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Anxiety and Depression among patients with chronic pain

Stuti Solomon Martin [1], Bindhu P [2, *] and Pastin Pushpa Rani Peter [2]

[1] Christian Medical College, Vellore, Tamil Nadu, India.
[2] College of Nursing, Christian Medical College Vellore, Chittoor Campus, Chittoor, Andhra Pradesh, India.

Abstract

Background: Chronic pain is a pervasive and debilitating state experienced by many individuals across the globe. It produces a wide range of physiological impact which are well documented in literature but the psychological impact which is also equally profound has not received much attention. This study aims to investigate severity of anxiety and depression in patients with chronic pain that contributes to the development of holistic and effective treatment approaches.

Materials and Methods: A non-experimental descriptive cross-sectional design was adopted. Non probability purposive sampling was used to recruit a sample of 50 patients with chronic pain attending OPD services in a secondary hospital, Chittoor, Andhra Pradesh. Patients who aged between 20 and 70 years with a chronic pain for at least 3 months were included. Patients with malignant pain were excluded. Hospital Anxiety and Depression Scale (HADS) was used to capture data on anxiety and depression.

Results: The mean anxiety score on HADS was 9.2 (SD-3.72) and depression score was 8.48 (SD-3.23). Nearly one third of participants (32%) reported abnormal level of anxiety and 26% had reported abnormal depression. There is no significant association found between level of anxiety and Sociodemographic variables such as age, gender, marital status, type of family, education and occupation. Level of depression showed a significant association with age (p=0.042).

Conclusion: Patients with chronic pain experience varying degrees of anxiety and depression. Routine assessment of these attributes would help the healthcare team to plan patient-tailored interventions to manage pain and to prevent anxiety and depression.

Keywords: Anxiety; Depression; Chronic pain; Stress; Severe pain

1. Introduction

Pain is a subjective experience which produces a wide range of emotions in individuals. When becomes chronic in nature, it makes an individual incapable of performing daily living physical activities and affects the health-related quality of life [1]. Patients with any chronic pain experiences not only physical discomfort, but also psychological distress in terms of anxiety and depression that worsens the prognosis of pain symptoms [2,3,4]. Pain and depression leave an individual with neurobiological and psychological impacts and affects the overall functioning of the body. This might further lead to physical disabilities [5].

There is a reciprocal relationship between pain and depression or anxiety. Diagnosis of chronic pain disorder will increase the risk of diagnosis of anxiety or depression and vice versa [6, 7]. A depressive patient exhibits decreased pain

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* Corresponding author: Bindhu P

tolerance and intensive pain [5]. The association between chronic pain, anxiety and depression can be due to cultural influential factors and makes the treatment more complex [1]. Identification and treatment become less effective when depression and chronic pain are co-morbid and leads to high health care expenses [1,7]. The current study aims to assess anxiety and depression among patients with chronic pain and its association with selected demographic variables.

2. Material And Methods

A descriptive cross-sectional design was adopted to assess anxiety and depression among patients with chronic pain who are attending outpatient department services.

- **Study setting:** A secondary hospital, Chittoor, Andhra Pradesh
- **Study period:** From September 2023 to November 2023.
- **Sample size:** 50 patients with chronic pain
- **Sampling Technique:** Purposive sampling technique

2.1. Inclusion Criteria

- Patients with chronic pain for at least 3 months
- Patients aged between 20 and 60 years
- Patients who can converse in Telugu or Tamil or English or Hindi

2.2. Exclusion Criteria

- Patients who underwent any major surgery within 6 months
- Patients with any malignancy
- Patients with a known history of psychiatric illness

2.3. Instruments for Data Collection:

- **Part A - Sociodemographic Profile:** This was designed by the investigator and captured data like age, gender, education, occupation, family type, habitat etc.
- **Part B – Pain Scale:** The pain severity was assessed using Visual Analogue Scale that measures pain on a scale of 0 to 10 with 0 being no pain and 10 being the worst pain possible.
- **Part C - The Hospital Anxiety and Depression Scale (HADS)**: The HADS is a self-report measure of anxiety and depression in a hospital environment. This tool has fourteen items that were equally divided into two subscales named Anxiety and Depression. It is available in the public domain and takes only a few minutes to complete [8]. The responses are scored on a 0 to 3-point scale, and the scores for individual subscales are interpreted as Normal (0-7), Borderline abnormal (8-10) and Abnormal (11-21). Validity and reliability of the tool is found to be satisfactory across many studies.

