Quality of Life of Female Breast Cancer Survivors Treated at the National Cancer Institute of Panama

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ABSTRACT

Purpose: This study evaluates the Quality of life (QOL) of Panamanian female breast cancer (BC) survivors in four QOL domains: physical health, social relationships, psychological health, and environment.

Materials and Methods: A cross-sectional study design was used. Data were collected by a validated Spanish language version of the WHOQOL-BREF survey questionnaire administered to 263 women diagnosed with BC who attended a follow-up appointment between March 1st and April 30th, 2013, at the Medical Oncology Healthcare Service in the National Cancer Institute of Panama. A total of 240 women completed the survey. Data analysis was conducted in IBM SPSS v.17.

Results: Elderly women reported the lowest QOL scores. Higher socioeconomic status indicators, younger age, less than 5 years of BC diagnosis, and receipt of hormone therapy were associated with higher QOL scores, indicating higher QOL perceptions.

Conclusions: Overall, BC survivors in Panama have high perceptions of QOL and were satisfied with their health. The significantly lower physical and psychological health domain scores reported by elderly women indicated particular needs that were not met, and suggested the implementation of post-BC diagnosis psychological counseling and programs to reduce dependence on medicinal substances as well as programs to improve handling of daily living activities, mobility, pain management, energy, and sleep.

Keywords: Breast cancer; QOL; physical health; social relationships; hormone therapy.

INTRODUCTION

Breast cancer (BC) is the most common cancer in women and the second most common cancer worldwide. In 2012, BC accounted for 25% of all new cancers in the world (at 1.67 million of new cases), and ranked as the fifth cause of cancer death. BC is the most common cancer in the developed and developing countries and is also the principal cause of death from cancer among females in less developed countries [1].

In Latin America, BC incidence and mortality rates are the highest among all women's cancers. In 2011, Panama had the highest BC incidence and mortality rates in Latin America [2]. The incidence of BC among Panamanian women was 16.81 per 100,000 women, and there were 626 new cases. Furthermore, a recent report by the Cancer Registry of the National Cancer Institute of Panama, which serves 60% of all cancer patients in the country, indicated 515 new female BC cases in 2014.

Despite the high incidence rates worldwide, the survival rate for BC has significantly increased in recent years. Currently, more than half of BC patients survive. This is mainly in the developed regions of the world due to new effective treatments and early detection [3-4]. Cancer survivorship has become a new issue for delivering quality cancer care. The National Coalition for Cancer Survivorship defines an individual as a cancer survivor based on the time of diagnosis and the remaining balance of life span expectancy, which includes the experience of living with, through, and beyond a diagnosis of cancer [5]. In the United States, 89% of women diagnosed with BC remain alive five years after their diagnosis. For cancer survivors, quality of life (QOL) is considered an essential outcome variable and is conceptualized according to a system of values, standards or perspectives that vary from person to person, group to group and place to place. Such variations in value systems, standards and perspectives are closely associated with emergent individual and group perceptions of disease outcomes.

According to the Centers of Disease Control and Prevention (CDC), the concept of QOL as it related to health refers to the way a person or group of people perceive their physical and mental health over time [7- 8]. During active cancer treatment, much of the focus of care is usually on the support of psychological and physical well-being of the patient. Concerns about life stress, and social, family and spiritual well-being most often arise months or years after the cancer diagnosis [9]. The transition of the experience from being a patient to a BC survivor has been described as a process involving a group of extraneous circumstances that create a huge impact on a woman's life. Often the magnitude of the impact of these circumstances is related to the degree of success or failure at negotiating persistent physical symptoms that disturb the meaning of life for a woman, uncertainty and fears of cancer recurrence, and all aspects of survival [10-12]. Also, survivors may have to deal with the challenge of the recovery process, which may be accompanied by considerable health problems that become apparent after treatment [3,6-13]. Major findings among young BC survivors also indicated fertility and reproductive concerns [14-15]. Discussing these issues and exploring all possible options with a BC patient are crucial before beginning cancer treatment.

