PREVALENCE OF DEPRESSIVE DISORDER AND ITS TREATMENT AMONG PATIENTS WITH CHRONIC PAIN- A CROSS SECTIONAL STUDY

Priyanka Vijayakumar1, Kollara Sukumaran Jyothi2

1Senior Resident, Department of Psychiatry, Government Medical College, Thrissur, Kerala.
2Assistant Professor, Department of Psychiatry, Government Medical College, Thrissur, Kerala.

ABSTRACT

BACKGROUND
Depression coexisting with chronic pain can influence the course and prognosis of chronic pain due to any aetiology. Till the psychopathology remains unveiled and treated, rehabilitation process in chronic pain patients is incomplete. The studies addressing the treatment of depressive disorder in chronic pain are limited.

MATERIALS AND METHODS
Patients were recruited via simple randomization from Pain and Palliative clinic of Government Medical College, Thrissur. After obtaining informed consent, patients were assessed using a semi structured questionnaire to elicit socio-demographic information and medical data. VAS scale was used to assess the severity of pain. PHQ 9 Questionnaire was used as a screening tool for depression and ICD-10-Diagnostic Criteria for Research (DCR) for substantiating the diagnosis. Data was analysed in SPSS software using independent sample t test and chi square test.

RESULTS
The psychiatric morbidity was 48.8% for depression. There was significant association between sex- females having more depression (p<0.001) and marital status- the divorced, separated and spouse expired being more prone for depression (p<0.008). There was a significant association between psychiatric morbidity and pain variables (P <0.0001) including the duration and severity of pain. 21.68% of the depressed patients were getting antidepressants as adjuvant. Out of 18 patients with severe depression, only 3 patients were getting antidepressants as adjuvant. There was no association between age, education, occupation, aetiology of pain, and psychiatric morbidity.

CONCLUSION
The prevalence of depressive disorder patients with chronic pain of any cause is high. Depression is associated with increased pain perception, poly pharmacy and poor treatment outcome. While dealing with chronic pain, the risk of associated depressive disorder should be evaluated and managed properly.

KEYWORDS
Chronic Pain, Depression, Antidepressants.


BACKGROUND
Till date pain has been a major concern of mankind. Chronic pain is associated with socio-occupational disabilities and is frequently accompanied by anxiety and depression. The coexistence of chronic pain and depression are so entangled that it is difficult to prove which precedes the other.1

There is more prevalence of depression in chronic pain patients than in the general population and often cause magnification of pain symptoms.2 Depression left untreated is related with decrements in the effectiveness of treatment outcome.3 Fortunately these conditions are highly treatable, and a promising life is absolutely possible. Antidepressants have been used as an adjuvant for treating chronic pain for long, and an adequate trial of which can settle the issue. This knowledge is lacking in our setup. The present study is planned to find the prevalence of depressive disorder in patients with chronic pain and also the proportion of people who currently have depression without the problem being addressed. There are only few studies which have looked into the treatment aspects of depression in chronic pain, especially in Indian scenario.

Aims and Objectives
• To evaluate the prevalence of depressive disorder among patients with chronic pain attending the pain clinic.
• To estimate the proportion of people who are receiving antidepressants among those with depressive disorder.
MATERIALS AND METHODS
This study was conducted at the pain and palliative clinic of Government Medical College Thrissur, where patients attending the pain clinic OPD with duration of pain for more than 6 months were recruited. Study was conducted for a period of 1 year from January 2016 to December 2016. Patients who were more than 18 years, able and willing to give informed consent were included in the study. Patients who were known case of psychotic illnesses, those with cognitive damage, mental retardation or any neurological conditions interfering with the accurate recording of information including dementia and delirium were excluded from the study. Thus 170 patients were studied.

