Prevalence of Depressive Symptoms among Adult Chronic Cancer Pain Patients of the Philippine General Hospital - Pain Clinic

Dominic D. Villa, MD and Mark David S. Yu, MD

Department of Anesthesiology, College of Medicine and Philippine General Hospital, University of the Philippines Manila

ABSTRACT

Objective. Chronic cancer pain and depressive symptoms are interrelated in clinical settings. As local data is lacking, this study aimed to determine the prevalence of depressive symptoms among chronic cancer pain patients seen at the Philippine General Hospital - Pain Clinic (PGH-PC).

Methods. In this retrospective, descriptive, cross-sectional study, data were collected from the charts of chronic cancer pain patients seen at the PGH-PC. The Pain Clinic Self-Report Questionnaire (SRQ) tool was used to assess depressive symptoms. Clinico-demographic data were obtained and analyzed using descriptive statistics.

Results. Of the 129 patients included in the study, 61 had depressive symptoms corresponding to a prevalence of 47.29% (38.72 - 56.01 95% CI). Overall, a more significant number of patients included in the study were female, belonged to age 41-50, were married, attained secondary education, and were unemployed. Demographically, there were no statistically significant differences between chronic cancer pain patients who exhibited depressive symptoms and those who did not. The cancer type showed a statistically significant difference among those cancer patients with or without depressive symptoms (p = 0.016). Breast and gynecologic malignancies comprised more than half of the patients studied. Neither the cancer stage nor the pain scores had a statistically significant difference among those cancer patients with or without symptoms of depression.

Conclusion. Almost 1 in every two chronic cancer pain patients studied had depressive symptoms. Routine screening of patients for depressive symptoms could identify patients and may initiate interventions in this vulnerable population.

Keywords: prevalence, depressive symptoms, cancer pain, chronic pain

INTRODUCTION

It has long been recognized that the experience of pain has both sensory and psycho-affective or emotional components. Chronic pain is defined as pain lasting beyond the expected healing periods or lasting or recurring for more than three months.[1] Chronic pain has become a global public health problem, with estimates of 20% prevalence in European countries and 18% in developing countries.[2,3] In the Philippines, a survey by Lu and Javier published in 2011 showed an overall prevalence of moderate-to-severe chronic pain of 10.4% of the general adult population, with an annual incidence rate of 3.4%, the women and the elderly being the susceptible groups.[4] This lower prevalence in our country could be due to under-reporting, lack of recognition from physicians, or lack of studies documenting it. This difference in finding a decade ago could have changed with advocacies in the past years to diagnose and address chronic pain.

Corresponding author: Dominic D. Villa, MD
Department of Anesthesiology
College of Medicine and Philippine General Hospital
University of the Philippines Manila
Taft Avenue, Ermita, Manila 1000, Philippines
Email: ddvilla1@up.edu.ph

Chronic cancer pain has been included as one of the clinically relevant disorders for Chronic Pain in the current version of the International Classification of Diseases (ICD) by the World Health Organization (WHO). Chronic cancer pain can be due to various mechanisms, including pain caused by cancer (the primary tumor or metastases, cancer treatment such as chemotherapy, radiotherapy, and surgery, other chronic pain related to cancer, and chronic cancer pain not otherwise specified.[5] Pathophysiologically, cancer pain can be categorized as nociceptive (visceral and somatic), neuropathic pain, or both.

Despite increased understanding of cancer pain mechanisms and the development of new drugs in the last decade, the prevalence of pain in patients with cancer has remained unchanged. In a study published in 2018, moderate to severe pain has been documented in 39% of patients after curative treatment, 55% during anticancer therapy, and 66.4% in advanced, metastatic, or terminal disease.[6] Pain has increased as the disease progressed, causing physical, emotional, spiritual, and functional discomfort. The negative impact of chronic pain in cancer patients include an impaired performance of daily activities, disturbed sleep patterns, poor appetite, and strained interpersonal relationships. All these have led to an overall decrease in the patients' quality of life.[7]

The cancer diagnosis and its progression to cause chronic pain have been closely associated with psychological effects such as anxiety and depression. The general cancer population's prevalence of anxiety and depression ranges from 8–24%.[8] Measures to identify and address these have become important as anxiety and depression have been strongly correlated with poor quality of life and decreased survival rate across varying cancer diagnoses.[9,10]

Chronic pain and depression have shown a close relationship clinically and neuro-biologically. Clinical studies have shown that chronic pain often induces depression and that up to 85% of patients with chronic pain are affected by severe depression.[11] A frequently asked question has been whether depression can also exacerbate the pain experience as both may share the same neurotransmitter pathways.[12]

This study aimed at determining the prevalence of depressive symptoms among chronic cancer patients in the PGH-PC can establish local baseline data. Identifying patients with depressive symptoms may lead to an earlier formal diagnosis of depression and institution of measures to decrease its occurrence, as well as improving outcomes in the biopsychosocial management of pain.

