ORIGINAL ARTICLE

The Prevalence and Analysis of Related Factors of Anxiety, Depression, and Quality of Life of Out-Patients in the Cancer Institute of a COVID-19 Referral Tertiary Hospital: One Year into the Pandemic

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ABSTRACT

Objective. This study aimed to determine the prevalence, analyze, and compare the risk factors of anxiety, depression, and quality of life of cancer patients in the out-patient cancer clinic of the Cancer Institute one year into the pandemic. These were compared to the prevalence of anxiety and depression before the pandemic.

Methods. A cross-sectional analytic study described the prevalence of anxiety, depression, and quality of life and analysis of its related factors among patients with cancer seen in the outpatient cancer clinic of the Cancer Institute of the Philippine General Hospital from November 1 to 20, 2021, using the Hospital Anxiety and Depression Scale – Pilipino and EORTC (European Organisation for Research and Treatment of Cancer) QLQ-C30 (Quality of Life questionnaire) tools.

Results. A total of 408 cancer patients were enrolled in the study. The prevalence of anxiety and depression was 58.33% and 24.51%, respectively. Before the pandemic, the prevalence of anxiety and depression was 9.45% and 4.72%, respectively. Two hundred seventy participants (66.18%) had a positive quality of life. The comparison between the prevalence of anxiety and depression between this study (one year into the pandemic) and the pre-pandemic study revealed a statistically significant difference in the majority of both, with more anxious and depressed cancer patients in this study. The participants agreed that the pandemic had affected their daily activities.

Conclusion. The study showed that the COVID-19 pandemic significantly increased anxiety and depression among cancer patients. The quality of life (QOL) of cancer patients in this study has not been distinctly affected by the pandemic, but for those who have, they still require the attention and support of not just the physicians but the community as a whole. Our findings highlight the need to integrate better psychosocial support and the important role of carers in the evolving pandemic response measures.

Keywords: cancer outpatients, pandemic, anxiety, depression, quality of life, cancer, COVID-19

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INTRODUCTION

The World Health Organization (WHO) declared that the Coronavirus Disease 2019 (COVID-19) was a pandemic worldwide.[1] As of May 2021, there were 2.84 million cases with at least 51,211 deaths in the Philippines.[2] For the duration of the pandemic, the following have become challenging if not even near-impossible: cancer diagnosis, cancer treatment, and cancer screening.[3-8] Countless cancer patients have suffered from this delay or treatment interruptions due to the pandemic and public health measures (i.e.,

lockdowns, limited clinic hours, healthcare workers assigned to COVID-19 areas, full hospitals, etc.) adapted to address it. While those public health measures may reduce the risk of COVID-19 infection and mortality, they may very well lead to an increase in cancer-specific mortality.

In response to the surge of cases in the country, the Philippine General Hospital (PGH) was designated by the Philippine Department of Health as a COVID-19 referral center. This meant that since March 31, 2020, non-emergency clinics, elective procedures and surgeries, and non-COVID-19 admissions were intermittently suspended or limited depending on the threat of the COVID-19 surge. Realizing the possible detrimental effects of the cessation of oncologic care, the Cancer Institute adapted strategies that allowed the continuation of cancer care. It maintained the safety and wellbeing of both the patients and the health professionals. Patients seen at the clinic were limited, and appointments given were based on a prioritization scheme. The in-patient capacity of CI was also reduced, with admission dependent on negative RT-PCR results for both the patient and one watcher. The Medical Oncology fellows were also divided into two teams (COVID-19 and non-COVID), decreasing the number of oncologists attending to the oncologic care of cancer patients.[9] These restrictions and limitations inadvertently resulted in delays and disruptions in cancer management and an increase in cancer-related deaths over the next few months.[10]

