The prevalence of anxiety and depression among cervical cancer patients seen in a tertiary government hospital using the hospital anxiety and depression scale-english/pilipino version (HADS/HADS-P)*

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ABSTRACT

Background: Due to improving survival longevity among cervical cancer patients, ensuring the quality of life becomes important to the gynecologist. Cancer, as a chronic disease, afflicts the patient both physically and psychologically. Anxiety and depression have been the two most common psychopathologic conditions affecting the cancer patient. Hence, recognizing their presence is important for holistic management.

Objective: The objective of this study is to determine the prevalence of anxiety and depression among cervical cancer patients seen in a tertiary government hospital.

Methods: This is a cross-sectional study performed on 384 cervical cancer patients from a tertiary government hospital. The Hospital Anxiety and Depression Scale-Pilipino (HADS-P) was the screening tool used to determine the presence of anxiety and depression. A score of 8 and above was used to detect depression and anxiety. Data were analyzed using Stata 15. Multivariate analysis was also utilized. Pearson chi square and Fisher's Exact tests were used. Variables that were significant were subjected to logistic regression analysis.

Conclusion: The prevalence rates of anxiety, depression, and anxiety and depression among cervical cancer patients in our setting are 8.6%, 35.7%, and 6.5% respectively. Factors related to anxiety included receiving psychological support from family and friends, stage III/IV cancer, and being at 4 to 6 months from time of diagnosis. Depression had significant relationships with age, employment status, chemoradiation, and stage II cancer. Although rates in general were lower compared to other countries, the mere presence of anxiety and/or depression among cervical cancer patients implies the need for the gynecologist to give attention not only to the physical aspects of cervical cancer but to the psychological effects as well. Psychological screening could be performed even if by means of a simple validated tool in order to detect psychopathology early on.

Keywords: anxiety, cervical cancer, depression, HADS/HADS-P

INTRODUCTION

Cervical cancer has an incidence of 8.1/100,000 women per year and a mortality rate of 2.4/100,000 women per year in the United States.[1]

Locally, 6,670 women have cervical cancer and 2,832 die from it yearly making it the second cause of cancer cases and deaths among Filipino women.[3] In 2006, 52% from 466 new cases in a government hospital in the country were diagnosed at stage III.[4]

As medical advancements lengthened the survival of cervical cancer patients, their quality of life has been a subject of interest in various studies and has become a primary concern of the gynecologist.[5,11,12]

Due to its wide symptomology, depression is difficult to analyze. Anxiety is important to study as well since it commonly co-exists with depression. Studies show that patients with anxiety and depression typically have severe symptoms, poor healing times, worse outcomes, and greater burden on healthcare resources compared to those with either disorder alone. However, patients conveyed that majority of physicians failed to recognize and address anxiety and depression.[6]

Depression, with social alienation and perceived burdensomeness, was associated with suicidal behavior

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among cancer patients. Data from the Surveillance, Epidemiology and End Results (SEER) found a 1.88 standardized mortality ratio from suicide for cancer patients compared to the general population.[7] One local study identified that the common concerns during advanced-stage were factors affecting psycho-emotional health.[8]

Being preventable in nature, identifying risks for suicide justifies determining the burden of depression and anxiety among women suffering from gynecologic malignancies.

REVIEW OF THE RELATED LITERATURE

With problems in emotional stability, self-image, sexual dysfunction, and fertility, cervical cancer patients have the worst scores in terms of emotional distress and quality of life.[10-12] The prevalence of depression ranged from 52.5% to 81% while anxiety occurred in 34.3% to 65.6% of these patients. Combined depression and anxiety was present 45.5% of the time.[5,12,15]

Studies on variables that possibly influenced these psycho-emotional disorders failed to show substantial associations with depression and anxiety. However, significant differences were noted in terms of time since diagnosis, cancer stage and treatment with chemoradiation.[9-13]

Failure to recognize depression/anxiety may alter the course of the disease, treatment compliance, and quality of life. Hence, screening is essential so that those inflicted may be identified and properly managed.[14]

The Hospital Anxiety and Depression Scale (HADS) is a 14-item self-report questionnaire developed by Zigmond and Snaith for screening depression and anxiety among medically-ill patients. It contains two subscales, 7 items each for anxiety and depression pertaining to psychological symptoms that will identify the presence of either condition, or both. The Hospital Anxiety and Depression Scale-Pilipino (HADS-P) is a version translated in Pilipino validated for use among Filipinos. The homegrown validation study showed that it has a sensitivity of 75%, specificity of 70%, and a positive predictive value of 75%.[14]

Being appropriate for the medically-ill, locally-validated, and acceptable in the clinical setting, the HADS/HADS-P is suitable for this study.

