Prevalence and related factors of depression in chronic back pain patients attending for physical therapy in Supanburi, Chiangrai and Nakornsawan

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Sinsomboonthong P, Suppapitiporn S. Prevalence and related factors of depression in chronic back pain patients attending for physical therapy in Supanburi, Chiangrai and Nakornsawan. Chula Med J 2009 May - Jun; 53(3): 169 - 83

Problems/Background : *Back pain is one of the most common complaints in patients with musculoskeletal problems while depression is a condition that worsens its prognosis of back pain. Consideration and screening for psychosocial related factors is important to improve the quality of life of the patients and can lead to higher potential outcomes.*

Objective : *To explore the prevalence and related factors of depression in chronic back pain patients attending for physical therapy*

Design : *Descriptive study*

Setting : *Physical Therapy Units of Chaoprayayomraj Hospital, Chiang Rai Prachanukhro Hospital and Sawan Pracha Rak Hospital*

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Patients and Methods : *Participants of the present study were 328 outpatients facing back pain over 3 months and visited the physical rehabilitation unit from September 2008 to February 2009. Questionnaires were used as a tool to measure and collected the key information which included demographic data, related symptom of back pain, Thai-Hospital Anxiety and Depression Scale, Oswestry Disability Questionnaire, and Social Support Questionnaire (modified from The Personal Resource Questionnaire : PRQ Part II).*

Results : *The prevalence of depression in chronic back pain patients, the major finding, was 8.5%. There were many factors (e.g. ages, educational level, jobs, location of pain, refer pain, weakness, pain severity, disability and social support) could associate significantly to depression (p<0.05). Nevertheless, it was found that there were about 21 % of the cases that were doubtful.*

Conclusions : *Depression and factors related to this group of patients should be concerned, evaluated, and realized. They are extremely important for improvement of the patients' quality of life as well as providing effective treatment.*

Keywords : *Chronic back pain, Depression, Physical therapy.*

เหตุผลของการทำวิจัย : โรคปวดหลังเป็นโรคเรื้อรังทางระบบกระดูกและกล้ามเนื้อที่พบมากที่สุดอย่างหนึ่งในเวชปฏิบัติ ในขณะที่ภาวะซึมเศร้าพบว่ามีความสัมพันธ์กับโรคทางกายเรื้อรัง นอกจากนี้ยังไม่พบงานศึกษาในประเทศไทยที่ศึกษาเกี่ยวกับปัญหาด้านสุขภาพจิตในผู้ป่วยปวดหลังเรื้อรังที่เข้ารับการรักษาทางกายภาพบำบัด ซึ่งอาจเป็นปัจจัยหนึ่งที่ส่งผลต่อประสิทธิภาพในการบำบัดรักษาและคุณภาพชีวิตของผู้ป่วย

วัตถุประสงค์ : เพื่อศึกษาความชุกและปัจจัยที่เกี่ยวข้องกับภาวะซึมเศร้าในผู้ป่วยปวดหลังเรื้อรังที่เข้ารับการรักษาทางกายภาพบำบัด

รูปแบบการวิจัย : การศึกษาเชิงพรรณนา

สถานที่ทำการศึกษา : แผนกกายภาพบำบัด ณ โรงพยาบาลเจ้าพระยายมราช, โรงพยาบาลเชียงรายประชานุเคราะห์ และโรงพยาบาลสวรรค์ประชารักษ์

ตัวอย่างและวิธีการศึกษา : ผู้ป่วยปวดหลังเรื้อรังตั้งแต่ 3 เดือนขึ้นไป จำนวน 328 คน ที่เข้ารับการรักษาทางกายภาพบำบัด ในเดือนกันยายน 2551 ถึงเดือนกุมภาพันธ์ 2552 เครื่องมือที่ใช้คือ แบบสอบถามข้อมูลพื้นฐานเกี่ยวกับผู้ป่วย แบบสอบถามเกี่ยวกับอาการปวดหลัง แบบสอบถาม Thai-Hospital Anxiety and Depression Scale ฉบับภาษาไทย แบบสอบถามสภาพความเสียหายของออสเวสทรี (Oswestry Disability Questionnaire) และแบบสอบถามแรงสนับสนุนทางสังคม ดัดแปลงจาก The Personal Resource Questionnaire : PRQ Part II

