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Socio-Economic and Psychological Factors Affecting the Access to Nutrition care in Cancer Survivors: Case of the Laquintinie hospital Douala

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Abstract

Globally, it was estimated that about 19.3 million people were found to be living with cancer in the year 2020. Cancer survivors are the most malnourished of all patient groups suffering from chronic diseases with a prevalence of 25-75%. Studies have revealed that nutrition care is beneficial in the treatment and management of cancer. However in Cameroon, cancer patients have a hard time getting access to such care. The main objective of this study therefore, was to determine the Socio-economic and Psychological factors associated to the access to nutrition care in cancer survivors at the Laquintinie hospital Douala. A hospital-based quantitative analytical study was conducted with a convenient sample size of 145 ambulatory cancer survivors aged 23-70 years. Data were entered using EpiInfo, and Chi-square test was used for the bivariate analysis while the Cramer's V test was used to measure the strength of the association between the dependent and independent variables. Results of the bivariate analysis revealed that Socio-economic and Psychological factors were significantly associated [$p < 0.05$] to the access to nutrition care in cancer survivors. Conclusively, socio-economic and psychological factors were found to be associated to the access to nutrition care in cancer patients. It is therefore recommended that nutrition care should be systematically provided to cancer survivors during the cancer care continuum. For this to be effective, dieticians need to be fully integrated in the treatment and management of the disease.

Keywords: Cancer survivors, associated factors, nutrition, nutrition care

Introduction

Cancer remains worrisome because of the high risk of deaths and its ability to impair one's quality of life. In Cameroon like in other developing countries, the disease has become a serious public health burden with prevalence of 39,906 cases in 2020 (Sung *et al.*, 2021). Nutrition care for cancer survivors which has been found to be an effective complementary therapy by several scientific studies is yet to be fully implemented by hospitals in the country reasons being a paucity of funds, a lack of skilled human resources and a lack of consideration on its importance. Studies have proven that dieticians are better trained to provide such care. According to the Global Burden of Cancer (GLOBOCAN) statistics, the prevalence of cancer in Cameroon in the year 2020 was estimated at 39,906 and 13,199 deaths (WHO, 2020). Its incidence stood at 8,510 (41.0%) in males and 12,235 (59.0%) in females (Sung *et al.*, 2021). Enow *et al.* (2012), found that the five most prevalent cancers in Cameroon were: breast cancer (3,265 new cases), cervical cancer (2,349 new cases), prostate cancer (2,064 new cases), liver cancer (919 new cases) and colorectal cancers (832 new cases).

Cancer patients represent one of the most under-recognized and undertreated patient population when it comes to nutrition care (Maschke *et al.*, 2017). In Cameroon, the government in partnership with some NGOs like the Clinton health access initiative have elaborated the strategies targeted at the control of the disease through food hygiene and cancer awareness and physical activity. In spite of these efforts, cancer survivors at the Laquintinie hospital struggle to maintain adequate nutrition and suffer from nutritional impairments due to the absence or inadequate provision of nutrition care during the course of treatment.

Several patients in this hospital are often left perplexed because they are unable to get a healthy diet that will enable them overcome chemo-radiotherapy related complications, strengthen the body's defences and also hasten the healing process of the body tissues that may be damaged during the course of the disease and its treatment.

Like in most cancer treatment centers in the country, dieticians are not fully involved in the treatment and management of the disease which renders access to nutrition care even more difficult. According to Meadows (2012), the absence of nutrition care in cancer survivors has been associated with an increased risk of metastasis, relapse, mortality and a poor quality of life.

Despite the aforementioned efforts put in place by the government of Cameroon and its partners, access to nutrition care among cancer survivors at the Laquintinie hospital Douala (LHD) continues to be a major public health problem that needs to be investigated. This study was therefore pertinent as the results of its findings would; give an appraisal on the care continuum of cancer survivors by bringing out the socio-economic and psychological factors that are associated to nutrition care access, highlight the needs of cancer survivors for nutrition care and propose solutions that would go a long way to enable them have easier access to such care which will improve on their overall quality of life.

Materials and Methods

Description of the study area

This study was conducted at the LHD founded in 1931, under French administration. Its mission is to provide satisfactory medical and medico-health care to patients during major events; be it sporting events, disasters or epidemics. The LHD Douala is a 2nd category referral hospital located in Akwa (Douala I subdivision) in the littoral region, Cameroon.

