

# Correlation between Demographic, Socio-economic, and Cancer-specific Factors with Quality of Life Scores among Newly-Diagnosed Cancer Patients of the Medical Oncology Clinics of the Philippine General Hospital Cancer Institute

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## ABSTRACT

**Introduction.** Over the last two decades, psychosocial research has explored the experience of cancer patients. This study evaluated if demographic, socio-economic and cancer-specific factors impact and correlate with quality of life (QoL) scores at the time of first consult of newly-diagnosed cancer patients seen at medical oncology clinics of the University of the Philippines-Philippine General Hospital (UP-PGH) Cancer Institute from 2012-2013.

**Methods.** Review of charts and interview with a pre-approved and validated questionnaire were done after informed consent. Age, gender, marital status, number of close friends, household income band, employment status, cancer site and stage were recorded. Outcomes were cancer-specific QoL EORTC QLQ-C30 questionnaire and generic QoL EQ5D questionnaire. Scores were correlated with demographic, socio-economic, and cancer-specific factors.

**Results.** 535 patients were included, 257 male and 278 female. Mean age was 52 years (SD 13.5 years; range 20-92 years). Majority (28.7%) belonged to income bracket P4,293-P8,583/month. Majority were married (74.31%) and unemployed (58.4%). Top 5 cancers were colorectal (28.09%), breast (20.70%), head and neck (16.63%), lung (9.97%), lymphoma (7.94%). According to EORTC QLQ-C30, physical functioning ( $p=0.0037$ ) and cognitive functioning ( $p=0.003$ ) were significantly correlated with younger patients while role functioning ( $p=0.04$ ) and emotional functioning ( $p=0.03$ ) showed negative correlation with older patients. Fatigue was less in female patients ( $p=0.0005$ ) while being the household head ( $p=0.0005$ ) was

significantly correlated with increased fatigue. According to EQ5D, single patients ( $p=0.016$ ) had better mobility than the rest of patients. Having 5 family members significantly reported less pain ( $p=0.038$ ). Breast cancer patients had best QoL while bladder cancer patients had the worst QoL. As cancer stage increased, QoL decreased.

**Conclusion.** This is a first baseline study on self-reported QoL among newly-diagnosed Filipino cancer patients, an important relevant reference in the field of psychosocial issues among low-resourced cancer patients in the Philippines.

*Key Words:* QoL, Philippine cancer patients

## Introduction

Cancer has been cited as the leading cause of mortality globally, accounting for 13% (or 7.4 million) of all deaths annually<sup>1</sup> with 70% of these occurring in low and middle income countries. It is projected that mortality from cancer will increase significantly over the coming years with ~13 million deaths per year worldwide expected by 2030. The trend is even more striking in Asia where the number of deaths per year in 2002 of 3.5 million is expected to increase to 8.1 million by 2020.<sup>2</sup> As the availability of medical technologies and treatments expands across regions, the economic burden of cancer treatments, not only to health systems but to individuals and their households, will inevitably become more pronounced. These impacts will be felt most strongly in socioeconomically disadvantaged groups particularly (although not exclusively) those in low and middle income countries where social safety nets, such as universal health insurance, are less likely to be present. A consequence of this is that such illness, particularly through the costs associated with its treatment and its impact on people's ability to work, can be a major cause of poverty.

During the last decade, the spectrum of endpoints used to evaluate medical treatments has widened. Physical, psychological, and social problems/symptoms related to disease or its treatment are now to a greater extent recognized as important outcomes. Aside from measurement of disease, quality of life (QoL) has been

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measured alongside disease response or progression, especially in clinical trials. QoL is a broad term without exact definition. It depends on a number of factors: support from friends and relatives, ability to work and interest in one's occupations, accommodation appropriate to expectations and, of course, health and other co-morbidities. In the field of most clinicians, by their training, concentrate attention on the somatic and tangible illness; the role of emotional disorder be it a reaction to the somatic illness or an independent factor, is often overlooked.<sup>1</sup>

It is generally accepted that data concerning the patients' well-being should be provided by the patients themselves.<sup>2,3</sup> Standardized questionnaires for patient self-assessment have been developed and are used for that purpose in clinical research. It is critical that the validity and reliability of such measures be evaluated.<sup>4,5</sup> The two most popularly used questionnaires to evaluate QoL in cancer patients are the EQ-5D and the EORTC QLQ-C30. These two questionnaires have been extensively validated and are currently used in clinical trials, population surveys, and measuring self-reported inequalities in healthcare.

Recent studies have identified baseline QoL as a prognostic factor of survival in cancer patients.<sup>6-8</sup> There has been no attempt yet in the Philippines to correlate demographics and socio-economic factors with QoL scores among newly-diagnosed cancer patients to determine who among them are at risk to have poor quality of life during the initial visits, and thus would need additional care. It is in this light that this study was undertaken.

## Methods

### *Study Design*

This is a cross-sectional study of patients with first time diagnosis of cancer in the medical oncology clinics of the cancer institute of a tertiary hospital (UP-PGH).

### *Participants*

Consecutive new patients consulting at the OPD were recruited and included in the study after informed consent. The patients were 18 years and older, with first time cancer diagnosis received in the last 12 weeks, aware of their new cancer diagnosis, conscious with sufficient cognitive capacity to give informed consent and complete an interview. The patients were excluded if they were participating in a clinical trial and if they had prior chemotherapy or radiotherapy that would affect their QoL.