SIGNIFICANCE OF THE STUDY

Local data on the prevalence of depression and anxiety among cervical cancer patients is currently unavailable. This study aims to provide objective account of the burden of disease of depression and anxiety among cervical cancer patients in a tertiary government hospital which may enlighten us on the need for screening, early detection, and management of affected patients.

OBJECTIVES

Research Question

Among cervical cancer patients seen in a tertiary government hospital, what is the prevalence of depression and anxiety using the HADS/HADS-P?

General Objective

To determine the prevalence of anxiety and depression among cervical cancer patients seen in a tertiary government hospital.

Specific Objectives

1. To describe the the demographic, socioeconomic, psychosocial profile of cervical cancer patients in a tertiary government hospital.

2. To determine the association between the demographic, socioeconomic, psychosocial and disease-related characteristics and depression and anxiety in cervical cancer patients in a tertiary government hospital.

METHODOLOGY

Study Design

This descriptive and analytic cross-sectional study took place from August 2017 to February 2018. The HADS/HADS-P was employed to establish the prevalence of depression and anxiety among cervical cancer patients in a tertiary government hospital.

Subjects

Inclusion Criteria

The study population included cervical cancer patients:

1. Aged 18 years old and above with histopathologic diagnosis of cervical cancer (inclusive of those who are newly-diagnosed, ongoing treatment, post-operative, or no evidence of disease) being seen in a tertiary government hospital .
2. With informed consent to participate

Exclusion Criteria

Excluded from the study were patients:

1. Previously diagnosed with psychiatric impairment such as depression, anxiety, and other mood/anxiety disorders
2. Requiring or taking anti-psychotic, anti-anxiety, anti-depressants, stimulants, or mood stabilizers
3. Incapable of reading and understanding English or Filipino (Tagalog)

1. With severe debilitating medical or neurologic comorbidities that may disable patient from answering the self-administered questionnaire

Setting

The study was conducted in a tertiary government hospital cancer institute and inpatient department.

Data Description

Operational Definition of terms

1. **Anxiety** - scores of greater than or equal to 8 on the subscale of anxiety on HADS/HADS-P.
2. **Depression** - scores of greater than or equal to 8 on the subscale of depression on HADS/HADS-P.

DATA COLLECTION

Convenience sampling was used in subject recruitment. The principal investigator and research assistant determined the eligibility to participate of patients from a tertiary government hospital cancer institute and charity wards. A form containing inclusion criteria was used to screen potential participants. After identification of qualified subjects, the research assistant explained the purpose and scope of the study and had each sign an informed consent. A third party, other than the principal investigator and assistant, was asked to bear witness to the consent-signing. The principal investigator did not take part in obtaining consents to avoid undue influence. All elderly participants signed consents with another adult witness other than the research assistant. Another form was used to collect information regarding demographic, behavioral, psychosocial and cervical cancer-related variables. This was accomplished by the investigator and/or the research assistant. The HADS/HADS-P was used as the screening tool for depression and anxiety. The version used depended on the participant's preference. The HADS/HADS-P, a 14-item questionnaire with 7 items each for depression and anxiety, uses a four-point Likert-scale with scores ranging from 0 (no symptoms) to 3 (severe symptom) for each item. A score of ≥8 was interpreted as positive for the emotional illness being tested since similar studies which used HADS/HADS-P utilized the same cut-off. The average duration of completion was 30 to 45 minutes.

DATA PROCESSING AND ANALYSIS

Data was encoded using Microsoft Excel 2016 and was analyzed using Stata 15. Data was analyzed using descriptive and inferential statistics. Categorical variables were presented as frequency and percentages. Prevalence was computed using frequency and percentage at 95% confidence interval. Multivariate analysis was also used. To determine significant difference in the prevalence between depressed, anxious, not depressed, not anxious, and both in terms of demographic, socioeconomic, psychosocial, and disease-related factors, Pearson chi square test for independence was used. For variables that did not satisfy Chi square requirement on expected value in each cell, where >20% cells with expected value < 5 and/or with cells with E <1, Fisher's Exact Test was used. Statistics with $p \leq 0.05$ were deemed significant. Significant variables were included in the multinomial logistic regression analysis.

