Psychological profile of Iranian patients with low-back pain

H. Fanian,[1] Gh.R. Ghassemi,[2, 3] M. Jourkar,[4] S. Mallik[4] and M.R. Mousavi[4]

المُرْتَسَم السيكولوجي للمرضى الإيرانيِّين الذين يعانون من آلام أسفل الظهر

حسين فانيان، غلامرضا قاسمي، مريم جوكار، شيكا مالك، سيد محمد رضا موسوي

الخلاصة: في دراسة استعادية أُجريَت في أحد مستشفيات مدينة إصفهان، بجمهورية إيران الإسلامية، قُورنَتْ الملامح السيكولوجية، لدى 200 مريض يعانون من آلام بأسفل الظهر، مع 350 من الشواهد المقابلة. وسجّلت الفئة الشاهدة معدلات أقل من فئة المرضى، في جميع البنود الواردة في القائمة التفقُّدية للأعراض ذات التسعين بنداً. وكان التأثُّر السيكولوجي بآلام أسفل الظهر أكبر لدى المريضات الإناث منه لدى المرضى الذكور. وتفاوتت حالات التذمر، والشكاوى العامة، والقلق، والاكتئاب، والتصرفات الوسواسية القهرية، والجَسْدَنَة، والرُّهاب، بحسب المستوى التعليمي للمرضى في كلتا الفئتَيْن. وارتبطت مستويات الاكتئاب والقلق بالخلفية المهنية للمرضى. وترافق بقاء المرض لمدة أطول مع مستويات أعلى من القلق والاكتئاب، والتصرُّفات الوسواسية القهرية، والجسدنة.

ABSTRACT A hospital case–control study in Isfahan, Islamic Republic of Iran, compared the psychological features of 200 patients with low-back pain with 350 matched controls. The control group scored lower than patients in all dimensions of the Symptom Checklist-90 checklist. Female patients were more psychologically affected by low-back pain than males. In both groups, grudge, general complaints, anxiety, depression, obsessive–compulsive behaviours, somatization and phobia varied with level of education. Patients' levels of depression and anxiety were related to occupational background. Longer duration of illness was accompanied by higher levels of anxiety, depression, obsessive–compulsive behaviours and somatization.

Profil psychologique de patients lombalgiques iraniens

RÉSUMÉ Une étude cas-témoins réalisée en milieu hospitalier à Ispahan (République islamique d'Iran) a comparé les traits psychologiques de 200 patients lombalgiques et de 350 témoins appariés. Le groupe témoin a obtenu un score inférieur à celui des patients dans toutes les dimensions de l'échelle SCL-90 (pour *Symptom Checklist-90* – autoquestionnaire à 90 items sur les symptômes psychiatriques). Les femmes se sont révélées davantage affectées que les hommes par les lombalgies au plan psychologique. Dans les deux groupes, les scores des dimensions hostilité-colère, plaintes générales, anxiété, dépression, troubles obsessionnels compulsifs, somatisation et anxiété phobique variaient en fonction du degré d'instruction. Il est apparu un lien entre les degrés de dépression et d'anxiété et les antécédents professionnels des patients. Les scores d'anxiété, de dépression, de troubles obsessionnels compulsifs et de somatisation étaient d'autant plus élevés que la maladie était ancienne.

[1]Department of Orthopaedics; [2]Medical Education Research Centre; [3]Behavioural Sciences Research Centre, Isfahan University of Medical Sciences, Isfahan, Islamic Republic of Iran (Correspondence to Gh.R. Ghassemi: ghassemi@med.mui.ac.ir).
[4]Zenderood Social Work Clinic, Isfahan, Islamic Republic of Iran.
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Introduction

Approximately 80% of people experience back pain at least once in their lifetime [*1*]. In industrial countries back pain is one of the leading causes of absenteeism from work and admission to hospital, resulting in high costs in terms of expenditure on diagnosis and treatment and in days lost from work [*2–8*].