METHODS

Upon the approval by the University of the Philippines - Manila Review and Ethics Board, this retrospective study was conducted in the PGH-PC. The PGH-PC has been in the PGH since 1986 and has managed, on average, around 200 new pain referrals annually from various subspecialties such as MedOnco, GyneOnco, SurgOnco, ENT-HNS, Dentistry, among others, consisting of cancer and non-cancer patients. Another 600 previously seen patients on follow-up consult are likewise seen annually.

All available charts from the Medical Records dating from January to December 2017 were retrieved and examined for suitability based on the inclusion/exclusion criteria. Patients who fulfilled the following criteria were considered eligible for inclusion: (1) at least 18 years of age, (2) received a cancer diagnosis, regardless of the type of cancer, therapy status, or staging, (3) experienced pain for at least three months, and (4) conscious and able to read, write, and communicate. Patients with a known history of psychopathology or cognitive impairment were excluded.

Collected data included demographic variables (age, sex, civil status, educational status, and employment status) and clinical variables (cancer diagnosis and stage). Pain intensity was measured using the Numerical Rating Scale (NRS). The Pain Clinic Self-Report Questionnaire (SRQ) tool was used to assess depressive symptoms. It is administered upon consult and becomes a part of the patient's chart. The SRQ is a validated tool designed to screen for mood disorders and psychotic features.[13] It consisted of 25 questions in Filipino, to which the patient answered either yes or no. If the patient needed assistance or was unsure about the questions, a member of the Pain Clinic staff helped. Five or more yes responses in items 1-20 signified a mood disorder, while a yes answer in items 21-25 signified psychotic features. Patients who answered yes to questions 9, 10, 11, 15, or 16 were considered to have depressive symptoms. A yes answer in item number 17 (suicidal thoughts), alone or in combination with other items, already signified a sign of depression. A routine referral to a Liaison Psychiatrist for further formal assessment and diagnosis of depression was made for patients with positive findings.

STATA 15.0 was used for data analysis. Descriptive statistics were used to summarize the general and clinical characteristics of the participants. Frequency and proportion were used for nominal and ordinal variables. Fisher's exact/Chi-square test was used to compare the profile of those cancer pain patients who had depressive symptoms versus those who didn't. A p-value < 0.05 was considered significant.

RESULTS

Of the 129 patients included in the study, 61 had depressive symptoms corresponding to a prevalence of 47.29% (*38.72 - 56.01* 95% CI).

Table 1 shows the demographic characteristics of chronic cancer pain patients. Overall, a more significant number of patients included in the study were female, belonged to age 41-50, were married, attained secondary education, and were unemployed. Demographically, there were no statistically significant differences between chronic pain patients who exhibited depressive symptoms and those who did not.

Table 2 shows the clinical characteristics of chronic cancer pain patients. The cancer type showed a statistically significant difference among those cancer patients with or without depressive symptoms (p = 0.016). The patients with head and neck (8 out of 11) and hepatobiliary cancer (4 out of 4) showed the most significant proportion of patients having

Table 1. Demographic Characteristics of Chronic Cancer Pain Patients

	Overall (n=129)	With depressive symptoms (n=61)	Without depressive symptoms (n=68)	p-value*
	Frequency (%)			
***Age** (years)*				0.619
18-30	3 (2.33)	1 (1.64)	2 (2.94)	
31-40	12 (9.30)	7 (11.48)	5 (7.35)	
41-50	44 (34.11)	24 (39.34)	20 (29.41)	
51-60	43 (33.33)	18 (29.51)	25 (36.76)	
≥61	27 (20.93)	11 (18.03)	16 (23.53)	
Sex				0.420
Male	32 (24.81)	13 (21.31)	19 (27.94)	
Female	97 (75.19)	48 (78.69)	49 (72.06)	
Civil status				0.311
Married	91 (70.54)	46 (75.41)	45 (66.18)	
Single	21 (16.28)	6 (9.84)	15 (22.06)	
Widowed	13 (10.08)	7 (11.48)	6 (8.82)	
Separated	4 (3.1)	2 (3.28)	2 (2.94)	
Educational status				0.789
No formal education	2 (1.55)	1 (1.64)	1 (1.47)	
Elementary	19 (14.73)	8 (13.11)	11 (16.18)	
Secondary	66 (51.16)	31 (50.82)	35 (51.47)	
Vocational	7 (5.43)	5 (8.2)	2 (2.94)	
Tertiary/Post-graduate	35 (27.13)	16 (26.23)	19 (27.94)	
Employment status				0.296
Employed	19 (14.73)	8 (13.11)	11 (16.18)	
Unemployed	108 (83.72)	51 (83.61)	57 (83.82)	
Self-employed	2 (1.55)	2 (3.28)	0	

