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Chronic pain with anxiety and depression: a comparison between patients attending multidisciplinary pain and rheumatology clinic.

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Abstract

Purpose: The objective of the study was to look at the anxiety & depression level amongst patients attending the rheumatology and multidisciplinary pain clinics.
Methods: An analytic cross sectional study was performed in population of patients from rheumatology and pain clinics. Rheumatoid arthritis (RA) patients and those with chronic pain attended these clinics respectively were assessed using self-administered Chronic Pain Grade (CPG), Depression, Anxiety and Stress Scale (DASS) and World Health Organization's Quality of Life Instrument (WHOQOL-BREF).
Results: 88 patients were selected from both rheumatology and pain clinics with 54.5% with RA and the remaining were non RA patients. Anxiety (55.6%) was found to be more prevalent compared to depression (38.6%) among these patients. Pain intensity score (subset of CPG) was a sensitive indicator for the presence of anxiety in chronic pain patients (p=0.001). Disability and psychiatric history were significantly correlated with depression (p<0.005) and anxiety (p<0.001). Patients' perception of general status was more sensitive to WHOQOL-BREF Physical (p<0.001), Psychological (p<0.005) and Chronic Pain Grade (p<0.001).
Conclusion: Anxiety is found to be more prevalent than depression among chronic pain patients although there is significant association between pain with anxiety and depression among these patients.

Keywords: Anxiety, Chronic pain, Depression, Rheumatoid arthritis.

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Introduction

Pain is always a great dilemma in the world of medicine [1,2] and chronic pain is becoming a major challenge globally at all level of care [3,4]. The prevalence of complaints of pain in Malaysia was 32% with a significant difference in prevalence between the Health Care Center (29%) and General Practitioners in Malaysia (45%) [5]. Comparatively, according to the National Health Morbidity Survey III (NHMS III), prevalence of chronic and persistent pain in adult Malaysian was 7% [6]. Chronic pain is defined as "pain which has lasted for three months or longer and currently troubles the patient either all of the time or on and off" [7]. According to the Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM-IV), "pain disorder" refers to pain as the main problem which causes significant stress or functional impairments and must not be a result of another mental disorder, such as anxiety or depression [8].

Chronic pain is widely regarded as a biopsychosocial disorder which has a complex relationship with any form of psychological distress especially depression and anxiety [9-11]. Pain may even be predictive of subsequent depression [12]. Major depression and anxiety disorders were found to be more prevalent in those presenting with pain than in the general populations [13,14]. It is imperative to associate pain intensity and disability in assessing the burden of chronic pain. This will imposes a significant negative impact both psychologically and on the patient's daily activities with significant functional impairments. This will be reflected by a reduced quality of life [15-17]. Pain has immense socio-economic implications on both the health care system and the society. The chronicity of pain has been recognized as a strong predictor of mortality and also a predictor for a significantly increased in the medical or health expenditures when compared to the rest of the population [18-20]. Thus, chronic pain should be considered a public health priority as it may cause a significant negative impact on the patient's as well as the country's socioeconomic burden.

The aims of this study were to determine the associations of anxiety and depression, in chronic pain patients from a Multidisciplinary Pain Clinic and a Rheumatology Clinic.

Material and Methods

This is an analytic cross sectional study involving outpatients from the rheumatology and the pain clinics.

Inclusion and exclusion criteria

All patients from the rheumatology clinic with Rheumatoid Arthritis (RA) who fulfilled the 1987 American College of Rheumatology (ACR) criteria for rheumatoid arthritis [21], both genders aged between 18 to 65 years old and has a history of chronic pain persisting for 3 to 6 months were recruited. Patients with other type of chronic pain other than RA such as fibromyalgia, neuropathic pains etc. were selected from the Pain clinic. Chronic pain is defined according to the International Association for Study of Pain [22]. These patients were voluntarily selected from these clinics for a period of 1 month. Patients aged more than 65 years and less than 18 years old and those with a history of pain less than 3 months were excluded.

