DOI: 10.7860/JCDR/2018/35160.11748

Original Article

Psychiatry/Mental Health Section

Psychiatric Morbidity in Chronic Low Back Pain-A Cross-Sectional Study

ANITHAKUMARI AYIROLIMEETHAL[1], FIROZ KAZHUNGIL[2], A.M KUNHIKOYAMU[3], V RAVIKUMAR[4]

ABSTRACT

Introduction: Psychiatric disorders are found to be predisposing or perpetuating factors in patients with Chronic Low Back Pain (CLBP) and these may also arise as a consequence of CLBP. More than one third of patients with CLBP are reported to have psychiatric morbidity along with physical or radiological signs and another third has no physical or radiological signs, but only psychiatric disorders. On the basis of clinical and radiological findings and presence of psychiatric diagnosis, patients with CLBP can be grouped in to three: 1) those with psychiatric disorder alone- the psychiatric group; 2) those with only physical illness with no psychiatric disorder- the organic group; and 3) group with both physical illness with psychiatric disorder-the combined group. Prevalence of psychiatric disorders in CLBP is understudied. Identification and treatment of psychiatric disorders in CLBP will help to reduce disability.

Aim: To assess the type of psychiatric disorders and to compare psychiatric disorders between psychiatric, non-psychiatric and combined group of CLBP.

Materials and Methods: This was a cross-sectional observational study conducted in 92 consecutive patients presented with CLBP (back pain lasting for more than 12 weeks duration) to outpatient orthopaedics department during April to September 2001. These patients were evaluated for physical disorders using clinical and radiological examinations and psychiatric disorders using ICD 10 Classification of Mental and Behavioural Disorder-Diagnostic Criteria for Research (DCR). On the basis of clinical and radiological findings and presence of psychiatric diagnosis, subjects were grouped in to three; psychiatric group, organic group and the combined group. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 16.0. Sociodemographic and clinical characteristics between the groups were compared using Chi-square test for categorical variables and ANOVA for continuous variables.

Results: Of 92 subjects 45(48.9%) belonged to the combined group, 38(41.3%) to psychiatric group and 9(9.8%) to organic disorder group. Depressive disorder was significantly higher ($p=0.01$) but somatoform disorder was significantly lower in combined group ($p<0.01$) compared to psychiatric group. There were more patients with severe pain in psychiatric group compared to other two groups ($p<0.05$).

Conclusion: Psychiatric disorders are highly prevalent in CLBP. Proper and timely identification of psychiatric disorders may help clinicians to judiciously select the treatment in CLBP.

Keywords: Back ache, Depression, Somatoform pain disorder

INTRODUCTION

Chronic Low Back Pain (CLBP) is a highly prevalent symptom in clinical setting and often clinicians get annoyed in the absence of physical signs and it is often devoid of significant findings on investigations. CLBP is associated with increased health care utilization, financial burden; poor functioning of the sufferers and poor quality of life and increased stress for the family members [1]. The importance of psychological and social factors in the causation, maintenance and resolution of CLBP is also explored. Some studies have shown that disabling CLBP is primarily due to psychosocial rather than physical factors [2]. Studies exploring psychiatric disorders in CLBP have demonstrated increased prevalence of depression (25% -30%) [3,4] and somatization disorder (19%) [3].

To analyse the prevalence of psychiatric disorders in CLBP, it is better to compare patients having CLBP with and without physical or pathoradiological signs. To the best of our knowledge, only a study has compared psychological dimensions in CLBP patients with and without clinical or patho-radiological signs. In the only study comparing group of LBP patients with and without any clinical signs, in the group without clinical signs, psychiatric disorders including somatization, obsessive-compulsive disorder, depression, anxiety, hostility, phobic anxiety, interpersonal sensitivity, paranoid ideation, and psychoticism were significantly higher. It has been also observed that there exists a female preponderance for psychiatric disorders in CLBP [5,6].

The studies in CLBP and psychological issues have major issues of not using structured diagnostic criteria for psychiatric disorders. An exploration of psychiatric disorders comparing between CLBP with clinical evidence of physical illness to that of without physical illness may help to identify and timely intervene those psychiatric syndrome and may help health care cost and disability. Therefore the study was carried out with an aim to assess and compare psychiatric disorders between psychiatric, non-psychiatric and combined group of CLBP.