### *Measures*

After obtaining informed consent from the patients, a standardized questionnaire addressing patient characteristics was used. Data collected included items marital status, education, employment, household income,

number of close friends, cancer site and cancer stage. Two health-related quality of life (HRQOL) questionnaires were used - the validated Tagalog or English versions of the European Organization for Research and Treatment of Cancer Study Group on Quality of Life (EORTC- QLQ-C30) and the European Quality of Life Group (EQ-5D).

The EORTC QLQ-C30 is a HRQOL questionnaire, developed by the European Organization on Research and Treatment of Cancer (EORTC) Study Group on QOL.<sup>9</sup> The core questionnaire is intended to measure general aspects of HRQOL specific to cancer patients. EORTC QLQ-C30, version 3, incorporates five functional scales on physical, role, cognitive, emotional, and social functioning, three symptom scales on fatigue, pain and nausea and vomiting, single items assessing dyspnea, insomnia, loss of appetite, constipation and diarrhea, one item assessing perceived financial impact and a global health status/QoL scale. Each status is scored in one of four categories: 1) 'not at all'; 2) 'a little'; 3) 'quite a bit'; 4) 'very much', with the exception of 'global QoL', which ranges from 1) 'very poor' to 7) excellent.<sup>10</sup>

EQ-5D is a short self-reported generic health-related QoL instrument that consists of two parts: a self-classifier and a visual analogue scale (VAS). It is a standardised measure of health status developed by the EuroQol Group in order to provide a simple, generic measure of health for clinical and economic appraisal. Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of health care as well as in population health surveys.<sup>11</sup> Mean scores are taken for this particular measure of QoL. EQ-5D is designed for self-completion by respondents and is ideally suited for use in postal surveys, in clinics, and in face-to-face interviews. It is cognitively undemanding, taking only a few minutes to complete. Instructions to respondents are included in the questionnaire. The EQ-5D 3 level version (EQ-5D-3L) was introduced in 1990. The EQ-5D-3L essentially consists of 2 pages - the EQ-5D descriptive system and the EQ visual analogue scale (EQ VAS). The EQ-5D-3L descriptive system comprises the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 3 levels: no problems, some problems, extreme problems. The respondent is asked to indicate his/her health state by ticking (or placing a cross) in the box against the most appropriate statement in each of the 5 dimensions. The EQ VAS records the respondent's self-rated health on a vertical, visual analogue scale where the endpoints are labelled 'best imaginable health state' and 'worst imaginable health state'. Mean scores are also taken for this particular measure of QoL.

*Ethical Considerations*

The protocol was approved by the UP Ethics Committee. Informed consent was taken from all subjects prior any data collection; data confidentiality was practiced.

*Statistics*

For the quality of life analysis, a linear transformation to a '0-100' scale of the EORTC QLQ-C30 questionnaire was carried out according to the EORTC Scoring Manual. A higher mean score for functional scales and global QoL reflects a better level functioning, but a higher mean score for symptoms reflects more problems. In EQ-5D, combinations of each domain with their categories define a total of 243 health states.

Continuous variables were summarized as means while categorical variables were presented as frequencies. Mean scores and standard deviations (SD) were calculated on the summated scales and items. T-test was used to examine differences between subgroups and Mann-Whitney test was used to quantify these differences between two subgroups. Associations between two categorical variables were explored using chi-square test or Fisher's exact test whenever applicable. Kruskal-Wallis was used to test associations between 3 or more categories. Spearman rho was used for associations between two continuous variables. Shapiro-Wilk test was used to check normality of assumptions.

Stata Statistics Data Analysis Software version 12.0 was used to analyze data. All calculated p-values were two-sided and p-values less than 0.05 were considered statistically significant. A statistician from the University of the Philippines-Manila College of Public Health analysed data with the authors.

**Results**

Out of 550 possible newly-diagnosed participants (within 12 weeks of diagnosis) in the study, only 535 had complete data and returned the informed consent. These were included in the final analysis. None of the 535 participants had missing values. A reliability analysis (internal consistency) was performed for all levels of QoL, reaching satisfactory levels of Cronbach's alpha (0.9304).

*Baseline characteristics*

Five hundred thirty-five patients were recruited for the study, with a mean age of  $52 \pm 13.5$  years. Majority of patients were in the 50-59 year range (31.03%), female (51.96%), married (74.21%), high school graduate (38.13%), and were working in the field of agriculture or fisheries

(37.57%). Majority source of income came from salaries (68.97%) while most fell in the Philippines' income bracket 2 according to NHES data (28.41%). The details of the results are found in Table 1. The most common type of cancer was colorectal (28.22%) while the most common stage was Stage 3 (36.45%). Cancer-specific details are found in Table 2.

*Quality of Life by EORTC*

Table 3 shows the means of patient scores for QoL stratified according to age. Physical functioning ( $p=0.0037$ ) and cognitive functioning ( $p=0.003$ ) were positively correlated with the younger patients, while role functioning ( $p=0.04$ ) and emotional functioning ( $p=0.03$ ) correlated negatively with the older populations. Younger patients generally had better QoL scores than their older counterparts.

There was less fatigue among the female population in all age groups ( $p=0.0005$ ), the rest of the categories failed to show statistical significance with regard to gender. Also, fatigue was significantly correlated with marital status with single patients experiencing less fatigue than married ( $p=0.0365$ ) or separated ( $p=0.0302$ ) patients. Being the household head was also positively correlated with fatigue ( $p=0.0114$ ). Educational status was not correlated with any of the indicators of QoL. Table 4 shows the means for gender, marital status and educational attainment.

Presence of insurance, type of work, and income were not significantly correlated with QoL (Tables 4 and 5). Number of permanent household members was not significantly correlated with QoL. What was remarkable was that having extremes of friends (none and more than 10) were associated with poorer QoL scores while having around 5 close friends was significantly correlated with better scores.