Depression and anxiety were two of the common emotional problems experienced by cancer patients. A study has shown that even cancer survivors have a higher prevalence of anxiety and depression than the general population.[11-13] A recent meta-analysis of 9 studies that determined the prevalence of anxiety and depression of patients with cancer worldwide showed that the pooled prevalence of anxiety and depression was 52.94% and 43.25%, respectively.[14] In another study done in Europe, anxiety and depression were shown to affect up to 10% and 20% of cancer patients, respectively. This was regardless of whether the cancer patient was undergoing curative or palliative management. The study also showed that depression was linked to poor adherence to treatment, poor survival, and the increased risk of suicide.[15] Additionally, patients with cancer have differing levels of anxiety and depression, depending on the primary malignancy site. The highest anxiety levels were reported in lung, gynecological, and hematological cancers. These differing levels were attributed to the differing prognoses, pain levels, and degrees of body image disruption associated with each tumor type, as well as specific tumor-related neuropsychiatric effects and treatment-related neuropsychiatric side effects.[16] Anxiety and depression experienced by cancer patients are negative emotions that can lead to adverse effects such as increased side effects from chemotherapy, longer physical recovery times, and lower quality of life and survival rates.[15,17-18]

During this pandemic, cancer patients are faced with the challenge of the trade-off between the increased risk of COVID-19 infection when receiving treatment or reduced risk of infection with delaying treatment but with the higher risk of progression of their disease. This can lead to more anxiety, depression, and lower quality of life for that specific cohort of patients; and can further affect their prognosis.[19-21] To the investigators' knowledge, this is the first study done to determine the anxiety, depression, and quality of life of cancer patients seeking consult in the outpatient cancer clinic in the Cancer Institute of the PGH during this COVID-19 pandemic.

OBJECTIVES

General Objective

To determine the prevalence and analyze the risk factors affecting Anxiety, Depression, and Quality of Life of the Cancer Patients in the Out-Patient Cancer Clinic of the Cancer Institute one year into the pandemic.

Specific Objectives

1. To describe the demographic, socioeconomic, and disease-related characteristics of the patients seen in the outpatient cancer clinic.
2. To determine the prevalence and risk factors associated with Anxiety and Depression among cancer patients being seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 pandemic:
3. To determine the prevalence and associated factors of the Quality of Life among cancer patients seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 pandemic.
4. To determine the association between the demographic, socioeconomic, and disease-related characteristics and depression, anxiety, and Quality of Life among the cancer patients seen in the outpatient cancer clinic.
5. To compare the anxiety and depression levels of cancer patients seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 pandemic and before.
6. To determine the association between Anxiety and Depression with the Quality of Life among cancer patients seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 pandemic.

MATERIALS AND METHODS

Study Design

A cross-sectional analytic study described the prevalence of anxiety, depression, and quality of life and analyzed its related factors among patients with cancer in the outpatient cancer clinic.

Study Setting

The Outpatient Cancer Clinic (Room 107) of the Cancer Institute (CI) of the PGH, a COVID-19 referral center.

The clinic is open Mondays to Thursdays (except Fridays, weekends, and holidays) from 8 am to 5 pm. It caters to all adult patients diagnosed with cancer seeking health consult and treatment related to their cancer.

Study Population

All patients diagnosed with cancer seeking first-time consult, follow-up, and chemotherapy in the Out-Patient Cancer Clinic of the CI from November 1 to 20, 2021, were screened for eligibility for inclusion into the study (Figure 1).

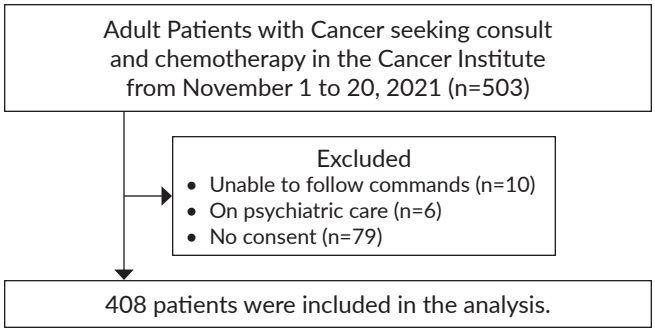

Figure 1. The study flow.

Inclusion Criteria

1. Adults aged ≥19 years
2. A physician diagnosed cancer with biopsy results.
3. A patient who can follow commands (i.e., answer the questions asked).
4. Willing to participate.

Exclusion Criteria

1. Patient who cannot follow commands (i.e., cannot answer when asked questions).
2. Patients who are pregnant or have psychological conditions.