According to previous studies, the majority of cancer patients are more likely to experience interpersonal, psychological, health insurance coverage, and comorbidity difficulties instead of mental illness. Feelings of social burden have also been reported among this population [16]. Previous research also indicated that the QOL of BC survivors is often negatively impacted by declines in socioeconomic status variables such as loss of employment. When coupled with spiritual issues and physical worries, changes in sexual behaviors and marital status while experiencing BC were also shown to produce negative effects on QOL. Furthermore, BC survivors often report a number of unmet needs across various areas of personal life [17-20]. These findings suggest that in addition to awareness about patterns of recovery following BC treatment, it is also important to understand the dynamics of QOL among patients after their BC diagnosis and treatment [21-24]. Little is known about the support needs of BC survivors, how survivors manage their issues and the resources needed to promote recovery, self-care management during and after treatment, and the physical, social, and psychological experiences of women who complete treatment. Early detection and advances in new therapies have increased the number of survivors and their QOL. Among BC patients and medical organizations, this is a growing area of research that can provide insight into the provision of better recovery services, evaluation, and improvements in the BC clinical experience [25-27].

At present, there are no studies which examined QOL among BC survivors in Panama. This is despite the fact that Panama has the highest BC incidence and mortality rates in Latin America [2]. Therefore, this study constitutes a first scientific research attempt to determine how BC survivors in Panama perceive their QOL and which areas of their lives were most affected after BC diagnosis and during treatment. The study also aims to identify how BC survivors’ perceptions of their physical and psychological health, social relationships, and environment vary across socioeconomic and clinical characteristics. Also, this study aims to identify potential areas for education, counseling and support as well as some of the weaknesses of the Panamanian medical care system in dealing with BC survivors. This will enable Panamanian doctors and healthcare institutions, especially in the public sector, to implement strategies and design appropriate interventions to prepare BC patients for recovery.

MATERIALS AND METHODS

Study Design: A cross-sectional study was conducted to examine quality of life (QOL) among BC survivors in Panama. The study population consisted of Panamanian women who have been diagnosed with BC and who attended follow-up appointments at the Medical Oncology Healthcare Service in the National Cancer Institute of Panama. A non-probabilistic sampling method was utilized to survey a purposive sample of all women attending BC follow-up appointments from March 1st to April 30th, 2013. A total of 263 female BC patients participated in the study and a total of 240 completed the survey.

The inclusion criteria in this study comprised of: Panamanian woman, 18 years of age or older, diagnosed with BC, Spanish speaker, literate and has been attending follow-up appointments and undergoing BC treatment at the National Cancer Institute of Panama at the time of the study survey. A validated Spanish version of the WHOQOL-BREF (World Health Organization Quality of Life-BREF) instrument was used to collect data from the study participants. It is a self-administered survey questionnaire that has been developed with a trans-cultural focus on QOL as perceived by the person [28-29]. The WHOQOL-BREF survey instrument collected information on variables constituting the four QOL domains: physical health, psychological health, social relationships, and environment. Variables indicating each QOL domain are displayed in Figure 1. The domains are measured in a positive direction, with higher scores indicating better QOL. The steps for assigning scores and calculating domain measures were based on the WHOQOL-BREF scoring guide [26].

In addition to the measures for the four QOL domains, the survey questionnaire also yielded data on patient age, and socioeconomic and BC treatment variables. Patient age was measured in terms of three categories: less than or equal to 50 years, 51-69 years and 70 years and older. Residence was measured as a binary variable indicating Panama Province and Other Provinces. Marital status was measured in terms of five categories: single, married, united, widow and divorced. Education was measured in five categories: elementary school, high school, university, technical, and none. Monthly income was measured in three categories indicating less than \$500, \$500-1,000, and more than \$1,000 levels. Occupational status was measured as a binary variable indicating whether or not a research participant was employed at the time of the survey. Time since BC diagnosis was measured as a binary variable indicating five years of less (≤ 5) and more than five years (>5). BC treatment type was indicated by three categories: chemotherapy, radiotherapy, and hormone therapy. Status on any of the treatment modalities was measured as a binary variable indicating whether or not the patient received the treatment either in the past or at the time of the survey.

The questionnaires were completed by the participants in approximately 30 to 45 minutes. To protect participants' confidentiality, the survey was completely anonymous. This study was categorized as "minimal risk" to the participant and was approved by the Research Bioethics Committee for Health Research of the Gorgas Memorial Institute for Health Studies (ICGES) in the Republic of Panama, and by the Institutional Review Board of the University of South Florida (USF IRB) in the United States. Before using the study survey instrument and the Informed Consent form, both documents were pretested among the study's target population [30].