*Quality of Life by EQ-5D*

A decreasing trend for mobility was shown as age increased ( $p=0.001$  (Table 6). Single patients ( $p=0.016$ ) had better mobility than the rest of patients (Table 7). Pain was significantly correlated with the number of household members with patients having 5 family members significantly reporting less pain ( $p=0.038$ ). Personal care was notably better among patients who belonged to the lower income bracket ( $p=0.002$ ) (Table 8). The rest of the categories for EQ5D with regard to usual activities (e.g. educational attainment, type of work) failed to reach statistical significance for demographics and socio-economic differences (Tables 9 and 10).

**Table 1.** Demographics and socioeconomic factors, n=535

Factors	n	%	Factors	n	%
<b>Age category (years)</b>			<b>Monthly income</b>		
20-29	31	5.79	Bracket 1: Php 0-4,292	112	20.93
30-39	60	11.21	Bracket 2: Php 4,293-8,583	152	28.41
40-49	107	20.00	Bracket 3: Php 8,584-12,875	96	17.94
50-59	166	31.03	Bracket 4: Php 12,876-17,167	67	12.52
60-69	121	22.62	Bracket 5: Php 17,167-21,458	34	6.36
70-79	42	7.85	Bracket 6: Php 21,459-25,750	24	4.49
80 and above	8	1.50	Bracket 7: Php 25,751-30,042	17	3.18
			Bracket 8: Php 30,043-34,333	7	1.31
<b>Gender</b>			Bracket 9: Php>34,333	26	4.86
Male	257	48.04	<b>Household head</b>		
Female	278	51.96	Yes	265	49.53
			No	269	50.28
<b>Civil status</b>			<b>Number of Household members</b>		
Single	62	11.59	1	9	1.68
Married	397	74.21	2	50	9.35
Widowed	60	11.21	3	91	17.01
Separated	16	2.99	4	92	17.20
			5	107	20.00
<b>Highest educational attainment</b>			6	88	16.45
No formal education	7	1.31	7	42	7.85
Elementary	135	25.23	8	29	5.42
High school	204	38.13	9	9	1.68
Vocational	46	8.60	≥10	18	3.37
College	143	26.73			
			<b>Number of Household members ≤15 years</b>		
<b>Kind of work</b>			0	224	41.87
Manager	12	2.25	1	158	29.53
Professional	55	10.28	2	72	13.46
Clerical support worker	21	3.93	≥3	81	15.14
Vendor	26	4.86			
Worker in the field of agriculture, fisheries and forestry	201	37.57	<b>Number of Household members ≥65 years</b>		
Craft and related trades	58	10.84	0	379	70.84
Factory worker	32	5.98	1	113	21.12
Domestic work	40	7.48	2	42	7.85
None	54	10.09	≥3	1	0.19
Retired with pension	26	4.86	<b>Number of friends</b>		
Retired without pension	10	1.87	0	181	33.83
<b>Presence of insurance</b>			1	43	8.04
Yes	39	7.29	2	51	9.53
No	496	92.71	3	44	8.22
			4	19	3.55
<b>Source of income</b>			5	39	7.29
Crops	31	5.79	6	6	1.12
Livestock	15	2.80	7	3	0.56
Family business	49	9.16	8	3	0.56
Salary	369	68.97	9	1	0.19
Donations and gifts	69	12.90	≥10	145	27.10
Others	2	0.37			

**Table 2.** Distribution by cancer site and stage

Type of cancer	n	%
Colorectal	151	28.22
Breast	102	19.07
Mouth-pharynx	89	16.64
Others	68	12.71
Trachea, bronchus, lungs	53	9.91
Lymphoma, myeloma	43	8.04
Melanoma	5	0.93
Prostate	5	0.93
Bladder	4	0.74
Esophagus	4	0.74
Liver	4	0.74
Skin	4	0.74
Pancreas	2	0.37
Cervix	1	0.19
<b>Cancer stage</b>	<b>n</b>	<b>%</b>
1	33	6.17
2	120	22.43
3	195	36.45
4	187	34.95

**Table 3.** Means for EORTC QLQ-C30 functional scales, symptom scales and single items by age

Scale	Age range (Mean, SD)													
	20-29	SD	30-39	SD	40-49	SD	50-59	SD	60-69	SD	70-79	SD	≥80	SD
QL2	57.53	23.11	54.64	19.19	59.96	20.62	57.47	20.17	53.78	20.38	46.03	18.15	51.04	24.57
PF2	74.84	32.19	77.11	24.68	80.12	19.34	80.56	22.12	75.65	25.19	62.38	28.05	76.67	18.85
RF2	65.05	33.71	66.11	35.25	67.45	32.08	70.18	30.52	68.32	31.36	53.57	38.71	58.33	39.84
EF	67.74	26.33	70.00	22.45	72.51	19.60	70.28	21.64	71.69	22.06	67.85	21.6	62.5	23.14
CF	84.95	22.91	85.83	17.58	86.92	19.56	88.35	17.26	84.43	18.97	76.98	20.81	75.00	21.82
SF	75.81	34.92	69.17	30.04	74.14	30.39	74.19	29.04	78.92	28.11	74.98	28.34	81.25	24.29
FA	20.43	26.46	25.37	28.72	19.11	21.08	20.88	20.13	22.68	25.67	74.60	24.67	23.61	17.25
NV	4.30	10.51	9.16	19.98	5.14	14.37	5.02	11.38	5.23	11.79	30.42	18.08	8.33	23.57
PA	30.11	33.99	35.00	31.39	31.78	27.81	30.52	26.31	29.75	25.29	7.14	28.09	41.16	33.33
DY	18.28	29.61	22.77	29.11	16.20	24.81	13.45	23.49	18.18	27.21	36.51	29.66	16.67	25.19
SL	25.81	35.18	37.22	34.76	25.55	31.58	24.89	29.52	27.27	31.03	26.98	35.16	41.67	29.54
AP	15.05	29.61	22.22	28.56	14.64	22.51	20.08	27.19	23.69	29.32	30.15	33.39	33.33	17.81
CO	8.60	21.02	3.88	16.34	3.42	14.43	8.63	22.73	7.71	22.26	28.57	25.45	12.5	35.35
DI	2.15	8.32	3.33	14.65	2.18	9.46	3.61	12.73	5.78	18.59	0.79	5.14	0	0
FI	87.10	25.35	82.22	30.35	81.62	31.13	81.32	30.14	79.61	29.61	84.12	27.78	91.67	15.43

