z

Table 4: Distribution of cancer patients according to their level of overall quality of life based on the standardized score obtained for the multi-item dimensions (n=60)

Normalized score between	Assessment scale of the level of overall quality of life	Frequency	Percentage
[0-25[	Quality of life significantly deteriorated	06	10%
[25-50[	Degraded quality of life	10	16%
[50-75[	Moderately poor quality of life	13	22%
[75-100]	Little deterioration in quality of life	31	52%
	Total	60	100%

According to the data in Tables 3 and 4, more than half (52%) of the cancer patients surveyed have a slightly degraded overall quality of life. On the other hand, 10% of them have a significantly degraded overall quality of life and 16% have a degraded overall quality of life.

Correlations between socio-professional, demographic, clinical and therapeutic variables and the quality of life of cancer patients surveyed

Table 5: Bivariate analysis between socio-professional, demographic, clinical and therapeutic characteristics and the overall quality of life score

No.	Sociodemographic, clinical and therapeutic variables	p-value 5%	No.	Sociodemographic, clinical and therapeutic variables	p-value 5%
01	Age	0.837	09	Presence of metastases	0.004
02	Sex	0.326	10	Location of metastases	0.004
03	Marital status	0.217	11	Surgery	-
04	Place of residence	0.525	12	Curative chemotherapy	0.003
05	Occupation	0.898	13	Curative radiotherapy	0.003
06	Educational level	0.426	14	Hormone therapy	0.152
07	Location of the cancerous disease	0.769	15	Palliative chemotherapy	0.004
08	Stage of cancer disease	0.003	16	Painkillers	0.153

From the data presented in Table 5, it appears that: 1 - the stage of the cancerous disease (p = 0.003); 2 - the presence of metastases (p = 0.004); 3 - the location of metastases (p = 0.004); 4 - curative chemotherapy (p = 0.003); 5 - palliative chemotherapy (p = 0.004) and; 6 - curative radiotherapy (p = 0.003), are factors that significantly influence the QoL of cancer patients because their P-Values are all< 0.05

Table 6: Bivariate analysis between socio-professional and demographic characteristics and the different levels of quality of life of cancer patients (n=60)

Features socio-professional and demographic	Effective Overall (N = 60)	Quality of life				P-Value
		Strongly degraded (n = 6)	Degraded (n = 10)	Moderately Degraded (n = 13)	Little degraded (n = 31)	
Sex						0.12
Women	29 (49)	5 (8)	7 (12)	6 (10)	12 (20)	
Man	31 (51)	1 (2)	3 (5)	7 (12)	19 (32)	
Place of residence						0.3
Urban	29 (49)	4 (7)	7 (12)	5 (8)	13 (22)	
Rural	31 (51)	2 (3)	3 (5)	8 (13)	18 (30)	
Marital status						0.02
Singles	15 (25)	2 (3)	6 (10)	4 (7)	3 (5)	
Divorced	11 (8)	1 (2)	2 (3)	2 (3)	6 (10)	
Married	27 (45)	1 (2)	1 (2)	6 (10)	19 (32)	
Widowers	7 (12)	2 (3)	1 (2)	1 (2)	3 (5)	
Professional status						0.59
Active	22 (37)	1 (2)	2 (3)	6 (10)	13 (22)	
Unemployed	16 (27)	3 (5)	4 (7)	4 (7)	5 (8)	

Retirees	12 (20)	1 (2)	3 (5)	1 (2)	7 (12)	
Housewives	10 (17)	1 (2)	1 (2)	2 (3)	6 (10)	
Level instruction						0.36
Illiterate	9 (15)	2 (3)	4 (7)	1 (2)	2 (3)	
Preschool	11 (18)	1 (2)	3 (5)	3 (5)	4 (7)	
Primary	9 (15)	1 (2)	1 (2)	1 (2)	6 (10)	
Secondary	13 (22)	1 (2)	1 (2)	3 (5)	8 (13)	
University	18 (30)	1 (2)	1 (2)	5 (8)	11 (18)	

According to the data in Table 6, the predominant marital status was married (45%), followed by single (25%). 51% of the respondents stated that they resided in rural areas. Only 3.7 % of them were still professionally active, followed by the unemployed (27%). University and secondary school graduates represented more than 50% of the cancer patients surveyed.