Participation in this study was completely voluntary and participants did not receive any kind of monetary compensation. In order to preserve confidentiality, the medical specialist or nursing assistant at the Medical Oncology Healthcare Service in the National Cancer Institute of Panama who were assigned to this study consulted the female patients who met the inclusion criteria of the study to determine if they could participate in a study related to BC survivors' QOL. Once the patient provided verbal approval, the principal investigator (PI) explained the objectives of the survey, Informed Consent (IC), and obtained the required signatures on the IC form.

Data Management and Statistical Analysis: Descriptive statistics computation techniques were applied to both discrete and continuous data using IBM SPSS v.17 software. A Shapiro-Wilk test of normality was used to assess whether or not the study sample came from a normal distribution. We respectively used the Mann-Whitney U test and the Kruskal-Wallis H test to determine if there were statistically significant differences between two or more groups of an independent variable on QOL. Logistic regression analysis was used to assess how much variance in select socioeconomic and clinical characteristics accounted for change in the likelihood of the general QOL score. Odds ratios (ORs) with 95% confidence intervals (CIs) were estimated to determine the strength of association among the variables. The Wald test was used to determine statistical significance for each of the independent variables. All estimates were considered statistically significant for *p*-values less than 0.05.

RESULTS

Descriptive Statistics: From a total of 263 female patients who presented at the National Cancer Institute of Panama for BC treatment follow-up appointments, 240 (91.3%) completed the survey. Estimates in Table 1 show that the majority of the respondents were middle-aged or older: about half (52.5%) were 51 to 69 years old and approximately one fourth (24.2%) were 70 years or older. Most of the respondents (62.5%) lived in Panama Province where the capital, Panama City, is located. Almost half (48%) of the respondents reported having a partner (34.2% were married and 13.8% were in a union). Of the remainder, 22.9% were single, 17.5% were widowed, and 11.7% were divorced. A high proportion of participants (70%) reported having high school (34.6%) or university (35.4%) education. More than half of the respondents (52.9%) reported earning less than $500 in monthly income, 27.1% reported monthly incomes ranging from $500 to $1,000, and 13.8% reported more than $1,000 in monthly incomes. More than half of the respondents (62.1%) were unemployment at the time of the survey.

Table 2 provides estimates of the median, mode, and standard deviation for QOL domain scores of BC survivors in Panama. The estimates indicate that female BC survivors in Panama had high and equal perceptions of general QOL and general health satisfaction, with median values of 4 on a scale of 1-5 points. The social relationships domain had the highest score with a median of 75 on a scale of 1-100 points. Psychological health and the environment QOL domains had equal scores with median values of 69 points. The lowest scores were reported in the physical health domain which had a median of 63 points. Higher values in all scales indicated better QOL [29].

Tables 3 and 4 respectively show distributions of QOL scores by respondents' socioeconomic and clinical characteristics. The tables also provide results of Kruskal-Wallis H and Mann-Whitney U tests. The two columns on the far left side of each table show scores for general QOL and health satisfaction. The score estimates indicate significant differences ($p \leq .05$) by age group, education level, income, marital and employments statuses, time since diagnosis, and receipt of chemotherapy. Score estimates in Table 3 indicate that older BC survivors (70 years or more), BC survivors with low levels of education (elementary or no education), BC survivors who had less than $500 in monthly income or who were unemployed at the time of this study had significantly lower general QOL scores compared to their counterparts (survivors who reported younger age, more education, higher monthly income, and being employed). BC survivors who reported having a partner and those who received $1,000 or more in monthly income had higher general health satisfaction. Estimates in Table 4 indicate that female BC survivors who had five years or less since BC diagnosis and female BC survivors who had been treated with chemotherapy had significantly higher general QOL perception.