Informed consent was taken from all the subjects. Sociodemographic profile was assessed using a proforma designed for the study which included age, gender, education, occupation and marital status. Detailed history was elicited from all subjects. This was followed by mental state examination. Public Health Questionnaire 9 (PHQ9) questionnaire Malayalam version was used for the screening of depressive disorder. Clinical interview was done, and diagnosis was made using ICD 10 diagnostic criteria.

Severity of pain was assessed using the Visual Analogue scale which is a uni dimensional measure of pain intensity. Scale ranges from 0-10 i.e.; from no pain to intense pain. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimeters (100 mm) in length, anchored by 2 verbal descriptors, one for each symptom extreme. It is self-administered using a pencil and paper. It takes <1 minute. The VAS score is determined by measuring in from left hand end of the line to the point that the patient marks. Higher scores indicate greater pain intensity.4,5

PHQ-9 is a 9-item self-administered depression screening and diagnostic tool increasingly used in primary care and other medical populations.6,7 Score ranges from 0-27. For interpreting PHQ-9 Scores: 1-4 = minimal depression, 5-9 = mild depression, 10-14 = moderate depression, 15-19 = moderately severe depression, 20-27 = severe depression.

Questions were asked for the assessment of psychiatric treatment among those with depressive disorder such as whether consulted psychiatrist for depressive symptoms or being advised to consult a psychiatrist, about treatment details and whether aware about the antidepressant treatment they are receiving. Approval was obtained from the Institutional Ethics Committee (IEC). Written informed consent was obtained from the subjects. Confidentiality was maintained.

Data Analysis
All quantitative variables were depicted as mean and median values with its standard deviation. Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software (IBM SPSS Statistics, Somers NY, USA). Categorical data was represented in the form of frequencies and proportions. Chi square test and unpaired t test was used as test of significance for quantitative data p value (probability that the result is true) of less than 0.05 was considered as statistically significant after assuming all the rules of statistical tests.

RESULTS
The total sample of patients was 170. Mean age of the study subjects was 52.38 ± 14.44, 51-70 age groups comprised of 41.8% of total study population. Females comprise 57.6% of the study population. Most (48.2%) of the study subjects had primary school educational status. 50.6% of study subjects were unskilled workers. 73% of study subjects were married.

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>Frequency (N=170) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>11 (6.4)</td>
</tr>
<tr>
<td>30-50</td>
<td>68 (40)</td>
</tr>
<tr>
<td>51-70</td>
<td>71 (41.8)</td>
</tr>
<tr>
<td>&gt;70</td>
<td>20 (11.8)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>72 (42.4)</td>
</tr>
<tr>
<td>Female</td>
<td>98 (57.6)</td>
</tr>
<tr>
<td>Educational Status</td>
<td></td>
</tr>
<tr>
<td>Primary School</td>
<td>82 (48.2)</td>
</tr>
<tr>
<td>High School</td>
<td>61 (36)</td>
</tr>
<tr>
<td>Plus Two/ PDC</td>
<td>13 (7.6)</td>
</tr>
<tr>
<td>Graduate or Postgraduate</td>
<td>14 (8.2)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>29 (17.1)</td>
</tr>
<tr>
<td>Unskilled Worker</td>
<td>86 (50.6)</td>
</tr>
<tr>
<td>Skilled Worker</td>
<td>55 (32.4)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>18 (10.6)</td>
</tr>
<tr>
<td>Married</td>
<td>124 (73)</td>
</tr>
<tr>
<td>Separated/Divorced/Spouse Expired</td>
<td>28 (16.4)</td>
</tr>
</tbody>
</table>

Table 1. Sociodemographic Profile

The most frequent presentation was chronic low back ache that accounts for 26.5% followed by osteoarthritis 21.8%. Carcinoma formed the aetiology of chronic pain in 1.8% of the study population (2 patients with Ca breast and one suffering from Ca Lung). 71% of the study subjects had
pain duration of 1-3 years. 10.6% of the population is suffering from pain for more than 3 years. Mean duration of illness 18.62 months. As per the VAS scores 64.1% of the study population suffered from moderate pain and 28.2% had unbearable pain.