Among the socio-professional and demographic variables, only marital status was the most significant factor related to the quality of life of cancer patients (P-value <0.05) while gender, residential area, professional status and educational level did not show significant differences. Furthermore, the majority of married people (19/27); professionally active people (13/22); people living in rural areas (18/31); men (19/31); university-educated people (11/18) and secondary-educated people (8/13), seem to have a little degraded quality of life.

The analysis of contingency tables 7, 8 and 9 below shows that almost the deviations from independence calculated for the different modalities of the socio-professional and demographic variables: 1 - Sex; 2- Place of residence; 3- Marital status; 4- Professional status and; 5- Level of education, are either greater than or less than zero , which confirms an association relationship between these variables and the different levels of the overall quality of life of the cancer patients surveyed with the exception of the "Housewives" modality of the "Professional status" variable whose deviation from independence is zero (Table 7) in patients with a highly degraded Quality of life (standardized score between [0-25[ ). In other words, it seems that there is no association relationship between being a cancer woman at home and the strong degradation of the overall quality of life.

Table 7: Correlation between the level of quality of life of the cancer patients surveyed and the variables “sex” and “place of residence”

<table>
<tr><td rowspan="3">Variables socio demographics</td><td colspan="9">Quality of life level</td><td colspan="4" rowspan="2">Total</td></tr>
<tr><td colspan="2">Significantly degraded quality of life (standardized score between [0-25])</td><td colspan="3">Degraded quality of life (normalized score between [25-50[ )</td><td colspan="2">Moderately degraded quality of life (normalized score between [50-75[ )</td><td colspan="2">Little deterioration in quality of life (normalized score between [75-100])</td></tr>
<tr><td>f_o</td><td>%</td><td>f_o</td><td colspan="2">%</td><td>f_o</td><td>%</td><td>f_o</td><td>%</td><td colspan="2">f_o</td><td colspan="2">%</td></tr>
<tr><td colspan="14">Sex</td></tr>
<tr><td>Women</td><td>05</td><td>8%</td><td>07</td><td colspan="2">11%</td><td>06</td><td>10%</td><td>12</td><td>20%</td><td colspan="2">29</td><td colspan="2">49%</td></tr>
<tr><td>Man</td><td>01</td><td>2%</td><td>03</td><td colspan="2">5%</td><td>07</td><td>12%</td><td>19</td><td>32%</td><td colspan="2">31</td><td colspan="2">51%</td></tr>
<tr><td>%</td><td>06</td><td>10%</td><td>10</td><td colspan="2">16%</td><td>13</td><td>22%</td><td>31</td><td>52%</td><td colspan="2">60</td><td colspan="2">10%</td></tr>
<tr><td colspan="14">Theoretical frequencies (f_t) = Observed margin products ÷ Observed total</td></tr>
<tr><td>Women</td><td colspan="2">(06÷60) x 29
= 2.9</td><td colspan="3">(10÷60) x 29
= 04.83</td><td colspan="2">(13÷60) x 29
= 06.28</td><td colspan="2">(31÷60) x 29
= 14.98</td><td colspan="4">29</td></tr>
<tr><td>Man</td><td colspan="2">(06÷60) x 31
= 3.1</td><td colspan="3">(10÷60) x 31
= 05.17</td><td colspan="2">(13÷60) x 31
= 06.72</td><td colspan="2">(31÷60) x 31
= 16.02</td><td colspan="4">31</td></tr>