Back pain can occur at any age. However, studies show that it is more prevalent in those aged 35 to 55 years [*7*]. In terms of etiology, low-back pain is generally attributed to disc hernia, metabolic and degenerative diseases of the lumbar vertebrae, fracture and dislocation of the vertebrae, infectious diseases, tumour and psychological distress. However, most back pain is mechanical in origin [*2*]. It has been reported that for 79% of men and 89% of women the causes of low-back pain are unknown [*9*].

Treatment of low-back pain includes painkillers, muscle relaxants, antidepressants, bed rest, back support, physiotherapy, and patient education for prevention, but patients are rarely referred for surgery. Some physicians attribute low-back pain to psychological stress and accordingly prescribe lifestyle changes and stress management to overcome anxiety [*2*]. There is increasing emphasis on prevention of low-back pain and reduction of prolonged disability resulting from this affliction [*10*]. According to Frymoyer et al., low-back pain patients are engaged in stressful occupations and tend to report more episodes of anxiety and depression [*11*]. Gatchel et al. concluded that chronic diseases and psychological problems are the main sources of low-back pain [*12*]. Simmonds et al. attributed low-back pain to psychological conditions [*13*]. However, a prospective study of Gatchel et al. was not able to establish a relationship between individuals' pre-morbid psychological condition and low-back pain [*14*].

In view of the gap in knowledge, this study was designed to obtain a psychological profile of individuals with low-back pain in Isfahan, Islamic Republic of Iran. The aim was to examine the subjects' personal characteristics (including age, sex, education, occupation, duration of illness and cause of illness); to determine the subjects' psychological profile (levels of anxiety, depression, interpersonal sensitivity, obsessive–compulsive behaviour, somatization, psychosis, paranoid thoughts, phobia and general complaints); and to determine if there was a relationship between subjects' psychological and personal characteristics.

Methods

The study participants were 200 patients who had received treatment for low-back pain on an outpatient basis in orthopaedic and neurosurgery clinics of 2 major university hospitals in Isfahan, Islamic Republic of Iran. From December 2000 to March 2001 more than 450 people were admitted to the hospitals for low back pain. Patients were included in the study if the illness was more than 2 months duration and was certified by a neurosurgeon or an orthopaedic surgeon. A total of 276 patients fulfilled the research criteria. However, 50 patients refused to cooperate and 26 interview schedules were incomplete, giving a final sample of 200. A control group of 350 normal subjects (invited from the participant's siblings) who had no history of acute or chronic illness of any type were selected who were the same sex, similar level of education, similar marital status, and one year older or younger than the patient.

The Symptom Checklist-90 (SCL-90) [*15*] was used for the study. The instrument comprises 100 items, measuring 10 psychological characteristics: grudge, anxiety, depression, somatization, interpersonal sensitivity, obsessive–compulsive behaviour, psychosis, paranoid thoughts, phobic anxiety and general complaints. The instrument was translated into Farsi language by experts from the Department of Psychology, Isfahan University and was translated back to English by another group of 5 experts from the same department. Then the Farsi version was reviewed. The final version was piloted on a sample group of 30 inpatients and it was concluded that the Farsi version was highly valid for use. The SCL-90 was administered to both groups of participants by 2 trained social workers who were unaware of the subjects' physical and mental conditions.

Information was also collected about the following characteristics: age, sex, educational attainment, occupation, causes of low-back pain and duration of low-back pain. Education was classified into 4 categories: illiterate or reading/writing ability, below school diploma, school diploma and graduate. Occupation was classified into 2 groups: working outside the house for money or not earning (including housewives and students).

Incomplete questionnaires were excluded from the analysis. Data were analysed using *SPSS,* version 11.5. The psychological profile of the participants was compared in terms of sex, education, age, occupation and duration of illness. Student *t*-test was applied to compare the participants' characteristics when the independent variable was dichotomous (sex, occupation) and analysis of variance for variables having more than one category. Pearson correlation was applied for age and duration of illness with patients' characteristics.