Estimates in Tables 3 and 4 also show a number of significant differences in scores for the physical health, psychological health, social relationships, and environment domains of QOL. Older BC survivors (≥70 years), and survivors with little or no education (elementary or none) reported significantly lower physical health domain scores. Alternatively, economically resourced BC survivors (monthly income of \$1,000 or more) and survivors who received radiotherapy had significantly higher scores in this domain. Older (≥70 years) and less educated (elementary school) BC survivors also reported significantly lower scores in the psychological health domain. In contrast, BC survivors with the highest monthly incomes (\$1,000 or more), those who were employed at the time of the survey, and those who received hormone therapy in the past had significantly higher scores in this domain. Also, estimates in Tables 3 and 4 show that BC survivors with the highest monthly incomes (\$1,000 or more), survivors who had five years or less since BC diagnosis, and survivors who received hormone therapy in the past reported significantly higher scores in the social relationships domain. Furthermore, BC survivors with higher education (university), the highest monthly income levels (\$1,000 or more), and survivors who received hormone therapy in the past had significantly higher scores in the QOL environment domain.

Results of Multivariate Analysis: General QOL perception scores were dichotomized into “high” and “low” levels in order to construct a binary measure which was subsequently used as the outcome variable in a multivariate logistic regression model (Table 5). Bivariate logistic regression models of general QOL perception were run first for all of the study independent variables to assess statistical significance. Variables that were significant at p≤.05 in the bivariate analysis (≤5 years since BC diagnosis and monthly income of \$1,000 or more) were chosen for inclusion in the multivariate logistic regression model. Coefficient estimates in Table 5 show that five years or less (≤5) time since BC diagnosis and monthly income more than \$1000 were associated with an increased likelihood of higher general QOL perception. BC survivors who had five years or less (≤5) time since BC diagnosis were more than twice as likely to report higher general QOL perception than survivors who had more than five years since BC diagnosis (OR=2.17, 95% CI: 1.12, 4.22). Also, BC survivors who received more than $1000 in monthly income had six times greater probability to have higher QOL perception than women who reported lower income levels (OR=5.60, 95% CI: 1.45, 21).

DISCUSSION

Overall, the BC survivors in this study reported high perceptions of their QOL, indicating that they were satisfied with their health. Similar findings were reported in a recent study in Colombia [31] and in a rigorous systematic literature review which found that long-term BC survivors (>5 years) experienced good overall QOL [32]. Despite the fact that QOL among survivors is generally relatively good, there is no doubt that many of them still experience substantial complications as a result of BC, its treatment and/or comorbidities. Quality of life has a multidimensional character that can be influenced by different variables which make it hard to define even with the use of a validated survey instrument [32]. Even so, the WHOQOL-BREF instrument used in this study produced quality insights into characteristics that affected several aspects of the survivors' lives.

Regarding the four QOL domains analyzed in this study, the research participants reported the highest scores in the social relationships domain, thus demonstrating that social support, personal relationships, and sexual activity greatly influenced women's QOL after BC diagnosis. The strength of social relationships is more evident among economically resourced BC survivors, survivors who had a recent BC diagnosis, and those who received hormone therapy. Maintaining a high income status while having BC, having a relatively shorter experience with BC, and having a BC treatment modality (hormone therapy) credited with less adverse effects, such a fatigue, suggested that these survivors had less reliance on others for financial or physical support and were able to carry on social relationship activities. They were less likely to pose healthcare burdens on family and community members or other associates and, in return, appeared to have received considerable social support [33]. Findings of this study also suggested that receipt of hormone therapy and a high monthly income were strong predictors of significant differences among BC survivors across other QOL domains. BC patients who received hormone therapy reported significantly higher scores in the social relationships, psychological health, and environment domains compared to those who received chemotherapy and radiotherapy. Economically resourced BC survivors with the highest monthly incomes ($1,000 or more) reported significantly higher scores in all QOL domains. These survivors also reported significantly higher general health satisfaction.

In contrast, the lowest QOL scores were found in the physical health domain. The significantly low scores reported in this domain were found across all socioeconomic and clinical characteristics examined in this study. However, it should be noted that BC patients who were illiterate, patients who had the lowest monthly income levels, and those who were single also reported similarly low scores in the environment domain. The findings of this study indicated that physical health problems were more prevalent among older BC survivors and survivors who had no education or only elementary school education. Older and less educated BC survivors reported significantly lower scores in the physical health domain. Previous studies reported lower physical and psychological health perceptions and lower general QOL among long-term BC survivors who were typically of older age [34-36]. The elderly women in this study appeared to have unmet physical needs or difficulties with some of the physical domain variables which could explain their significantly low scores in this domain. Our finding of a significantly low score in the physical health domain among elderly BC survivors was expected and is supported by a number of previous studies [20, 36-39]. Furthermore, this finding indicated that the physical health experiences of older Panamanian BC survivors were not that different from the experiences of similar women in other societies.