<tr><td>Total</td><td colspan="2">06</td><td colspan="3">10</td><td colspan="2">13</td><td colspan="2">31</td><td colspan="4">60</td></tr>
<tr><td colspan="14">Deviation from independence = observed frequency (f_o) - theoretical frequency (f_t)</td></tr>
<tr><td></td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>29</td></tr>
<tr><td>Women</td><td>05</td><td>2.9</td><td>+2.1</td><td>07</td><td>04.83</td><td>+2.17</td><td>06</td><td>06.28</td><td>- 0.28</td><td>12</td><td>14.98</td><td>- 2.98</td><td>31</td></tr>
<tr><td>Man</td><td>01</td><td>3.1</td><td>- 2.1</td><td>03</td><td>05.17</td><td>- 2.17</td><td>07</td><td>06.72</td><td>+ 0.28</td><td>19</td><td>16.02</td><td>+ 2.98</td><td>60</td></tr>
<tr><td colspan="14">Place of residence</td></tr>
<tr><td>Urban</td><td>04</td><td>7%</td><td>07</td><td colspan="2">12%</td><td>05</td><td>8%</td><td>13</td><td>22%</td><td colspan="2">29</td><td colspan="2">49%</td></tr>
<tr><td>Rural</td><td>02</td><td>3%</td><td>03</td><td colspan="2">4%</td><td>08</td><td>14%</td><td>18</td><td>30%</td><td colspan="2">31</td><td colspan="2">51%</td></tr>
<tr><td>%</td><td>06</td><td>10%</td><td>10</td><td colspan="2">16%</td><td>13</td><td>22%</td><td>31</td><td>52%</td><td colspan="2">60</td><td colspan="2">10%</td></tr>
<tr><td colspan="14">Theoretical frequencies (f_t) = Observed margin products ÷ Observed total</td></tr>
<tr><td>Urban</td><td colspan="2">(06÷60) x 29
= 2.9</td><td colspan="3">(10÷60) x 29
= 04.83</td><td colspan="2">(13÷60) x 29
= 06.28</td><td colspan="2">(31÷60) x 29
= 14.98</td><td colspan="4">29</td></tr>
<tr><td>Rural</td><td colspan="2">(06÷60) x 31
= 3.1</td><td colspan="3">(10÷60) x 31
= 05.17</td><td colspan="2">(13÷60) x 31
= 06.72</td><td colspan="2">(31÷60) x 31
= 16.02</td><td colspan="4">31</td></tr>
<tr><td>Total</td><td colspan="2">06</td><td colspan="3">10</td><td colspan="2">13</td><td colspan="2">31</td><td colspan="4">60</td></tr>
<tr><td colspan="14">Deviation from independence = observed frequency (f_o) - theoretical frequency (f_t)</td></tr>
<tr><td></td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>29</td></tr>
<tr><td>Urban</td><td>04</td><td>2.9</td><td>+1.1</td><td>07</td><td>04.83</td><td>+ 2.17</td><td>05</td><td>06.28</td><td>-1.28</td><td>13</td><td>14.98</td><td>-1.98</td><td>31</td></tr>
<tr><td>Rural</td><td>02</td><td>3.1</td><td>- 1.1</td><td>03</td><td>05.17</td><td>- 2.17</td><td>08</td><td>06.72</td><td>+1.28</td><td>18</td><td>16.02</td><td>+1.98</td><td>60</td></tr>
</table>

Table 8: Correlation between the level of quality of life of the cancer patients surveyed and the variables “**Marital status**” and “**Professional status**”

<table>
<tr><td rowspan="3">Variables socio demographics</td><td colspan="8">Quality of life level</td><td colspan="2" rowspan="2">Total</td></tr>
<tr><td colspan="2">Significantly degraded quality of life (standardized score between [0-25])</td><td colspan="2">Degraded quality of life (normalized score between [25-50[ )</td><td colspan="2">Moderately degraded quality of life (normalized score between [50-75[ )</td><td colspan="2">Quality of life slightly degraded (normalized score between [75-100])</td></tr>
<tr><td>f_o</td><td>%</td><td>f_o</td><td>%</td><td>f_o</td><td>%</td><td>f_o</td><td>%</td><td>f_o</td><td>%</td></tr>
<tr><td colspan="11">Marital status</td></tr>
</table>