Results

Age and psychological characteristics

The age of both groups ranged from 15 to 65 years (Table 1). The mean (standard deviation) age was 38.5 (11.6) years and 36.9 (13.2) years for the patient and control groups respectively ($P > 0.05$).

Patients with back pain in all age groups scored higher for all psychological features compared with controls (Table 2). However, in terms of age, statistically significant differences were observed between the 2 groups for anxiety ($F = 9.97$, $P < 0.001$), depression ($F = 5.10$, $P < 0.001$) and obsessive–compulsive behaviour ($F = 3.73$, $P < 0.001$). As compared with other age groups, patients aged 51–60 years and 61+ years scored higher for the above characteristics than did controls ($P < 0.05$).

There was a positive correlation between patients' age and general complaints ($r = 0.16$), anxiety ($r = 0.35$), depression ($r = 0.21$) and obsessive–compulsive behaviour ($r = 0.17$), but a negative correlation between age and psychosis ($r = –0.16$) and paranoid thoughts ($r = –0.19$). No significant correlation between age and psychological characteristics of the control group except for depression was observed between various age groups ($F = 3.12$, $P < 0.05$). In contrast to the patient group, controls aged 41–50 years scored higher for depression ($P < 0.05$).

Sex and psychological characteristics

The patient and control groups had a similar sex distribution (59.3% of patients and 56.4% of controls were male) ($P > 0.05$) (Table 1).

Female patients with low-back pain scored higher on all dimensions of the SCL-90 than male patients and male controls but

Table 1 **Demographic characteristics of controls and patients with low-back pain**

Group	Controls (*n* =350)		Patients (*n* = 200)		Total (*n* = 550)	
	No.	%	No.	%	No.	Significance
Age (years)						
≤ 20	8	2.3	5	2.5	13	$\chi^2 = 2.19$; $P = 0.83$
21–30	98	28.0	51	25.5	149	
31–40	127	36.3	73	6.5	200	
41–50	55	15.7	38	19.0	93	
51–60	33	9.4	21	10.5	54	
61+	29	8.3	12	6.0	41	
Sex						
Male	199	56.9	118	59.0	317	$\chi^2 = 0.24$; $P = 0.35$
Female	151	43.1	82	41.0	233	
Educational status						
Illiterate/read & write	73	20.9	47	23.5	120	$\chi^2 = 5.99$; $P = 0.11$
Below school diploma	88	25.1	41	20.5	129	
School diploma	118	33.1	55	27.5	171	
Graduate	73	20.9	57	28.5	130	
Occupational status						
Employed	150	42.9	89	44.5	239	$\chi^2 = 0.14$; $P = 0.39$
Unemployed[a]	200	57.1	111	55.5	311	

[a]*Includes housewives and students.*
n = *total number of participants.*

did not differ from female controls (Table 3). These differences were significant for anxiety ($P < 0.001$), depression ($P < 0.001$), interpersonal sensitivity ($P < 0.05$), obsessive–compulsive disorder ($P < 0.01$), somatization ($P < 0.001$) and phobia ($P < 0.01$).

Education and psychological characteristics

No significant differences were observed between the 2 groups in terms of educational background ($P > 0.05$) (Table 1).

In the patient group, psychological characteristics varied by educational background (Table 4) for grudge ($F = 3.41$, $P < 0.01$), general complaints ($F = 4.30$, $P < 0.01$), anxiety ($F = 20.05$, $P < 0.01$), depression ($F = 12.14$, $P < 0.001$), obsessive–compulsive behaviour ($F = 7.35$, $P < 0.001$), somatization ($F = 7.56$, $P < 0.001$) and phobia ($F = 3.14$, $P < 0.01$). The mean scores of the illiterate patients and the controls were significantly higher for grudge ($P < 0.5$), general complaints ($P < 0.05$) and phobia ($P < 0.05$) compared with other educational groups. For both groups, somatization decreased with a higher level of education ($r = –0.32$, $r = –0.28$), while the depression level increased with education level ($r = 0.31$, $r = 0.30$).