ผลการศึกษา : พบความชุกของภาวะซึมเศร้าในผู้ป่วยปวดหลังเรื้อรัง คิดเป็นร้อยละ 8.5 ปัจจัยที่มีความสัมพันธ์กับภาวะซึมเศร้าอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 ในผู้ป่วยกลุ่มนี้คือ อายุ ระดับการศึกษา อาชีพ ตำแหน่งรอยโรค ระดับความปวด อาการร่วมกับอาการปวดหลัง เช่น ปวดร้าว ชา หรือการอ่อนแรงของกล้ามเนื้อขา ภาวะทุพพลภาพ และแรงสนับสนุนทางสังคม นอกจากนี้ยังพบผู้ป่วยที่มีอาการซึมเศร้าสูงแต่ยังไม่ผิดปกติทางจิตเวชชัดเจน (doubtful cases) ร้อยละ 21

สรุป : *การให้การประเมินทางสุขภาพจิต การเข้าใจผู้ป่วยเพื่อให้การช่วยเหลือ และการทราบถึงปัจจัยที่มีความสัมพันธ์กับภาวะซึมเศร้าในผู้ป่วย ปวดหลังเรื้อรังมีความสำคัญ ซึ่งเป็นส่วนหนึ่งที่อาจช่วยเพิ่มคุณภาพ การรักษาและพัฒนาคุณภาพชีวิตของผู้ป่วยให้ดีขึ้น*

คำสำคัญ : *ปวดหลังเรื้อรัง, ภาวะซึมเศร้า, กายภาพบำบัด*

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Back pain is one of the health problems that should be focused on since it can lead to limitation of the daily living activities; especially, in severe and chronic cases. It can cause absence from work and create a lot of financial burden which includes more than 37 percent of overall spending in physical therapy. [1]

From the study of patients in physical therapy clinics, it can be found that 80 percent of patients used to face of back pain problems at least once in their life.[2] In addition, the back pain problems can also relate to negative emotion and social problem which result in a lack of confidence and low-self esteem. Many studies indicate that chronic back pain is associated with mental health problems[3-6], such as depression, fear or avoidance which include limitation of daily routine and work absence.[7-12] Therefore, the reason that should be concerned about the pathology in mental health in chronic back pain patients is to ignore and do not be aware of the mental health can interrupt to the efficiency of treatment.[13] Moreover, caring of patient in poor mental condition can lead to failure of treatment.

Affective disorders, [14-15] which is a term for mood disorders, i.e., a form of mental illness in the group of people who are affected by emotional problems consists of a cluster of signs and symptoms that are sustained over a period of time. The patients deviate from social norms and have impaired mental function, whereas some evidences show that they are mostly found in patients with chronic pain. [16-18] It can be divided to major depressive disorder and dysthymic disorder. There are many major characteristics of depression, for example, persistent feeling of sadness, loss of interest in things or activities that once used to be pleasurable, disturbance in sleep or appetite, feelings of worthlessness or guilt, difficulty in making decision, loss of energy, restlessness, having thoughts of death or in some cases present as physical signs such as headache, stomachache, feeling tired or very painful throughout the body. Apart from depression, it magnified pain symptoms by decreasing a patient's compliance with prescribed treatments and increasing the likelihood that a patient will misuse pain medications.

According to clinical experiences, it has been found that the majority of rehabilitated patients are involved chronic back pain. Apparently, some cases have been recovered but they still felt suffer from pain. For instance, some patients illustrate sadness, fear or stress together with the anxiety of disability or handicap due to facing with back pain problem.