Singles	02	4%	06	9%		04		7%	03	5%	15	25%	
Divorced	01	2%	02	3%		02		3%	06	10%	11	18%	
Married	01	1%	01	2%		06		10%	19	31%	27	44%	
Widowers	02	3%	01	2%		01		2%	03	6%	07	13%	
%	06	10%	10	16%		13		22%	31	52%	60	100%	
Theoretical frequencies (f_t) = Observed margin products ÷ Observed total													
Singles	(06÷60) x 15 = 1.5		(10÷60) x 15 = 02.50			(13÷60) x 15 = 03.25			(31÷60) x 15 = 07.75		15		
Divorced	(06÷60) x 11 = 1.1		(10÷60) x 11 = 01.83			(13÷60) x 11 = 02.38			(31÷60) x 11 = 05.68		11		
Married	(06÷60) x 27 = 2.7		(10÷60) x 27 = 04.50			(13÷60) x 27 = 05.85			(31÷60) x 27 = 13.95		27		
Widowers	(06÷60) x 07 = 0.7		(10÷60) x 07 = 01.17			(13÷60) x 07 = 01.52			(31÷60) x 07 = 03.62		07		
Total	06		10			13			31		60		
Deviation from independence = observed frequency (f_o) - theoretical frequency (f_t)													
	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	15
Singles	02	1.5	+0.5	06	02.50	+3.5	04	03.25	+0.75	03	07.75	-4.75	11
Divorced	01	1.1	-0.1	02	01.83	+0.17	02	02.38	- 0.38	06	05.68	+ 0.32	27
Married	01	2.7	- 1.7	01	04.50	- 3.50	06	05.85	+ 0.15	19	13.95	+ 05.05	07
Widowers	02	0.7	+1.3	01	01.17	-0.17	01	01.52	-0.52	03	03.62	-0.62	60
Professional status													
Active	01	1%	02	3%		06		10%	13	21%	22	37%	
Unemployed	03	5%	04	7%		04		7%	05	9%	16	27%	
Retirees	01	2%	03	4%		01		2%	07	12%	12	20%	
Housewives	01	2%	01	2%		02		3%	06	10%	10	16%	
Total	06	10%	10	16%		13		22%	31	52%	60	100%	
Theoretical frequencies (f_t) = Observed margin products ÷ Observed total													
Active	(06÷60) x 22 = 2.2		(10÷60) x 22 = 03.66			(13÷60) x 22 = 04.76			(31÷60) x 22 = 11.36		22		
Unemployed	(06÷60) x 16 = 1.6		(10÷60) x 16 = 02.67			(13÷60) x 16 = 03.47			(31÷60) x 16 = 08.27		16		
Retirees	(06÷60) x 12 = 1.2		(10÷60) x 12 = 02			(13÷60) x 12 = 02.60			(31÷60) x 12 = 06.20		12		
Housewives	(06÷60) x 10 = 01		(10÷60) x 10 = 01.67			(13÷60) x 10 = 02.17			(31÷60) x 10 = 05.17		10		
Total	06		10			13			31		60		
Deviation from independence = observed frequency (f_o) - theoretical frequency (f_t)													
	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	f_o	f_t	$f_o - f_t$	22
Active	01	2.2	- 1.2	02	03.66	- 1.66	06	04.76	+1.24	13	11.36	+1.64	16
Unemployed	03	1.6	+ 1.4	04	02.67	+1.33	04	03.47	+0.53	05	08.27	- 3.27	12
Retirees	01	1.2	- 0.2	03	02	+01	01	02.60	- 1.60	07	06.20	+0.80	10
Housewives	01	01	00	01	01.67	- 0.67	02	02.17	- 0.17	06	05.17	+0.83	60