Sample Size

To estimate the prevalence of anxiety at 95% confidence interval and 5% margin of error, with the assumption that it is present in 65.6 % of CCA patients, a sample size of 350 is needed. To estimate the prevalence of depression at 95% confidence interval and 5% margin of error, with the assumption that it is present in 52.2% of patients, a sample size of 384 is needed. To estimate the prevalence of the both of anxiety and depression at 95% confidence interval and 5% margin of error, with the assumption that it occurs in 45.5% of patients, a sample size of 380 is needed. The final computed sample size showed the need for 384 subjects.

$$\left(\frac{P\,(1-p)}{(0.05)\text{^}2}\right)(1.96\text{^}2)$$

ETHICAL CONSIDERATION

The protocol was approved by the Research Ethics Board. The patients' personal information remained confidential. De-identification was assured by removing identifiers such as name, address, and contact number from forms. Number coding was used for re-identification.

Informed consents were secured by research assistants to avoid compulsion. Elderly participants signed the consent with another witness, mostly a competent relative of legal age. This is because with aging comes cognitive changes, hearing and visual impairments. Independence is also threatened as one ages leading to reliance on family and agencies for support or institutionalization. An elderly individual is defined by the Centers for Disease Control and Prevention as a person ≥60 years old.[16]

Patients whose results revealed depression and/or anxiety were counselled to seek examination by a psychiatrist. There was no monetary compensation involved but participants were given snacks after questionnaire completion. No financial contribution was collected from them. Participants had the benefit of knowing if they had depression and/or anxiety which would warrant further evaluation. It was reiterated that the principal investigator would not be providing direct

patient care but would be coordinating with the primary physician. There were no conceivable risks from the study that would affect participants. The investigator had no conflicts of interest.

The Research Ethics Board's contact details were made available to the participants for any questions/ complaints.

RESULTS AND DISCUSSION

Table 1 summarizes the profile of the 384 patients included in the study. The mean age was 49.6±10.97 (24 to 76 years old). One hundred thirty-one (34.1%) participants were 45 to 66 years old, 116 (30.2%) were ≥56 years old, 88 (22.9%) were 36 to 45 years old, and 49 (12.8%) were ≤35 years old.

Majority were married, 235 (61.2%), 100 (26.3%) were unmarried, and 48 (12.5%) were either separated or widowed. In terms of education, 149 (38.8%) finished high school, 66 (17.2%) finished college, 53 (13.8%) finished elementary, 53 (13.8%) were high school undergraduates, 11 (2.9%) were elementary undergraduates and 11 (2.9%) were vocational course graduates. Most were unemployed, 317 (82.6%), 44 (11.5%) were employed, while 23 (6%) were self-employed. The unemployed acquired financial support from relatives, hence the income of less than 5,000 pesos for 349 (90.9%), 10 (2.6%) had a minimum income of 5,000 to 9,000 pesos, 9 (2.3%) had an income of 10,000 to 14,999 pesos, 6 (1.6%) had an income of 15,000 to 19,999 pesos, 6 (1.6%) had an income of 20,000 to 24,999 pesos, 2 (0.5%) had an income of 25,000 to 25,999 pesos, 2 (0.5%) had income of ≥30,000 pesos.

In health finance, 361 (94.0%) were assisted by charity/government assistance programs, 21 (5.5%) from out-of-pocket, and 2 (0.5%) utilized both. Majority, 378 (98.4%) gained psychological support from their families, 4 (1.0%) from both family and friends, 1 (0.3%) from friends, and 1 (0.3%) from a support group.