**p > 0.05 – not significant*

Table 2. Clinical Characteristics of Chronic Cancer Pain Patients

	Overall (n=129)	With depressive symptoms (n=61)	Without depressive symptoms (n=68)	p-value*
	Frequency (%)			
Cancer type				0.016
Breast	47 (36.43)	21 (34.43)	26 (38.24)	
Gynecologic	26 (20.16)	15 (24.59)	11 (16.18)	
Musculoskeletal	15 (11.63)	7 (11.48)	8 (11.76)	
Head/Neck	11 (8.53)	8 (13.11)	3 (4.41)	.
Colorectal	11 (8.53)	1 (1.64)	10 (14.71)	
Renal	7 (5.43)	3 (4.92)	4 (5.88)	
Prostate	5 (3.88)	2 (3.28)	3 (4.41)	
Hepatobiliary	4 (3.1)	4 (6.56)	0	
Lung	3 (2.33)	0	3 (4.41)	
Cancer stage				0.549
I	9 (6.98)	3 (4.92)	6 (8.82)	
II	37 (28.68)	15 (24.59)	22 (32.35)	
III	28 (21.71)	14 (22.95)	14 (20.59)	
IV	55 (42.64)	29 (47.54)	26 (38.24)	
***Pain score** (NRS)*				0.762
1-3	62 (48.06)	27 (44.26)	35 (51.47)	
4-6	63 (48.84)	32 (52.46)	31 (45.59)	
7-10	4 (3.1)	2 (3.28)	2 (2.94)	

**p > 0.05 – not significant*

depressive symptoms. The patients with colorectal cancer (1 out of 11) and lung cancer (0 out of 3) showed the least proportion of patients having depressive symptoms. Breast and gynecologic malignancies comprised more than half of the patients studied. However, the number of patients with or without depressive symptoms was nearly the same.

The patients with stage IV cancer comprised most of those studied (42.64%). The pain score was only mild to moderate in 97% of patients. Among these patients, neither the cancer stage nor the pain scores had a statistically significant difference among those cancer patients with or without symptoms of depression.

DISCUSSION

Depression is one of the psychological complications of cancer and chronic pain. Cancer diagnosis and chronic pain can be independent predictors of increased mood disorders, including anxiety and depressive symptoms. In a review by Bair in 2003, the prevalence of pain in depressed cohorts and depression in pain cohorts are higher than when these individual conditions were examined.[11] Combined, chronic pain in the cancer setting can have worse outcomes.

The prevalence rate of depressive symptoms among the chronic cancer pain patients in the PGH-PC included in the study was 47.29% (*38.72 - 56.01* 95% CI). This is slightly higher than findings in similar studies. A study conducted among cancer patients in Nigeria showed a 37.2% prevalence of depressive symptoms. In those that reported pain, this prevalence increased to 41.3%.[14] A similar study in Ethiopia showed a prevalence of 33.8% (combined major depressive disorder and subthreshold depression), with patients who reported pain having 4x higher odds.[15] In a meta-analysis of mood disorders involving oncological, hematological palliative care cancer patients, the prevalence of all types of depression was found to be 24.6%.[16] The difference can be due to the different screening tools used to detect depressive symptoms. Screening tools such as the Patient Health Questionnaire (PHQ-9), DSM-IV Structured Clinical Interview, and Hospital Anxiety and Depression Scale (HADS) have been used to detect depressive symptoms. The PGH-SRQ was a screening tool for mood disorders (anxiety and depression) and psychotic features. Anybody in the PGH-PC can administer it (nurse, resident physician, Pain fellow, or medical students). Findings in this less formal and general questionnaire needed confirmation in a formal psychiatric interview conducted by a psychiatrist. Despite numerous studies published on the prevalence of depression among cancer patients, the picture is still unclear because most published works have relied on depression symptom screening methods rather than diagnostic instruments. Diagnostic instruments remain the gold standard as they include a diagnostic algorithm, clinical significance criteria, and minimum duration to support a robust diagnosis of depression.[17]

In terms of age, 67.44% of the patients with chronic cancer pain belonged to the 41- 60-year-old age group. For patients with depressive symptoms and those who did not, 68.85% and 66.17% did not differ statistically (p=0.62). The prevalence of depression is generally higher in the older population. In elderly patients with cancer, it has been found that depressive symptoms were less reported than somatic symptoms (like body aches).[18] It is crucial then to probe deeper into the affective symptoms when dealing with the elderly.