As many previous studies have shown associations between depressive symptom and some factors related to chronic disease such as severity of pain, duration of back pain, recurrence, quality of life, alcohol abuse or dependence, physical disability and social support.[3,8,19-25] However, there is no study on mental health problems in chronic back pain patients attending physical therapy intervention in Thailand.

The objectives of this study were to explore the prevalence of depression in chronic back pain patients who were attending physical therapy program and to identify its related factors. Understanding and recognizing this group of patients along with their mental conditions are essential for monitoring the patients' progress and facilitating holistic approach, which is a combination of biological, psychological, and social caring aspects, may be valuable to patients' quality of life.

Materials and Methods

Participants of the study were 328 outpatients with chronic back pain who visited the physical rehabilitation units of randomized 3 hospitals from regional hospitals, namely, Chaoprayayomraj Hospital, Chiang Rai Prachanukhro Hospital and Sawan Pracha Rak Hospital from September 2008 to February 2009. All patients had given their written informed consent and were evaluated under the inclusion criteria of being in the age group of 20 to 60 and having back pain from the thoracic spine to the sacrum over 3 months. On the other hand, the subjects were excluded unless they had stable medical conditions. A questionnaire that was used to elicit data by self-reporting and medical records included information regarding demographic data, past psychiatric history of individual and family, substance used, physical health and related back pain symptoms, severity of pain by visual analog scale (VAS), treatment information, depressive assessment using Thai version of Hospital Anxiety and Depression Scale (Thai-HADS)[26] which detects depression if the depressive score is 11 or over, Oswestry Disability Questionnaire[27-28] which scores mild, moderate, severe, crippled, and bed-bound disability, and finally, social support evaluated by using The Personal Resource Questionnaire: PRQ part II,[29] classified into 3 systems of group support; poor when the score is less than mean-1SD; moderate when the score is between mean-1SD to mean+1SD, and good when the score is higher than mean+1SD.

All data were analyzed by using the Statistical Package for Social Sciences program. To report the prevalence and describe the sample characteristics, the measures of central tendency (mean, percentage) and dispersion (standard deviation) were computed.

As a result of testing the levels of statistical significance of the association between depression and various back pain patients related factors, Chi-square or Fisher's exact test and ANOVA were performed. Furthermore, the correlation of depression, pain, disability and social support were determined by Pearson's Product Moment Correlation Coefficiency. Finally, Stepwise Multiple Regression Analysis was processed to investigate all significant variables for modeling causality and making a prediction of depression.

Results

The majority of patients in this research were female (61.6%), presented in table 1. Their mean age was 44.23 years (SD=1.04). Regarding the marital status, the highest rate was married or living together with someone, 67.1%. As for their educational levels, 37.5% of the subjects graduated from bachelor's degree or higher, and one-third had primary school education. Government service was the highest number of occupation with the rate of 37.2%, followed by business owners, while the third and the fourth were housewives and agriculturists, respectively. In addition, their incomes were enough for living.

As for their history of medical illness, 51.2% of the patients mentioned pain in their history of medical illnesses. The data from the survey indicated that most patients were facing hypertension, whereas 86.3% of the overall patients had not taken any substance, while cigarette and alcohol were the drugs that mostly used.

Most patients (33.5%) were diagnosed by physicians and physiotherapists that they were suffering from lumbar spondylosis. In addition, the

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Table1. Characteristics of patient sample.