2.4. Data collection procedure

The proposal was presented to the Institutional review Board (IRB) and ethical clearance was obtained. The potential participants were approached and screened for eligibility criteria. Informed consent was obtained from them after explaining the study details. Then socio demographic data, clinical data and data on anxiety and depression were collected using the structured and validated instruments.

2.5. Statistical analysis

 Statistical analysis was performed using SPSS for Windows 20.0. Frequency and percentage were calculated for categorical variables and mean and standard deviation was estimated for continuous variables. Chi-square test was used to determine association between variables.

3. Results

Table 1 Distribution of study participants based on demographic characteristics N=50

S. No.	Sociodemographic variable	Frequency (N)	Percentage (%)
1.	AGE IN YEARS		
	20-32	4	8
	33-45	17	34
	46-57	10	20
	58-70	19	38
2.	GENDER		
	Male	17	34
	Female	33	66
3.	MARITAL STATUS		
	Married	43	86
	Unmarried	1	2
	Widowed	6	12
4.	TYPE OF FAMILY		
	Nuclear	37	74
	Joint	13	26
5.	EDUCATION		
	Class 1 to 5	8	16
	Class 6 to10	15	30
	Class 11to 12	8	16
	Graduate/Diploma	7	14
	Illiterate	12	24
6.	OCCUPATION		
	Skilled	21	42
	Professional	7	14
	Others	22	44

Table 1 shows that majority of the study participants belonged to age 58 to 70 years, female participants were 66%, majority of them (86%) were married, 74% live in nuclear family, 30% had studied in class 6 to 10 and (42%) were skilled workers.
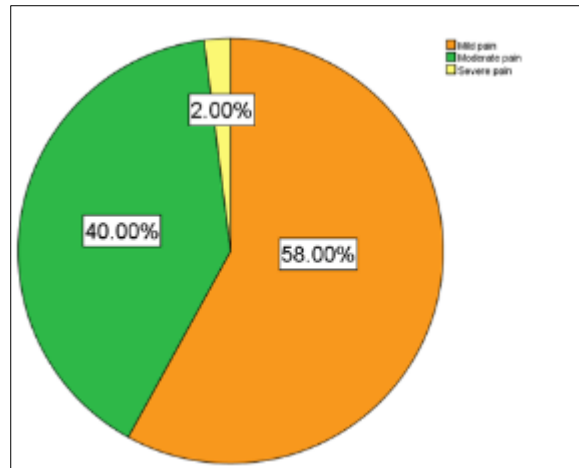
Figure 1 Intensity of pain reported by the study participants (N=50)

Figure 1 displays information on the intensity of pain reported by participants. Among 50 patients, 58% of them had mild pain, 40% had moderate pain and 2% of them had severe pain.

Table 2 Mean pain, anxiety and depression scores of the study participants n=50

Variable	Mean	Standard deviation
Pain	3.14	1.34
Anxiety	9.20	3.72
Depression	8.48	3.23