In this study, diagnosis time was negatively correlated with QOL and variables in the social relationships domain. Women diagnosed with BC within a 5 years or less period reported higher general QOL and social relationships perceptions. However, this finding is tenuous. Previous research demonstrated that women who had survived long after BC diagnosis reported better overall QOL and better psychological and social well-being than women with fewer years of survival [40-41].

More than half of the Panamanian BC survivors in this study received less than $500.00 in monthly income. As this study revealed, lower income levels were associated with lower QOL domain scores. This was expected, as previous research had demonstrated that low income levels were typically associated with negative health outcomes [42]. The findings of this study also indicated that having a job significantly contributed to the general QOL and psychological health of BC survivors. Survivors who continued to work after BC diagnosis reported significantly higher general QOL and psychological health scores compared to those who did not work. Return to work after a BC diagnosis and treatment is very important, not only from a societal point of view but also for physical and mental health rehabilitation [43-44]. Finally, the BC treatment modalities examined in his study (chemotherapy, hormone therapy, and radiotherapy) produced mixed results, with only hormone therapy showing significant importance for QOL. Women who had been treated in the past with hormone therapy reported statistically significant and higher QOL scores, especially in the psychological health, social relationships, and environment domains. Previous research findings indicated that the majority of women who received hormone therapy following BC diagnosis recovered to a near normal level of QOL after a four-year adjustment period, and lead fulfilling lives [45]. However, this does not mean that other BC therapies did not influence the lives of Panamanian female BC survivors. Panamanian BC survivors rated their QOL much higher than average across all treatment modalities. However, women who received hormone therapy appeared to have significantly better perceptions of post-BC diagnosis QOL. This may be due to hormone therapy's decreased physical impact when compared to chemotherapy and radiation therapy [45].

CONCLUSIONS

Support principally from family and friends plays a very important role in all aspects of QOL, and positively impacts a BC survivor's mental health. This is more apparent among younger patients. Elderly women have particular physical needs and difficulties which might be compounded by BC, resulting in significantly lower perceptions of physical and psychological health. These women should be priority targets for post-BC diagnosis psychological counseling. They should also be priority targets for programs to reduce dependence on medicinal substances as well as programs to improve such things as their handling of daily living activities, mobility, pain management, energy, and sleep. The need for psychological counselling and other interventions is more so among elderly women who received radiotherapy or chemotherapy. Also, the lower QOL domain scores reported by BC survivors with limited education and lower income levels suggested a need for physical and psychological health interventions similar to those we recommended for elderly women.

Finally, this study demonstrated the positive impact of a higher socioeconomic status, younger age, and a relatively shorter experience with BC on QOL. All higher socioeconomic indicators, younger age, and having less than five years of BC diagnosis produced positive influences on QOL among BC survivors. However, the numbers of economically resourced, younger, and recently diagnosed BC survivors will continue to increase, thus underscoring the necessity to monitor this population for possible changes along the various domains of QOL.

RECOMMENDATIONS

More research is needed in order to be able to design appropriate interventions that can mitigate possible negative long-term effects of BC on QOL. This study suggests that factors including breast cancer type, breast cancer stage, type of treatment, time with treatment, body mass, weight, comorbidities, breast cancer recurrence, daily diet, physical activity as well as time of diagnosis should be considered in targeting patients to evaluate the full extent of BC treatment. Age-appropriate interventions may need to be designed for effective management of limited resources, such as organizing educational support groups to provide peer support, and providing BC-related education and specific information about changes in nutritional habits and physical activity. Panamanian BC survivors will benefit from the creation of formal support groups that are presently lacking in the country. Future preparation of older women for the social, physical, functional and treatment-related effects of BC should be considered. Also, involving partners and families in patient consultation may be helpful.

The limitations of this study lie mainly in the characteristics of sample. Results should not be generalized beyond the sample of this study and should be interpreted cautiously. We recommend using a control group to compare the survey instrument's results, and a focus group to obtain substantive interpretations of responses to structured questions on BC QOL. The multivariate statistical analysis presented limitations due to the fact that QOL may be affected by other variables that were not included in the logistic regression model. Due to the subjective nature of QOL, it is not possible to completely know the impact of BC on patients using generic scales and closed-ended questions which may force respondents to select answers that did not truly express their status or opinion.