MATERIALS AND METHODS

This was a cross-sectional observational study conducted over a period of six months from April to September 2001 in the Department of Psychiatry in collaboration with Department of Orthopaedics, Government Medical College, Kozhikode, which is a tertiary level clinical and academic institution in the state. We included patients in the age group of 18-65 years and who had low back pain of more than 12 weeks duration. We excluded patients with severe or acute medical or neurological illness, physical disability, clinical evidence of mental retardation and those who did not consent to participate. The study was approved by University of Calicut. Informed consent was obtained from subjects. All the CLBP patients attending the Department of Orthopaedics were initially assessed by orthopaedician, a clinical diagnosis was made, and was referred for psychiatric assessment. Appropriate haematological or radiological studies were done prior to the final diagnosis. The psychiatric evaluation was done by the first author who was blinded to which group patient belongs to. We used sociodemographic and clinical proforma to collect demographic and clinical details, ICD 10

Classification of Mental and Behavioural Disorder-Diagnostic Criteria for Research (DCR) to diagnose psychiatric disorders and Brief Pain Inventory (BPI) [7,8]. On the basis of clinical and radiological findings and presence of psychiatric diagnosis, patients with CLBP can be grouped in to three: 1) those with psychiatric disorder alone-the psychiatric group; 2) those with only physical illness with no psychiatric disorder- the organic group; and 3) group with both physical illness with psychiatric disorder-the combined group. BPI is a tool originally developed by Cleeland CS et al., 1983 to assess the intensity of pain as well as the interference in patient's life caused by the pain [8].

STATISTICAL ANALYSIS

The comparisons between the groups were carried out by Chi-square test for categorical variables and ANOVA for continuous variables. A $p<0.05$ was considered statistically significant. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 16.0.

RESULTS

The sample consisted of 92 CLBP patients, who attended the orthopaedics outpatient department with low back pain. In the study 92 CLBP patients had at least a psychiatric illness in 90.2% (n=83). Of 92 subjects 45(48.9%) belonged to combined group, 38(41.3%) to psychiatric group and only 9(9.8%) belonged to organic disorder group. No statistically significant difference was observed among all the demographic characteristics between the groups [Table/Fig-1]. Family history of any mental illness or pain disorder was not found to be higher between the groups except in organic CLBP group which had significantly higher family history of neck pain in first degree relatives [Table/Fig-2]. Only a minority had history of past mental illness; combined group (n=11, 24.4%), psychiatric alone (n=8, 21.1%) and organic alone (n=1, 11.1%). But this difference was not statistically significant. Depression was the commonest past psychiatric diagnosis in the combined group (n=6, 13.4%). Other diagnosis in this group were alcoholism (n=2, 4.4%) and one patient each had somatoform disorder, adjustment disorder and bipolar disorder/mania. The most common past mental illness in psychiatric alone group was depression and conversion disorder (n=3, 7.9% each) and only one patient had a diagnosis of somatoform disorder in the past. The study groups did not differ in mean duration of pain. On BPI, severe pain was observed in 44.7% of psychiatric disorder group, 31.1% of the combined group and none in organic group had severe pain [Table/Fig-3]. Regarding the current treatment, all the subjects were either on Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) or on a combination of antidepressants and NSAIDs at the time of evaluation. A 67(72.8%) of total sample received NSAIDs whereas 25(27.2%) received both antidepressant and NSAIDs. A 77.7% of organic CLBP group compared to 50% psychiatric alone group and 26.6% of combined group reported more than 50% pain relief and the difference was statistically significant [Table/Fig-3].

Comparison of orthopaedic diagnosis showed significantly higher prevalence of lumbar spondylolisthesis in the organic alone group compared to combined group (33.3% vs 4.4%, $p<0.001$). Most frequent orthopaedic diagnosis in combined group was lumbo-sacral strains (44.4%) followed by lumbar spondylosis (26.6%) [Table/Fig-4].