<table>
<thead>
<tr>
<th>PHQ 9 Score for Depression</th>
<th>Frequency (n=170) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None/Minimal (0-4)</td>
<td>95 (55.9)</td>
</tr>
<tr>
<td>Mild (5-9)</td>
<td>25 (14.7)</td>
</tr>
<tr>
<td>Moderate (10-14)</td>
<td>31 (18.2)</td>
</tr>
<tr>
<td>Moderately Severe (15-19)</td>
<td>10 (5.9)</td>
</tr>
<tr>
<td>Severe (20-27)</td>
<td>9 (5.3)</td>
</tr>
</tbody>
</table>

Table 2. PHQ 9 Scores

48.8% of patients with chronic pain had depression as per ICD10 diagnosis. The female population was more depressed in the study sample (61.2%) compared with the male population (31.9%) and this difference is statistically significant (p<0.001). 16 females and 2 males were severely depressed.

There is statistically significant difference between the depressed and non-depressed group regarding the marital status. (p<0.001). The subjects who were separated or divorced or whose spouse expired are more prone for depression (94.7% prevalence). 42.7% of the married subjects were depressed.

There was statistically significant association between the duration of illness and depressive disorder (p<0.001). Prevalence of depression among those who were suffering pain for more than 3 years was 55.5%. There is statistically significant association of depressive disorder with severity of pain (p<0.001). 70.8% was the prevalence of depression among patients who scored as unbearable pain on VAS scale.

There was no statistically significant difference between the depressed and non-depressed groups regarding their age of distribution (p=0.214). 65% of the patients >70 years were depressed out of which 3 patients were severely depressed. No statistically significant difference was found between the depressed and non-depressed groups regarding the educational status (p=0.954) and occupation (p=0.11). 65% of the unemployed subjects were depressed. There was no significant association found with the cause of pain and depressive disorder (p=0.06). Among 3 carcinoma patients 100% was depressed with severe depression in 66.6%. None of the patients were having psychotic symptoms.

27.6% of the patients are getting antidepressants. 21.68% of the depressed patients were getting antidepressants as adjuvant. TCAs were the most widely prescribed (19%) antidepressant in the management of chronic pain as per the study followed by SSRIs (6%) and SNRIs (3%). 22 patients (12.9%) were receiving amitriptyline in the absence of depressive disorder. Out of 18 patients with severe depression only 3 patients were getting antidepressants as adjuvant. Among them two patients were getting TCA (Amitriptyline 10 mg) and one was getting SSRI (Escitalopram 10 mg). Three patients have consulted psychiatrist for their symptoms (one patient with severe depression and 2 patients among those having moderate depressive episode with somatic syndrome). Two patients among them were getting Escitalopram 10 mg and the other patient was on Venlafaxine 75 mg (one with moderate depressive episode with somatic syndrome).
DISCUSSION

170 patients with chronic pain attending the pain clinic were screened. In the present study depression was present in 48.8% of the study subjects i.e. out of 170 chronic pain patients 83 were depressed. In this study 10.6% had severe depression and 36% had moderate depression. Prevalence of depression was found to be 48.57% in a study done by Sagheer et al in patients with chronic pain. In the study done in the Pain and Palliative Clinic in Calicut Medical college, 36% met ICD 10 diagnostic criteria of depression. In another similar study 35.5% were diagnosed as Major Depressive Disorder as per DSM IV diagnostic criteria substituting the somatic symptoms by Endicott criteria. In the study by Martha Castro et al using the MINI PLUS interview it was found that 42% had co morbid depression and 54% had dysthymia followed by social phobia(36.5%), agoraphobia (8.8%) and panic disorder (7.3%). Another prospective study showed 30.4% had moderately severe depression and 11.2% of patients were suffering from severe depression. In a cross sectional study, depression assessed using PHQ9 questionnaire found the prevalence among chronic pain patients in a tertiary care centre was found to be 60.8%. The prevalence in our study is only representative of a clinic population. Patients suffering from chronic pain are seeking help in various departments day by day in this tertiary care centre including inpatient care and so our sample is not representative of the general population. So the actual prevalence may be different.