QL2 global health status/QoL, PF2 physical functioning, RF2 role functioning, EF emotional functioning, CF cognitive functioning, SF social functioning, FA fatigue, NV nausea vomiting, PA pain, DY dyspnea, SL sleeping difficulties/insomnia, AP appetite loss, CO constipation, DI diarrhea, FI financial difficulties.

**Table 4.** Means (SD) for EORTC QLQ-C30 by gender, marital status, household head, and educational attainment

Scale	Gender		Marital status				Household head			Educational attainment			
	Male	Female	Single	Married	Widow	Separated	Yes	No	None	Elem	HS	Vocational	College
QL2	54.41 (20.81)	56.71 (20.26)	54.41 (20.81)	56.71 (20.26)	55.69 (20.49)	52.08 (18.63)	55.13 (19.85)	56.08 (21.21)	55.95 (17.15)	52.83 (22.84)	54.98 (20.15)	55.79 (22.62)	59.03 (17.87)
PF2	76.39 (24.54)	77.86 (23.75)	76.39 (24.54)	77.86 (23.75)	71.88 (24.18)	75.42 (24.43)	78.57 (22.52)	75.78 (25.57)	75.24 (21.33)	73.53 (26.18)	77.32 (23.13)	72.75 (30.94)	81.86 (20.33)
RF2	65.11 (33.49)	68.71 (31.91)	65.11 (33.49)	68.71 (31.91)	63.05 (32.63)	66.67 (33.33)	67.55 (32.23)	66.42 (33.21)	69.05 (24.40)	62.84 (34.67)	70.01 (29.80)	57.61 (36.12)	69.46 (33.39)
EF	71.98 (22.08)	69.24 (21.29)	71.98 (22.08)	69.24 (21.29)	69.31 (21.57)	71.35 (19.47)	72.13 (21.17)	69.01 (22.14)	75.00 (10.76)	67.28 (24.19)	71.20 (20.65)	73.55 (19.82)	71.56 (21.53)
CF	86.84 (18.00)	84.47 (19.92)	86.83 (18.00)	84.47 (19.92)	83.33 (17.08)	89.58 (17.08)	86.60 (17.59)	84.63 (20.36)	85.71 (11.50)	82.46 (20.39)	87.66 (17.71)	84.42 (22.33)	86.01 (18.52)
SF	70.29 (32.23)	79.19 (25.96)	70.29 (32.23)	79.19 (25.95)	77.77 (27.89)	78.12 (26.33)	73.39 (31.11)	76.42 (27.71)	95.24 (12.59)	72.96 (30.12)	76.87 (27.54)	75.36 (32.15)	72.84 (30.87)
FA	23.99 (1.53)	20.54 (1.33)	23.99 (24.59)	20.54 (22.34)	27.03 (26.07)	22.92 (16.96)	22.01 (23.28)	22.39 (23.74)	22.22 (15.71)	25.10 (26.11)	22.55 (22.55)	23.91 (24.56)	18.41 (21.91)
NV	4.60 (11.94)	6.77 (15.67)	4.60 (11.93)	6.77 (15.67)	5.83 (13.66)	2.08 (5.69)	4.59 (12.01)	6.85 (15.72)	2.38 (6.29)	7.65 (17.72)	5.39 (11.49)	3.98 (15.78)	5.13 (13.01)
PA	33.20 (28.14)	30.33 (27.22)	33.20 (28.14)	30.33 (27.23)	34.44 (28.43)	28.12 (24.13)	32.39 (26.87)	31.05 (28.49)	28.57 (15.85)	33.45 (27.51)	33.49 (28.75)	31.16 (28.02)	27.85 (26.52)
DY	20.10 (28.22)	15.10 (24.27)	20.10 (28.22)	15.11 (24.27)	23.33 (27.65)	20.83 (29.50)	16.60 (25.31)	18.39 (27.33)	9.52 (16.26)	20.49 (29.08)	17.48 (25.72)	21.74 (29.16)	13.75 (23.51)
SL	29.96 (33.29)	25.54 (30.22)	29.96 (33.29)	25.54 (30.23)	31.11 (34.09)	31.25 (30.95)	27.79 (32.09)	27.53 (31.54)	14.28 (26.22)	30.37 (32.69)	28.10 (31.12)	28.98 (34.86)	24.71 (31.08)
AP	19.84 (27.47)	21.34 (28.04)	19.84 (27.47)	21.34 (28.04)	27.78 (30.17)	14.58 (17.07)	19.62 (26.28)	21.60 (29.14)	23.81 (25.19)	25.67 (31.26)	20.75 (26.25)	18.84 (23.98)	16.08 (27.08)
CO	7.26 (21.23)	7.19 (20.91)	7.26 (21.22)	7.19 (20.91)	12.22 (29.41)	12.50 (34.16)	7.29 (21.45)	7.17 (20.68)	0 (0)	6.42 (18.89)	7.35 (20.80)	8.69 (21.58)	7.69 (23.63)
DI	3.76 (14.09)	3.11 (12.59)	3.76 (14.08)	3.11 (12.59)	1.67 (7.32)	4.16 (16.67)	4.53 (15.22)	2.34 (11.06)	9.52 (25.19)	2.47 (8.76)	4.25 (15.63)	5.79 (16.18)	2.09 (11.34)
FI	83.39 (28.12)	80.33 (30.85)	83.39 (28.12)	80.34 (30.85)	75.56 (32.97)	85.42 (27.13)	80.88 (29.93)	82.71 (29.27)	85.71 (26.23)	82.71 (28.46)	80.88 (30.67)	81.16 (30.35)	82.29 (29.29)