Study Outcomes

Demographic and Clinical Profile

A data collection form constructed by the investigators was used in gathering the demographic, socioeconomic, and clinical profile of the patients included in the study. The investigators obtained the following information: name, age (years), sex, civil status, educational attainment, employment status, average monthly income, residence, Eastern Cooperative Oncology Group (ECOG), cancer site, cancer stage, and disease management.

Anxiety and Depression

Hospital anxiety depression (HAD) is used to define the risk group for anxiety and depression quickly among patients with physical illnesses and who applied to the primary healthcare units rather than diagnosing them. In a total of 14 questions, seven of them (odd numbers) measure anxiety, while the remaining seven (even numbers) measure depression. Answers are scored in the quartet Likert style between 0 and 3 points. Each item has a different point on the scale. Items no 1, 3, 5, 6, 8, 10, 11, and 13 show a decreasing intensity, and they are scored as 3, 2, 1, and 0. On the other hand, items 2, 4, 7, 9, 12, and 14 are 0, 1, 2, and 3. For the anxiety sub-scale, items 1, 3, 5, 7, 9, 11, and 13 are added up; items 2, 4, 6, 8, 10, 12, and 14 are added up for the depression sub-scale. The lowest score that patients can receive from both subscales is "0 point", and the highest is "21 points". The cutoff points for the Filipino form of HAD scale is defined as 11 for the anxiety subscale (HAD-A) and as 11 for the depression sub-scale (HAD-D); with those who scored 8 to 10 being borderline cases of those with anxiety or depression, while those who scored 0 to 7 being non-cases or those with no anxiety or depression. For this study, we clumped up those with borderline cases with cases of anxiety and depression as both groups were indicated to have their physicians-in-charge informed and to be referred to the psychiatry service. This was validated in a study done in the same institution, which showed a sensitivity of 75%, specificity of 70%, and Positive Predictive Value of 75%.[17] According to the available evidence for cancer outpatient population, a cutoff point of 10 (0–9 vs. 10–42) was used for emotional distress screening, 7 for anxiety screening (0–6 vs. 7–21), and 4 (0–3 vs. 4–21) for depression, both with a sensitivity and specificity of more than 70–80%.[22]

Quality of Life

The European Cancer Research and Treatment Center – Quality of Life Evaluation Questionnaire (EORTC QLQ-C30) scale contains 30 questions and three headings like general wellbeing, functional difficulties, and symptom control. This tool included 30 questions (QLQ-30) developed by the European Cancer Research and Treatment Center (EORTC) and was given to patients to evaluate physical wellbeing, mental wellbeing, social life state, and metabolic and general states. "Yes" and "No" answers were used only for questions related to physical autonomy in the questionnaire. Answer 'No' implies positive, whereas 'Yes' means negative conditions. Replies to other questions are 'None," Very less,' 'Fairly,' and 'Much.' Answers of 'None' and 'Very less' imply positive, whereas 'Fair' and 'Much' mean negative conditions. For answers to questions 29 and 30, which inquired about general wellbeing, "1-3" implied negative; "4" implied moderate; and "5-7" implied positive conditions. Scores related to functional and global health states were calculated according to the scoring manual for EORTC QLQ-C30. Each parameter had a score between 0 and 100. While a high score on the functional scale indicated a good health state, a high score on the symptom scale indicated excessive symptoms. The scale was translated into Filipino, and its content was validated. This was performed on Filipinos with Differentiated Thyroid Cancer in the same hospital (PGH); and the study showed that the scale had an accep-

table construct validity and internal consistency reliability for the rankings of global health, role functioning, social functioning, emotional functioning, nausea and vomiting.[18]

Data Collection Procedure

Patients were screened and data collected during the Out-Patient Cancer Clinic (Room 107), from 8–5 pm, Mondays to Thursdays. The investigators reviewed the charts of all patients consulting at the said clinic. The investigators invited eligible patients based on the inclusion/exclusion criteria to participate in the study while waiting outside the clinic to be called by their respective fellow-in-charge. Those who gave their informed consent were enrolled. The investigators recorded the number of patients excluded from the study. The privacy and confidentiality of the patients were maintained by using codes (from the patient's initials). They were informed of the study's title, significance, and objectives. The questionnaires were given to the patients, with the interviewer assisting them. This took around 15 minutes of the participant's time.