Most of them, 150 (39.1%), were within ≥12 months since time of diagnosis, 107 (27.9%) were within ≤3 months, 87 (22.7%) within 4 to 6 months, and 40 (10.4%) were within 7 to 12 months. One hundred sixty-seven (43.5%) patients had stage II cancer, 158 (41.2%) had stage III or stage IV cancer, and 59 (15.4%) had stage I cancer. Most of them, 343 (89.3%) were undergoing chemotherapy and radiation, 14 (3.7%) had surgery and chemoradiation, 10 (2.6%) chemotherapy alone, 9 (2.3%) underwent surgery, 5 (1.3%) underwent radiation, 2 (0.5%) were not yet being treated, and 1 (0.3%) had chemotherapy and surgery. Three hundred seventy-six (97.9%) were metastases-free.

Table 2 showed that 33 (8.6%) had anxiety. Associated with anxiety were source of psychological support and cancer stage. By logistic regression, the predictors of anxiety were psychological support from family and friends (p=0.007), stage III/IV disease (p=0.042), and being diagnosed for 4 to 6 months (p=0.014). Those receiving psychological support from both family and friends were 17.5 times more likely to have anxiety compared to those receiving support from their families alone. Those with advanced stage (stage III/IV) were 2.2 times more likely to be anxious than those with early-stage disease (stage I). Patients who knew their diagnosis for 4 to 6 months were 2.7 times more likely to have anxiety compared to those only recently diagnosed (≤3 months).

Table 3 shows that 134 (34.9%) had scores showing depression. Factors associated with depression included age and employment status. By logistic regression analysis, the predictors of depression were receiving combined chemotherapy and radiation (p=0.010), being employed (p=0.006), being ≥56 years old (p=0.034), and stage II cancer (p=0.006). Those receiving chemoradiation were 3.2 times more likely to have depression compared to those who have not yet started treatment. Being employed made one 2.7 times more likely to be depressed. The older age group (≥56 years old) were 0.6 times less likely to have depression compared to those belonging to the younger age group (≤35 years old). Those diagnosed with stage II cancer were 0.5 times less likely to be depressed.

Table 4 shows that 109 (28.4%) had depression alone, 8 (2.1%) anxiety alone, and 25 (6.5%) had both anxiety and depression. In Table 5, factors associated with comorbid anxiety and depression (age, employment status, psychological support) were included in multinomial logistic regression analysis (LR $\chi2$=53.20, df=22, p=0.0002, pseudo R2=7.65%). The overall effect of age was statistically significant ($\chi2$=20.38, df=9, p=0.0157), while those of employment status ($\chi2$=9.52, df=6, p=0.1463) and psychological support ($\chi2$=1.62, df=8, p=0.9906) were not.

DISCUSSION

Prevalence of anxiety and depression

This study is the first of its kind in our setting that investigated the prevalence and associated factors of anxiety and depression among cervical cancer patients. From the results, the prevalence of anxiety was 8.6%, lower than the prevalence rates of 34.3% to 65.6% in other studies. The prevalence of depression was 34.9% which is appreciably high but still lower than the prevalence of 52.5% to 81% from studies done on other Asian populations (i.e. Japanese and Chinese). These, however, are within the prevalence rates of patients with unspecified gynecologic cancer (anxiety: 4-41%; depression: 4-44%). Combined anxiety and depression was 6.5% and was lower than the prevalence of 45.5% from literature.

The results were diverse from other studies, perhaps

Table 1. Demographic, socioeconomic, psychosocial, and cervical cancer-related Profile of the Study Participants (n=384)

Characteristics	Frequency (n)	Percentage (%)
Age ≤ 35years old	49	12.76
36 - 45 years old	88	22.92
46 - 55 years old	131	34.11
≥ 56 years old	116	30.21
SD 10.966		
Marital Status		
Single	101	26.30
Married	235	61.20
Separated/Widowed	48	12.50
Highest Educational Attainment		
Elementary Undergraduate	11	2.86
Elementary Graduate	53	13.8
High School Undergraduate	53	13.8
High School Graduate	149	38.8
Vocational Course Graduate	11	2.86
College Undergraduate	41	10.68
College Graduate	66	17.19
Employment Status		
Unemployed	317	82.55
Employed	44	11.46
Self Employed	23	5.99
Monthly Income		
Less than PHP 5000	349	90.89
PHP 5,000 - PHP 9,000	10	2.60
PHP 10,000 - PHP 14,999	9	2.34
PHP 15,000 - PHP 19,999	6	1.56
PHP 20,000 - PHP 24,999	6	1.56
PHP 25,000 - PHP 25,999	2	0.52
PHP 30,000 and above	2	0.52
Health Finance Source		
Charity/Government Assistance	361	94.01
Out of Pocket	21	5.47
Charity/Government Assistance and OOP	2	0.52
Psychological Support		
Family	378	98.44
Friends	1	0.26
Family and Friends	4	1.04
Support Group	1	0.26
Time Since Diagnosis		
≤ 3 months	107	27.86
4 - 6 months	87	22.66
7 to 12 months	40	10.42
≥ 12 months	150	39.06
Cancer Stage		
Stage I	59	15.36
Stage II	167	43.49
Stage III and IV	158	41.15
Treatment: None	2	0.52
Radiation	5	1.30
Chemotherapy	10	2.60
Surgery	9	2.34
Chemotherapy and Radiation	343	89.32
Chemotherapy ad Surgery	1	0.26
Combined 3 Treatments	14	3.65
Metastasis		
No	376	97.92
Yes	8	2.09