Most common psychiatric disorder in our study sample (for 92 patients) was somatoform disorder (n=34, 37%) followed by adjustment disorder (n= 26, 28.2%), depressive disorder (n=17, 18.5%), anxiety disorders (n=4, 4.3%), bipolar disorder and alcohol use disorder (n=1, 1.1% each). Of the anxiety disorders two patients had Generalized Anxiety Disorder (GAD) and one patient had social phobia and another one had panic disorder. When the psychiatric morbidities in CLBP combined group and psychiatric disorder alone group was compared, depressive disorder was significantly higher (26.6% vs 13.1%) but somatoform disorder was significantly lower in combined group (24.4% vs 60.5%, $p<0.001$). In the combined group most frequent psychiatric diagnosis was adjustment disorder (40%) followed by depressive disorder (26.6%). In the psychiatric disorder group somatoform disorder (60.5%) was the commonest disorder [Table/Fig-5].

		Psychiatric disorder+Organic CLBP (N=45, 48.9%)	Psychiatric Disorder (N=38, 41.3%)	Organic CLBP (N=9, 9.8%)	Chi-square/F value	p-value
Age, years (Mean±SD)		39.36+11.55	36.63+8.04	39.56+10.50	0.83	0.44
Age distribution	<20 years	3(6.6)	1 (2.6)	0 (0)	6.36	0.38
	20-39 years	19(42.2)	23 (60.5)	5 (55.5)		
	40-59 years	21(46.6)	14 (36.8)	3 (33.3)		
	>60 years	2(4.4)	0 (0)	1 (11.1)		
Gender	Men	9 (20)	4 (10.5)	2 (22.2)	1.61	0.44
	Women	36 (80)	34 (89.4)	7 (77.7)		
Education	<Standard 4	14 (31.1)	9 (23.6)	0 (0)	6.18	0.40
	Standard 5-7	13 (28.8)	14 (36.8)	3 (33.3)		
	Standard 8-10	14 (31.1)	14 (36.8)	5 (55.5)		
	>Standard 10	4 (8.8)	1 (2.6)	1 (11.1)		
Occupation	Employed	12 (26.6)	7 (18.4)	1 (11.1)	1.49	0.48
	Unemployed	33 (73.3)	31 (81.5)	8 (88.8)		
Marital status	Single	6 (13.3)	3 (7.8)	1 (11.1)	2.03	0.72
	Married	35 (77.7)	30 (78.9)	8 (88.8)		
	Separated/ Widowed	4 (8.8)	5 (13.1)	0 (0)		
Economic status [9]	Lower	31 (68.8)	25 (65.7)	5 (55.5)	0.61	0.74
	Middle	14 (31.1)	13 (34.2)	4 (44.4)		
Residence	Rural	40 (88.8)	36 (94.7)	7 (77.7)	2.54	0.28
	Urban	5 (11.1)	2 (5.2)	2 (22.2)		

[Table/Fig-1]: Demographic characteristics [9].

	Combined CLBP n (%)	Psychiatric CLBP n (%)	Organic CLBP n (%)	Chi-square	p-value
Mental illness	14 (31.1)	13 (34.2)	0 (0)	4.2	0.12
Psychosis	3 (6.6)	3 (7.8)	0 (0)	0.75	0.69
Mood disorder	2 (2.4)	1 (2.6)	0 (0)	0.55	0.76
Neurotic disorder	0 (0)	1 (2.6)	0 (0)	0.55	0.76
Alcohol/ substance use disorder	13 (28.9)	9 (23.6)	0 (0)	3.44	0.18
Chronic pain	13 (28.9)	14 (36.8)	4 (44.4)	1.1	0.58
Abdominal pain	0 (0)	2 (5.3)	0 (0)	2.91	0.23
Low back pain	9 (20)	8 (21.1)	3 (33.3)	0.80	0.67
Headache	0 (0)	2 (5.3)	0 (0)	2.91	0.23
Joint pain	5 (11.1)	5 (13.2)	0 (0)	1.31	0.52
Neck pain	0 (0)	0 (0)	1 (11.1)	9.38	0.009
Others	1 (2.2)	3(7.9)	0 (0)	2.05	0.36

[Table/Fig-2]: Family history of mental illness or chronic pain.