Data Management

The investigators completed the data collection forms. The investigators audited the data by verifying the information of 20% of the patients enrolled in the study with the patients' charts. The investigators used a participant ID number to identify the patients. Only members of the research team have access to the data. All the information gathered, including names and personal information, is strictly held confidential by the study investigators to the extent permitted by law. All the data are kept secure in the password-protected email of the Principal Investigator (RBL). The UP-Manila Research Ethics Board (UPMREB) and regulatory authorities will be granted direct access to participant information to verify clinical research procedures and data. All files are stored in a locked cabinet and a password-protected hard drive. The data will be kept for five years and then disposed of after that; furthermore, the data stored will be de-identified.

Statistical Analysis

The demographic, socioeconomic, and disease-related characteristics of the participants were described. Continuous variables were assessed for normality of the data distribution by the Shapiro-Wilk test. They summarized as mean and standard deviation if found normally distributed, median and interquartile range if otherwise. The categorical variable was summarized as count and proportion. Prevalence of anxiety and depression were expressed as percent and 95% confidence intervals. An implied positive quality of life was based on the QL2 scale of EORTC QLQ-C30. A standardized score of 66 and above identifies an implied positive quality of life, extrapolating from the answer of at least 5 to items 29 and 30, indicating a favorable condition.

Individual univariable logistic regression analysis initially screened the association of each participant's different demographic, socioeconomic, and disease-related characteristics with various mental health statuses. All independent variables with a p-value <0.200 were included in multivariable logistic regression analysis for each dependent variable. Model selection by backward elimination was performed starting from the variable with the highest p-value, with a cutoff of p-value <0.05 for the LR test between the preceding model and the model with the variable under investigation removed. All remaining independent variables were reported in the final model as the variables significantly associated with the different dependent variables of interest.

The anxiety and depression scores of the patients recruited were compared with the scores of a study done before the pandemic using the same scale with the same cohort of patients (patients with cancer being seen in the outpatient cancer clinic) using the z-test of difference. These were expressed as percent and 95% confidence intervals.

Sample Size Computation

The minimum sample size requirement was computed using R version 4.0.3 and G*Power version 3.1.[19] For prevalence estimation of anxiety, a minimum sample size of 383 participants was needed to estimate with 5% precision and 95% significance level. For prevalence estimation of depression, a minimum sample size of 378 participants must have an estimate with 5% precision and a 95% significance level. For hypothesis testing of association with anxiety, a minimum sample size of 167 is needed to achieve 80% power with a 5% two-sided significance level in a logistic regression analysis to detect the desired odds ratio of at least 1.68. For hypothesis testing of association with depression, a minimum sample size of 169 is needed to achieve 80% power with a 5% two-sided level of significance in a logistic regression analysis to detect the desired odds ratio of at least 1.68.[23] For hypothesis testing of association with quality of life, a minimum sample size of 395 is needed to achieve 80% power with 5% two-sided level of significance in a multiple linear regression analysis to detect a small effect size of Cohen f^2=0.02 and 11 co-variates. These are values based on the study done in our institution previously.[24] Overall, this study needs 395 participants.

Ethical Considerations

The Investigators submitted the complete protocol to the University of the Philippines Manila – Review Ethics Board (UPM-REB) for ethics review. The study commenced after approval was secured from UPM-REB. UPM-REB approved it with the code 2021-490-01.

RESULTS

A total of 503 patients sought consult and chemotherapy in the Cancer Institute from November 1 to 20, 2021. After applying the inclusion and exclusion criteria, only 408 were eligible and included in the study (Figure 1).

The demographic, socioeconomic, and disease-related characteristics of the cancer patients seen in the outpatient cancer clinic

The participants' age was 65 years old and above versus younger ones. Being 65 years old and above is the age of retirement. More patients in the 65 and below age group could seek consult and outpatient chemotherapy in the cancer institute. Many women in the study, most of whom were diagnosed with breast cancer. Furthermore, most of the participants were married, finished high school, lived in the urban area, and were employed at the time of recruitment. The majority of the patients recruited self-reported to have a monthly income of only Php 5,000-10,000 (Table 1).