Table 2. Association of Clinical Factors with Anxiety (n=384)

Characteristics	Not Anxious (N=351)		Anxious (N=33)		p-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Age ≤35 years old	42	11.97	7	21.21	0.252
36 - 45 years old	81	23.08	7	21.21	
46 - 55 years old	118	33.62	13	39.39	
≥ 56 years old	110	31.34	6	18.18	
Marital Statuts					0.71
Single	91	25.93	10	30.3	
Married	217	61.82	18	54.55	
Separated / Widowed	43	12.25	5	15.15	
Highest Educational Attainment					0.864
Elementary Undergraduate	10	2.85	1	3.03	
Elementary Graduate	48	13.68	5	15.15	
High School Undergraduate	48	13.68	5	15.15	
High School Graduate	137	39.03	12	36.36	
Vocational Course Graduate	11	3.13	0	-	
College Undergraduate	39	11.11	2	6.06	
College Graduate	58	16.52	8	24.24	
Employment Status					0.872
Unemployed	289	82.34	28	84.85	
Employed	40	11.40	4	12.12	
Self Employed	22	6.27	1	3.03	
Monthly Income					0.55
Less than PHP 5000	320	91.17	29	87.88	
PHP 5,000 - PHP 9,000	8	2.28	2	6.06	
PHP 10,000 - PHP 14,999	8	2.28	1	3.03	
PHP 15,000 - PHP 19,999	6	1.71	0	-	
PHP 20,000 - PHP 24,999	5	1.42	1	3.03	
PHP 25,000 - PHP 25,999	2	0.57	0	-	
PHP 30,000 and above	2	0.57	0	-	
Health Finance Source					0.75
Charity/Government Assistance	330	94.02	31	93.94	
Out of Pocket	19	5.41	2	6.06	
Charity/Government Assistance and OOP	2	0.57	0	-	
Psychological Support					0.01**
Family	348	99.15	30	90.91	
Friends	1	0.28	0	-	
Family and Friends	2	0.57	2	6.06	
Support Group	0	-	1	3.03	
Time Since Diagnosis					0.052
≤ 3 months	97	27.64	10	30.3	
4 - 6 months	74	21.08	13	39.39	
7 to 12 months	39	11.11	1	3.03	
≥ 12 months	141	40.17	9	27.27	
Cancer Stage					0.026*
Stage I	58	16.52	1	3.03	
Stage II	155	44.16	12	36.36	
Stage III and IV	138	39.32	20	60.61	
Treatment: None	2	0.57	0	-	0.592
Radiation	5	1.42	0	-	
Chemotherapy	8	2.28	2	6.06	
Surgery	9	2.56	0	-	
Chemotherapy and Radiation	312	88.89	31	93.94	
Chemotherapy ad Surgery	1	0.28	0	-	
Combined 3 Treatments	14	3.99	0	-	
Metastasis					0.483
No	343	97.72	33	100	
Yes	8	2.28	0	-	

** significant at p-value ≤ 0.01; * significant at p-value ≤ 0.05 using Chi-square Test and Fisher's Exact test (for those with >20% cells with expected value < 5 and/or with cells with E <1)			
Logistic Regression Analysis of Variables associated with Anxiety among Cancer Patients			
Predictors of Anxiety	**OR**	**95% CI**	**p**
Psychological Support Family & Friends (Ref: Family)	17.50	2.22; 137.96	0.007
Cancer Stage Stage III and IV (Ref: Stage I)	2.22	1.03; 4.77	0.042
Time Since Diagnosis 4 – 6 months since diagnosis (Ref: ≤3 months since diagnosis)	2.66	1.21; 5.78	0.014