Table 9: Correlation between the level of quality of life of the cancer patients surveyed and the variable " Level of education"

Variables socio demographics	Quality of life level				Total
	Significantly degraded quality of life (standardized score between	Degraded quality of life (normalized score between [25-50[ )	Moderately degraded quality of life (normalized score between [50-75[ )	Little deterioration in quality of life (normalized score between [75-100])	

<table>
<tr><td rowspan="2"></td><td colspan="2">[0-25])</td><td colspan="3"></td><td colspan="3"></td><td colspan="3"></td><td colspan="2"></td></tr>
<tr><td>f_o</td><td>%</td><td colspan="2">f_o</td><td>%</td><td colspan="2">f_o</td><td>%</td><td colspan="2">f_o</td><td>%</td><td>f_o</td><td>%</td></tr>
<tr><td colspan="14">Educational level</td></tr>
<tr><td>Illiterate</td><td>02</td><td>5%</td><td colspan="2">04</td><td>7%</td><td colspan="2">01</td><td>2%</td><td colspan="2">02</td><td>3%</td><td>09</td><td>17%</td></tr>
<tr><td>Preschool</td><td>01</td><td>1%</td><td colspan="2">03</td><td>4%</td><td colspan="2">03</td><td>4%</td><td colspan="2">04</td><td>7%</td><td>11</td><td>16%</td></tr>
<tr><td>Primary</td><td>01</td><td>1%</td><td colspan="2">01</td><td>2%</td><td colspan="2">01</td><td>3%</td><td colspan="2">06</td><td>10%</td><td>09</td><td>16%</td></tr>
<tr><td>Secondary</td><td>01</td><td>2%</td><td colspan="2">01</td><td>1%</td><td colspan="2">03</td><td>4%</td><td colspan="2">08</td><td>13%</td><td>13</td><td>20%</td></tr>
<tr><td>University</td><td>01</td><td>1%</td><td colspan="2">01</td><td>2%</td><td colspan="2">05</td><td>9%</td><td colspan="2">11</td><td>19%</td><td>18</td><td>31%</td></tr>
<tr><td>%</td><td>06</td><td>10%</td><td colspan="2">10</td><td>16%</td><td colspan="2">13</td><td>22%</td><td colspan="2">31</td><td>52%</td><td>60</td><td>10%</td></tr>
<tr><td colspan="14">Theoretical frequencies (f_t) = Observed margin products ÷ Observed total</td></tr>
<tr><td>Illiterate</td><td colspan="2">(06÷60) x 09
= 0.9</td><td colspan="3">(10÷60) x 09
= 01.50</td><td colspan="3">(13÷60) x 09
= 01.95</td><td colspan="3">(31÷60) x 09
= 04.65</td><td colspan="2">09</td></tr>
<tr><td>Preschool</td><td colspan="2">(06÷60) x 11
= 1.1</td><td colspan="3">(10÷60) x 11
= 01.83</td><td colspan="3">(13÷60) x 11
= 02.38</td><td colspan="3">(31÷60) x 11
= 05.68</td><td colspan="2">11</td></tr>
<tr><td>Primary</td><td colspan="2">(06÷60) x 09
= 0.9</td><td colspan="3">(10÷60) x 09
= 01.50</td><td colspan="3">(13÷60) x 09
= 01.95</td><td colspan="3">(31÷60) x 09
= 04.65</td><td colspan="2">09</td></tr>
<tr><td>Secondary</td><td colspan="2">(06÷60) x 13
= 1.3</td><td colspan="3">(10÷60) x 13
= 02.17</td><td colspan="3">(13÷60) x 13
= 02.82</td><td colspan="3">(31÷60) x 13
= 06.72</td><td colspan="2">13</td></tr>
<tr><td>University</td><td colspan="2">(06÷60) x 18
= 1.8</td><td colspan="3">(10÷60) x 18
= 03</td><td colspan="3">(13÷60) x 18
= 03.90</td><td colspan="3">(31÷60) x 18
= 09.30</td><td colspan="2">18</td></tr>
<tr><td>Total</td><td colspan="2">06</td><td colspan="3">10</td><td colspan="3">13</td><td colspan="3">31</td><td colspan="2">60</td></tr>
<tr><td colspan="14">Deviation from independence = observed frequency (f_o) - theoretical frequency (f_t)</td></tr>
<tr><td></td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>f_o</td><td>f_t</td><td>$f_o - f_t$</td><td>09</td></tr>
<tr><td>Illiterate</td><td>02</td><td>0.9</td><td>+1.1</td><td>04</td><td>01.50</td><td>+02.50</td><td>01</td><td>01.95</td><td>-0.95</td><td>02</td><td>04.65</td><td>-2.65</td><td>11</td></tr>
<tr><td>Preschool</td><td>01</td><td>1.1</td><td>-0.1</td><td>03</td><td>01.83</td><td>+1.17</td><td>03</td><td>02.38</td><td>+ 0.62</td><td>04</td><td>05.68</td><td>- 1.68</td><td>09</td></tr>
<tr><td>Primary</td><td>01</td><td>0.9</td><td>+ 0.1</td><td>01</td><td>01.50</td><td>- 0.50</td><td>01</td><td>01.95</td><td>-0.95</td><td>06</td><td>04.65</td><td>+ 1.36</td><td>13</td></tr>
<tr><td>Secondary</td><td>01</td><td>1.3</td><td>-0.3</td><td>01</td><td>02.17</td><td>-01.17</td><td>03</td><td>02.82</td><td>+0.18</td><td>08</td><td>06.72</td><td>+1.28</td><td>18</td></tr>
<tr><td>University</td><td>01</td><td>1.8</td><td>-0.8</td><td>01</td><td>03</td><td>-2</td><td>05</td><td>03.90</td><td>+1.1</td><td>11</td><td>9.30</td><td>+1.17</td><td>60</td></tr>
</table>