QL2 global health status/QoL, PF2 physical functioning, RF2 role functioning, EF emotional functioning, CF cognitive functioning, SF social functioning, FA fatigue, NV nausea vomiting, PA pain, DY dyspnea, SL sleeping difficulties/insomnia, AP appetite loss, CO constipation, DI diarrhea, FI financial difficulties.

**Table 5.** Means (SD) for EORTC QLQ-C30 by presence of insurance and Philippine income bracket

Scale	Insurance		Income Bracket								
	Present	Absent	1	2	3	4	5	6	7	8	9
QL2	52.78 (22.40)	55.83 (20.39)	55.95 (21.53)	55.97 (20.53)	54.43 (20.58)	56.09 (19.17)	54.65 (20.84)	55.55 (17.14)	46.08 (23.95)	65.48 (22.28)	59.93 (19.43)
PF2	70.59 (28.14)	77.67 (23.73)	79.76 (22.83)	77.71 (23.17)	73.54 (25.95)	79.10 (21.58)	74.31 (27.76)	77.22 (23.50)	70.19 (30.19)	72.38 (24.77)	80.51 (25.98)
RF2	61.97 (37.45)	67.37 (32.31)	70.09 (31.49)	69.07 (32.40)	62.85 (33.02)	69.65 (30.56)	63.23 (35.48)	61.11 (33.93)	55.88 (33.30)	57.14 (40.66)	69.87 (36.52)
EF	69.23 (25.58)	70.67 (21.39)	69.57 (20.46)	72.58 (19.34)	70.31 (23.38)	67.78 (23.61)	70.34 (20.84)	70.48 (15.54)	66.17 (32.07)	79.76 (26.72)	71.79 (26.04)
CF	84.18 (19.09)	85.72 (19.05)	84.82 (21.17)	84.10 (18.73)	86.97 (17.63)	86.82 (15.76)	84.80 (24.05)	90.28 (11.95)	83.33 (24.29)	95.24 (8.13)	85.25 (20.72)
SF	66.24 (34.09)	75.60 (28.98)	75.15 (27.58)	75.00 (27.66)	71.01 (32.46)	81.09 (26.57)	76.47 (29.33)	76.39 (27.33)	63.73 (41.34)	90.47 (16.26)	71.79 (36.74)
FA	31.91 (30.92)	21.43 (22.67)	20.73 (21.79)	22.07 (23.95)	24.19 (24.50)	24.71 (20.91)	22.55 (26.02)	18.06 (18.77)	32.67 (30.55)	14.28 (17.81)	14.10 (25.83)
NV	7.26 (20.87)	5.61 (13.37)	6.39 (14.19)	6.79 (14.77)	6.25 (15.15)	3.48 (12.15)	8.33 (19.35)	2.08 (7.47)	0.98 (4.04)	4.76 (12.59)	3.84 (8.57)
PA	40.59 (32.17)	31.01 (27.21)	32.87 (27.80)	33.22 (29.43)	32.29 (26.58)	28.11 (21.75)	29.41 (27.84)	34.03 (25.29)	37.25 (35.12)	38.09 (34.31)	20.51 (29.17)
DY	18.80 (28.40)	17.41 (26.19)	13.69 (24.73)	20.17 (27.96)	19.09 (27.67)	20.39 (25.92)	13.73 (23.38)	16.67 (19.66)	27.45 (35.81)	9.52 (16.26)	6.41 (18.90)
SL	30.77 (35.36)	27.42 (31.51)	30.95 (34.86)	30.92 (32.12)	21.87 (30.52)	26.86 (26.74)	29.41 (34.58)	19.44 (25.85)	35.29 (34.29)	9.52 (16.26)	23.07 (32.34)
AP	28.21 (37.10)	20.03 (26.84)	19.64 (28.84)	22.15 (26.56)	23.26 (29.46)	20.39 (25.92)	19.61 (29.72)	18.05 (25.96)	21.57 (28.72)	4.76 (12.59)	14.10 (28.55)
CO	14.53 (31.33)	6.65 (19.95)	9.52 (24.27)	8.33 (21.44)	4.51 (15.76)	6.46 (22.65)	4.90 (16.68)	1.38 (6.80)	9.80 (28.29)	19.05 (26.23)	6.41 (23.13)
DI	5.12 (14.38)	3.29 (13.25)	4.76 (15.41)	3.29 (14.23)	3.47 (11.32)	1.49 (6.94)	3.92 (17.91)	1.38 (6.80)	3.92 (16.17)	4.76 (12.59)	3.84 (14.38)
FI	87.18 (28.22)	81.38 (29.67)	81.25 (29.94)	82.24 (28.94)	84.72 (26.89)	84.07 (27.44)	77.45 (33.56)	70.83 (33.06)	80.39 (33.45)	80.95 (37.79)	82.05 (34.29)

QL2 global health status/QoL, PF2 physical functioning, RF2 role functioning, EF emotional functioning, CF cognitive functioning, SF social functioning, FA fatigue, NV nausea vomiting, PA pain, DY dyspnea, SL sleeping difficulties/insomnia, AP appetite loss, CO constipation, DI diarrhea, FI financial difficulties.