Occupation and the psychological characteristics

Both groups were similar in terms of occupational background ($P > 0.05$); almost half of the patients and controls were working outside the house for money while the rest were housewives or students (Table 1).

Housewives and students from the patient group scored higher for anxiety ($F = 6.51$,

Table 2 **Psychological profile of low back pain patients and controls by age: mean (standard deviation) SCL-90 scores**

Psychological characteristic	Age (years) < 20	21–30	31–40	41–50	51–60	61+	*F*-value	*P*-value
Grudge								
Patients	16.6 (5.4)	14.0 (6.2)	11.9 (4.1)	11.6 (4.2)	13.7 (4.3)	14.3 (3.4)	2.69	0.02
Controls	13.5 (4.2)	13.5 (3.8)	10.6 (4.6)	10.4 (2.3)	10.4 (2.3)	11.9 (3.2)	6.88	0.001
Anxiety								
Patients	26.8 (2.9)	22.9 (7.6)	17.8 (6.4)	19.4 (7.6)	26.6 (7.7)	28.6 (7.1)	10.09	0.001
Controls	18.5 (7.7)	20.5 (6.8)	16.0 (7.3)	15.0 (3.8)	18.7 (8.3)	19.6 (7.0)	4.70	0.001
Depression								
Patients	43.2 (4.1)	31.8 (13.0)	26.2 (10.6)	25.4 (10.7)	35.8 (10.5)	33.9 (9.2)	5.95	0.001
Controls	28.6 (12.6)	27.7 (9.1)	26.1 (10.4)	21.2 (6.3)	23.6 (10.3)	31.1 (10.6)	5.54	0.001
Interpersonal sensitivity								
Patients	21.4 (6.8)	21.2 (6.3)	18.1 (5.8)	17.9 (6.2)	18.7 (4.6)	17.1 (3.6)	2.45	0.04
Controls	20.4 (7.5)	20.4 (4.4)	17.2 (5.8)	15.6 (4.0)	17.2 (4.5)	16.6 (4.2)	8.20	0.001
Obsessive–compulsive disorder								
Patients	26.4 (3.2)	27.2 (8.3)	23.1 (6.5)	22.5 (6.7)	28.1 (7.9)	28.6 (8.2)	3.51	0.005
Controls	25.1 (7.4)	25.1 (4.5)	22.9 (6.6)	20.4 (3.5)	21.1 (6.6)	23.2 (5.4)	5.70	0.001
Somatization								
Patients	22.4 (7.1)	23.1 (8.7)	23.1 (8.5)	23.2 (8.3)	26.4 (8.7)	28.0 (7.9)	1.15	0.34
Controls	21.6 (9.6)	22.4 (6.7)	23.0 (8.3)	20.5 (4.2)	21.3 (6.1)	22.7 (8.1)	4.05	0.001
Psychosis								
Patients	23.2 (6.8)	21.3 (6.9)	17.2 (5.2)	16.6 (5.4)	17.8 (5.5)	17.1 (4.5)	4.89	0.001
Controls	17.1 (4.2)	20.4 (5.6)	17.0 (4.1)	14.5 (2.7)	14.8 (2.8)	16.7 (4.1)	16.90	0.001
Paranoid thought								
Patients	22.4 (2.1)	16.4 (5.6)	12.9 (4.2)	12.5 (4.8)	12.3 (4.9)	12.7 (5.1)	7.74	0.001
Controls	15.3 (3.7)	15.9 (4.7)	11.1 (3.6)	11.6 (3.1)	11.8 (3.4)	11.8 (3.7)	12.20	0.001
Phobic anxiety								
Patients	12.4 (4.5)	13.9 (5.1)	12.5 (4.5)	14.0 (4.6)	15.1 (4.8)	16.4 (5.1)	2.30	0.05
Controls	10.3 (2.4)	10.4 (3.1)	9.8 (2.9)	8.7 (1.8)	9.3 (1.4)	9.8 (1.4)	12.29	0.001