Discussion and conclusion:

The quality of life of a person in general and that relating specifically to his health, is today a very important parameter to take into account in clinical and therapeutic decisions, especially in the process of caring for patients with a chronic illness such as cancer in palliative care. If the definition of quality of life of the WHO (1993) as used in this study as a theoretical framework of reference seems to have an international consensus, it is not easy to identify the concept of quality of life and to develop a clear and precise definition that would receive the approval of all scientific circles (C. Mercier & J. Filion , 1987).

The results of the study showed that quality of life (QoL) is affected to varying degrees (Table 4) by cancer, which corroborates the results of a study conducted by the Directorate of Research, Studies, Evaluation and Statistics (DREES) of the French Ministry of Health (DREES, 2005) which reported that the QoL of people with cancer is logically worse than that of the general population. According to DREES (2005), while physical quality of life is more or less impaired depending on the location of cancer, mental quality of life is not influenced by any clinical variable, which seems to be a new result that no other study had highlighted.

The study showed that socio-professional, demographic, therapeutic and clinical variables could, in general, influence either negatively or positively the quality of life of a cancer patient. C. Mercier & J. Filion (1987) are of the same opinion and affirm that it is undeniable that socio-demographic and economic variables play an important role in the evaluation of the quality of life. In our study, among the respondents who have a significantly degraded quality of life (Table 7), women were dominant (5/6), which corroborates the results of a Tunisian survey (R. Khalladi et al., 2020) which reported to us that women with cancer [...] had a poor quality of life.