**Table 6.** Means for EQ5D by age category

EQ-5D DIMENSION	Level	Age Category (%)							TOTAL
		19-29y	30-39y	40-49y	50-59y	60-69y	70-79y	≥80y	
<b>Mobility</b> (p=0.001)	1	74.19	75.00	77.57	69.88	65.29	42.86	87.50	69.35
	3	19.35	25.00	22.43	28.31	33.88	57.14	12.50	29.53
	5	6.45	0.00	0.00	1.81	0.83	0.00	0.00	1.12
<b>Personal Care</b> (p=0.560)	1	74.19	85.00	80.37	77.71	79.34	69.05	87.50	78.69
	3	16.13	13.33	17.76	18.67	15.70	21.43	12.50	17.20
	5	9.68	1.67	1.87	3.61	4.96	9.52	0.00	4.11
<b>Usual Activity</b> (p=0.077)	1	51.61	41.67	34.58	35.54	35.54	21.43	37.50	35.89
	3	29.03	41.67	49.53	51.20	47.11	52.38	12.50	47.10
	5	19.35	16.67	15.89	13.25	17.36	26.19	50.00	17.01
<b>Pain</b> (p=0.362)	1	45.16	21.67	27.10	24.70	22.31	23.81	25.00	25.42
	3	45.16	61.67	63.55	65.66	69.42	64.29	50.00	64.11
	5	9.68	16.67	9.35	9.64	8.26	11.90	25.00	10.47
<b>Anxiety/Depression</b> (p=0.980)	1	25.03	43.33	37.38	37.95	38.02	40.48	50.00	38.32
	3	61.29	48.33	57.01	56.02	54.55	54.76	50.00	55.14
	5	9.68	8.33	5.61	6.02	7.44	4.76	0.00	6.54

**Table 7.** Means for EQ5D by civil status

EQ-5D DIMENSION	Level	Civil Status				TOTAL
		Single	Married	Widowed	Separated	
<b>Mobility</b> (p=0.016)	1	77.42	71.03	50.00	68.75	69.35
	3	20.97	27.71	50.00	31.25	29.53
	5	1.61	1.26	0.00	0.00	1.12
<b>Personal Care</b> (p=0.945)	1	83.87	77.83	78.33	81.25	78.69
	3	12.90	17.88	18.33	12.50	17.20
	5	3.23	4.28	3.33	6.25	4.11
<b>Usual Activity</b> (p=0.309)	1	48.39	33.50	36.67	43.75	35.89
	3	38.71	48.87	48.33	31.25	47.10
	5	12.90	17.63	15.00	25.00	17.01
<b>Pain</b> (p=0.180)	1	38.71	22.92	25.00	37.50	25.42
	3	54.84	65.74	65.00	56.25	64.11
	5	6.45	11.34	10.00	6.25	10.47
<b>Anxiety/Depression</b> (p=0.508)	1	35.48	38.04	41.67	43.75	38.32
	3	62.90	54.66	53.33	43.75	55.14
	5	1.61	7.30	5.00	12.50	6.54

**Table 8.** Means for EQ5D by income bracket

EQ-5D DIMENSION	Level	Income Bracket									TOTAL
		1	2	3	4	5	6	7	8	9	
<b>Mobility</b> (p=0.517)	1	67.86	65.13	64.58	76.12	79.41	75.00	58.82	85.71	84.62	69.35
	3	31.25	32.89	35.42	22.39	17.65	25.00	41.18	14.29	15.38	29.53
	5	0.89	1.97	0.00	1.49	2.94	0.00	0.00	0.00	0.00	1.12
<b>Personal Care</b> (p=0.002)	1	82.14	80.26	77.08	86.57	70.59	58.33	64.71	71.43	80.77	78.69
	3	14.29	14.47	19.79	11.94	29.41	41.67	23.53	0.00	11.54	17.20
	5	3.57	5.26	3.13	1.49	0.00	0.00	11.76	28.57	7.69	4.11
<b>Usual Activity</b> (p=0.191)	1	39.29	34.21	25.00	44.78	38.24	25.00	35.29	42.86	53.85	35.89
	3	40.18	45.39	60.42	43.28	50.00	58.33	52.94	28.57	34.62	47.10
	5	20.54	20.39	14.58	11.94	11.76	16.67	11.76	28.57	11.54	17.01
<b>Pain</b> (p=0.147)	1	28.57	21.05	20.83	34.33	20.59	33.33	11.76	0.00	46.15	25.42
	3	62.50	66.45	64.58	59.70	70.59	62.50	82.35	85.71	42.31	64.11
	5	8.93	12.50	14.58	5.97	8.82	4.17	5.88	14.29	11.54	10.47
<b>Anxiety/Depression</b> (p=0.770)	1	39.29	35.53	39.58	37.31	50.00	25.00	41.18	57.14	38.46	38.32
	3	52.68	59.87	51.04	56.72	47.06	66.67	58.82	42.86	50.00	55.14
	5	8.04	4.61	9.38	5.97	2.94	8.33	0.00	0.00	11.54	6.54