Table 2 **Psychological profile of low back pain patients and controls by age: mean (standard deviation) SCL-90 scores** *(concluded)*

Psychological characteristic	Age (years)						*F*-value	*P*-value
	< 20	21–30	31–40	41–50	51–60	61+		
General complaints								
Patients	10.5 (4.2)	15.5 (4.5)	12.8 (4.4)	10.9 (3.2)	13.4 (3.6)	16.2 (5.1)	3.34	0.01
Controls	9.8 (3.6)	10.5 (4.4)	9.4 (3.2)	9.7 (3.2)	11.9 (3.7)	11.2 (1.9)	2.19	0.06

$P < 0.001$) and depression ($F = 6.28$, $P < 0.01$) compared with working people in their own group and those in the control group (Table 5). However, they did not differ from housewives and students in the control group. The mean score of the patient group was higher, but not significantly so, in all psychological aspects compared with controls.

Duration of illness and psychological characteristics

Regarding duration of illness, it was observed that for the majority of patients, low-back pain had lasted 1–5 years (41.0%), followed by those whose illness was < 1 year (35.5%), and those whose illness had been present > 5 years (22.5%).

Statistically there were significant differences between and among patients with different illness duration in terms of anxiety ($F = 4.93$, $P < 0.01$), depression ($F = 3.05$, $P < 0.05$) and general complaints ($F = 4.89$, $P < 0.01$) (Table 6). The mean score for patients whose illness duration was more than 5 years was the highest and differed significantly for anxiety ($P < 0.05$), depression ($P < 0.05$) and general complaints ($P < 0.05$). There was a positive correlation between duration of illness and patients' level of general complaints ($r = 0.14$), anxiety ($r = 0.21$), depression ($r = 0.16$), obsessive–compulsive behaviours ($r = 0.14$) and somatization ($r = 0.14$).

Illness cause and psychological characteristics

Patients' low-back pain was attributed to several causes which could be classified into 7 categories: disc herniation (19.1%), spinal stenosis (4.5%), fractures and dislocations (4.0%), tumours (2.4%), spondylolysis and spondylolisthesis (0.7%), senile osteoporosis (0.9%), and others such as spondyloarthropathies and infection (4.7%).

Table 3 **Psychological profile of low-back pain patients and controls by sex: mean (standard deviation) SCL-90 scores**

Psychological Characteristic	Sex		*F*-value	*P*-value
	Male	Female		
Grudge				
Patients	12.2 (4.4)	13.7 (5.3)	5.02	0.03
Controls	11.8 (3.5)	12.5 (4.2)	4.28	0.04
Anxiety				
Patients	19.6 (7.8)	23.4 (7.6)	11.71	0.001
Controls	15.7 (6.3)	20.3 (7.6)	11.91	0.001
Depression				
Patients	25.6 (11.1)	33.5 (11.6)	18.55	0.001
Controls	25.1 (9.2)	27.3 (10.6)	4.02	0.05
Interpersonal sensitivity				
Patients	17.8 (5.9)	20.6 (6.2)	10.80	0.001
Controls	17.7 (5.0)	19.8 (5.5)	13.40	0.001
Obsessive–compulsive disorder				
Patients	23.1 (7.2)	26.9 (7.3)	12.84	0.001
Controls	22.5 (5.7)	23.9 (6.4)	4.50	0.04
Somatization				
Patients	22.1 (7.4)	26.4 (9.3)	13.11	0.001
Controls	20.2 (6.4)	22.6 (8.2)	9.40	0.002
Psychosis				
Patients	17.6 (7.4)	19.3 (5.5)	3.84	0.05
Controls	17.5 (5.0)	17.9 (4.4)	0.49	0.48
Paranoid thought				
Patients	13.2 (4.8)	14.8 (5.6)	4.83	0.03
Controls	12.4 (4.3)	13.9 (4.1)	0.02	0.89
Phobic anxiety				
Patients	9.6 (3.3)	11.1 (3.8)	8.52	0.004
Controls	9.5 (2.5)	10.1 (2.9)	4.30	0.04
General complaints				
Patients	13.4 (4.7)	14.5 (4.9)	14.34	0.43
Controls	12.9 (4.3)	14.0 (4.6)	10.70	0.001