Sampling technique and Data collection

A quantitative analytical study was conducted for a period of 5 months at the LHD. To ensure the proper conduct of this study, the clinical method was chosen. Thus, our target population was made up of ambulatory cancer survivor (i.e. patients who have been diagnosed of cancer, those currently receiving treatment and those who had been treated of cancer) at the LHD. This method

was chosen because the study was carried out in a hospital environment with the aim of predicting the relationship between nutrition care access in cancer survivors and associated factors. The convenience sampling technique was used for eligible participants who presented themselves at the hospital during the period of data collection. The non-probability sampling method was used where the samples were taken from a group of people easy to contact or to reach (Fortin & Gagnon, 2016).

Sample size

The sample size used for this work was a subset of the population made up of one or more individuals intended to provide information that could be generalized (Nkoum, 2019). The sample size for this study was defined by the LORENTZ formula.

$$n = \frac{(t)^2 \times p(1-p)}{(m)^2}$$

Where,

n: Minimum sample size for achieving significant results for a given risk level.

t: Confidence level (the standard value of the 95% confidence level will be 1.96).

p: Estimated proportion of the population with characteristic (10%).According to Damo(2021), in course of the year 2020 the prevalence of cancer at the LHD was estimated at 15%.

m: Error Margin (typically set at 5%).

A total of 145 participants were recruited from the oncology service of the LHD. The age range spanned from 23 to 70 years with the mean age of the respondents being 47 ± 10 years. The following conditions had to be met before participants could be recruited for the study: Ethical clearance delivered by the institution (UCAC-ESS), Authorization obtained from the LHD and Cancer survivors who were recruited at the hospital during their routine visits.

Data collection

A well-structured questionnaire was used for the collection of data from cancer survivors. The questionnaire was subdivided in to two parts: Socio-demographic factors (Identification of participants) Part II: Socio-economic and Psychological factors. A pilot study was conducted on 10 cancer survivors selected from the oncological service of the LHD to ensure that the questions were properly comprehended and instructions were clear. Survivors who took part in the pre-test were excluded from the sample for the main study. This was done in coordination and with the collaboration of the Ward-charge of that service. Questions that were not clearly understood by participants were reformulated before the data collection proper.

Data management

Data from the questionnaires were then entered into an Epi info 7 masks created for this purpose. Variables on the questionnaire were coded for easy data entry and analysis. After entry, data editing was performed. The dependent variable in this study was access to nutrition care while the Independent/predictor variables were socio-economic and psychological factors.

Statistical analysis of data

After data entry and cleaning, followed the exportation process to the Statistical package for social sciences (SPSS) version 21 for analysis. Responses were grouped into broad categories and their frequencies and percentages were calculated. Data collected were subjected to bivariate analysis done with the use of the chi-square of significance to determine the association between the dependent and independent variables. Meanwhile the strength of the association between these variables was measured with the Cramer's V test. The level $p < 0.05$ was taken as the cut off value for significance.

Results and Discussion

Socio-demographic characteristics of participants

Table 1: Demographic Data Of Respondents

Demographic characteristics	Effective (N=145)	Percentage (%)
(Years) Age		
<30	28	19.3
[30-45 [	39	26.9
[45-60 [	55	37.9
60	23	15.9
Gender		
Male	60	41.4
Female	85	58.6
Marital status		
Single	44	30.3
Married	68	46.9
Divorced	12	8.3
Widowed	21	14.5
Profession		
Civil servant	26	17.9
Contractual	42	29.0
Informal	64	44.1
None	13	9.0
Level of education		
Primary	28	19.3
Secondary	61	42.07
University	52	35.86
None	4	2.76
Religion		
Christian	122	84.1
Muslim	12	8.3
Traditional	11	7.6
Body mass index (Kg / m²)		
<18.5	44	30.3
[18.5 - 24.9]	44	30.3
[25 - 29.9]	48	33.1
> 30	9	6.2

Table 1 shows the demographic data of respondents'. The age range spanned from 23 to 70 years with the mean age of the respondents being 47 ± 10 years. Respondents aged between 45 and 60 represented the majority (37.9%). Maschake *et al.* (2017) in a similar study conducted in Germany found that the majority (46.7%) of cancer survivors were aged 46-65 years. According to the national cancer institute (NCI) age is the biggest risk factor for cancer and people aged 45 and above are diagnosed with more than nine out of ten cancers meanwhile seniors over the age of 74 account for about a quarter of all new cancer cases (NCI, 2015). Meanwhile the female gender was the most represented (58.6%) as against 41.4%. This results correlate with the WHO statistics on the estimated prevalence of cancer in Cameroon for the year 2020 which stood at 41.1% in males and 59 % in females (Sung *et al.*, 2021). The relatively high prevalence of the disease in females is accounted for by the fact that breast and cervical cancers which are the two most prevalent cancers in the country represent a huge burden to the female population. According to Enow *et al.* (2012), the five most prevalent cancers in Cameroon are: breast cancer (20.1%), cervical cancer (13.4%), followed by prostate cancer (10.6%), liver cancer (9.1%) and colorectal cancers (3.6%).