Table 9. Means for EQ5D by type of work

Q-5D DIMENSION	Level	Type of Work												TOTAL
		1	2	3	4	5	6	7	8	10	11	12		
Mobility (p=0.934)	1	81.82	67.86	71.43	80.77	70.65	70.69	68.75	65.00	62.96	61.54	70.00	69.35	
	3	18.18	32.14	28.57	15.38	28.36	29.31	31.25	32.50	35.19	34.62	30.00	29.53	
	5	0.00	0.00	0.00	3.85	1.00	0.00	0.00	2.50	1.85	3.85	0.00	1.12	
Personal Care (p=0.476)	1	81.82	75.00	71.43	84.62	80.10	87.93	71.88	70.00	75.93	80.77	80.00	78.69	
	3	18.18	21.43	23.81	7.69	15.92	8.62	21.88	30.00	14.81	19.23	20.00	17.20	
	5	0.00	3.57	4.76	7.69	3.98	3.45	6.25	0.00	9.26	0.00	0.00	4.11	
Usual Activity (p=0.170)	1	36.36	35.71	19.05	46.15	40.30	24.14	43.75	25.00	31.48	42.31	50.00	35.89	
	3	54.55	50.00	71.43	30.77	44.78	55.17	46.88	60.00	40.74	34.62	30.00	47.10	
	5	9.00	14.29	9.52	23.08	14.93	20.69	9.38	15.00	27.78	23.08	20.00	17.01	
Pain (p=0.474)	1	27.27	25.00	9.52	34.62	25.37	13.79	28.13	22.50	38.89	26.92	30.00	25.42	
	3	72.73	64.29	85.71	57.69	61.19	74.14	65.63	70.00	51.85	65.38	60.00	64.11	
	5	0.00	10.71	4.76	7.69	13.43	12.07	6.25	7.50	9.26	7.69	10.00	10.47	
Anxiety/Depression (p=0.582)	1	27.27	35.71	42.86	26.92	41.29	43.10	28.13	27.50	42.59	46.15	30.00	38.32	
	3	72.73	58.93	42.86	69.23	53.23	53.45	62.50	60.00	50.00	42.31	70.00	55.14	
	5	0.00	5.36	14.29	3.85	5.47	3.45	9.38	12.50	7.41	11.54	0.00	6.54	

Table 10. Means for EQ5D by educational attainment

EQ-5D DIMENSION	Level	Educational Attainment					TOTAL
		None	Elementary	High School	Vocational	College	
Mobility (p=0.645)	1	71.43	65.93	67.65	73.91	73.43	69.35
	3	28.57	33.33	30.39	23.91	26.53	29.53
	5	0.00	0.74	1.96	2.17	0.00	1.12
Personal Care (p=0.763)	1	71.43	77.78	76.47	78.26	83.22	78.69
	3	28.57	16.30	19.12	17.39	14.69	17.20
	5	0.00	5.93	4.41	4.35	2.10	4.11
Usual Activity (p=0.201)	1	42.86	28.89	37.25	43.48	37.76	35.89
	3	57.14	46.67	46.57	41.30	49.65	47.10
	5	0.00	24.44	16.18	15.22	12.59	17.01
Pain (p=0.800)	1	28.57	21.48	24.51	26.09	30.07	25.42
	3	71.43	65.93	64.22	65.22	61.54	64.11
	5	0.00	12.59	11.27	8.70	8.39	10.47
Anxiety/Depression (p=0.729)	1	14.29	34.81	38.24	41.30	41.96	38.32
	3	85.71	59.26	53.92	52.17	52.45	55.14
	5	0.00	5.93	7.84	6.52	5.59	6.54

Table 11. Frequency for EQ-5D QOL by cancer site

EQ-5D DIMENSION	Level	Cancer Site														Total
		Mouth to Pharynx (89)	Esophagus (4)	Skin (4)	Colorectal (151)	Liver (4)	Pancreas (2)	Trachea Bronchus Lung (53)	Melanoma (5)	Breast (102)	Cervix (1)	Prostate (5)	Bladder (4)	Lymphoma Myeloma (43)	Others (68)	
Mobility (p=0.013)	1	72	3	3	95	3	2	24	4	84	1	2	1	29	48	371
	3	15	1	1	55	1	0	29	1	17	0	3	3	13	19	158
	5	2	0	0	1	0	0	0	0	1	0	0	0	1	1	6
Personal Care (p=0.550)	1	72	4	4	114	3	2	36	4	88	1	4	1	33	55	421
	3	15	0	0	30	1	0	14	1	12	0	1	2	6	10	92
	5	2	0	0	7	0	0	3	0	2	0	0	1	4	3	22
Usual Activity (p=0.0007)	1	38	1	2	42	2	1	11	3	46	0	2	1	16	27	192
	3	40	2	2	89	1	1	23	0	44	1	3	1	15	30	252
	5	11	1	0	20	1	0	19	2	12	0	0	2	12	11	91
Pain (p=0.015)	1	14	1	1	38	2	1	10	2	32	1	0	0	13	21	136
	3	62	3	3	105	1	1	35	3	64	0	5	2	20	39	343
	5	13	0	0	8	1	0	8	0	6	0	0	3	10	8	56
Anxiety/Depression (p=0.438)	1	31	3	3	54	1	0	23	3	40	1	3	0	14	29	205
	3	56	1	1	88	2	2	26	2	54	0	2	3	23	35	295
	5	2	0	0	9	1	0	4	0	8	0	0	1	6	4	35



*The effect of cancer site and stage*

Bladder cancer was associated with poorer QoL as compared with all other histologies (Table 11). This particular histology was also associated with higher fatigue (vs. colorectal/breast/melanoma). Breast cancer patients tended to have less pain than bladder cancer patients. As expected, lung cancer patients were associated with more dyspnea. Surprisingly, bladder cancer was also associated with increase in dyspnea (vs. colorectal/breast/lymphoma). Bladder cancer was also associated with less appetite (vs. colorectal/head and neck/esophagus/lung/breast/prostate). The rest of the associations did not reach statistical significance.