Table 3. Association of Clinical Factors with Depression (n=384)

Characteristics	Not Depressed (n=250)		Depressed (n=134)		p-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Age ≤35 years old	30	12.00	19	14.18	0.032*
36 - 45 years old	49	19.60	39	29.10	
46 - 55 years old	84	33.60	47	35.07	
≥ 56 years old	87	34.80	29	21.64	
Marital Statuts					0.655
Single	64	25.60	37	27.61	
Married	152	60.80	80	61.94	
Separated / Widowed	34	13.60	14	10.45	
Highest Educational Attainment					0.72
Elementary Undergraduate	9	3.60	2	1.49	
Elementary Graduate	36	14.40	17	12.69	
High School Undergraduate	38	15.20	15	11.19	
High School Graduate	91	36.40	58	43.28	
Vocational Course Graduate	7	2.80	4	2.99	
College Undergraduate	26	10.40	15	11.19	
College Graduate	43	17.20	23	17.16	
Employment Status					0.004*
Unemployed	211	84.40	106	79.10	
Employed	20	8.00	24	17.91	
Self Employed	19	7.60	4	2.99	
Monthly Income					0.102
Less than PHP 5000	232	92.80	117	87.31	
PHP 5,000 - PHP 9,000	7	2.80	3	2.24	
PHP 10,000 - PHP 14,999	3	1.20	6	4.48	
PHP 15,000 - PHP 19,999	3	1.20	3	2.24	
PHP 20,000 - PHP 24,999	3	1.20	3	2.24	
PHP 25,000 - PHP 25,999	-	-	2	1.49	
PHP 30,000 and above	2	0.80	-	-	
Health Finance Source					0.76
Charity/Government Assistance	235	94.00	126	94.03	
Out of Pocket	13	5.20	8	5.97	
Charity/Government Assistance and OOP	2	0.80	-	-	
Psychological Support					0.454
Family	247	98.80	131	97.76	
Friends	1	0.40	-	-	
Family and Friends	2	0.80	2	1.49	
Support Group	-	-	1	0.75	
Time Since Diagnosis					0.242
≤ 3 months	63	25.20	44	32.84	
4 - 6 months	54	21.60	33	24.63	
7 to 12 months	28	11.20	12	8.96	
≥ 12 months	105	42.00	45	33.58	

Cancer Stage					
Stage I	36	14.40	23	17.16	0.085
Stage II	119	47.60	48	35.82	
Stage III and IV	95	38.00	63	47.01	
Treatment: None	2	0.80	-	-	
Radiation	3	1.20	2	1.49	
Chemotherapy	7	2.80	3	2.24	
Surgery	7	2.80	2	1.49	0.227
Chemotherapy and Radiation	217	86.80	126	94.03	
Chemotherapy ad Surgery	1	0.40	-	-	
Combined 3 Treatments	13	5.20	1	0.75	
Metastasis					
No	246	98.40	130	97.01	0.458
Yes	4	1.60	4	2.99	

* significant at p-value ≤ 0.05 using Chi-square Test and Fisher's Exact test (for those with >20% cells with expected value < 5 and/or with cells with E <1)

Logistic Regression Analysis of Variables associated with Depression among Cancer Patients

Predictors of Depression	OR	95% CI	p
Combined Chemotherapy and Radiation (Ref: No Treatment)	3.20	1.17; 6.14	0.010
Employed (Ref: Unemployed)	2.73	1.24; 4.97	0.006
At least 56 years old (Ref: ≤35 years old)	0.58	0.32; 0.88	0.034
Cancer Stage 2 (Ref: Stage 1)	0.53	0.37; 0.92	0.006

Table 4. Association of Clinical Factors with Anxiety and Depression (n=384)