Administration of assessment tools

All selected respondents were given the validated Chronic Pain Grade Questionnaires (CPG) [23], the Depression Anxiety Stress Scale (DASS) [24], and the abbreviated version of World Health Organization's Quality of Life Instrument (WHOQOL-BREF) [25]. The socio-demographic information including any co morbid was also obtained. These assessment tools were self- administered after written informed consent was obtained.

Ethical consideration

This study has been approved by the National Medical Research Registry, Ministry of Health Malaysia.

Statistical analysis

The continuous variables were presented as means with 95% Confidence Interval (CI) ± Standard Deviations (SD). Categorical variables were presented as frequencies and percentages. Chi-square test was performed to categorical data. P values of <0.005 was considered significant. Multinomial logistic regression was performed to identify factors that may influence the prevalence of anxiety and depression.

Results

Baseline characteristic and socio-demographic variables are outlined in Table 1. Forty-eight patients (54.5%) were from the rheumatology clinic and 40 patients (45.5%) from the Multidisciplinary pain clinic. In both groups females outnumbered males and this is significantly seen in the group from the rheumatology clinic. The majority of the patients were of middle age (50-59), of Indian ethnicity, literate, married, unemployed and from the lower income group. Hypertension and diabetes mellitus were common co- morbid diseases.

Table1. *Socio-demographic and disease characteristics (n=88).*

Characteristic	Rheumatology Clinic %(n)	Pain Clinic %(n)
Gender		
Male	5.7	17
Female	48.9	28.4
Age(year)*		
18-29	2.4	3.6
30-39	4.8	2.4
40-49	10.7	8.3
50-59	23.8	17.9
60-65	15.5	10.7
Mean age (± SD)	53.1 ± 10.8	51.2 ± 10.
Ethnicity		
Malay	17	15.9
Chinese	15.9	9.1
Indian	19.3	18.2
Others	2.3	2.3
Education status*		
None	3.4	1.1
Primary	12.6	11.5
Secondary	29.9	21.8
Tertiary	8	11.5
Employment status		
Yes	20.7	18.4
No	33.3	27.6
Monthly Income (RM)		
<1000	35.2 (31)	22.7 (20)
1001-2000	12.5 (11)	11.4 (10)
2001-3000	1.1 (1)	3.4 (3)
3001-4000	2.3 (2)	2.3 (2)
4001-5000	1.1 (1)	1.1 (1)
>5000	2.3 (2)	4.5 (4)
Marital status		
Single	9.1	8
Married	34.1	34.1
Divorced	1.1	1.1

Widowed	10.2	2.3
Comorbids*	39.1	31.5
Psychiatric history*		
Psychiatric illness*	47	27.7
Depression	9.5	42.9
Anxiety disorder	4.8	14.3
Bipolar mood disorder	0	9.5
Personality disorder	9.5	4.8
Other	0	4.8
Duration of pain		
>3mths -2yrs	17	10.5
>2 yrs-5 yrs	23.4	39.5
>5 yrs-10 yrs	23.4	18.4
>10 yrs	36.2	31.6

Note: Figures are percentages unless otherwise stated. *missing data. Comorbids: diabetes mellitus, hypertension, asthma, COPD, ischemic heart disease.

Table 2 shows number of patients responded to individual assessment tools for both clinic groups. The highest score was normal DASS-Depression for low disability points<3 (44.3%, n=39) for both clinic groups. There was significant correlation between CPG 0-II with low disability points<3 and DASS-Depression score for normal category (n=15, p=0.004) for pain clinic compared to rheumatology group of patients (n=24, p=0.336). However, both group showed no significant correlation in DASS-Anxiety scoring although the highest score was in normal category as reference to low disability points. There was no significant different between both groups scored high disability points 5 to 6 and with disability score of more than 70 although their number was small. The risk of developing anxiety and depression is high when assessed by DASS-Depression as well as DASS-Anxiety. Meanwhile the pain intensity score (CPG I and II with characteristic pain intensity<50 and ≥ 50 respectively) showed no significant correlation between both clinic groups and all stages of DASS assessments of severity.

