Original Paper

Psychological comorbidity of chronic low back pain

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Abstract

Chronic low back pain (CLBP) is a common complaint among patients attending Physical Medicine Department. Psychological factors like depression, anxiety and somatisation were found to be associated with CLBP.

One hundred patients with CLBP and their age, sex and economic condition matched controls were screened with a validated Bengali version of GHQ-28. Study subjects with GHQ score four or more were evaluated for psychiatric disorder with standardised diagnostic interview.

Among 100 cases, 99% scored four or more in GHQ-28 and 91% had some form of psychiatric disorders. Corresponding figures among controls were 35% and 22% respectively. Prevalence of psychiatric disorders was more among females both among cases and controls. Depression, somatisation disorder and generalised anxiety disorder were more prevalent among CLBP patients.

key words **: Chronic low back pain (clbp), general health questionnaire (GHQ) score, psychiatric disorders.**

Chronic low back pain (CLBP) is a common complaint amongst patients attending Physical Medicine Department and one of the most expensive conditions if both loss of productivity and health care cost are considered[1]. It is defined by pain that lasts longer than 12 weeks[2]. There has been a distinct sub-group of such patients in whom pain persists for long indefinite periods without apparent cause despite detailed assessment and investigations.

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Chronic low back pain has been viewed as a bio-psychosocial phenomenon in which all these factors dynamically interact with each other[3].

Psychological factors such as distress, depressed mood and somatisation were reported to be associated with low back pain. Their presence could predict the transition from acute to chronic low back pain as well. Their role in onset, severity, exacerbation and continuation of pain was also reported[4,5].

Review of literatures regarding psychopathogical comorbidity of chronic low back pain has documented increased prevalence of depression, anxiety, substance abuse, somatisation and personality disorders in cases of CLBP compared to the general population[6]. It was also noted that unrecognised and untreated psychopathology can significantly interfere with successful rehabilitation of back pain patients and also increase pain intensity and disability thus serving to perpetuate pain related dysfunction[6]. Depression and anxiety have been associated with magnification of medical symptoms whereas emotional distress has been connected to physical symptoms by means of autonomic arousal, vigilance and misinterpretation of somatic amplification. Less effective treatment outcome has also been shown to be related to

untreated depression.[6]

The present study thus planned to find out the association between chronic low back pain and psychiatric morbidity in a semi-urban setting of Bankura Sammilani Medical College, Bankura in the Bankura district of West Bengal.

Material and Methods

The study was conducted in the Physical Medicine and Psychiatry OPD of Bankura Sammilani Medical College and Hospital. The study population consisted of 100 consecutive patients attending the Physical Medicine outdoor with chronic low back pain lasting for more than 12 weeks. Age, sex and economic condition matched controls who were free from any chronic pain were recruited from the same OPD. Patients who could read and write Bengali fluently and willing to participate in the study were included.

After taking informed consent of the individual patient, his/her sociodemographic data was collected using a semi-structured questionnaire. Next they were administered the validated Bengali version[7] of GHQ-288 by a trained Psychiatrist/ Psychologist as a screener for mental disorder. The General Health Questionnaire (GHQ) is used to detect psychiatric disorder in the general population and within community or non-psychiatric clinical settings such as primary care or general medical outpatients. In the GHQ-28 the respondent is asked to compare his recent psychological state with his usual state. It is therefore sensitive to short-term psychiatric disorders but not to long-standing attributes of the respondent. All items have a 4- point scoring system using GHQ scoring (0-0-1-1). The GHQ-28 contains 28 items that, through factor analysis, have been divided into four sub-scales. The four sub-scales, each containing seven items, are as follows:

A – somatic symptoms (items 1-7)

B – anxiety/insomnia (items 8-14)

C – social dysfunction (items 15-21)

D – severe depression (items 22-28)

There are no thresholds for individual sub-scales. Individual sub-scales are used for providing individual diagnostic or profile information. For identifying caseness with GHQ-28, the total of the sub-scales is used. Total GHQ score is 28, cutoff threshold for identifying 'caseness' is 4.

If the patient scored more than 4 on the GHQ, a standardised diagnostic interview-SCID-I9 (Structured Clinical Interview for DSM-IV Axis-I disorders) using DSM-IV-TR10 diagnostic criteria was done for diagnosing the particular psychiatric disorder. The SCID is a semi-structured interview used for making the major DSM-IV diagnoses. The DSM (Diagnostic and Statistical Manual of Mental Disorders) is a manual published by the American Psychiatric Association to provide a standard criteria for the classification of all categories of mental disorders. Latest text revision is DSM-IV-TR (2000). Each psychiatric diagnosis is organised into five dimensions (axes) relating to different aspects of disorder or disability which allows clinicians and psychiatrists to make a comprehensive evaluation of the patients level of functioning. Results were compared with appropriately matched healthy controls.

The outcome variable were the GHQ caseness i.e. study subjects with GHQ scores more than 4 and specific psychiatric disorder-based on standardised diagnostic interview with DSM-IV –TR criteria.

