



## The Relationship between Anxiety and Chronic Pain: A Cross-sectional Study from Yazd, Iran

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**Background:** Chronic pain depends on many physical and psychological factors. The aim of this study was to determine the relationship between anxiety and chronic pain in adult referring to health centers in Yazd, Iran.

**Methods and Materials:** This descriptive study conducted on 397 adults aged between 31 and 87 years. The Depression, Anxiety, Stress Scale-21 (DASS-21) was used to measure depression, anxiety and stress. The Visual Analogue Scale (VAS) was used to measure pain severity. Six psychologists were employed to collect data. The data were analyzed using SPSS version 21.

**Results:** Totally 397 individuals with mean age of  $61.52 \pm 11.52$  completed the study. The results showed 74% of participants (N = 295) were suffering from chronic pain. The majority of participants (N = 164, 41.3%) complained from knee pain. This study showed 68.8% of studied adult (N = 277) suffered from mild to severe anxiety. There were positive significant relationship between chronic pain and anxiety.

**Conclusion:** This study concluded that chronic pain may cause psychological disorders as anxiety. This study recommended that individuals suffering from chronic pain should be assessed in terms of psychological problems.

**Keywords:** Chronic Pain, Anxiety, Adult, Iran

### Introduction

Chronic pain is a prevalent costly public health problem worldwide. It has been argued that this disease could lead to physical disability and psychosocial dysfunction that caused its cost to be increased. In America, more than 100 million individuals suffer from chronic pain (Kim, 2015). Chronic pain beyond the recovery period is longer than we expected. International Association for the Study of Pain (IASP) has defined pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage

(Kim, 2015). The previous evidences verified the relationship between anxiety and pain-related disability, so that they reported that decreased anxiety could significantly predict increased functional ability (Benore et al., 2015). Furthermore, it has been verified that pain and pain-related disability could be subsequent to anxiety (Lerman et al. 2015; Costa et al., 2015; Tran et al., 2015). Chronic pain patients who live with anxiety usually benefit from meditation into their treatment plans (Kim, 2015). Anxiety can significantly impair the quality of life in chronic pain patients (Kim, 2015, Orenius et al., 2012). The relationship between pain catastrophic cognition and anxiety sensitivity with pain-related fear has been revealed in existed evidence (Wong et al., 2014). Studies showed pain unpleasantness, depression and anxiety sensitivity all predict symptoms of posttraumatic stress disorder (PTSD) (Teo et al., 2014). As the previous researches showed, anxiety affected on 65% of patients with chronic pain and the correlation between anxiety and pain intensity

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has been documented (Pinheiro et al., 2014). Gender is an influential factor for anxiety in patients with chronic pain, so that women with chronic pain may more likely to suffer from anxiety (Zeng et al., 2015; Hong et al., 2014; Mahrer, Montañó & Gold, 2012). Moreover, physical activity could partially mediate the pain-related. According to the researches, the high rate of co- occurrence anxiety (55%) has been identified among patients referred to pain clinics (Rus Makovec, Vintar & Makovec, 2015). Among Pakistanis population with chronic low back pain (CLBP), the prevalence of anxiety were reported as 48.57% (Hong et al., 2014). Other study reported CLBP is strongly correlated with anxiety (Tekur et al., 2012). However, anxiety disorders in 77% of cases had been presented before pain onset (Knaster et al., 2012b). Furthermore, 45% of individuals with chronic pain suffered from at least one anxiety disorder (Kroenke et al., 2013). Abnormal level of anxiety was also found in 55% chronic pain patients (Sagheer, Khan & Sharif, 2013).

It has been argued that prevalence of chronic pain conditions within the previous 12 months has been 37.3% in developed countries and 41.1% in developing countries. Moreover, it has been verified that, back pain and headache has been somewhat more common in developing countries compared to developed countries (Tsai, Chen & Chien, 2012). The primary outcomes of depression and anxiety reduction resulted from individualized cognitive-behavioral treatment delivered through the internet for patients suffering from chronic pain, were satisfied and reductions were also found on pain catastrophizing (Buhrman et al., 2015). Pain-related anxiety has been diagnosed as onset and progression of chronic pain (Sagheer, Khan & Sharif, 2013). The importance of relationship between anxiety and chronic pain in the prevention and treatment of chronic pain was paid attention recently. However, to determine the effects of these diseases on each other should be more assessed. This study aimed to explore the relationship between anxiety and chronic pain in adult referring to health centers in Yazd.