There were significant differences among the subjects with diverse causes of low-back pain in terms of grudge ($F = 1.93$, $P < 0.05$), anxiety ($F = 4.99$, $P < 0.05$), depression ($F = 2.24$, $P < 0.05$), interpersonal sensitivity ($F = 2.18$, $P < 0.05$), obsessive–compulsive behaviours ($F = 3.25$, $P < 0.05$) and paranoid thoughts ($F = 3.15$, $P < 0.05$). Intra-group comparison across different diagnoses showed that patients whose low-back pain was due to senile osteoporosis, spondyloarthropathies and

Table 4 **Psychological profile of low-back pain patients and controls by education: mean (standard deviation) SCL-90 scores**

Psychological characteristic	Educational status				*F*-value	*P*-value
	Illiterate/ read & write	Below school diploma	School diploma	Graduate		
Grudge						
Patients	12.6 (3.9)	13.5 (5.3)	12.2 (4.4)	13.2 (5.5)	0.72	0.54
Controls	12.2 (3.2)	12.5 (4.2)	12.4 (4.2)	11.9 (3.9)	0.37	0.77
Anxiety						
Patients	24.3 (8.8)	20.7 (7.0)	19.9 (7.6)	20.2 (7.5)	3.38	0.02
Controls	17.8 (6.7)	19.9 (7.3)	18.7 (6.7)	18.6 (7.3)	1.26	0.29
Depression						
Patients	31.7 (11.1)	29.4 (11.2)	26.0 (10.6)	30.6 (13.3)	2.40	0.07
Controls	23.5 (9.0)	27.9 (9.7)	25.1 (9.1)	27.9 (11.3)	4.03	0.01
Interpersonal sensitivity						
Patients	19.7 (5.5)	18.5 (4.9)	17.9 (5.9)	19.6 (6.8)	1.13	0.34
Controls	17.2 (4.4)	19.2 (5.4)	19.4 (6.0)	18.0 (4.7)	3.30	0.02
Obsessive–compulsive disorder						
Patients	26.4 (7.2)	24.9 (7.4)	23.3 (6.8)	24.4 (8.3)	1.52	0.21
Controls	21.9 (5.6)	23.9 (6.1)	23.3 (5.4)	23.2 (7.1)	1.41	0.24
Somatization						
Patients	26.3 (8.8)	23.2 (8.1)	23.4 (7.6)	22.9 (9.1)	1.72	0.17
Controls	21.9 (6.1)	23.5 (7.1)	23.6 (6.9)	23.5 (9.1)	0.93	0.43
Psychosis						
Patients	18.7 (6.1)	18.3 (5.9)	16.7 (4.8)	19.6 (6.8)	2.39	0.07
Controls	15.9 (3.6)	17.2 (4.0)	18.7 (4.8)	18.4 (5.9)	6.23	0.001
Paranoid thought						
Patients	13.4 (5.2)	15.2 (5.4)	13.3 (4.4)	13.8 (5.3)	1.21	0.31
Controls	12.9 (3.1)	13.2 (3.4)	14.5 (4.2)	14.1 (5.3)	3.15	0.03
Phobic anxiety						
Patients	11.4 (3.6)	9.3 (3.5)	9.7 (3.2)	10.1 (3.8)	2.92	0.04
Controls	9.4 (2.3)	10.1 (2.7)	10.1 (3.3)	9.2 (1.8)	2.89	0.04
General complaints						
Patients	14.7 (5.1)	11.8 (3.8)	13.6 (4.8)	14.1 (4.9)	2.98	0.03
Controls	11.7 (3.9)	13.5 (3.5)	13.8 (4.1)	15.2 (5.9)	7.83	0.001