The participants' cancer site, stage, ECOG, and current management were also recorded. Most of the participants were diagnosed with breast and colorectal cancer. Additionally, most of them had stage III disease and an ECOG score of 0, which is consistent with most of them having chemotherapy and being able to do so in the outpatient setting (Table 2).

Table 1. Demographic and socioeconomic characteristics of cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital from November 1-20, 2021

Demographic characteristics	Count	Proportion (%)
Sex		
Male	156	38.24
Female	252	61.76
Age		
Below 65 years	398	97.55
65 years and above	10	2.45
Nationality		
Filipino	408	100.00
Others	-	-
Marital status		
Single	83	20.34
Married	213	52.21
Cohabiting	66	16.18
Separated	34	8.33
Widowed	12	2.94
Educational status		
Elementary	17	4.17
High school	221	54.17
College	170	41.67
Others	-	-
Residence		
Urban	363	88.97
Rural	45	11.03
Employment status		
Employed	245	60.06
Unemployed	163	39.95
Monthly income		
Php 5,000-10,000	294	72.06
Php 10,001-20,000	105	25.74
Php 20,001 and above	9	2.21

The investigators also asked if they believed that the pandemic had affected them and their care in cancer. The majority of the participants agreed that the pandemic had affected their lives one way or another, especially with their cancer care (Table 3).

The prevalence of Anxiety, Depression, Composite of both, and the Quality of Life among cancer patients seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 Pandemic

As depicted in Table 4, the prevalence of anxiety was 58.33% [95% CI 53.38, 63.16], depression 24.51% [95% CI 20.41, 28.98] and composite of both 9.56% [95% CI 6.89, 12.84]. Based on the EORTC QLQ-C30, 66.18% reported having a positive quality of life [95% CI 61.36, 70.76].

Table 2. Disease-related characteristics of cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Oncologic characteristics	Count	Proportion (%)
Cancer type		
Breast	152	37.25
Colorectal	153	37.50
Lymphoma	10	2.45
Lung	7	1.72
Gynecologic	7	1.72
Thyroid	4	0.98
Head and neck	61	14.95
Esophagogastric	14	3.43
Others	-	-
Stage		
Stage I	-	-
Stage II	117	28.68
Stage III	246	60.29
Stage IV	45	11.03
ECOG		
Performance status 0	319	78.19
Performance status 1	69	16.91
Performance status 2	16	3.92
Performance status 3	4	0.98
Performance status 4	-	-
Current management		
Chemotherapy	270	66.18
Chemo-radiotherapy	61	14.95
Best supportive care	37	9.07
No active therapy	40	9.80

Table 3. Effect of the COVID-19 pandemic among cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Effect of pandemic	Count	Proportion (%)
Medication and treatment affected	282	69.12
Treatment delay	217	53.19
Daily activities / life affected	408	100.00

The association between the demographic, socioeconomic, and disease-related characteristics and depression, anxiety, and Quality of Life among the cancer patients seen in the outpatient cancer clinic

Anxiety

The study has shown that the following factors are significantly associated with anxiety, after holding all other variables constant: (1) Sex: males have increased odds of anxiety than females; (2) Education: College graduates have 179385% increased odds of anxiety than those who did not reach college; (3) Employment: Those who are employed have 366% increased odds of anxiety than unemployed; (4) Monthly income: Those who income >10,000 pesos have 914% increased odds of anxiety than those with income <10,000; (5) Cancer type: those who have other types of cancer have 372% increased odds of anxiety than those with colorectal cancer; (5) Cancer stage: Those with late-stage have 8884% increased odds of anxiety than those with early-stage; (6) Current management: Those with active chemo/chemoradiotherapy have 1808% increased odds of anxiety than those without active therapy or just having best supportive care (Table 5).