Table 2. *Degree of severity according to different assessment tools.*

Assessment tools	**Rheumatology Clinic**	**Pain clinic**
NRS		
Both mild	3.4	0
Mild-moderate	10.2	3.4
Mild-severe	13.6	18.2
Both moderate	10.2	3.4
Moderate – severe	13.6	14.8
Both severe	3.4	5.7
CPG		
Grade 0	4.5	1.1
Grade I	12.5	1.1
Grade II	19.3	18.2
Grade III	10.2	20.5
Grade IV	8	4.5
DASS-Depression		
Normal	35.2	26.1
Mild	8	2.3
Moderate	5.7	11.4
Severe	0	2.3
Extreme severe	5.7	3.4
DASS-Anxiety score		
Normal	27.3	17
Mild	1.1	6.8
Moderate	17	4.5
Severe	2.3	13.6
Extreme severe	6.8	3.4
WHOQOL-BREF (mean ± SD)		
Physical	51.2 ± 13.9	48.0 ± 16.6
Psychological	51.7 ± 14.4	53.2 ± 19.7
Social	*47.2 ± 16.9	51.8 ± 22.3
Environment	55.9 ± 14.2	61.6 ± 16.6

Note: Figures are percentages unless otherwise stated.

NRS: Numerical Rating Scale; CPG: Chronic Pain Grade; DASS: Depression Anxiety Stress Scale; WHOQOL-BREF: World Health Organization's Quality of Life Instrument; SD: Standard Deviation. *Missing data.

There was higher proportion of patients (13.6%) from rheumatology clinic in the range of mild to severe and moderate to severe pain by Numerical Rating Scale (NRS). However there was no significant difference in NRS scales demonstrated in both groups and in presence of depression and anxiety. Nevertheless, patients with high intensity pain showed significant anxiety scoring compared to those without anxiety (p=0.001) for both groups. Psychiatric history was presence in 21 from 83 patients for both clinics with 5 patients did not respond to the questionnaires given. Majority have no psychiatric (74.7%, n=62) and family history of psychiatric condition (97.8%, n=86). Depression was commonly encountered among patients from pain clinic (42.9%) and significantly correlated with underlying psychiatric history (p=0.002). However, DASS-Depression did not yield significant score in these patients. Patients from both groups whom without psychiatric history did not have depression (53.0%, n=44). Psychiatric history, psychiatric conditions, and family history of psychiatry were not significantly affects the CPG, DASS scores.

There was no significance difference between both groups of patients in all WHOQOL-BREF domains. This assessment shows an average quality of life among chronic pain populations with Physical (mean 49.72 ± 15.23), Psychological (mean 52.41 ± 16.92), Social (mean 49.32 ± 19.90) and Environment (mean 58.47 ± 16.63) domains. Pain Clinic has relatively higher score for the latter 3 except WHOQOL-BREF Physical domain (mean 47.97 ± 16.65). RA patients showed higher score particularly in physical domain. Otherwise the scores in both clinics were comparable.

Discussion

It has been estimated that 1 in 10 adults are diagnosed with chronic pain each year [26]. Pain can be deleterious and may just be a subjective perception or a complex psychological experience involving sensory, emotional, cognitive and behaviourial components. Studies have revealed that social, cultural and ethnicity were among the main factors which may significantly influenced an individual's predisposition of suffering from chronic pain [27-29]. With regards to ethinicity in Malaysia, a study has shown that Indians has the highest prevalence of pain complaints at health care centre [5]. Our study revealed similar findings. Our study revealed that anxiety is more prevalent than depression and it is 1.4 times higher among chronic pain patients. Wong et al, in contrast, showed vice versa [14]. Nevertheless, the coexistence between anxiety and depression has been illustrated in this study as the majority of patients from both clinics for both DASS-Depression and DASS-Anxiety assessment scales were in normal category.