infection differed significantly from other patients in terms of grudge ($P < 0.05$), psychosis ($P < 0.05$), paranoid thoughts ($P < 0.05$) and obsessive–compulsive behaviour ($P < 0.05$). Interestingly, the mean scores of patients whose low-back pain was due to tumours, spondylolysis and spondylolisthesis was higher than other patients in terms of anxiety ($P < 0.05$).

Table 5 **Psychological profile of low-back pain patients versus controls by employment: mean (standard deviation) SCL-90 scores**

Psychological characteristic	Occupational status		*F*-value	*P*-value
	Employed	Not employed[a]		
Grudge				
Patients	11.9 (4.1)	13.6 (5.3)	5.58	0.02
Controls	11.4 (3.2)	12.9 (4.3)	11.93	0.001
Anxiety				
Patients	19.1 (7.6)	22.9 (7.7)	12.20	0.001
Controls	18.0 (6.7)	19.4 (7.2)	3.17	0.08
Depression				
Patients	25.8 (10.4)	32.3 (12.1)	16.25	0.001
Controls	25.4 (9.2)	26.6 (10.4)	1.20	0.27
Interpersonal sensitivity				
Patients	17.5 (5.6)	20.2 (5.9)	10.82	0.001
Controls	17.5 (4.9)	19.4 (5.5)	11.25	0.001
Obsessive–compulsive disorder				
Patients	22.8 (6.3)	26.2 (7.9)	10.38	0.001
Controls	22.3 (5.6)	23.8 (6.2)	5.20	0.02
Somatization				
Patients	23.7 (8.4)	24.0 (8.6)	0.08	0.79
Controls	23.6 (7.6)	22.9 (7.1)	0.94	0.33
Psychosis				
Patients	16.7 (4.8)	19.7 (6.6)	12.96	0.001
Controls	16.6 (4.3)	18.5 (4.9)	13.40	0.001
Paranoid thought				
Patients	12.5 (4.3)	14.9 (5.6)	11.32	0.001
Controls	13.9 (3.9)	13.6 (4.3)	0.54	0.46
Phobic anxiety				
Patients	9.7 (2.9)	10.5 (3.9)	2.19	0.14
Controls	9.4 (2.1)	10.1 (3.0)	5.53	0.02
General complaints				
Patients	13.3 (4.7)	13.9 (4.9)	1.02	0.31
Controls	13.8 (5.0)	13.4 (4.1)	0.68	0.41

[a]*Includes housewives and students.*

Discussion

There is an increasing emphasis on the psychosocial aspects of low-back pain. Researchers have tried to establish an association between psychological factors and the occurrence of low-back pain. However, it is known that the experience of stress, anxiety and depression is sometimes but not always secondary to back pain [*16*]. Psychological factors are known covariants of chronic low-back pain and of chronic pain in general. Their role as predictors of recovery from

Table 6 **Psychological profile of low-back pain patients by duration of illness: mean (standard deviation) SCL-90 scores**