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Compliance with ethical standards: All procedures performed involving human participants were in accordance with the ethical standards of the Research Bioethics Committee for Health Research of the Gorgas Memorial Institute for Health

Studies (ICGES) in the Republic of Panama, and the Institutional Review Board of the University of South Florida (USF IRB) in the United States, and consistent with the 1964 Helsinki Declaration and its later amendments, or comparable ethical standards.

Conflict of interest: The authors declare that they have no conflicts of interest.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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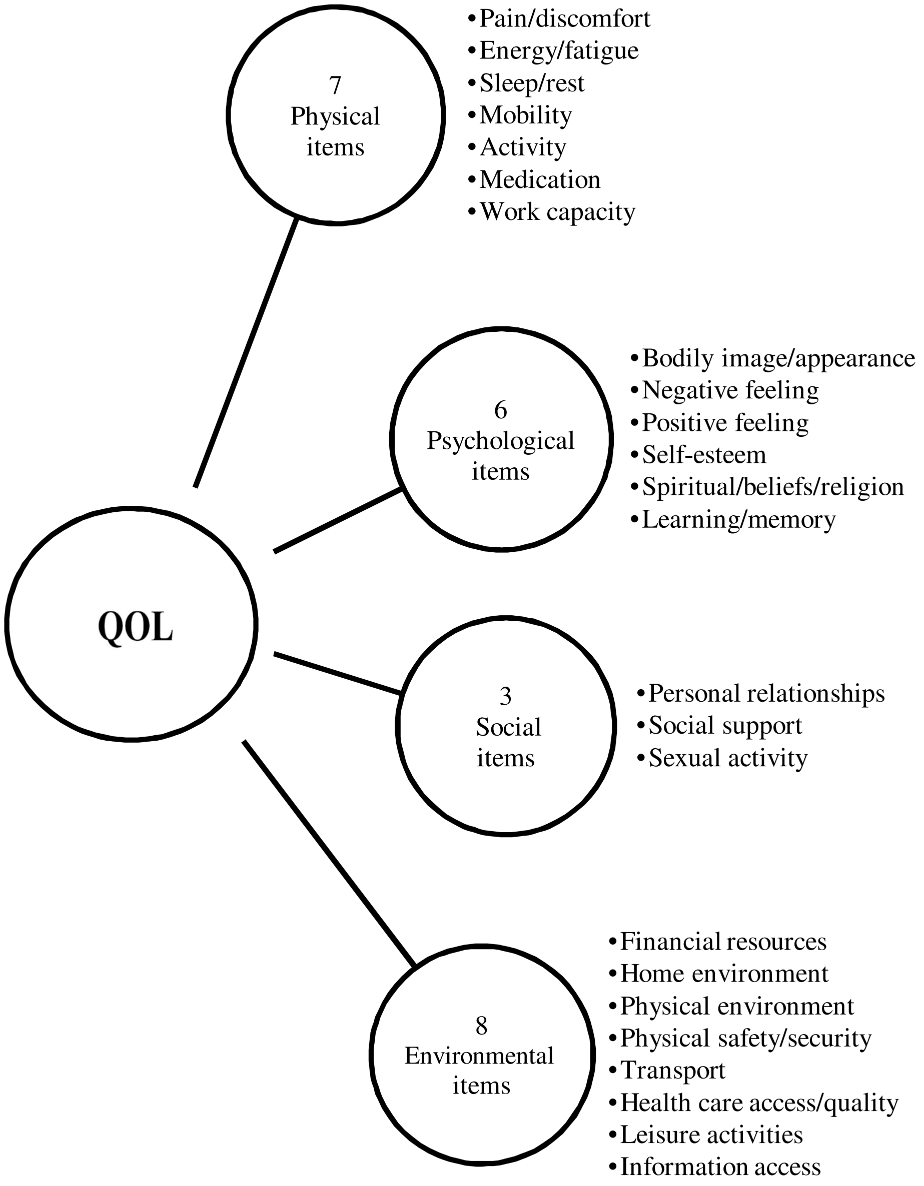

Figure 1. The four QOL domains of the WHOQOL-BREF survey instrument and the number of variables in each domain [28, 29].