Almost half of our respondents (27/60 or 45%) were married. This life as a couple would seem to be a factor of psychological support for cancer patients according to the DREES study (2005) which reported that the occurrence of cancer in one of the spouses preserves, or even strengthens the couple. The majority (22/60 or 37%) of our respondents were professionally active and more than half (31/60 or 51.67%) had a secondary or university level of education. All this further corroborates the results of the DREES study (2005) which informs us that having [...] a high level of education, high income [...], promotes a fighting spirit and reduces the feeling of distress in cancer patients. Being married, therefore living as a couple (45% of respondents), still being professionally active (37% of respondents) or being a housewife (17% of respondents), are all social resources that could protect cancer patients from the deterioration of their quality of life. F. Cousson-Gélie (2014) also believe that social resources seem to be a powerful predictor of the quality of life of patients with the disease. Better still, the social support perceived by cancer patients and its protective role with regard to emotional distress and quality of life has been well established by several studies (SM Alferi et al, 2001; C. Dunkel-Schetter , 1984; CN Hoskins et al, 1996; A. Moyer and P. Salovey , 1999; SJ Neuling and HR Winefield , 1988; PA Parker, 2003).

More than half (55%) of our surveyed patients received radiochemotherapy or chemotherapy alone (18%) as treatment types. According to a publication of the Canadian Cancer Society (2024) , chemotherapy agents , while destroying cancer cells, can also damage normal cells causing several side effects such as : fatigue; nausea and vomiting; loss of appetite; hair loss; diarrhea; constipation; sore mouth and throat; pain in muscles, joints and digestive tract; mucus; changes in taste and smell; skin problems; eye and vision problems; fertility problems; problems at the injection site; hearing problems; organ damage and nerve damage; memory and attention problems and other cognitive disorders; sexual disorders; negative reactions to medications and; secondary cancers. The treating clinician must therefore constantly monitor the occurrence of these side effects in patients, which are also factors that significantly influence their quality of life. This is all the more true since in our study, curative chemotherapy ($p=0.003$), palliative chemotherapy ($p = 0.004$) and curative radiotherapy ($p=0.003$) were identified as factors that significantly influence the QoL of the cancer patients surveyed.

In our study, the stage of the cancer disease ($p=0.003$) was also identified as a factor that significantly influences the quality of life of the cancer patients surveyed, which corroborates the results of the study by O. Popa-Velea et al (2017) who inform us that the overall deterioration of the quality of life was positively correlated with the stage and evolution of the cancer disease.

Limitations of the study:-

Like other quality of life assessment questionnaires for cancer patients, the EORTC QLQ-C30 version 3.0 questionnaire (EORTC, 1995) used in this study has methodological limitations, but this does not reduce the quality of the results obtained. Although the value of quality of life assessment questionnaires in current practice and clinical trials is no longer in doubt, there are unknowns and methodological weaknesses that hinder their use and/or interpretation, in particular the subjectivity of the data collected given the self-assessment nature of these questionnaires for assessing the different dimensions of quality of life, which casts doubt on their reliability.

Indeed, the complexity of quality of life definitions and the heterogeneity in the practical use of quality of life questionnaires is a major limitation to the exploitation of data in clinical trials (EA Hahn et al, 2007; IB Wilson and PD Cleary (1995). Questionnaires for assessing quality of life in cancer patients are often standardized and therefore cannot ensure a personalized assessment of patients. They thus hinder the performance of meta-analyses that would allow greater statistical power (EK Donovan, 2019). Missing data often result from the non-existence of a specific questionnaire validated for a location.

A new approach therefore consists of the use of direct patient perceptions (Patient - reported outcomes [PROs]) based on the quality of life questionnaires previously described (Patient reported outcome measures [PROMs]) in order to better assess the consequences of treatments on the functioning and well-being of cancer patients ; the patient will thus be better placed at the heart of their care and therapeutic decision-making. Indeed, PROs are carried out with the aim of taking into account patients' perceptions of treatments and they play a role in the management of symptoms during the administration of different therapies, but also in improving communication with different health professionals and even in patient survival (A. Caissieet al, 2018). As for PROMs , they are questionnaires completed by patients and which allow obtaining a score that can guide the clinician towards the importance of certain symptoms or conditions related to the patient's cancer (CF Snyder et al, 2013).

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