Characteristics	Not Anxious & Not Depressed (n=242)		Anxious & Not Depressed (n=8)		Not Anxious & Depressed (n=109)		Anxious & Depressed (n=25)		p-value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Age ≤35 years old	25	10.3	5	62.5	17	15.6	2	8	<0.001**
36 - 45 years old	48	19.8	1	12.5	33	30.3	6	24	
46 - 55 years old	83	34.3	1	12.5	35	32.1	12	48	
≥ 56 years old	86	35.5	1	12.5	24	22.0	5	20	
Marital Statuts									
Single	59	24.4	5	62.50	32	29.4	5	20	0.209
Married	150	62.0	2	25.00	67	61.5	16	64	
Separated / Widowed	33	13.6	1	12.50	10	9.2	4	16	
Highest Educational Attainment									
Elementary Undergraduate	9	3.7	-	-	1	0.9	1	4	0.651
Elementary Graduate	34	14.0	2	25.00	14	12.8	3	12	
High School Undergraduate	37	15.3	1	12.50	11	10.1	4	16	
High School Graduate	90	37.2	1	12.50	47	43.1	11	44	
Vocational Course Graduate	7	2.9	-	-	4	3.7	-	-	
College Undergraduate	26	10.7	0	-	13	11.9	2	8	
College Graduate	39	16.1	4	50.0	19	17.4	4	16	
Employment Status									
Unemployed	204	84.3	7	87.50	85	78.0	21	84	0.05*
Employed	20	8.3	0	-	20	18.3	4	16	
Self Employed	18	7.4	1	12.50	4	3.7	0	0	

Monthly Income									
Less than PHP 5000	224	92.6	8	100.00	96	88.1	21	84	
PHP 5,000 - PHP 9,000	7	2.9	-	-	1	0.9	2	8	
PHP 10,000 - PHP 14,999	3	1.2	-	-	5	4.6	1	4	
PHP 15,000 - PHP 19,999	3	1.2	-	-	3	2.8	-	-	0.224
PHP 20,000 - PHP 24,999	3	1.2	-	-	2	1.8	1	4	
PHP 25,000 - PHP 25,999	0	0.0	-	-	2	1.8	-	-	
PHP 30,000 and above	2	0.8	-	-	-	-	-	-	
Health Finance Source									
Charity/Government Assistance	228	94.2	7	87.50	102	93.6	24	96	
Out of Pocket	12	5.0	1	-	7	6.4	1	4	0.675
Charity/Government Assistance and OOP	2	0.8	0	12.50		-	0	-	
Psychological Support									
Family	240	99.2	7	87.50	108	99.1	23	92	
Friends	1	0.4	-	-	0	0.0	-	-	0.013*
Family and Friends	1	0.4	1	12.50	1	0.9	1	4	
Support Group	-	-	-	-	-	-	1	4	
Time Since Diagnosis									
≤ 3 months	61	25.2	2	25.00	36	33.0	8	32	
4 - 6 months	51	21.1	3	37.50	23	21.1	10	40	0.289
7 to 12 months	28	11.6	-	-	11	10.1	1	4	
≥ 12 months	102	42.1	3	37.50	39	35.8	6	24	
Cancer Stage									
Stage I	36	14.9	0	-	22	20.2	1	4	0.069
Stage II	115	47.5	4	50.00	40	36.7	8	32	
Stage III and IV	91	37.6	4	50.00	47	43.1	16	64	
Treatment:									
None	2	0.8	-	-	-	-	-	-	
Radiation	3	1.2	-	-	2	1.8	-	-	
Chemotherapy	6	2.5	1	12.50	2	1.8	1	4	
Surgery	7	2.9	-	-	2	1.8	-	-	
Chemotherapy and Radiation	210	86.8	7	87.50	102	93.6	24	96	0.637
Chemotherapy ad Surgery	1	0.4	-	-	-	-	-	-	
Combined 3 Treatments	13	5.4	-	-	1	0.9	-	-	
Metastasis									
No	238	98.3	8	100.00	105	96.3	25	100	0.553
Yes	4	1.7	-	-	4	3.7	-	-	

** significant at p-value ≤ 0.01; * significant at p-value ≤ 0.05 using Chi-square Test and Fisher's Exact test (for those with >20% cells with expected value < 5 and/or with cells with E <1)

attributable to the cultural and regional differences that influence an individual's psycho-emotional disposition. A presumption is that Filipinos, in general, have a positive stance despite the adversities they may encounter. The World Happiness Index, a United Nations publication which ranked countries by national happiness (in terms of 14 areas including economy, well-being, health, social issues, etc.), placed the Philippines as the 71st happiest among 156 countries included.[17] The different screening tools used in the studies may have also contributed to the differences in results.