Individuals information	n (%)	Back pain information	n (%)
Gender		Diagnosis by doctor or physical therapist	
Male	126 (38.4)	Lumbar Spondylosis	110 (33.5)
Female	202 (61.6)	Muscular Inflammation/ Spasm	59 (18.0)
Age group		Herniated disc nucleus pulposus	48 (14.6)
20-30 years	43 (13.1)	Myofascial pain syndrome	29 (8.8)
31-40 years	70 (21.3)	Lumbar stenosis	24 (7.3)
41-50 years	113 (34.5)	Lumbar spondylolisthesis	23 (7.0)
51-60 years	102 (31.1)	Other	35 (10.7)
(mean age=44.23, SD=1.04		Location of pain	
Min=20 , Max=60)		Lower part	305 (93.0)
Marital status		Other part	23 (7.0)
Married/Cohabitating	220 (67.1)	Duration of back pain	
Single	68 (20.7)	3-5 months	98 (30.1)
Divorced/Separated	25 (7.6)	More than 5-12 months	54 (16.6)
Widow/Widower	15 (4.6)	Over a year	174 (53.4)
Education		Back pain with refer pain	
No education	10 (3.0)	None	88 (26.8)
Primary school	105 (32.0)	Sometimes	88 (26.8)
Secondary school	90 (27.4)	Often	152 (46.3)
Graduated or higher	123 (37.5)	Back pain with weakness	
Occupation		None	174 (53.0)
Government	112 (37.2)	Sometimes	80 (24.4)
Agriculturist/labor	108 (32.9)	Often	74 (22.6)
Business	49 (14.9)	Disability Status	
Housewife	33 (10.1)	Mild	88 (26.8)
Unemployed	5 (1.5)	Moderate	110 (33.5)
Other	11 (3.4)	Severe	100 (30.5)
Economical Status		Crippled	25 (7.6)
Insufficient/debt	47(14.3)	Bed-bound	5 (1.5)
Sufficient	161 (49.1)	Social supporting level	
Savings	120 (36.6)	Poor	46 (14.0)
		Moderate	228 (69.5)
		Good	54 (16.5)

other diagnoses were found, namely, sciatica pain syndrome, scoliosis, chronic back strain, failed back syndrome, spondylitis, ankylosing spondylitis or muscle spasm. Ninety-three percent of them had lesion in their lower back. Furthermore, there was 53.4 % of them suffering from back pain at least one year, whereas the mean of pain by Visual Analog Scale was 51.92, SD = 2.34, min = 0, max = 100 (0 means no pain, 100 means unable to tolerate).

Most patients accepted that back pain could influence their emotion and mind such as moody, stress, fear, and discomfort. The second was that it disturbed their daily routine as well as interrupted their jobs.

The patients with back pain were treated by several methods. Nonetheless, the basic methods were medicine, traction, microwave or shortwave diathermy, and ultrasound. Half of patients had been treated by physical therapy around 3 to 6 months. The average of treatment frequency was a couple time within one week. When the patients were evaluated disability, most patients were in moderate (33.5%), whereas 25 persons had to be crippled (7.6%). In

term of social supporting system, about 69.5% of overall patients were in moderate social support.

As for the main result of this study, which is showed in table 2, it was found that about 8.5 % of participants had depression (Thai-HADS is 11 or higher). Additional findings of interest were the relationships between depression and individual characteristics as presented in table 3. The age group of 41-60, low education, occupation, location of pain at the lower part of the back, and back pain with refer pain or weakness were found statistically significantly associated with depression. In comparison the mean difference by ANOVA, it was found that agriculturists or labors had higher mean score of depression than other trades ($p<0.05$). Moreover, social supporting systems and levels of disability were found associated with depression ($p<0.05$) as displayed in table 4. In addition, patients with depression had higher mean of pain scale than who were without depression significantly. From Post Hoc Analysis by Sheffe's test, it was discovered that depression in patients with poor social support differed significantly from moderate and good social support as well as the patients with mild

Table 2. Prevalence of depression in chronic back pain patients attending for physical therapy.

Back pain patients	n (328 cases)	%
Depression not found	231	70.4
Doubtful cases	69	21.0
Cases	28	8.5

Mean of total = 5.20, SD = 3.75 , Max = 18, Min= 0

Mean of cases with depression = 12.68, SD = 1.89,

Max = 18, Min= 11

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disability had significant difference of depression From other levels of disability. When Pearson's Product Moment was performed to estimate the correlation between depression, pain, disability and social support, it was found that these factors were significantly correlated at the level of 0.01 as shown in table 5.