This study also revealed that 47% of the respondents were married, 30% were single, 8% had been divorced and 14% were widowed. The married respondents were more likely to benefit from psychological, social and financial support from their spouses. According to Chahine *et al.* (2020) in Canada, unmarried cancer survivors reported more unmet needs, a lower quality of life, and a greater risk of depression diagnosis than married cancer survivors. It equally was revealed from this research that civil servants (18%), contractual (29%), informal sector (44.1%) had different levels of influence on their ability to afford nutrition care and also their quality of life.

Education is a key component of socioeconomic status. Data collected from this study revealed that 44.2% of respondents had attained the level of secondary education, followed by university

education (36%) and the least level of education was primary school (19.3%). This result is in disagreement with results of DiMartino *et al.* (2017) in the USA who revealed that 73% of cancer survivors had at least completed university education. This disparity obtained was as a result of the fact that the USA being a developed country has a higher literacy rate than Cameroon. According to Palmer *et al.* (2015) more educated individuals were more likely to elicit nutrition related information from their care providers, seek additional information on their own, or better understand the information that is provided them.

The parametric measurement of the BMI specific to this sample revealed that 30% of the patients were underweight, 30% had a healthy weight, 33% were overweight and 6.2% were obese. The overall prevalence of weight related problems in respondents was 69.6%. This was greater than the 44.8% reported by Sullivan *et al.* (2021) in Ireland and 49.7% reported by Lima *et al.* (2020) in Finland. The high prevalence in weight related issues as revealed in this study could partly be explained by the poor nutritional status of the patients as a result of a lack of nutrition awareness and the inaccessibility to nutrition care. Besides, Lima *et al.* (2020) explained that weight loss in cancer survivors could be affected by factors such as female gender, anorexia and the type of treatment received. Contrarily, Folasire *et al.* (2016) obtained 3.8% underweight cancer survivors in Nigeria. The high prevalence of underweight cancer survivors in this study could be as a result of the fact that anthropometric measures were not precisely recorded in this study due to the absence of adapted equipment.

Socioeconomic factors and access to Nutrition care

In this study, the association between socioeconomic variables and access to nutrition care (NC) in cancer survivors were analysed using the Chi² test of independence as showed in table 2. The results showed a highly significant association between access to NC and knowledge on the existence of such care by cancer survivors [$X^2 (1) = 26.61$; $p = 0.000$], the nutrition care costs associated with this practice [$X^2 (2) = 36.47$;

p = 0.001], benefitting from a health insurance [X^2 (1) = 4.06; p = 0.04] and the monthly revenue of respondents [X^2 (6) = 19.53; p = 0.03].

Interpretation of the results of Cramer's V (table 2) obtained after this operation revealed large, medium and small effect sizes associated to socio-economic variables. These variables were associated to access to nutrition care with an

estimated effect size of 50% for the cost of nutrition care; 38% for the level of awareness on the existence of NC for cancer survivors, 36% for monthly revenue of respondents and 16% for whether or not respondents benefited from a health insurance. In addition, the Chi 2 test of independence did not show any association between the means of health care payment [X^2 (2) = 0.41; p = 0.81] and the access to Nutrition care.

Table 2: Socioeconomic factors and access to nutrition care (N=145)

Socio-economic factors	Modalities	Access to Nutrition care			2	P-value	Cramer V
		Yes n(%)	No n(%)	Total n(%)			
<i>Awareness on the existence of NC</i>	Yes	42 (29)	51 (35.1)	93 (64.1)	26.6 1	0.000 *	0.386
	No	4 (2.8)	48 (33.1)	52 (35.9)			
<i>Nutrition care cost</i>	Yes	13(9.0)	10(6.9)	23 (15.9)	36,4 72	0.001 *	0.502
	No	30(20.7)	30(20.7)	60 (41.4)			
	Do not know	3(2.1)	59(40.7)	62 (42.8)			
<i>Benefitted from a health insurance</i>	Yes	6 (4.1)	28 (19.3)	34 (23.4)	4.06 3	0.04 *	0.167
	No	40(27.6)	71 (49.0)	111(76.6)			
<i>Monthly Revenue (Thousand FCFA)</i>	<50	5 (3.4)	3 (2.1)	8 (5.5)	19.5 32	0.03 *	0.367
	[50-100 [	6 (4.1)	18 (12.4)	24(16.5)		
	[100-150 [	5 (3.4)	11 (7.6)	16 (11.0)		
	[150-200 [	9 (6.2)	38 (26.2)	47 (32.4)		
	[200-250 [	15(10.3)	16 (11.0)	31 (21.4)		
	[250-300 [	1 (0.7)	11 (7.6)	12 (8.3)		
	> 300	5 (3.4)	2 (1.4)	7 (4.8)			