	Combined group	Psychiatric group	Organic group	χ^2/F	p
Duration of pain, months (Mean±SD)	49.91±46.98	40.58±47.01	18.56±16.73	1.90	0.001
BPI average pain score					
Mild n (%)	11(24.4)	6(15.8)	5(55.6)	9.45	0.05
Moderate n (%)	20(44.4)	15(39.5)	4(44.4)		
Severe n (%)	14(31.1)	17(44.7)	0(0)		
NSAIDs, n (%)	37(82.2)	21(55.2)	9(100)	11.28	0.004
NSAIDs+ Antidepressant, n (%)	8(17.7)	17(44.7)	0(0)		
>50% pain relief, n (%)	12(26.6)	19(50)	7(77.7)	13.42	0.006

[Table/Fig-3]: Pain and treatment characteristics.

Disorder	Combined CLBP, n=45	Organic CLBP, n=9	χ^2	p
Lumbar spondylosis	12 (26.6)	1 (11.1)	0.99	0.33
Lumbar spondylolisthesis	2 (4.4)	3 (33.3)	7.45	<0.001
Intervertebral disc prolapse	9 (20)	4 (44.4)	2.45	0.12
Lumbo sacral strains	20 (44.4)	1 (11.1)	3.51	0.06
Other muskuloskeltal disorders	2 (4.4)	0 (0)	0.42	0.52

[Table/Fig-4]: Orthopaedic diagnosis in combined versus organic groups.

Disorder	Combined group, N=45	Psychiatric group, N= 38	χ^2	p
Somatoform disorder	11 (24.4)	23 (60.5)	11.3	<0.001
Depressive disorder	12 (26.6)	5 (13.1)	2.3	0.01
Bipolar disorder	1 (2.2)	0(0)	0.86	0.36
Adjustment disorder	18 (40)	8 (21)	3.4	0.06
Alcohol use disorder	1 (2.2)	0(0)	0.86	0.36
Anxiety disorders	2 (4.4)	2 (5.2)	0.3	0.86

[Table/Fig-5]: Psychiatric disorders in combined versus psychiatric groups.

DISCUSSION

In this study, out of the 92 patients with CLBP, majority (90.2%) had received one or other psychiatric diagnosis, and only a minority (9.8%) had organic diagnosis alone. Other studies in CLBP also have found similar prevalence rates for psychiatric disorders in low back pain, ranging from 81.4 to 98% [5,10,11]. In an Indian study, psychiatric morbidity in chronic pain patients was 72% [12]. All the above studies support our finding. A study has shown that psychiatric morbidity in low back ache is 55% which is quiet low [4]. Clinicians often hold a dichotomous view at psychiatric disorders and low back ache, which is either psychological or organic. But we could find that a third group of patients (48.9%) with chronic low back ache may have co-existing orthopaedic diagnosis along with psychiatric disorder. This should alert clinicians to pay more attention to the psychiatric status of patients with low back pain, even if they have clear structural damage or clinical deficits. Moreover, in our study 83% (n=54) of patients who had evidence of physical illness as cause for CLBP had psychiatric diagnosis.

In our study, no significant difference was noted across the groups with regard to age. This finding is on contrary to finding of an Indian study which reported a high prevalence of non organic pain in younger age group and organic pain in the older age group [13]. The classic study by Engel in 1959 also did not find age as a determinant of pain symptoms [14]. Though all the three groups were predominantly women, no statistically significant gender difference was noted across the groups in our study. Similar observations were also noted in two earlier studies where no significant sex difference was found in chronic pain patients [6,13]. But most of the recent studies have reported that psychogenic pain is more in woman [15,16]. We did not find statistically significant difference in education across the three groups. This is in contrast to a study which reported a high prevalence of psychogenic pain in those with higher educational status [13]. This could be due to high educational level especially above primary level in our study population. Three fourth of our subjects were having an education above primary level.

There was no difference in employment status between the three groups. But unemployment was highly prevalent in all the three groups; 88.9% in organic pain group, 81.6% in psychiatric group and 73.3% in combined group. Previous studies also have shown that about 70% of chronic pain patients including psychogenic pain syndrome are unemployed [17] and more disabled [18]. There was no significant difference in marital status of subjects between the groups. Our finding is in contrast to a study which reported overrepresentation of unmarried patients in psychogenic pain [13]. This may be due to the predominance patients above 30 years in all the three diagnostic groups in our study. Comparison of socioeconomic status showed that all the patients belonged to either low or middle socioeconomic status. Similar observations of predominance of low socioeconomic groups among chronic pain patients have been made before [19].