Depression

The study had shown the following factors are significantly associated with depression, after holding all other variables constant: (1) Sex: Females have 956% increased odds of depression than males; (2) Marital status: Those who are married have 61% increased odds of depression than those who are single, and those who are cohabiting have 270% increased odds of depression than those who are single; (3) Employment: Those who are employed have 522% increased odds of depression than unemployed; (4) Cancer type: those who have head and neck cancer have 197% increased odds of depression than those with colorectal cancer, and those who have other types of cancer have 758% increased odds of depression than those with colorectal cancer; (5) Cancer stage: Those with late-stage have 1748% increased odds of depression than those with early-stage (Table 6).

Quality of Life

The study had shown the following factors are significantly associated with an implied good quality of life, after holding all other variables constant: (1) Marital status: Those who are married have 59% decreased odds of an implied good quality of life than those who are single, those who are cohabiting have 36% decreased odds of an implied good quality of life than those who are single, those who are separated have 99% decreased odds of an implied good quality of life than those who are single, and those who are widowed have 89% decreased odds of an implied good quality of life than those who are single; (2) Employment: Those who are employed have 85% decreased odds of an implied good quality of life than unemployed; (3) Cancer type: those who have head and neck cancer have 99% decreased odds of an implied good quality of life than those with colorectal cancer; (4) Current management: Those without active chemo/chemoradiotherapy or just having supportive care have decreased odds of an implied good quality of life than those with active therapy (Table 7).

Table 4. Prevalence of anxiety, depression, and positive quality of life among cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Outcome	Count	Prevalence (%)	95% CI
Anxiety	238	58.33	53.38, 63.16
Depression	100	24.51	20.41, 28.98
Positive quality of life	270	66.18	61.36, 70.76

Table 5. Significant demographic, socioeconomic, and disease-related factors associated with anxiety among cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Factors	Adj. OR	95% CI	p-value
Female	0.04	0.01, 0.29	0.002
College education	1794.85	89.99, 35797.42	<0.001
Employed	4.66	1.71, 12.73	0.003
Monthly income >10,000	10.14	2.49, 41.28	0.001
Cancer type			
Colorectal	Reference		
Breast	0.68	0.14, 3.34	0.636
Head and neck	0.07	0.01, 0.41	0.003
Others	4.72	0.83, 26.67	0.079
Late stage (Stage III/IV)	89.84	9.08, 888.87	<0.001
Active chemo / chemoradiotherapy	19.08	4.41, 82.64	<0.001

Table 6. Significant demographic, socioeconomic, and disease-related factors associated with depression among cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Factors	Adj. OR	95% CI	p-value
Female	10.56	2.86, 38.91	<0.001
Marital status			
Single	Reference		
Married	1.61	0.71, 3.65	0.258
Cohabiting	3.70	1.45, 9.46	0.006
Separated	0.85	0.19, 3.85	0.835
Widowed	-		
Employed	6.22	2.81, 13.80	<0.001
Cancer type			
Colorectal	Reference		
Breast	0.11	0.03, 0.46	0.002
Head and neck	2.97	0.74, 11.88	0.123
Others	8.58	2.40, 30.62	0.001
Late stage (Stage III/IV)	18.48	5.79, 59.01	<0.001

Table 7. Significant demographic, socioeconomic, and disease-related factors associated with an implied positive quality of life among cancer patients seen in an outpatient clinic of the Cancer Institute of a COVID-19 Referral Tertiary Hospital

Factors	Adj. OR	95% CI	p-value
Marital status			
Single	0.41	0.17, 1.00	0.050
Married	0.64	0.19, 2.08	0.453
Cohabiting	0.01	0.002, 0.05	<0.001
Separated	0.11	0.02, 0.66	0.016
Widowed	0.15	0.07, 0.34	<0.001
Employed	6.22	2.81, 13.80	<0.001
Cancer type			
Colorectal	Reference		
Breast	284.60	26.53, 3052.86	<0.001
Head and neck	0.01	0.004, 0.004	<0.001
Others	7.48	0.62, 90.49	0.114
Active chemo / chemoradiotherapy	713.50	60.87, 8363.64	<0.001

Table 8. Comparison between the reported anxiety, depression, and composite of this study and similar study done before the pandemic[19]

	Sandoval-Tan et al. (n=408)	Samala et al. (n=381)	p-value
Anxiety	238 (58.33%)	36 (9.45%)	<0.001
Depression	100 (24.51%)	18 (4.72%)	<0.001