This study revealed a significant association between socio-economic factors and the access to nutrition care in cancer survivors at the Laquintinie hospital Douala. This result was consistent with the findings of DiMartino *et al.* (2017) in the USA who found a significant association between socio-economic factors and the probability of cancer survivors benefiting from nutrition care .The findings of this study

revealed a moderate association between the level of awareness on the existence of nutrition care for cancer survivors and the access to nutrition care. Busolo *et al.* (2015) in South Africa and Nigeria reported similar results which revealed that the levels of awareness influenced nutrition care. The reasons for this could be attributed to low levels of education, contrary cultural and spiritual beliefs which are out of phase with biomedicine.

The cost of nutrition care reported a relatively strong association with the access to nutrition care. The cost of care based on the findings of this study did not favour the access to NC. In fact, in 50% of respondents who found nutrition care to be costly did not have access to such care. This was similar to the 52% reported by palmer *et al.* (2016) in the USA. Board *et al.* (2016) in USA also reported that gaps in nutrition care access arose when patients had to pay for such care. In contrast to the findings of this study, Trujillo *et al.* (2019) in a study conducted in Germany revealed that 76.8% of cancer treatment centres across Germany did not bill for nutrition care services which favoured the access to nutrition care. It is very costly to treat cancer and this burden is felt not only by the patients but by their families and the society at large. poverty, low education and income levels in cancer survivors coupled with relatively low health insurance coverage rates for cancer survivors and the out of pocket payment schemes used to pay for cancer treatment was likely to cause delays in the access to nutrition care or cause some to forgo such care.

Benefiting from a health insurance was weakly associated to the access to nutrition care and did not favour its access. In this study 49% of cancer survivors who were uninsured did not have access to nutrition care. This result however contradicts the 4% reported by DiMartino *et al.* (2017) in the USA. This disparity could be attributed to a better health coverage system in the USA which allows many more citizens to be covered by a health insurance which favours the access health care in general. In Cameroon, the universal healthcare coverage system has not been fully implemented. Because of this, access to healthcare in general and nutrition care in particular remains a major challenge as patients in spite of their low incomes have to incur the cost of care through the cost-recovery payment scheme.

Monthly revenue was moderately associated to nutrition care access. Results reported by Palmer *et al.* (2016) in the USA, Board *et al.* (2016) in

the USA and Busolo *et al.* (2015) in South Africa and Nigeria revealed an association between both variables. According to DiMartino *et al.* (2017), socio-economically disadvantaged cancer survivors were at risk of not having nutrition care from providers, particularly those who reported lower income and education. The attitude of cancer survivors towards getting access to NC was shaped by the level of awareness of its existence which positively influenced their behaviours towards getting access to such care. Considering that $P < 0.05$, the null hypothesis (H_0) was refuted implying that, socio-economic factors are associated to access to nutrition care in cancer survivors at the LHD.

Association between Psychological Factors and access to nutrition care

The Chi² test of independence was equally used to analyse the association between psychological factors and the access to nutrition care in cancer survivors as indicated in table 3. The results obtained showed a highly significant association between the access to nutrition care and Stress levels in cancer survivors [$X^2 (1) = 12.72$; $p = 0.000$], involuntary weight loss [$X^2 (1) = 15.86$; $p = 0.006$] witnessed by the patients and anorexia [$X^2 (1) = 21.64$; $p = 0.002$]. The interpretation of the results of the Cramer's V revealed a medium effect size associated to the Psychological variables, attesting that these were associated to access to nutrition care with an estimated effect size of 30 % in stressed cancer survivors, 33% in those who witnessed an involuntary weight loss and 39% anorexic patients. In addition, the analysis by the Chi 2 test of independence did not show any association between the other psychological factors in particular: sleep disturbances [$X^2 (1) = 0.551$; $p = 0.821$], discouragement [$X^2 (1) = 0.113$; $p = 0.73$], lack of motivation [$X^2 (1) = 0.112$; $p = 0.99$], and the benefit or not of psychological support [$X^2 (1) = 0.329$; $p = 0.566$], and the access to Nutrition care.