Duration of pain significantly differed between the groups. Mean pain duration was longest in the combined group than psychiatric group and organic group had the shortest duration of pain. However, the severity of pain as per BPI was the highest in psychiatric group. All the patients, irrespective of the diagnosis received pharmacotherapy either NSAID alone or in combination with an antidepressant. As expected the organic alone group reported more pain relief with drugs compared to other two groups. It may reflect the low level of satisfaction in non organic pain patients with their medical treatment. Similar to our study previous researches also emphasize the role of psychological factors in the severity and duration of CLBP [20]. This would probably suggest the need for a psychological assessment in patients with persisting CLBP.

Depression was the commonest past psychiatric illness in the combined and psychiatric groups. Similar observations were also made by Polatin PB et al., who found a prevalence of pre-pain diagnosis of depression in 35% and substance abuse in 34% of chronic low back pain patients [5]. Our finding is also supported by another study that depression and alcohol abuse as the more frequent past psychiatric diagnosis among chronic pain patients [11]. Depression is shown to reduce the pain threshold and hence may make people more vulnerable for somatoform pain symptoms [11]. A higher pre-pain rate of alcohol use disorder but not depression was reported in a study of CLBP [10].

None of the organic alone group reported a positive family history of mental illness, whereas 31.1% of combined and 34.2% psychiatric alone groups had a history of mental illness in one of their first degree relative. Of the mental illness in the family, alcohol/substance abuse was the most common diagnosis. This is in agreement with studies which found more frequent history of alcoholism and depression in families of patients with chronic pain [11,19]. But our observation differs from another study which found a significant difference in family history of mental illness between organic and non organic chronic pain [21]. Of different types of pain, low back pain was the most common chronic pain in the family followed by pain in joints.

Regarding the treatment, all the patients were either on NSAIDs or antidepressant medications at the time of evaluation. We may find that in combined group though prevalence of depression, adjustment disorder is high, only about 17% were on antidepressants along with NSAIDs. Hence, we may infer that psychiatric morbidity in patients with physical or pathoradiological signs is often neglected and they are mainly treated for their pain and rarely for their psychiatric disorders. On the contrary, all the patients in psychiatric group were on treatment with NSAIDs and only less than half of them were on treatment with antidepressant medications. We can also find that number of patients with severe pain were higher in psychiatric group. It has been well documented that antidepressants would reduce pain in somatoform pain disorders as well as in depressive disorders and these patients would have been benefitted from them [22]. Moreover, the clinicians could have avoided the use of NSAIDs if a correct and timely diagnosis of psychiatric disorder was made.

In this study, of 92 CLBP patients 58% had an orthopaedic diagnosis. Another study has shown that more than 90% of 97 CLBP subjects had an orthopaedic diagnosis [10]. This difference is important because the study by Atkinson JH et al., was conducted in primary care setting in contrast to our orthopaedic outpatient based recruitment [10]. It has been explored and found that CLBP patients attending primary care consultation are having high prevalence of psychiatric morbidities. In our study sample, the most common orthopaedic diagnosis was lumbosacral strain (n=21, 22% of total sample) followed by Intervetebral Disc Prolapsed (IVDP) and lumbar spondylosis (n=13, 14% of sample). Comparison of orthopaedic diagnosis showed significantly higher prevalence of spondylolisthesis and IVDP in the organic alone group. Another study in CLBP had degenerative disc disease (34%), spinal stenosis (20%), IVDP (20%), spondylolisthesis or spondylosis (4%), musculoskeletal strain (2%), post surgical pain (5%), arachnoiditis (1%) other orthopaedic disorder (6%) [9]. In our sample of CLBP 90.2% could be diagnosed to have at least a psychiatric disorder. Other studies looking at psychiatric morbidities in CLBP have found a prevalence ranging from 59% 98% [5,6]. In chronic pain, prevalence of psychiatric disorders ranges from 72-83% [13,17].