Decrease in mobility (p=0.005), decrease in usual activities (p=0.015), and decrease in personal care (p=0.002) were associated with increase in cancer stage according to EQ-5D (Table 12). The rest of the associations did not reach statistical significance.

**Table 12.** Frequency for EQ-5D QOL by cancer stage

EQ-5D DIMENSION	Level	Cancer Stage				Total
		1	2	3	4	
<b>Mobility</b> (p=0.005)	1	27	98	130	116	371
	3	6	22	61	69	158
	5	0	0	4	2	6
<b>Personal Care</b> (p=0.002)	1	30	106	155	130	421
	3	2	13	30	47	92
	5	1	1	10	10	22
<b>Usual Activity</b> (p=0.015)	1	16	50	75	51	192
	3	15	55	90	92	252
	5	2	15	30	44	91
<b>Pain</b> (p=0.059)	1	11	36	50	39	136
	3	22	76	125	120	343
	5	0	8	20	28	56
<b>Anxiety/Depression</b> (p=0.254)	1	17	48	70	70	205
	3	15	67	106	107	295
	5	1	5	19	10	35

**Discussion**

In this study, two types of quality of life (general quality of life and cancer-specific quality of life) were quantified and correlated with the demographics of the usual Filipino cancer patient seen in the charity outpatient clinics. Newly-diagnosed cancer patients were recruited in this study because we wanted to know who will need additional care or referrals during treatment. Younger patients had better physical and cognitive function while older patients tended to perform worse in terms of role functioning and emotional functioning. This could be explained by the younger people having abler bodies and less comorbidities at baseline while as age increased, comorbidities and age-related degenerative changes also increased. Because of this, younger patients also tended to withstand the side effects of chemotherapy or radiotherapy that they might need in the future. Older people were also more dependent because of these and this could affect their role functioning and emotional functioning. They might be more neglected than their

younger counterparts and this might lead to undetected mood problems. In fact, in a study done by Botega,<sup>12</sup> undetected psychiatric disorders, in admitted cancer patients, especially in the elderly population, reached 30%. It might be warranted to spend more time talking to older cancer patients to detect these disorders or to refer them to Psychiatry early in their treatment course. Our results are the opposite of a study among breast cancer patients in a Swedish population<sup>13</sup> and a UK population<sup>14</sup> wherein the older population had more positive emotional functioning. This might be due to the government-based health insurance that was given to them.

The patients who belonged to the lower income bracket scored higher in personal care questions. This could be because they were conditioned early on to tend to their needs and not be dependent on someone else. For their more affluent counterparts, who lived with helpers at home, personal care could be dependent on someone else. These people and their families might need extra counseling during the course of the disease and treatment so that helplessness would not be experienced much by these patients. Empowering these patients early on might be warranted. However, in a study by Zigmond,<sup>15</sup> loss of employment temporarily upon cancer diagnosis was associated with lower social functioning and job discrimination. In a study by Hermann,<sup>16</sup> low income patients had lower physical functioning and emotional functioning.

Surprisingly, educational status, presence of insurance, type of work, and income did not significantly alter the quality of life of patients at the onset of their cancer treatment. The effect might be more pronounced as the patients move on to chemotherapy, surgery, and other forms of treatment that would need substantial financial support. The financial catastrophe brought about by cancer might be seen in a longitudinal study that could also measure the changes in QoL.

At start of cancer treatment or upon diagnosis, what seemed to be more important was the amount of social support that the patient felt he/she has. The patient could be thinking of support from friends or family in terms of emotion or financial. Nonetheless, knowing that someone was there for you throughout the course of treatment could lead to better QoL.

The associations that we established for cancer stage and QoL were expected. Patient QoL was better for early stage cancers. For histology-specific QoL, bladder cancer patients seemed to perform the poorest. This histology was associated with decrease in physical functioning, increase in fatigue, increase in pain, increase in dyspnea, and decrease in appetite. These patients might need to be given early maximal treatment and be referred early on to other relevant sub-specialities (psychiatry, hospice, pain, gastroenterology).

### Limitations

The major limitation of our study was that we concentrated on recruiting charity cancer patients because of their proximity to our own clinics and their numbers. The above average Filipino patient when it came to income bracket was admittedly under-represented.

### Summary

This is a baseline study on self-reported QoL among newly-diagnosed cancer patients in the medical oncology clinics of the Cancer Institute of the University of the Philippines-Philippine General Hospital. Here so showed that the physical burden of cancer was better tolerated by younger patients. Older patients tended to perform poorer in terms of role and emotional functioning that might make them more susceptible to mood disorders further in the course of their disease. Early referrals to other subspecialties might be warranted for these patient subsets. Finances and work-related factors did not seem to alter QoL early in the course of the patient's disease, while having advanced disease upon diagnosis was associated with poor QoL. However, having some close friends increased the QoL of our newly-diagnosed cancer patients. A longitudinal study which followed-up these patients to know the impact of finances, stage, histology, and other aspects of cancer is now being analyzed to further understand the QoL of cancer patients.

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