## Method

This work was a cross-sectional study in which 397 adults that referred to health centers of Yazd. The data for this study from May 94 to August 94 for 4 months were collected. Inclusion criteria

were age above 30 years and below 87 years. Speech and hearing have to communicate with the interviewer.

Multi-stage random sampling method was originally from community health centers 5 centers were randomly selected. Then from clients over 30 years, 80 referred met the inclusion criteria. In this study, the standard 21-item questionnaires of Depression, Anxiety Stress scale ((DASS-21) as well as Visual Analog Scale (VAS) was used to assess depression, anxiety, stress and chronic pain. This scale has two forms. The short form that used in this study, has 21 items, with 7 items in each psychological structures of depression, "anxiety" and "stress".

The reliability of the DASS-21 was approved among 1771 patients in England compared with other related tools regarding depression and anxiety with Cronbach's alpha for depression as 95%, anxiety as 90% as and for total score of DASS-12 as 97% (Crawford & Henry, 2003).

In Iran, the reliability of the DASS-21 was approved through acceptable Cronbach's alpha as 94% for depression, 92% for anxiety and 82% for stress (Moradipanah 2005).

The DASS-21 enables to recognize the symptoms of anxiety, depression and stress over the past week. The use of this scale for adults. Who suffering from chronic pain is common in the world. In addition to its good reliability and validity that is the most important features of the scale, it's the usage of this scale is so ease. The other used scale in this study was Visual Analog Scale (VAS).

This scale is a standard 10-degree left-hand side of zero which indicating no pain and 10 on right hand that indicating the most severe pain (Price, 1983). Data collection was performed by 6 psychologists with college education level of Master of Science degree. The results were analyzed using SPSS version 21.

## Results

In this study, 397 people were assessed. The mean age of the participants was  $11.52 \pm 61.52$  years in range between 31 and 87 years. The rest of demographic characteristics were shown in Table 1. As this Table shows the majority of participants are housewives (68.5%), Illiterate (47.6\*), female (70.3%), married (75.3%) ND city resident (77.3 &).

**Table 1. Demographic characteristic of studied participants.**

variable		Number (N)	Percent (%)
Job	Housewife	272	68.5
	Employed	18	4.5
	Self-employed	33	8.5
	farmer	31	7.8
	Retired	43	10.8
Literacy	Illiterate	189	47.6
	Primary school	167	42.1
	High school	28	7.1
	Collegiate	13	3.3
Gender	Female	279	70.3
	Men	118	29.7
Marriage	Single	189	35.5
	Married	167	75.3
	Widow	28	24.2
Location of residency	City	307	77.3
	Village	90	22.7

The prevalence of chronic pain in studied participants was shown in Table 2. According to this Table, 74% of the studied participants (N = 295) were suffered from chronic pain.

**Table 2. Frequency of different chronic pain in studied participants.**

Variable	Number	Percent
Chronic pain		
Yes	295	74
NO	102	26
Headache		
Yes	41	10.3
No	356	89.7
Neck pain		
Yes	30	7.6
No	367	92.4
Shoulder pain		
Yes	30	7.6
No	367	92.4
Hand pain		
Yes	49	12.3
No	348	87.7
Low back pain		
Yes	49	12.3
No	348	87.7
Abdomen pain		
Yes	7	1.8
No	392	98.2
Hip pain		
Yes	13	3.3
No	384	96.7
Knee pain		
Yes	164	41.3
No	233	58.7

The number and percent of participants with different severity of anxiety are shown in Table 3. As this table shows, 44 participants (11. %) were distinguished suffering from mild anxiety, 98 participants (24.7%) suffering from average anxiety, and 46 cases (11.6%) distinguished as having severe anxiety and 85 participants (21.4 %) as very severe anxiety. Overall, 277 participants (68.8%) were suffering from anxiety. There were positive relationship between chronic pain and anxiety (P value  $\leq 0/001$ ).