Somatoform disorder and somatization symptoms are the most frequently reported in most of the studies of CLBP and even up to 97% patients with CLBP are found to have somatoform disorder [6,17]. Our study showed that a large number of patients with CLBP have adjustment disorder, but another study reported to have very low prevalence of 8% [6]. Next common disorder was depression in CLBP. Prevalence similar to our study was reported in two other studies [4,23]. In contrast to our finding in a study of 200 CLBP patients a very high prevalence of 60% for major depression was reported [5]. Prevalence of GAD 2-40% have been reported in previous studies [4,9,23]. Other studies have found prevalence of 11% for comorbid phobia [5], 3-7% for panic disorder [5,10] and 2-20% for sexual dysfunction [6,23]. But we could not find any patients with phobia, panic disorder or sexual dysfunction. Our prevalence of anxiety disorders together (4.8%) was lower compared to these studies, but a large sample sized study found similar (2%) prevalence of GAD [5]. Alcohol use disorder in our study subjects was less prevalent (1.2%) compared to other studies showing prevalence of 5-12% [4,23]. In a recent study of outpatients with CLBP, patient group had statistically significantly more psychological issues on all dimensions of Symptom Checklist 90-R including somatization, obsessive-compulsive disorder, depression, anxiety, phobic anxiety and hostility compared to the participants without CLBP [24].

When the psychiatric morbidities in CLBP combined group and psychiatric disorder alone group was compared, depressive disorder was significantly higher and somatoform disorder was significantly lower in combined group. It is alarming that about 40% of patients with radiological or clinical evidence of a structural disease have adjustment disorder and about one fourth has depressive disorder. Another study from India also had compared psychiatric disorders between patients with chronic pain due to physical illness and non-organic intractable pain including back pain. They found contrasting results; prevalence of anxiety neurosis, depressive neurosis and hypochondriasis are less prevalent in organic pain group compared to non-organic pain group [13]. Prevalence of depression in combined group in our study (26.6%) was only slightly higher than another study of CLBP (21%) [8]. Combined group in our study was similar to their study in the fact that more than 90% of their subjects had structural disease as a cause of CLBP [5,10]. Another finding in our study is that though prevalence of depression in combined group was 26.6% and of adjustment disorder was 40%, only 17.7% in this group has received antidepressant treatment and none has received any psychological interventions. Thus the high prevalence of adjustment disorder and depressive disorder in combined group emphasize the need for the clinicians to screen and treat depressive symptoms in time.

Our study is one among very few studies attempted to delineate psychiatric disorders in group of patients having physical cause for CLBP from non-organic CLBP. We used structured criteria to look for psychiatric disorders and not psychological dimensions based on which interventions are difficult to be decided. There is a chance that severe pain, in the absence of any physical or radiological signs might have labelled as somatoform pain disorder in psychiatric group as in, our study had more somatoform patients in psychiatric group. Similarly in the combined group, the presence of physical evidence of pain might have made somatoform diagnosis less common. But, we could overcome this issue as the psychiatrist was blinded to which group patient belongs to during assessment.

LIMITATION

Being a cross-sectional study, it is difficult to say whether emotional disturbances are the cause or consequence of pain. Our study was conducted in a tertiary care set up and included only the patients referred to a particular specialty. Individual variations in clinical examination also might have influenced the diagnosis of patients.

CONCLUSION

Depressive disorder is highly prevalent in patients with CLBP. Clinicians need to be vigilant of depressive disorder even though the clinical and radiological evidence is suggestive of physical illness. It may help in timely initiation of treatment for psychiatric disorders.

REFERENCES

[1] Edmond SL, Werneke MW, Hart DL. Association between centralization, depression, somatization, and disability among patients with nonspecific low back pain. J Orthop Sports Phys Ther. 2010;40(12):801-10.
[2] Haldeman S. North American Spine Society: failure of the pathology model to predict back pain. Spine. 1990;15(7):718-24.
[3] Bener A, Dafeeah EE, Salem MO. Determinants of depression and somatisation symptoms in low back pain patients and its treatment: global burden of diseases. J Pak Med Assoc. 2015;65(5):473-79.
[4] Manchikanti L, Fellows B, Pampati V, Beyer C, Damron K, Barnhill RC. Comparison of psychological status of chronic pain patients and the general population. Pain Physician. 2002;5 (1):40-48.
[5] Polatin PB, Kinney RK, Gatchel RJ, Lillo E, Mayer TG. Psychiatric illness and chronic low back pain: The mind and the spine –which goes first? Spine. 1993;18(1):66-71.
[6] Reich J, Tupin JP, Abramowitz SI. Psychiatric diagnosis of chronic pain patients. Am J Psychiatry. 1983;140(11):1495-98.