Table 1: Percentage distribution of respondents by socioeconomic characteristics

Characteristics	Groups	N=240	%
Age [years]	≤50	44	18.3
	51-69	126	52.5
	≥70	58	24.2
	Missing	12	5.0
Residence	Panama province	150	62.5
	Other provinces	84	35.0
	Missing	6	2.5
Marital status	Single	55	22.9
	Married	82	34.2
	United	33	13.8
	Widow	42	17.5
	Divorced	28	11.7
Education level	Elementary school	56	23.3
	High school	83	34.6
	University	85	35.4
	Technical	12	5.0
	None	3	1.3
	Missing	1	0.4
Income [$]	Less than 500	127	52.9
	500-1,000	65	27.1
	More than1,000	33	13.8
	Missing	15	6.3
Job			
	Yes	91	37.9
	No	149	62.1

Table 2: Estimates of median, mode, and standard deviation of QOL indicators among BC survivors in Panama

Statistics	General[1]		Domains[2]			
	Quality of life	**Health satisfaction**	**Physical Health**	**Psychological Health**	**Social Relations**	**Environment**
Median	4	4	63	69	75	69
Mode	3	4	63	69	75	69
Standard deviations	0.83	0.80	1.94	1.76	2.78	2.27

[1] Scale 1-5

[2] Scale 1-100

Table 3: Distribution of QOL scores by respondents' socioeconomic characteristics

Variables	**General quality of life**[3]	**General health satisfaction**[3]	**Domains**[4]			
			Physical	**Psychological**	**Social**	**Environment**
Age group[1]						
≤50	4	4	63	69	81	69
51-69	4	4	63	69	75	69
≥70	3*	4	56*	63*	75	69
Residence[2]						
Panama	3	4	63	69	75	63
Province	4	4	63	69	75	69
Other						
Education level[1]						
	3*	4	56*	56*	75	56
None	3*	4	56*	63	75	63
Elementary	4	4	63	69	75	69
High school	4	4	63	69	81	75*
University	4	4	63	63	75	56
Technical						
Income [$][1]						
<500	3*	4	63	69	75	63
500-1,000	4	4	63	69	75	69
≥1,000	4	5*	69*	75*	81*	81*
Marital status[1]						
Single	3	4	63	69	75	63
Widowed	4	4	63	69	75	69
Married	4	4	63	69	75	69
United	4	4*	69	69	75	69
Divorced	4	4	63	69	75	69
Job[2]						
Yes	4*	4	63	69*	75	69
No	3	4	63	63	75	69

[1] Kruskal-Wallis H test
[2] Mann-Whitney U test
[3] Scale 1-5
[4] Scale 1-100
*p≤.05

Table 4: Distribution of QOL scores by respondents' clinical characteristics

Variables	General quality of life[3]	General health satisfaction[3]	Domains[4]			
			Physical	Psychological	Social	Environ ment
Time since diagnosis[1]						
≤5 years	4*	4	63	69	81*	69
>5 years	3	4	63	69	75	69
Chemotherapy[1]						
Yes	4*	4	63	69	75	69
No	3	4*	63	69	75	69
Radiotherapy[1]						
Yes	4	4	63*	69	75	69
No	3	4	56	69	75	63
Hormone therapy[1]						
Yes	4	4	63	69*	75*	69*
No	3	4	63	63	69	63
Chemotherapy now[1]						
Yes	4	4	56	63	75	69
No	4	4	63	69	75	69
Radiotherapy now[1]						
Yes	3	4.5	69	69	75	69
No	4	4	63	69	75	69
Hormone Therapy now[1]	4	4	63	69	75	69
Yes	3	4	69	69*	81*	69*
No						

[1] Kruskal-Wallis H test

[2] Mann-Whitney U test

[3] Scale 1-5

[4] Scale 1-100

*p≤.05

Table 5: Summary of logistic regression analysis for general QOL perception, [n=176]

Variables	B	S.E	Wald	P	OR	95% CIs
≤5 Years diagnosis	0.78	0.34	5.27	.022	2.17	1.12, 4.22
Income >$1,000	1.72	0.69	6.24	.012	5.60	1.45, 21.62
Constant	0.20	0.15	1.83	0.18	1.23	