To test the fit of the independent variables that predict depression, a Stepwise Multiple Regression Analysis was done as illustrated in table 6. There were 6 predicting factors for depression, namely, disability, location of pain at lower part, low educational level, refer pain, poor social support, and occupation that can predict depression.

Table 3. Comparison of characteristics in participants with or without depression.

Characteristics	Patients without depression n (%)	Patients with depression n (%)	χ^2 or Fisher's (df), p-value
Age			5.513 (1), 0.021*
20-40 years old	109 (36.3)	4 (14.3)	
41-60 years old	191 (63.7)	24 (85.7)	
Education			20.660 (3), <0.001***
No education	7 (2.3)	3 (10.7)	
Primary school	88 (29.3)	17 (60.7)	
Secondary school	85 (28.3)	5 (17.9)	
Graduated or higher	120 (40.0)	3 (10.7)	
Occupation			7.058 (2), 0.029*
Government	117 (39.0)	5 (17.9)	
Agriculturist/labor	93 (31.0)	15 (53.6)	
Other	90 (30.0)	8 (28.6)	
Location of pain			15.191 (1), 0.001**
Lower part	284 (94.7)	21 (75.0)	
Other part	16 (5.3)	7 (25.0)	
Back pain with refer pain			4.050 (1), 0.046*
Yes	215 (71.7)	25 (89.3)	
No	85 (28.3)	3 (10.7)	
Back pain with weakness			7.364 (1), 0.009**
Yes	134 (44.7)	20 (71.4)	
No	166 (55.3)	8 (28.6)	

*p<0.05, **p<0.01, ***p<0.001

Table 4. Association between depression and level of social support, functional disability, pain analyzed variance by ANOVA.

Factors	n	Thai-HADS; depression score			
		mean	SD	F	P-value
Social Support				11.247	< 0.0001**
Poor	46	7.33	3.31		
Moderate	228	5.07	3.73		
Good	54	3.94	3.48		
Disability				20.861	<0.0001**
Mild	88	2.68	2.69		
Moderate	110	5.25	3.45		
Severe	100	6.66	3.60		
Crippled	25	7.32	4.05		
Bed-bound	5	8.60	2.88		
Pain scale				16.989	<0.0001**
0-30	74	3.09	3.79		
31-70	177	5.68	3.36		
71-100	77	6.12	3.85		

** <0.01

Table 5. Correlation between depression, pain, disability and social support analyzed variance by Pearson's Product Moment Correlation Coefficiency.

	Depression	Pain	Disability
Pain	0.302*		
Disability	0.477*	0.501*	
Social support	-0.295*	-0.147*	-0.230*

*Correlation is significant at the 0.01 level (2-tailed).

Table 6. Stepwise multiple regression analysis to estimate variances associated with depression.

Variances	R	R2	B	Beta	T	Sig.
Disability	0.436	0.190	0.934	0.245	4.577	<0.001**
Pain in the lower back	0.517	0.267	4.149	0.283	6.167	<0.001**
Education	0.553	0.305	-0.678	-0.164	-3.067	0.002**
Back pain with refer pain	0.567	0.322	0.412	0.140	2.723	0.007**
Social support	0.579	0.336	-0.867	-0.128	-2.703	0.007**
Occupation as agriculturist or labor	0.587	0.344	-0.303	-0.092	-2.010	0.045*
Constant			2.583		1.772	