Table 2 shows that the mean pain score was 3.14 (SD=1.34), mean anxiety score of the study participants was 9.20 (SD=3.72) and mean depression score was 8.48 (SD= 3.23).
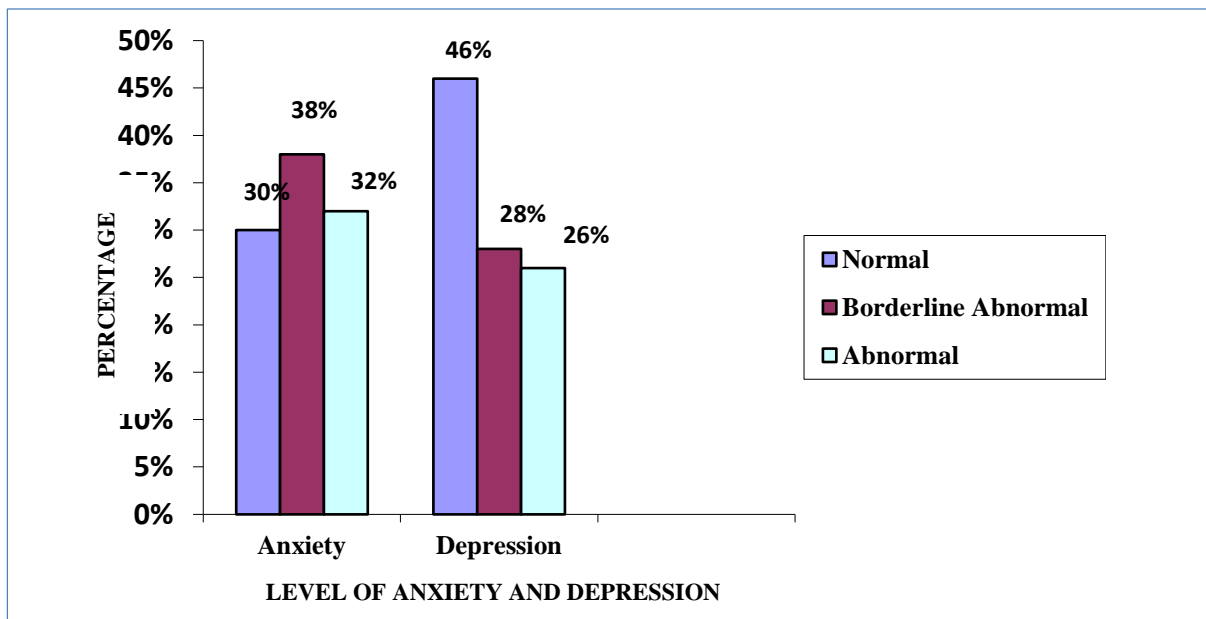

Figure 2 Levels of Anxiety and Depression among study participants (N=50)

Figure 2 illustrates that 32% of the participants had abnormal level of anxiety, 38% had borderline abnormal anxiety and 30% of them had normal anxiety. Regarding depression, 26% had abnormal level of depression, 28% had borderline abnormal depression and 46% of them had normal (no) depression.

Table 3 Correlation between Pain, Anxiety and Depression (N=50)

Variables	r value	P value
Anxiety Vs Pain	0.350	0.013*
Depression Vs Pain	0.196	0.172
Anxiety Vs Depression	0.655	<0.001

Table 3 presents the correlation between pain, anxiety and depression. It was found that there was a positive correlation between anxiety and pain (r = 0.013, p = 0.013) and anxiety and depression (r =0.655, p<0.001).

Table 4 Association between level of anxiety and selected demographic variables (N=50)

Sl. No	Variable	Level of anxiety			X^2	P value
		Normal	Borderline abnormal	Abnormal		
1	AGE IN YEARS				10.589^a	0.076
	20-32	02 (4%)	01(2%)	01(2%)		
	33-45	05 (10%)	08 (16%)	04(8%)		
	46-57	06 (12%)	03(6%0	01(2%)		
	58-70	02 (4%)	07(14%)	10 (20%)		
2	GENDER				2.786^a	0.238
	Male	07(14%)	07(14%)	03(06%)		
	Female	08 (16%)	12 (24%)	13(26%)		
3	MARITAL STATUS				3.817^a	0.366
	Unmarried	0 (0%)	01 (2%)	0 (0%)		
	Married	14 (28%)	14 (28%)	15 (30%)		
	Widowed	01 (2%)	04 (8%)	01 (2%)		
4	TYPE OF FAMILY				2.321^a	0.289
	Nuclear	13(26%)	12(24%)	12(24%)		
	Joint	02(04%)	07(14%)	04(08%)		
5	EDUCATION				5.523^a	0.744
	Class 1 to 5	02(04%)	05(10%)	01 (02%)		
	Class 6 to10	05 (10%)	06(12%)	04(08%)		
	Class 11to 12	03(06%)	02(04%)	03(06%)		
	Graduate/Diploma	03(06%)	02(04%)	02(04%)		
	Illiterate	02(04%)	04(08%)	06(12%)		
6	OCCUPATION				4.247^a	0.382
	Skilled	08(16%)	08(16%)	05(10%)		
	Professional	03(06%)	03(06%)	01(02%)		
	Others	04(08%)	08(16%)	10(20%)		

a – Fisher's Exact test

Table 4 displays that there is no statistically significant association between level of anxiety and selected demographic variables such as age, gender, marital status, type of family, education or occupation (p<0.05)

Table 5 Association between level of depression and selected demographic variables (N=50)