Psychological characteristic	Duration of illness			*F*-value	*P*-value
	< 1 year	1–5 years	> 5 years		
Grudge	13.7 (5.4)	12.5 (4.3)	12.8 (4.8)	1.79	0.17
Anxiety	23.0 (7.8)	21.0 (8.2)	18.5 (6.6)	4.79	0.01
Depression	31.7 (12.5)	29.4 (11.4)	25.6 (10.5)	3.86	0.02
Interpersonal sensitivity	20.8 (6.0)	18.1 (5.7)	17.5 (5.5)	6.09	0.003
Obsessive–compulsive disorder	26.6 (8.2)	24.2 (6.5)	22.4 (7.2)	4.76	0.01
Somatization	22.1 (7.0)	26.5 (9.6)	21.8 (7.2)	7.44	0.001
Psychosis	20.6 (6.8)	17.4 (5.5)	16.3 (4.4)	9.44	0.001
Paranoid thought	16.2 (5.6)	12.5 (4.6)	12.6 (4.1)	12.92	0.001
Phobic anxiety	10.7 (4.2)	10.0 (3.3)	9.4 (2.9)	1.88	1.55
General complaints	14.0 (4.8)	13.5 (5.2)	13.2 (4.1)	0.43	0.65

back pain is unclear and research findings in this respect are contradictory [*17*].

This study was designed to obtain a mental health profile of patients with low-back pain. In terms of age, the correlation data showed that patients' level of depression, anxiety and obsessive–compulsive thoughts increased with age. This indicates the role of age in recovery from low-back pain. Generally with age, an individual's tolerance threshold decreases and the experience of low-back pain may manifest as depression, anxiety and obsessive–compulsive thoughts. Studies show that about 60% of patients with low-back pain recovered in 10 days and 90% in 3 months [*18,19*]. Canadian studies have shown that recurrence of low-back pain is 20% in 1 year and 36% over 3 years [*20,21*]. Low-back pain is considered the most common cause of activity limitation for young people and, as a natural consequence of ageing, these limitations tend to increase, making the afflicted individuals more prone to psychological disturbances [*19*].

Our study indicates that female patients were more affected by low-back pain than were male patients, with higher scores in almost all aspects of the SCL-90. This finding was anticipated since gender differences in symptom presentation are to a large extent well known and some studies show that female subjects demonstrate enhanced responses to experimentally induced pain [*22*]. Women are also over-represented among sufferers of a variety of chronic pain disorders [*23*].

From this study, we can observe a large diversity in symptom presentation according to educational background. Patients from different educational backgrounds differed from each other significantly in terms of grudge, general complaints, anxiety, depression, obsessive–compulsive behaviours, somatization and phobia. Patients who were illiterate or educated to degree level differed significantly from others in terms of phobia and grudge. Education plays a key role in determining one's perception of the world and oneself. A person's under-

standing of every phenomenon is shaped by his/her education. It is plausible that these differences are the result of subjects' educational background and understanding of their problems. Higher scores in phobia and grudge may be attributed to their lack of knowledge about low-back pain which has manifested itself in the form of enmity towards others and fear of low-back pain prognosis.

Regarding occupation, we observed significant differences among patients in terms of depression and anxiety. Non-working patients with low-back pain were more depressed than their working counterparts. Most of the non-working patients are housewives or those retired from work and their activities are limited to the house. Their depression and anxiety may be attributed to confinement and monotony of work.

Patients' reactions to low-back pain also varied when the causes of low-back pain changed. Significant changes were observed among the subjects in terms of grudge, anxiety, depression, interpersonal sensitivity and obsessive–compulsive behaviours. Patients' whose low-back pain is a result of spondylolysis and spondylolisthesis, spondyloarthropathies or infection showed a greater tendency towards grudge, psychosis, paranoia and obsessive–compulsive behaviours. Those whose illness was due to tumour and spondylolysis and spondylolisthesis suffered more from anxiety compared with other patients. This suggests that when patients become familiar with the causes of their disorder, their psychological reactions adapt.

The mental conditions of the patients also changed with the duration of illness, and their levels of depression and anxiety differed significantly. Those whose low-back pain was longer than 5 years had the highest scores for depression, general complaints and anxiety. Longer duration of illness was accompanied by higher levels of anxiety, depression, obsessive–compulsive behaviours and somatization.

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