There was no significant association found with the age group of patients and depressive disorder. Similar findings were obtained in some studies. Our findings contradicts the finding in an RCT that showed strong direct association in the older patients that these variables varies substantially depending upon age cohort. One study showed that depression is seen more with the younger age group compared to the older age group. Another study survey with mailed questionnaire among patients with chronic back ache by Turk et al found significant association between depressed mood and age occurred with pain duration, with the elderly experiencing fewer total hours/day in pain. In a RCT interaction between age and gender was associated with depression as younger women and old male reporting more depression.

Among the females 61.2% were depressed compared with 31.9% of males and this association was significant. Many studies prove that women are more prone to develop Major Depressive Disorder while suffering chronic pain. The results are comparable with a study showing 53.6% of females burdened with chronic pain were having depression. Females were representing 57.6% of the study group whereas males constitute 42.4%. Females are more vulnerable to develop depression because of several hypothetical reasons. The more accepted ones are the socio cultural and biological explanations. Apart from going to work they may also have to bear the burden of housekeeping, rearing children, caring for the elderly etc. The hormonal fluctuations in women also predispose them to develop depression.

There was no association found with educational status and occupation in the current study. Our finding is in contrast to the finding in another study conducted among patients with chronic neck pain showing significant association with a primary level education that they had a higher chance of being anxious or depressed than those with high level education. An alternate explanation to this is that it might be due to the possession of the belief that pain is a “signal of harm” and had a tendency to catastrophes their pain. Some studies shows no significant association with these variables. This is in contradiction with earlier studies which showed significant association between unemployment and increased depression in people who are chronically ill. Unemployment may cause an economic burden which in turn can act as a stressor for the evolution of depression.

The divorcees, and those whose spouse expired or living separated from their spouse showed significant association with depression and chronic pain by the group being more prone for development of depression. Lack of support from spouse and the stigma experienced by this group may have made them more vulnerable for depression. In a study divorce or separation was a risk factor independently associated with the presence of co morbid pain in bipolar depression patients. A study aimed to find the relationship between marital status and psychological resilience in chronic pain found strong association of married subjects reporting less depression than divorced individuals and pain patients who had experienced the death of a spouse suffered significantly less depression and anxiety compared to those who were divorced or single. In contrast to this another study showed psychiatric morbidity more in married subjects. Marriage may also predispose one to depression due to various factors such as stress within the relationship secondary to substance use disorder or any illness in spouse, sexual problems etc.

There was significant association with duration of pain and depression as more the duration of pain more the chance of developing depression. In a study done by electronic diary assessment of pain increase in the duration of pain was associated with increase intensity of pain, disability and fatigue, especially in those patients whose pain persisted for >6 months. The average duration of illness found in our study was 18.6 months. An alternate explanation is also possible that the presence of unrecognized depression could have contributed to the prevalence of pain for longer duration. Severity of pain also showed significant association with depression. Several other studies also show the similar association. The vice versa association is also proved i.e. patients with pain and depression and anxiety experienced the greatest pain severity and pain related disability.