Table 9. Association between Quality of Life with Anxiety and Depression

	Quality of Life		p-value
	Implied Negative	Implied Positive	
Anxiety			<0.001
With	179 (75.21%)	59 (24.79%)	
Without	91 (53.53%)	79 (46.47%)	
Depression			<0.001
With	238 (77.27%)	70 (22.73%)	
Without	32 (32.00%)	68 (68.00%)	

The comparison between the anxiety and depression levels of cancer patients seen in the Outpatient Cancer Clinic of the Cancer Institute during the COVID-19 Pandemic and before

The comparison between the prevalence of anxiety, depression, and the composite between this study (one year into the pandemic) and the study of Samala et al. (pre-pandemic) revealed that there was a statistically significant difference in the prevalence of all three with there being more anxious and depressed cancer patients in this study (Table 8).

The Association between the Quality of Life with Anxiety and Depression

Using the chi-square test of association shows a statistically significant difference in the quality of life in patients with anxiety and depression. Patients who were found to have anxiety and depression had an implied negative quality of life (Table 9).

DISCUSSION

Anxiety and Depression

This is the first study to determine the prevalence of anxiety and depression and measure the quality of life of cancer patients seen in the Cancer Institute of the PGH (a COVID-19 referral center) during this COVID-19 pandemic. A similar study was previously done in the same institution, using the same cohort of patients last 2016-2017 by Samala et al. They determined the prevalence of anxiety and depression of that cohort using the same validated tool (HADS-P). This study showed that the prevalence of anxiety and depression were much lower at 9.45% and 4.72%, respectively, compared to our study (58.33% and 24.51%, respectively). The increase in the prevalence of anxiety and depression can be attributed to the pandemic and its effects on cancer management rather than concerns about the physical vulnerability of cancer patients to COVID-19, suggesting higher mortality and higher risk of developing complications due to their immunocompromised condition.[20,25,26] This is supported by another study done by Gultekin et al. (2021) that showed that during the pandemic, the primary concern of oncology patients continues to be their malignancies-even more than fear of contracting COVID-19 or the consequences of this disease.[27] A systematic review and meta-analysis involving several studies that determined the status of depression and anxiety among cancer patients during the pandemic. The study showed that the prevalence of mild, moderate, and severe depression and anxiety exceeded more than 30%. Cancer patients experienced more anxiety when compared to healthy controls during the pandemic.[28] The increase was attributed to patients' concern about COVID-19 and its effect on the treatment and the risk of recurrence and progression. Another study reported higher levels of anxiety and depression in breast cancer patients who experienced treatment disruptions.[29] This is congruent with the findings of our research. Participants claimed that the pandemic affected their lives or daily activities. When asked further concerning their cancer care, 217 (53.19%) attributed the pandemic to them experiencing treatment delays, while 282 (69.125) claimed that their medications or treatment was affected by the pandemic.

Previous meta-analyses have determined the prevalence of depression and anxiety in cancer patients in other countries. They have shown that several factors can modify the overall estimates such as cancer types, time and method assessment of depression and anxiety, types (chemotherapy, radiotherapy, etc.) and time (pretreatment, on-treatment, and post-treatment) of treatment, time from cancer diagnosis,

consumption of time for assessment and status of disease (in-patients, outpatient, palliative care).[30-34] To put this into context, the study by Walker et al. showed that the pooled prevalence of depression in outpatients ranged from 5 to 16%, while it was 7 to 49% in palliative care.[31] The factors significantly related to higher rates of anxiety and depression, as shown in several studies, including being female, single, lack of social or family support, lack of information on COVID-19, worsening of patient's financial situation during the pandemic, use of alternative therapies and lower educational level.[27,35] In this study, we showed that being female was associated with having decreased odd for anxiety but had an increased odds of depression. Those who completed college were more likely to be also anxious.

Regarding cancer types, those with breast cancer are less likely to be anxious and depressed than those with colorectal cancer. It also demonstrated that those with late-stage cancer had an increased odds of being anxious, while the total opposite was found concerning depression. Lastly, cancer patients actively being treated (i.e., chemotherapy/chemoradiotherapy) had increased odds of being anxious.