It has been established that depression is prevalent in RA. Nevertheless anxiety has been found significantly in RA patients [30-33]. This study has shown similar findings i.e anxiety is more prevalent than depression in RA. However, comparing between the 2 groups of clinic population, patient from Pain Clinic has higher prevalence of anxiety than those from Rheumatology Clinic which consist of RA patient, likely due to higher pain score from CPG assessment in Pain Clinic. Our study shows that pain intensity score (subset of CPG) is more sensitive to indicate presence of anxiety for chronic pain patient in general. Generally, for chronic pain populations who have high intensity pain score, they are 6.3 times likely to develop anxiety. Meanwhile, RA patients with chronic pain who obtained high score in same assessment, they are 7 times likely to have anxiety. Physical and social activities may be impaired due to pain-induced depression [34]. This study has illustrated that chronic pain patient is at a high risk of developing depression and anxiety when they experiences higher persistence days of pain as reflected by the significant correlation measured by DASS-Depression and DASS-Anxiety scales.

Chronic pain patient with high Disability scores in CPG (summation of Persistence days and Disability), are more predisposed to have depression and anxiety. This result reflects that pain was more likely to be disabling when depression and anxiety were present. Previous study postulated that both problems existed independently [35]. Physiologically, pain is intensified together with depression and anxiety when there is an interruption in the common pathway and neurotransmitter used for both pain and regulation of mood [36]. Patients with pain and comorbid depression experienced more intense and longer duration of pain. Depressive symptoms have been associated with poor pain outcomes and prognosis. If left undetected and untreated, these problems will result in deleterious effect and negative implications in the patient's recovery with long lasting symptoms. In this study, CPG is shown to be more sensitive than NRS as far as depression and anxiety concerned. To date, there is also direct relationship between anxiety and depression with duration of pain [34], multiple pain locations [37-40], diabetes [41], arthritis [42], depression [10,43] and asthma [44]. However, this association is not demonstrated in this study.

In our study, 25.3% of chronic pain patients have psychiatric co-morbidity, which is relatively higher than NHMS III report (18.5%). Depression is more dominant when there is a presence of psychiatric history but patients with pain are more susceptible to have anxiety and experiencing relatively severe anxiety, measured by DASS-Anxiety scale. In contrary, chronic pain patient with psychiatric history have lower risk of depression. However, this association is unclear and need cautious interpretation. Despite the finding obtained in this study, previous study revealed that depression is precursor for pain and it sensitizes individuals to experience pain [41]. Although this study shows significant association between pain with depression and anxiety, it could not determine whether pain may predispose to psychiatric symptoms or vice versa. Chronic pain is depressing, and likewise major depression may feel physically painful. However, only a few studies investigated pain in psychiatric subjects [36,45-47] and the prevalence of pain in depressed patients was 59.1% [37].

Pain Clinic respondents, although they score relatively higher pain score and more severe anxiety than Rheumatology Clinic group, they have better quality of life as far as WHOQOL-BREF assessment is concerned. Physical domain, Psychological domain and Environment domain status are significantly correlated with general quality of life for chronic pain patient. The lower WHOQOL-BREF in these domains, have a higher risk of poor general quality of life. This also applies for general health status (Psychological and Physical domains). In summary, patients' physical and psychological conditions are the main factors affecting quality of life and health status in patient with chronic pain. Studies by Martha and Lucas showed that pain, depression and anxiety are amplified leading to feeling of fear of pain and disabilities which may affects general health status. Depressed individuals generally report poorer quality of life [47,48].

Conclusion

In this study, anxiety is found to be more prevalent than depression among chronic pain patients. Generally, anxiety is more prevalent in the chronic pain populations who have high intensity score in CPG which is more sensitive than NRS. Disability points (subset of CPG) are found to be very strongly

associated with anxiety and depression when measured by DASS. Patients' perception of general status is more sensitive to WHOQOL-BREF Physical, Psychological domains and Chronic Pain Grade. Hence, these questionaires can be used as screening tools in chronic pain patients. It is important to further evaluate the relatively increased risk among RA and non-RA patients in future study in larger scale including the temporal relationship between psychological factors in clinical practice as these will affect the burden on the cost of quality of life.

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