Sl. No	Variable	Level of depression			X^2	P value
		Normal	Borderline abnormal	Abnormal		
1	**AGE IN YEARS**				11.860^a	0.042
	20-32	03 (06%)	01(02%)	0(0%)		
	33-45	08(16%)	07 (14%)	02(04%)		
	46-57	07 (14%)	02 (04%)	01(02%)		
	58-70	05 (10%)	04(08%)	10 (20%)		
2	**GENDER**				0.379^a	0.929
	Male	07(14%)	05(10%)	05(10%)		
	Female	16 (32%)	09 (18%)	08(16%)		
3	**MARITAL STATUS**				3.145^a	0.612
	Married	20 (40%)	13 (26%)	10 (20%)		
	Unmarried	01(02%)	00 (00%)	0 (0%)		
	Widowed	02 (04%)	01(02%)	03 (06%)		
4	**TYPE OF FAMILY**				3.516^a	0.190
	Nuclear	19(38%)	11(22%)	07(14%)		
	Joint	04(08%)	03(06%)	06(12%)		
5	**EDUCATION**				7.819^a	0.461
	Class 1 to 5	05(10%)	02(04%)	01 (02%)		
	Class 6 to10	08 (16%)	03(06%)	04(08%)		
	Class 11to 12	04(08%)	03(06%)	01(02%)		
	Graduate/Diploma	04(08%)	02(04%)	01(02%)		
	Illiterate	02(04%)	04(08%)	06(12%)		
6	**OCCUPATION**				3.510^a	0.507
	Skilled	08(16%)	06(12%)	07(14%)		
	Professional	05(10%)	02(04%)	00(00%)		
	Others	10(20%)	06(12%)	06(12%)		

a – Fisher's Exact test

Table 5 shows that there is a statistically significant association between the level of depression and age of the participants (p=0.042). Other variables did not show any association with the level of depression.

4. Discussion

The objective of this study was to assess anxiety and depression among patients with chronic pain. A sample of 50 patients who met eligibility criteria was included. Socio demographic profile, Pain score and HADS were administered

to them. The data was analyzed using the SPSS for Windows 20.0. The large proportion of participants was found to be in the age group of 58 to 70 years, with the female predominance of 66%. These demographics are similar to the finding in a study which reported that 83.8% of the study participants who reported to have chronic pain were women and average age of the study cohort was 51.8±11.8 years [9].

This study reported that 32% of the participants had abnormal level of anxiety, 38% had borderline abnormal anxiety. These findings are congruent with the study that found 35.7% of the sample had symptoms of anxiety [10]. Another study reported that women and older adults with chronic pain were more likely to suffer from anxiety and depression [11].

Depression is a common entity co-occurs with pain. Research shows a strong association between the presence and severity of depressive symptoms and the presence of chronic pain [12]. In a study it was found the incidence of depression associated with chronic pain in 50.4% of the individuals [10]. Moreover, a study was conducted to examine the impact of pain symptomatology on depression and anxiety onset and to determine whether these associations are independent of subthreshold depressive and anxiety symptoms. They found that pain at multiple locations is a risk indicator for developing anxiety and depressive disorders [13]. The present study yielded similar results i.e. 26% of the individuals with chronic pain reported abnormal level of depression and 28% of them were found to have borderline abnormal depression as measured by the HADS. Though it is not the scope of the current study, it is significant to note that the presence of depression and anxiety intensifies the pain experienced by the patients. This was reported by a study by Bair et al where patients with pain having both depression and anxiety experienced the greatest pain severity and pain-related disability [14].

The current study showed no association between level of anxiety and selected demographic variables. However, age was associated with the level of depression (p=0.042). There was also a correlation found between pain and anxiety (r=0.350, p=0.013) and anxiety and depression (r=0.655, p<0.001). These findings are consistent with the findings of previous studies in which anxiety and depression showed a statistically significant relationship with low level of education [9]. In another study with a similar cohort, anxiety and depression levels showed a relationship with gender [15].

These findings should be considered with several limitations. The use of a purposive sampling and a small sample size limit the generalizability of the findings to other populations. The study tapped data from self-reporting by the participants, which may be subject to response bias.

5. Conclusion

Anxiety and depression are prevalent in patients who experience chronic pain. This study implies the need for routine assessment of patients with chronic pain for affective symptoms and underscores the importance of a multifaceted approach to understand and manage pain and its associated symptoms.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

The study was conducted after approval by the institutional review board.

Statement of informed consent

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

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