In the meta-analysis, the overall estimates of anxiety and depression according to the type of questionnaire used were heterogeneous. Lower estimates of anxiety and depression were noted when the HADS was used, which is the tool from which our HADS-P (tool in this study) was adapted. While there are many tools to screen for anxiety and depression; the HADS (especially the HADS-P) is validated in our setting, and some evidence suggests it to be the better option when used in patients with cancer because of the following: good correlation with clinical features, better compliance rates, the shorter time it took the participants to complete, specific in the medical setting, and good psychometric properties.[35-39]

Our study showed that in the COVID-19 pandemic, the prevalence of anxiety and depression among cancer patients was of clinical importance. Furthermore, patients with cancer had higher anxiety levels than those without, as shown in the healthy controls. These results send a clear message to the community that the COVID-19 pandemic affects the physical aspect of a person and the psychological part. We should put more importance, attention, and resources on mental healthcare for those at-risk.

Quality of Life

This study is different from the previous study done by Samala et al. The investigators also measured the quality of life of these patients. Our study has shown that in contrast to the relatively higher rates of anxiety and depression, most participants reported a positive quality of life (66%). This is in comparison to the study, which used the same tool during the earlier parts of the pandemic in 2020 by measuring the self-reported quality of life, wherein they reported a lower or negative quality of life.

Factors associated with a perceived deterioration in the quality of life included living alone with restrictions imposed on movement, financial difficulties, and unstable economic situations.[40] However, there are also studies done that showed preservation of the quality of life of cancer patients post lockdown and even small improvements in the QOL.[41-42] The difference in perceived quality of life is multi-faceted. For example, during our data gathering, most of the patients were already vaccinated or were aware of the existence of the vaccines. Also, the earlier study was conducted during the first few months of the pandemic; there were still a lot of uncertainties regarding the COVID-19 and the effectiveness of vaccination, and people had yet to cope and adapt to the new way of life brought about by the pandemic. Furthermore, during the time of patient recruitment of our study, NCR and the nearby provinces were already placed in alert level 2 to 3, which could explain the patients' perception of an "improved quality of life" from the hard lockdowns they had to experience for more than one year of the pandemic.[43]

Limitations and Recommendations

The findings of this study should be considered in conjunction with its limitations. First, this was conducted 20 months since the start of the pandemic, when most of the participants' areas of residence were experiencing lifting of restrictions, mass vaccinations, and knowledge of lower COVID-19 infections. The investigators theorize that the impact of the pandemic on anxiety, depression, and QOL may be less pronounced over time. We, thus, recommend a repeat measurement of anxiety, depression, and QOL later on for further comparison. Second, this study was only conducted in one center and might not reflect the cohort of cancer patients. Thus, we recommend a more extensive and multicenter study to generate more robust findings.

CONCLUSION

The investigators conclude that the prevalence of depression and anxiety among cancer patients significantly increased one year into the pandemic. This study provides evidence that highlights the importance of identifying (through the application of proper screening tools) anxiety and depression among patients with cancer during the COVID-19 pandemic so that they may receive the proper psychiatric care in addition to the physical care usually received when diagnosed with a COVID-19 infection for genuinely holistic management of these patients. Factors associated with increased anxiety were: male sex, college graduates, lower-income, those with cancer types other than breast and colorectal cancer, and those with late-stage cancer. Additionally, the following are factors associated with higher levels of depression: female sex, being married, those who are employed, those with head and neck cancers, and those with late-stage cancers. The quality of life was perceived to be decreased or less positive among those with the following factors: married, employed, those with head and neck cancers, and those without active chemo/chemoradiotherapy.

However, the QOL of the cancer patients in this study was not affected by the pandemic; still, patients require attention and psychological support not just from the healthcare team but from the community as a whole. The COVID-19 pandemic has brought an extraordinary time, especially for the cancer community, with unprecedented roadblocks to cancer care improvement in the QOL and mental health of patients with cancer.

Statement of Authorship

All authors contributed in the conceptualization of work, acquisition and analysis of data, drafting and revising and approved the final version submitted.

Author Disclosure

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