**Table 3. Frequency of anxiety among studied patients health centers.**

Anxiety rate	Frequency (N = 397)	Percent
No anxiety	120	31.2
Mild anxiety	44	11.1
Moderate anxiety	98	24.7
Severe anxiety	46	11.6
Very severe anxiety	85	21.4

## Discussion

The purpose of this study was to determine the relationship between anxiety and chronic pain in adult individuals referring to health centers of Yazd. The results showed that about two thirds of participants in this study suffered from chronic pain and anxiety. Although mutual relationship between chronic pain and anxiety were verified in previous research (Sagheer, Khan & Sharif, 2013). It seems the chronic pain caused anxiety. However, there were not any real data in this study to recognize the first primarily problem and the subsequent problem. However, recognition of this relationship that contributes to design better educational interventions and other prevention / treatment approaches is of utmost importance. There are many studies that reported high prevalence of chronic pain patients suffering from anxiety. In a previous study, spread of chronic pain among patients was reported as 54% of which low back pain had the highest prevalence and headache had the lowest prevalence (Rus Makovec et al., 2015). In contrast with this study, the results of the present study showed knee pain as the highest prevalent chronic pain and abdominal pain was the lowest prevalent chronic pain. In the present study, the majority of the participants suffered from moderate anxiety. Non-

pharmacologic interventions are effective approaches in reducing anxiety rate. Research has shown the role of relaxation techniques to reduce anxiety (Alvarez et al., 2015; Klainin-Yobas et al., 2015). In the present study it was seen that chronic pain could cause anxiety. In patients with chronic pain, it is important to consider effective psychological factors. Therefore, while treatment of chronic pain patients, anxiety treatment should be considered at all work up process. In some cases some requirements such as stress management training for this category of patients with chronic pain is recommended to decrease their anxiety (Benore et al., 2015). As this research showed, increased levels of anxiety were higher among whom with more increased chronic pain and the relationship between anxiety and chronic pain was meaningful. Furthermore, this study revealed increasing in chronic pain rate caused increased anxiety. Thus, it could be concluded that the relationship between the chronic pain and anxiety is a mutual relationship (Sagheer Khan & Sharif, 2013; Li, et al., 2015). In addition to psychological factors, socio-cultural factors also affection chronic pain and these factors, leading to increased anxiety and chronic pain (Pinheiro et al., 2014). Studies showed increased longevity and the risk of suicide are different among healthy people and chronic pain patients. Healthy people are more likely to reduce suicide thoughts and increase their lifetime (Campbell et al., 2015b, Campbell et al., 2015a). Therefore, the people with chronic pain should also be examined regarding the suicidal thoughts and proper evidence based psychological interventions needed to be designed and implemented for them. As aging can cause chronic pain and the pattern, rate of chronic pain and depression are different among different ages and genders, while designing intervention, these characteristics should be considered. (Jackson et al., 2015). However, in this study, the rate of chronic pain and anxiety was assessed in adults between 31 and 87 years old without any further analysis in subgroups that is one of limitation of this study. It has been discussed that psychosomatic symptoms are observed even after adjusting for demographic variables which are effective in increasing pain (Fishbain et al., 2015). Some patients' characteristics as aging, unemployment, isolation, lack of physical activity as well as poor quality of life are associated with chronic pain (Inoue et al., 2015). In patients with

chronic pain, regardless of the nature and cause of pain, a neuropathic assessment and evidence-based intervention is considerable (Chesi et al., 2015). Although this study found the relationship between chronic pain and anxiety, but the studied sample were just individuals who referred to health centers and may be not represent the whole population. The second limitation is that the majority of studied participants consisted of female, so the authors are not sure about the same results for men. Therefore, the authors propose to do more population-based studies with all sub groups.

### Conflict of Interest

There is no conflict of interest for this article.

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### Author contribution

GAH: Study implementation, Data collection and analysis, writing the first draft of Paper.

SST: Study design and data analysis, editing and confirming the final draft of the paper.

GAH: Study design, confirming the final draft of the paper.