Results

Final analysis was done with 100 cases and 100 controls. In both cases and controls, females (57.0%)

Table 1 — *Comparison of cases and controls according to background characteristics and GHQ score*

Variables	Cases	Controls	p value
Age (years)	36.1 ± 1.73	36.9 ± 1.57	0.188
Formal education (years)	9.6 ± 0.73	10.0 ± 0.67	0.108
Total income (Rs.)	6371.0 ± 891.1	6407.0 ± 767.4	0.10
Family size	4.9 ± 0.26	4.4 ± 1.9	0.002
GHQ score	14.4 ± 0.99	3.6 ± 0.80	0.032

outnumbered males (43.0%). There was no significant difference in age, formal education and total family income between cases and controls. However average family size was more in cases than controls (p=0.032). The average GHQ score of cases were significantly higher than that of controls. (Table 1)

Table 2 revealed that the prevalence of GHQ caseness and psychiatric morbidity was higher among females than male in both cases and controls.

The patients with CLBP were 2.8 times more likely to have GHQ caseness (unadjusted OR= 2.83; 95% CI 2.16-3.70) and 4.1 times more likely to have any psychiatric disorders (unadjusted OR= 4.14; 95% CI 2.85-6.01) compared to their controls. There were significant differences of average family size between cases and controls. After adjusting for family size using Mantel-Haenszel test, the corresponding adjusted OR for GHQ caseness and any psychiatric disorder were 3.32 (2.50-4.42) and 5.40 (3.22-7.59) respectively.

Table 3 showed that patients with CLBP were almost 32 times more likely to have somatoform disorders (95% CI 10.9-98.4), 95 times more likely to have depression (95% CI 21.4-494.0), 20 times more likely to have generalised anxiety disorder (95% CI 6.3-71.1) and 17 times more likely to have other psychiatric disorders (95% CI 1.1-542.1) than their controls.

Table 2 — Prevalence of GHQ caseness and psychiatric morbidity among cases and controls

Gender	No of cases (%)	
	GHQ caseness	Any psychiatric morbidity
Cases :		
Male (n=43)	42 (97.7)	38 (88.4)
Female (n=57)	57 (100.0)	53 (93.0)
Controls :		
Male (n=43)	11 (25.6)	8 (18.6)
Female (n=57)	24 (42.1)	14 (24.6)

Discussion

The results of the present study demonstrated significant association between psychological comorbidity and chronic low back pain. High prevalence of GHQ caseness and psychiatric morbidity among CLBP cases were consistent with findings of earlier studies using structured clinical interview[11,12].

More number of women compared to men reported screener positivity (GHQ) and psychiatric comorbidity, especially in a setting of chronic pain was reported in the present study. It was found to be consistent with an earlier study[13].

Psychological comorbidity in chronic low back pain varies among several Axis-I conditions like somatoform disorders, anxiety disorders, depression, substance abuse etc.[11,14] In the present study somatoform disorder was the most common psychiatric diagnosis followed by depression and anxiety disorder. Polatin *et al*[11] reported that in cases of chronic low back pain, somatoform disorder was the commonest psychiatric comorbidity with CLBP followed by depression, substance abuse and anxiety disorder[11].

Table 3 — Association of psychiatric disorders and chronic low back pain

Gender	No of cases (%)				
	No psychiatric diagnosis	Somatoform disorder	Depression	Generalised anxiety disorder	Other psychiatric disease
Cases :					
Male	5 (11.6)	17 (39.5)	12 (27.9)	7 (16.3)	2 (4.7)
Female	4 (7.0)	20 (35.1	21 (36.8)	12 (21.1)	0 (0.0)
Total	9 (9.0)	37 (37.0)	33 (33.0)	19 (19.0)	2 (2.0)
Controls :					
Male	35 (81.4)	3 (7.0)	1 (2.3)	3 (7.0)	1 (2.3)
Female	43 (75.4)	7 (12.3)	2 (3.5)	5 (8.8)	0 (0.0)
Total	78 (78.0)	10 (10.0)	3 (3.0)	8 (8.0)	1 (1.0)
Unadjusted OR	1.00	32.1	95.3	20.6	17.3

Present study revealed that more than one-third cases with CLBP had somatoform disorders. In three earlier studies, the corresponding figure ranged from 16-26%[8,14,15].

Next to somatoform disorders, depression has been reported in around 30% of the CLBP patients in this study. The corresponding figure reported by other researchers ranged from 18-30%.[6,16,17]. The association between depression and medically unexplained pain has been investigated extensively. Depression has been shown to be positively associated with somatisation and somatoform disorders, in which medically unexplained pain may arise[18,19,20,21]. Numerous hypotheses have arisen to explain the mechanisms by which depression might play a role in the aetiology of otherwise unexplained pain[18, 20].

Generalised anxiety disorder is the other comorbidity which has been shown to be significantly different among cases (19%) and controls (8%) in our study. Manchikanti *et al*[6] showed that generalised anxiety disorder was present in 40% cases compared to 14% controls. Whereas, other studies reported 15% and 20% of chronic pain patients had the same psychiatric disorder[12,22]. Asmundson *et al*[23] showed that 18% of patients with current musculoskeletal pain had comorbid anxiety disorder which was similar to the present study.

Other than the above psychopathological disorders the present study has evaluated certain other disorders namely substance abuse, psychosis NOS and eating disorder in a small percentage of cases as well as controls. Previous studies however has shown substance use disorders to be one of the most common diagnoses along with major depressive disorder, personality disorder and generalised anxiety disorder[12,13].

Conclusion

The present study documented the association between chronic low back pain and psychiatric morbidity in the study population. Common psychiatric disorders associated with CLBP in this study were somatoform disorder, depression and anxiety disorders. It would be prudent to evaluate most, if not all, patients suffering from CLBP for psychopathology as a part of integrated, multimodal pain management strategies.

Further research in order to explore the temporal relation of CLBP with psychiatric morbidity is needed to be undertaken.

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