There were more females than males (3:1). Neither gender (p=0.42), marital status (p=0.31), educational status (p=0.79), nor employment status (p=0.29) were significant factors determining whether a cancer pain patient would have depressive symptoms or not. These findings are similar to a study among terminally-ill cancer patients assessed for depressive symptoms in Japan. Only lower performance status (based on Karnofksy score), more significant concern about being a burden to others, and less satisfaction with confidantes were the final essential factors associated with psychological distress at baseline.[19]

Nine cancer types were identified with breast, gynecologic, and musculoskeletal malignancies comprising 2/3 of subjects included in the study. The cancer type showed a statistically significant difference among those cancer patients with or without depressive symptoms (p = 0.016). Of the 11 patients diagnosed with colorectal cancer, only 1 showed depressive symptoms. On the other hand, all four hepatobiliary cancer patients showed depressive symptoms. Worldwide, hepatobiliary cancers are frequent diseases and are often accompanied by a poor prognosis. A recent review on psychological burdens in hepatobiliary cancers, depression was found in 25% of cases.[20] Most patients (64%) studied were in the advanced stages of cancer (stage III and IV), 1/3 of them showing depressive symptoms. Stage I and II cancer had fewer patients with depressive symptoms. In general, the higher the cancer stage, the higher the occurrence of depression. Overall, in this study, there was no statistically significant difference across all stages of cancer (p=0.55).

The Numerical Rating Scale (NRS) measured pain scores during a consultation. All patients included had a pain of varying degrees. Results showed patients having mild pain (44%), moderate pain (53%), and severe pain (3%). The prevalence of depressive symptoms was highest in the moderate pain scores. In a study about depression and pain among patients with chronic non-cancer pain after ED encounters, the average pain score was 5.97 (corresponding to moderate pain) among patients with depressive symptoms (54%).[21] In another study involving patients with chronic musculoskeletal pain, change in pain strongly predicted subsequent depression severity. Likewise, change in depression severity was an equally strong predictor of subsequent pain severity.[22] In a literature review on depression and pain co-morbidity, several studies were cited concluding that the more significant and longer the pain, the greater the

prevalence and severity of depression.[11] Interestingly, many of these conditions were non-cancer pain. In studies involving chronic cancer patients, the severity of pain was directly proportional to depression prevalence.[15,23] Overall, in this study, the severity of pain was not predictive of whether a cancer patient will have depressive symptoms or not (p=0.76).

CONCLUSION

Almost one in every two chronic cancer pain patients studied had depressive symptoms. This emphasizes the significance of routine screening of patients for depressive symptoms. Identifying these patients may lead to earlier psychological interventions in this vulnerable population. Prospective explorations of the effects of pharmacologic and non-pharmacologic interventions to treat cancer pain and concurrent depressive symptoms are recommended.

Statement of Authorship

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

Author Disclosure

Both authors declared no conflicts of interest.

Funding Source

No specific grant from any funding agency in public, commercial or not-for-profit sectors was received in writing this paper.