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### References

- Alvarez, T., Muñoz, M., Moraga, J. & Alvarez, G. (2015) The Effectiveness of Relaxation Techniques in Anxiety Disorders. *European Psychiatry*. 30 (1), 1112.
- Benore, E., D'Auria, A., Banez, Ga., Worley, S. & Tang, A. (2015) The influence of anxiety reduction on clinical response to pediatric chronicpain rehabilitation. *The Clinical Journal of Pain*. 31 (5), 375-383.
- Buhrman, M., Syk, M., Burvall, O., Hartig, T., Gordh, T. & Andersson, G. (2015) Individualized Guided Internet-delivered Cognitive-Behavior Therapy for Chronic Pain Patients With Comorbid Depression and Anxiety: A Randomized Controlled Trial. *The Clinical Journal of Pain*. 31 (6), 504-516.
- Campbell, G., Bruno, R., Darke, S., Shand, F., Hall, W. Farrell & Degenhardt, L. (2015a) Prevalence and correlates of suicidal thoughts and suicide attempts in people prescribed

pharmaceutical opioids for chronic pain. *The Clinical Journal of Pain*. 32 (4), 292-301.

Campbell, G., Darke, S Bruno, R. & Degenhardt, L. (2015b) The prevalence and correlates of chronic pain and suicidality in a nationally representative sample. *Australian and New Zealand Journal of psychiatry*. 49 (9), 803-811.

Chesi, G., Scanelli, G., Gilioli, F., Scalabrini, E., Giumelli, G. & Franco, F. (2015) Prevalence of neuropathic component of pain in a cohort of patients admitted to an Internal Medicine Department for chronic pain. *Italian Journal of Medicine*. 9 (1), 57-60.

Costa, EC., Vale, S., Sobral, M. & Graça Pereira, M. (2015) Illness perceptions are the main predictors of depression and anxiety symptoms in patients with chronic pain. *Psychology, Health & Medicine*. 21 (4),13.

Crawford, JR. & Henry, JD. (2003) The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology*. 42 (2), 111-131.

David, A., Fishbain, MD., Gao, J., Lewis, P., Bruns, D., Meyer, & Disorbio, M. (2015) Prevalence comparisons of somatic and psychiatric symptoms between community nonpatients without pain, acute pain patients, and chronic pain patients. *Pain Medicine*. 16 (1), 37-50.

Hong, JH., Kim, HD., Shin, HH. & Huh, B. (2014) Assessment of depression, anxiety, sleep disturbance, and quality of life in patients with chronic low back pain in Korea. *Korean Journal of Anesthesiology*. 66 (6), 444-450.

Inoue, S., Kobayashi, F., Nishihara, M., Arai, YC., Ikemoto, T., Kawai, T., et al. (2015) Chronic pain in the Japanese community-prevalence, characteristics and impact on quality of life. *Plos One*. 10 (6), 1-14.

Jackson, T., Thomas, S., Stabile, V., Han, X., Shotwell, M. & McQueen, K. (2015) Prevalence of chronic pain in low-income and middle-income countries: a systematic review and meta-analysis. *The Lancet*. 385 (2),10.

Kim, R. (2015) Observing the Effects of Mindfulness-Based Meditation on Anxiety and Depression in Chronic Pain Patients. *International Journal of Psychology and Behavioral Sciences*. 5 (4), 143-147.

Klainin-Yobas, p., Oo, WN., Suzanne Yew, PY. & LauY. (2015) Effects of relaxation interventions on depression and anxiety among older adults: a systematic review. *Aging & Mental Health*. 19 (12), 1043-1055.

Knaster, P., Estlander, AM., Karlsson, H., Kaprio, J. & Kalso, E. (2012b) Temperament traits and chronic pain: the association of harm avoidance and pain-related anxiety. *Plos One*. 7 (10), 456-72.

Knaster, GH., Karlsson, H., EstlanderAM. & Kalso, E. (2012a) Psychiatric disorders as assessed with SCID in chronic pain patients the anxiety disorders precede the onset of pain. *General Hospital Psychiatry*. 34 (1), 46-52.

Kroenke, K., Outcalt, S., Krebs, E., Bair, MJ., Wu, J., Chumblor, N., Yu, Z. (2013) Association between anxiety, health-related quality of life and functional impairment in primary care patients with chronic pain. *General Hospital psychiatry*. 35 (4), 359-365.