There was no significant association with the etiology of pain. In our study two out of three carcinoma patients were having severe depression that needs to further studied. Many studies showed the increased prevalence of depression among patients with carcinoma. The anxiety regarding the condition, its complications, monetary
problems and the thoughts of being a burden to caregivers etc. could be reason for depression. A study showed breast carcinoma and stomach cancer patients had the highest prevalence of anxiety and depression. \(^{42}\)

Regarding the use of antidepressants in pain management TCA’s were the most frequently used followed by SSRI’s and SNRI’s. Most of the studies shows TCA’s as the most efficient in managing the chronic pain. \(^{43-46}\) In the study three patients have consulted psychiatrist for their symptoms and SSRI’s and SNRI had been prescribed. Two patients among them were getting Escalopram 10 mg and the other patient was on Venlafaxine 75 mg. All others have been receiving antidepressants as adjuvant in chronic pain. Amitriptyline was the most frequently used antidepressant among TCA’s may be because of its proven efficacy. The maximum dose of Amitriptyline used in the management of pain was 10mg. If the dosage may have been increased that might have helped a few patients in symptomatic improvement. Among the analgesics, opioids were the most commonly used. This may be because of the side effects of NSAIDs opioids being safer in terms of adverse effects. But the duration of receiving opioids have not been studied. Addiction potential of opioids should be kept in mind while prescribing for long. The other adjuvant we commonly came across were gabapentin, pregabalin, carbamazepine, Vitamin E, other multivitamin tablets etc.,

Significant number of people with chronic pain is depressed which is usually ignored. There is a definite role of psychiatrist in the scenario. For a better outcome chronic pain should be managed by a multidisciplinary team which includes a psychiatrist also. Despite the three patients who had consulted psychiatrist, none is aware about the antidepressant treatment they were receiving. Knowledge about depression has to be dissipated among other discipline which is managing pain. The patients should be made aware about the use of antidepressants, the need for an adequate trial and the necessity of sticking on to treatment. There is a need that, psychiatrist should help other specialists in the pain management to identify depression, how to use antidepressant and the better outcome associated with proper antidepressant use should be shown to them.

**Limitations of The Study**

The study found the prevalence of depression and association of various factors with depression among patients with chronic pain. This has got clinical relevance and wide applicability. As a part of this study patients with disabling depressive symptoms were advised psychiatry referral that would be helpful in a relief of both depressive and pain symptoms; a better outcome being expected. The sample size is small, and a large number of samples are required to prove the association with age group, education, occupation and aetiology of pain. The study is confined to a pain clinic population which is a potential limitation of the study as it cannot be generalized and not a true sample of the chronic pain population. As this is a cross sectional study there is no follow up and whether the patients are getting an adequate antidepressant trial could not be assessed. The study does not take into account the substance use disorders and co morbid medical conditions such as diabetes mellitus, hypertension, heart diseases etc., the factors which are known to influence the outcome. This study assessed only depression. Anxiety, personality, OCD and other psychological factors can impact as well. Marital status is assessed, but more important is whether there is a primary support system in place. A person in a difficult marriage can have complaints similar to one who is divorced. Or a person who is separated after a difficult marriage may not have similar issues. So assessing marital status only could be a confounding factor. Study is not checked for how is the support ‘perceived’.

**CONCLUSION**

The prevalence of depression among chronic pain patients was 48.8%. Women and those who lack the support from spouse are found to be more prone for depression. Depression is also associated with duration of illness and severity of pain. There is high prevalence of unrecognized depressive disorder among patients suffering from chronic pain of varied aetiology. This has got the potential to significantly worsen and prolong the pain that in turn leads to the worsening of depressive symptoms. Recognition of the same and timely interventions as per the needs such as an adequate antidepressant trial, cognitive behavioural therapy, family supportive therapy, relaxation techniques, life style modifications etc., helps the patient to cope more efficiently with the pain and improves the health-related quality of life. Chronic pain specialists and psychiatrists should work hand in hand to effectively manage the scenario and appropriate goal directed treatment should be achieved.

**Acknowledgements**

I acknowledge my sincere gratitude to Dr. Jyothi K. S, Assistant Professor of Psychiatry and my guide, for being a constant source of help, support, encouragement and patience in helping me understand the topic and leading me through every step of the way.

I wholeheartedly thank Dr. Asish Karthik, Assistant Professor, Anaesthesia Department, for allowing me to collect data in his department.

**REFERENCES**