Table 3: Psychological factors and access to nutrition care (n = 145)

Psychological factors	Modalities	Access to Nutrition care			2	P-value	Cramer V
		Yes n(%)	No n(%)	Total n(%)			
<i>Stress</i>	Yes	25 (17.2)	24 (16.6)	49 (33.8)	12,723	0.001 *	0.296
	No	21(14.5)	75 (51.7)	96 (66.2)			
<i>Anorexic</i>	Yes	29 (20.0)	23 (15.9)	52 (35.9)	21,641	0.002 *	0.386
	No	17 (11.7)	76 (52.4)	93 (64.1)			
<i>Unintentional weightloss</i>	Yes	29 (20.0)	28 (19.3)	57 (39.3)	15,907	0.006 *	0.331
	No	17 (11.7)	71 (49.0)	88 (60.7)			

Similar results were obtained by Mitchel *et al.* (2011), Grassi (2020), all in the UK who found that psychosocial distress and mental disorders influenced the cancer care trajectory. Adler *et al.* (2008) in a USA based study found that Cancer survivors' ability to access and receive appropriate health care services, adhere to recommended treatment regimens, and engage in behaviours necessary to manage illness and promote health, such as maintaining good nutrition was hampered by psychological problems. Cancer is a dreaded disease, perhaps because of the general belief that it is a terminal disease and so death is imminent or because of the stigma associated to the disease as a result of societal attitudes towards the disease which could have caused psychological problems that influenced access to nutrition care in cancer survivors.

In this study, stress was moderately associated to access to nutrition care. According to American Psychological Association (APA), an individual's stress level is associated to his health status and increases his uncertainty with regards to access to health care (APA, 2018). Results of this study revealed that 30% of respondents who were stressed did not have access to nutrition care. The study revealed a 34% prevalence of stress in cancer survivors. This prevalence was lesser than the 50% reported by Grassi (2020) in the U.K but higher than the 24% reported by Mitchell *et al.* (2011) in the U.K who revealed that psychological problems were less frequent in

cancer survivors. The difference in results could be attributed to the methodological approaches and larger sample sizes considering the fact that the U.K based studies were meta-analytical studies restricted to psychiatric interviews in thousands of cancer survivors. Stress affects individual's attitudes, behaviours and the decisions they make which can influence their access to nutrition care. Such stress could have been experienced as result of financial challenges; impaired relationships; poor diseases prognosis; fear of recurrence and a poor quality of life.

Anorexia was moderately associated to the access to nutrition care in cancer survivors and was reported in 36% of respondents meanwhile 39% of respondents had witnessed an involuntary weight loss. Similar results were obtained by Zhang *et al.* (2018) revealed that anorexia occurred in 50% of newly diagnosed cancer survivors and in 26.8%-57.9% of patients with advanced cancer and influenced access to cancer care. Similarly, 44% of cancer survivors were reported to have experienced an involuntary weight loss in Dublin, Ireland (Sullivan *et al.*, 2021). According to Rosti *et al.* (2020) nutrition care for cancer survivors at risk of anorexia and unintentional weight loss, should focus on increasing food intake to achieve a positive energy balance and therefore increase weight. The type of cancer therapy received the long term effects of treatment, changes in taste and smell coupled with other psychological issues could

have been responsible for anorexia and unintentional weight loss in cancer survivors which could have influenced their attitude towards getting access to nutrition care.

Transposing from the theory of planned behaviour, the perceived behavioural control which is the perceived ease or difficulty with which cancer survivors believe they could have had access to nutrition care determined whether or not they were likely to receive such care amidst barriers like psychological problems. Stress, anorexia and involuntary weight loss which are determinants of a poor psychological health resulted in a weak perceived behavioural control which was unlikely to be favourable in the access to NC in cancer survivors. With [P<0.05], the findings of this study affirm the alternate hypothesis (Ha) that psychological factors are associated to access to nutrition care in cancer survivors at the Laquintinie hospital Douala.

Conclusion

Our findings suggest that socio-economic and psychological factors are associated to the access to nutrition care in cancer survivors at the Laquintinie hospital Douala. More prospective and extensive data are required to investigate the prevalence of nutrition-related complications in that population.

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