[7] World Health Organization. The ICD-10 classification of mental and behavioural disorders: diagnostic criteria for research. Geneva: World Health Organization; 1993.
[8] Cleeland CS, Ryan KM. Pain assessment: Global use of the Brief Pain Inventory. Ann Acad Med Singapore. 1994;23(2):129-38.
[9] Kuppuswamy B. Manual of socio-economic status (urban). 1st ed. Delhi: Manasayan. 1981:66-72.
[10] Atkinson JH, Slater MA, Patterson TL, Grant I, Garfin SR. Prevalence, onset, and risk of psychiatric disorders in men with chronic low back pain: a controlled study. Pain. 1991;45(1):111-21.
[11] Katon W, Egan K, Miller D. Chronic pain: lifetime psychiatric diagnoses and family history. Am J Psychiatry. 1985;142(10):1156-60.
[12] Varma VK, Chaturvedi SK, Malhotra A, Chari P. Psychiatric symptoms in patients with non-organic chronic intractable pain. Indian J Med Res. 1991;94:60-63.
[13] Chaturvedi SK, Varma VK, Malhotra A. Non-organic chronic intractable pain: a comparative study. Pain. 1984;19(1):87-94.
[14] Engel GL. Psychogenic pain and pain-prone patient. Am J Med. 1959;26(6):899-918.
[15] Desai G, Chaturvedi SK. Gender and somatoform disorders: do subtypes of somatoform disorders differ? Asian J Psychiatr. 2013;6(6):609-10.
[16] Bener A, Ghuloum S, Burgut FT. Gender differences in prevalence of somatoform disorders in patients visiting primary care centers. J Prim Care Community Health. 2010;1(1):37-42.
[17] Mohan I, Lawson-Smith C, Coall DA, Van der Watt G, Janca A. Somatoform disorders in patients with chronic pain. Australas Psychiatry. 2014;22(1):66-70.
[18] Kushwaha V, Sinha Deb K, Chadda RK, Mehta M. A study of disability and its correlates in somatization disorder. Asian J Psychiatr. 2014;8(1):56-58.
[19] Silver JK. Chronic Pain and the Family: A New Guide. The Harvard University Press Family Health Guides; 2004
[20] Simmonds MJ, Kumar S, Lechelt E. Psychological factors in disabling low back pain: Causes or consequences? Disabil Rehabil. 1996;18(4):161-68.
[21] Magni G. Chronic low-back pain and depression: an epidemiological survey. Acta Psychiatr Scand. 1984;70(6):614-17.
[22] Fishbain DA, Cutler RB, Rosomoff HL, Rosomoff RS. Do antidepressants have an analgesic effect in psychogenic pain and somatoform pain disorder? A meta-analysis. Psychosom Med. 1998;60(4):503-09.
[23] Manchikanti L, Pampati V, Beyer C, Damron K, Barnhill RC. Evaluation of psychological status in chronic low back pain: comparison with general population. Pain Physician. 2002;5(2):149-55.
[24] Farajirad E, Tohidi H, Farajirad M. Comparison of the frequency of psychiatric disorders among patients with chronic low back pain and control group. Asian J Neurosurg. 2016;11(3):287-91.

PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Psychiatry, Government Medical College, Kozhikode, Kerala, India.
2. Assistant Professor, Department of Psychiatry, Government Medical College, Kozhikode, Kerala, India.
3. Professor, Department of Psychiatry, Malabar Medical College and Research Centre, Modakkallur, Kozhikode, Kerala, India.
4. Additional Professor, Department of Orthopaedics, Government Medical College, Kozhikode, Kerala, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Firoz Kazhungil,
Assistant Professor, Department of Psychiatry, Government Medical College, Kozhikode-673008, Kerala, India.
E-mail: drfirozk@gmail.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jan 06, 2018**
Date of Peer Review: **Mar 20, 2018**
Date of Acceptance: **Apr 17, 2018**
Date of Publishing: **Jul 01, 2018**