* p<0.05, ** p<0.01

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Discussion

The prevalence of depression in these samples presented about 8.5% whereas the other previous findings showed at 25 and 48.2 percent.[21,30] Moreover, there was the study of prevalence of depression in chronic painful physical conditions found that there was 16.5% of all subjects represented depressive symptom and major depressive disorder was diagnosed in 4% of the same subjects.[20] As the study of chronic musculoskeletal pain in primary care patients, the result shown that 20% of participants had pain with depression.[24] The lower percentage in this study than others is possibly owing to the difference of studied population and measurement questionnaires. The results from this study may explain in chronic outpatient not including acute or inpatient group. Nevertheless, doubtful cases of depression were found about 21% in this study. This group of patients had some depressive symptom but the scores had not reach criteria for depression in this study. Therefore, doubtful cases should be more concerned or further study. For instance, the association between depression and patients' factors namely, increasing of age, low level of education, type of works, location of pain, refer pain, weakness, severity of pain, or disability is similar to the results by others.[3,19,21-22] As the previous research have reported that chronic pain could affect in physical function[8,31], this study found more about the association between pain, physical ability and depression. It was showed that chronic low back pain patients with high severity of pain-related, high level of physical dysfunction and poor social support seem to be correlated with depression. Furthermore, another finding[16] illustrated major depressive disorder (MDD)

had higher proportion of chronic pain than patients who did not have MDD (66% and 43%, respectively) while disabling chronic pain presented 41% in patients with MDD and 10% in patients without MDD. It could be inferred that depression had comorbid with chronic pain and disability. Moreover, the study of the comorbidity in medical illness was found that depression could affect self-care, the risk of incident medical illness, complications and mortality.[32] By the supporting from the result in this study, it might be an evidence for the represent of depression in patients suffering from back pain over 3 months including some factors that may be used for predicting of depression in patients with those related factors. Regarding the support by previous researches,[8,23-25] this study found that poor supporting was associated with high depression. In contrast, patients with good social support faced less depression than others. So social issues about social support should be concerned and providing good social supporting system or network is an important and it should be addressed for patients particularly with severe back pain and disability. Apparently, chronic pain can precipitate psychiatric conditions most commonly depression. In addition, depression, anxiety, fatigue or worries amplify pain symptoms and decrease pain tolerance.[15] However, there was some evidence have been studied of depressed cognition in chronic pain patients one focused on health and found that pain patients with depression produced more thought in negative way while who were without depression have concerned on their health but not in negative ways.[33] This could be one of the explanations about individual sensitivity to depression. Moreover, there was no statistical significant association in both individual and family

history of psychiatric illness found in the present study. It is might be due to the psychiatric morbidity associated with chronic pain which is often a consequence of rather than an antecedent to pain. [15]

Although, the prevalence of this study is less than earlier studies,[20,21,30] some factors associated with depression in chronic back pain patients were similar to previous findings studied in other chronic pain groups while some were different. In term of the predicting factors, there were some interesting factors should be focused, such as, low educational level, poor social support and type of occupation which can predict depression about 30.5 %, 33.6%, and 34.4 % respectively. All these referenced factors can be changeable and developed in preventive process, for example, providing high education about health care; educating patients, patients' relative or friends to encourage moderate to good social supporting system and educating about risk factors and individual position related to work, especially patients who work as agriculturist or labor should be more recognized and early detected. In addition, decreasing the chance of progressive disability could help patients away from social isolation, on depended or distress feeling. However, there were some limitations in this study. Firstly, this result could be applied for only chronic back pain cases those attended for physical therapy. In addition, the majority of the samples had pain at lower part. Therefore, these could not be generalized to all cases of back pain.

Conclusion

The study has found that depression is a condition that can be found in about 8.5% of chronic back pain patients attending physical therapeutic intervention. This group of patients, together with the age over 40 years old, had low level of education, worked as agriculturist, laborer or housewife. Their back pain was located in the lower part; they were refer pain or causing weakness through the lower extremities. They had poor social support, and had high severity of pain, or disability. These factors needed to be more considered by clinicians. Medical team including both physical and mental staff can apply all related factors to help those patients in term of promotion, prevention and providing supportive care toward biological and psychosocial part which can also lead to more successful rehabilitation outcomes when the patient's quality of life is better.

Acknowledgements

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