Lerman, S. F., Rudich, Z., Brill, S., Shalev, H., Shahr, G. (2015) Longitudinal Associations Between Depression, Anxiety, Pain, and Pain-Related Disability in Chronic Pain Patients. *PsychosomaticMedicine*. 77 (3), 333-341.

Li, Y., Wang, R., Tang, J., Chen, C., Tan, L., Wu, Z., YuF., et al. (2015) Progressive muscle relaxation improves anxiety and depression of pulmonary arterial hypertension patients. *Evidence-Based Complementary and Alternative Medicine*. 20 (15), 1-8.

Mahrer, NE., Montañó, Z. & Gold, JI. (2012) Relations between anxiety sensitivity, somatization, and health-related quality of life in children with chronic pain. *Journal of pediatric psychology*. 37 (7), 808-816.

Moradipanah, F., Mohammadi, E., Mohammadil, AZ. (2009) The effect of music on anxiety stress and mild depression patients undergoing cardiac catheterization. *Eastern Mediterranean Health Journal*. 15 (3), 639-47.

Price, DD., McGrath, PA., Rafii, A., Buckingham, B. (1983) The Validation of Visual Analogue Scales as Ratio Scale Measures for Chronic and Experimental Pain. *Pain*. 17 (1) 45-56.

Orenius, T., Koskela, T., Koho, P., Pohjolainen, T., Kautiainen, H., Haanpää, M., et al. (2012) Anxiety and depression are independent predictors of quality of life of patients with chronic musculoskeletal pain. *Journal of Health Psychology*. 18 (2), 167-75.

Pinheiro, R. C., Uchida, R R., Mathias, A., Perez, M. & Cordeiro,Q. (2014) Prevalence of depressive and anxiety symptoms in patients with chronic pain. *Jornal Brasileiro de Psiquiatria*. 63 (3), 213-219.

Rus Makovec, M., Vintar, N. & Makovec, S. (2015) Self-Reported Depression, Anxiety and Evaluation of Own Pain in Clinical Sample of Patients with Different Location of Chronic Pain. *Slovenian Journal of Public Health*. 54 (1), 1-10.

Sagheer, MA., Khan, MF. & Sharif, S. (2013) Association between chronic low back pain, anxiety and depression inpatients at a tertiary care centre. *The Journal of the Pakistan Medical Association*. 63 (6) 688-690.

Tekur, P., Nagarathna, R., Chametcha, S., Hankey, A. & Nagendra, HR. (2012) A comprehensive yoga programs improves pain, anxiety and depression in chronic low back pain patients more than exercise: an RCT. *Complementary Therapies In Medicine*. 20 (3), 107-118.

Teo, I., Jensen, M. & Tan, G. (2014) Anxiety Sensitivity and Depression: Explaining Posttraumatic Stress Disorder Symptoms in Female Veterans With Chronic Pain. *Military Behavioral Health*. 2 (2), 173-179.

Tran, ST., Mano, J., Hainsworth, KR., Medrano, GR., Khan, k., Weisman, SJ., et al. (2015) Distinct Influences of Anxiety and Pain Catastrophizing on Functional Outcomes in Children and Adolescents With Chronic Pain. *Journal of pediatric psychology*. 40 (8), 744-755.

Tsai, M. T., Chen, K. S. & Chien, J. I. (2012) The factors impact of knowledge sharing intentions: the theory of reasoned action perspective. *Quality & Quantity*. 46 (5), 1479-1491.

Wong, W. S., Lam, HM., Chow, YF., Chen, PP., Lim, HS., Wong, S. & Fielding, R. (2014) The effects of anxiety sensitivity, pain hypervigilance, and pain catastrophizing on quality of life outcomes of patients with chronic pain: a preliminary, cross-sectional analysis. *Quality of Life Research*. 23 (8), 2333-2341.

Zeng, F., Sun, X., Yang, B. & Fu, X. (2015) Life events, anxiety, social support, personality, and alexithymia in female patients with chronic pain :A path analysis. *Asia Pacific Psychiatry*. 8 (1), 44-50.

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