REFERENCES

1. Merskey H, Bogduk N. Classification of Chronic Pain. 2nd Ed. Seattle: IASP Press, 1994. p.1.
2. Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of Chronic Pain in Europe: Prevalence, Impact on Daily Life, and Treatment. Eur J Pain. 2006 May;10(4):287-333.
3. Sá KN, Moreira L, Baptista AF, Yeng LT, Teixeira MJ, Galhardoni R, et al. Prevalence of Chronic Pain in Developing Countries: Systematic Review and Meta-analysis. Pain Rep. 2019 Dec 6;4(6):e779.
4. Lu H, Javier F. Prevalence and Treatment of Chronic Pain in the Philippines. Philippine Journal of Internal Medicine. 2011 49. 61-69.
5. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. A Classification of Chronic Pain for ICD-11. Pain. 2015 Jun;156(6):1003-1007.
6. van den Beuken-van Everdingen MHJ, van Kuijk SMJ, Janssen DJA, Joosten EAJ. Treatment of Pain in Cancer: Towards Personalised Medicine. Cancers (Basel). 2018 Dec 10;10(12):502.
7. Costa WA, Monteiro MN, Quieroz JF, & Goncalves AK. Pain and Quality of Life in Breast Cancer Patients. Clinics. 2017. p758-763.
8. Zhao H, Zhao Z, Chen C. Prevalence, Risk Factors and Prognostic Value of Anxiety and Depression in Cervical Cancer Patients Underwent Surgery. Transl Cancer Res. 2020 Jan;9(1):65-74.
9. Sharma A, Sharp DM, Walker LG, Monsoon JR. Predictors of Early Postoperative Quality of Life after Elective Resection for Colorectal Cancer. Ann Surg Oncol 2007:14:3435-42.
10. Pastore AL, Mir A, Maruccia S, Palleschi G, Carbone A, Lopez C, et al. Psychological Distress in Patients Undergoing Surgery for Urological Cancer: A Single Centre Cross-sectional Study. Urol Oncol. 2017 Dec;35(12): 673.e1673.e7.
11. Bair MJ, Robinson RL, Katon W, Kroenke K. Depression, and Pain Comorbidity: A Literature Review. Arch Intern Med. 2003 Nov 10;163(20):2433-45.
12. Sheng J, Liu S, Wang Y, Cui R, Zhang X. The Link between Depression and Chronic Pain: Neural Mechanisms in the Brain. Neural Plast. 2017;2017:9724371.
13. Ly-Uson J. Comparison between Primary Care Evaluation of Mental Disorders Patient Questionnaire and the Self-reporting Questionnaire as Screening Tools for Psychiatric Disorders at the UP-PGH Pain Clinic. The Philippine Journal of Psychiatry. 2000 July-December; 24 (2): 12-18.
14. Nuhu F., Odejide O., Adebayo K., Yusuf A. Assessment of Depression and Anxiety in Adult Cancer Outpatients: A Cross-sectional Study. African Journal Psychiatry. 2009;12:64–70.
15. Alemayehu M, Deyessa N, Medihin G, Fekadu A. A Descriptive Analysis of Depression and Pain Complaints among Patients with Cancer in a Low-income Country. PLoS One. 2018 Mar 7;13(3): e0193713.
16. Mitchell AJ, Chan M, Bhatti H, Halton M, Grassi L, Johansen C, et al. Prevalence of Depression, Anxiety, and Adjustment Disorder in Oncological, Haematological, and Palliative-care Settings: A Meta-analysis of 94 Interview-based Studies. Lancet Oncol. 2011 Feb;12(2): 160-74.
17. Massie MJ. Prevalence of Depression in Patients with Cancer. J Natl Cancer Inst Monogr. 2004 July;(32):57-71.
18. Weinberger MI, Bruce ML, Roth AJ, Breitbart W, Nelson CJ. Depression and Barriers to Mental Health Care in Older Cancer Patients. Int J Geriatr Psychiatry. 2011 Jan;26(1):21-6.
19. Akechi T, Okuyama T, Sugawara Y, Nakano T, Shima Y, Uchitomi Y. Major Depression, Adjustment Disorders, and Post-traumatic Stress Disorder in Terminally Ill Cancer Patients: Associated and Predictive Factors. J Clin Oncol. 2004 May 15;22(10):1957-65.
20. Graf J, Stengel A. Psychological Burden and Psycho-oncological Interventions for Patients with Hepatobiliary Cancers - A Systematic Review. Front Psychol. 2021 May 5;12:662777.
21. Wilson M, Roll J, Pritchard P, Masterson B, Howell D, Barbosa-Leiker C. Depression, and Pain Interference among Patients with Chronic Pain after ED Encounters. J Emerg Nurs. 2014 May;40(3):e55-61.
22. Kroenke K, Wu J, Bair MJ, Krebs EE, Damush TM, Tu W. Reciprocal Relationship between Pain and Depression: A 12-month Longitudinal Analysis in Primary Care. J Pain. 2011 Sep;12(9):964-73.
23. Belfer I, Schreiber KL, Shaffer JR, Shnol H, Blaney K, Morando A, et al. Persistent Postmastectomy Pain in Breast Cancer Survivors: Analysis of Clinical, Demographic, and Psychosocial Factors. J Pain. 2013 Oct;14(10):1185-95.