Associated factors and predictors of anxiety

Source of *psychological support* and *cancer stage* were associated with anxiety. The predictors of anxiety included the latter two variables and *time since diagnosis*.

Notable is that, those receiving support from family and friends were more prone to develop anxiety compared to those receiving support from their families alone. There are no studies yet that tried to explain this association. It is also noteworthy that participants with stage III/IV cancer were more likely to be anxious. As

Table 5. Multinomial Logistic Regression Analysis of Variables Associated with Anxiety and Depression Status among Cancer Patients (n=384)

Anxiety & Depression Predictors	Anxious & Not Depressed (n=8)				Not Anxious & Depressed (n=109)				Anxious & Depressed (n=25)			
	RRR	95% CI		p	RRR	95% CI		p	RRR	95% CI		p
Age												
≤ 35 years old	33.54	2.61	431.62	0.007*	2.23	1.02	4.86	0.044*	1.24	0.22	6.87	0.804
36 - 45 years old	1.04	0.04	25.32	0.982	2.19	1.15	4.17	0.017*	1.60	0.43	5.89	0.481
46 - 55 years old	0.38	0.01	10.13	0.566	1.42	0.77	2.61	0.262	2.32	0.77	7.01	0.137
≥ 56 years old	1.00				1.00				1.00			
Employment Status												
Unemployed	592162.8				0.46	0.23	0.92	0.027*	0.55	0.16	1.82	0.326
Self Employed	6889776				0.26	0.07	0.93	0.038*	0.00			0.989
Employed	1				1.00				1.00			
Psychological Support												
Family	0.22			1	1.35			1	$4.14\ e^{-10}$			0.999
Friends	0.01			1	0.00			1	$8.93\ e^{-17}$			0.998
Family and friends	74.84			1	2.46			1	$2.56\ e^{-9}$			0.999
Support Group	1.00				1.00				1.00			

expected, having higher-stage disease poses one to a greater physical and psychological burden. The anxiety among patients in this group was attributed to issues of isolation and abandonment rather than fear of death.[18] Those who knew their disease for 4 to 6 months were also more likely to be anxious than those diagnosed for ≤3 months, results similar to a study on Chinese subjects.[18]

Associated factors and predictors of depression

The association of depression with *age* and *employment status* has been noted in previous studies. Aside from these two, cancer stage and *type of treatment* were also predictors of depression.

Contrary to literature, the results indicate that those who were from the older age group (≥56 years old) were less likely to be depressed. Another point of interest is that, results revealed that employment makes one more likely to have depression, a finding totally opposite that of a recent study.[19]

From the study, chemoradiation made one more likely to have depression compared to those without treatment yet. This may be due to the unsteady mental state patients develop from worries of persistence or recurrence after treatment.[12] Results also showed that with stage II cancer, depression was less likely compared to those with stage I or later-stage disease. Other studies showed no relationship between stage and depression.

Factors associated with combined anxiety and depression

Age was significantly association with the presence of combined anxiety and depression.

CONCLUSION

The prevalence rates of anxiety, depression, and anxiety and depression among cervical cancer patients in our setting are 8.6%, 34.9%, and 6.5%, respectively. Factors related to anxiety included psychological support from family and friends, stage III/IV cancer, and being at 4 to 6 months from time of diagnosis. Depression was associated with age, employment status, chemoradiation, and stage II cancer. Although the rates were lower compared to other countries, the mere presence of anxiety and/or depression among cervical cancer patients makes it prudent to recommend screening with a simple tool in order to earlier detect depression or anxiety.

LIMITATIONS OF THE STUDY AND RECOMMENDATIONS

Convenience sampling was used to attain 384 subjects limiting the result's generalizability to other cervical cancer patients. Studies on larger-scale populations is highly recommended. The HADS/HADS-P is a self-report of symptoms experienced by the patient, hence, the effect of recall/reporting bias could not be totally precluded. Although validated and used as screening tool in medically-ill populations in our setting, further studies should be performed on other gynecologic cancers in order to determine its suitability in our context. ■

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