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Relationship of Pain, Social and Emotional functions of patients with Knee Osteoarthritis

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ABSTRACT: Arthritis is a highly prevalent condition and can lead to physical impairments and psychological morbidity, including depression, anxiety and feeling of helplessness. Osteoarthritis(OA) is the most common form of Arthritis. There is no study in Iran to explore the forms of relationships among pain and demographic characteristics with social and emotional function of patients with knee OA. Therefore, this study was undertaken . Eighty-one knee Osteoarthritis patients referring to Rheumatology clinic of Tabriz University of medical science participated in this study with convenience sampling method. Data was collected through the social and emotional subscales of Western Ontario and McMaster Universities (WOMAC) questionnaire. Data analyzed using SPSS software. The results of linear regression analysis indicate the relationship among social and emotional function, pain and co-morbidity were significant. There are no effective cure for OA. Today, education is an important part of treating chronic diseases such as osteoarthritis. Therefore, it seems that educating pain relief methods and developing social networks for OA patients are helpful.

Key Words: pain; Emotional function; Social function; knee osteoarthritis

INTRODUCTION

Chronic musculoskeletal conditions such as arthritis afflict tens of millions of Americans each year. These conditions are associated with profoundly negative personal and social consequences, including enormous health-care costs, disability, and increased mortality. Pain is the most impairing symptom in many rheumatic diseases, and is a prominent contributor to these deleterious outcomes(Edwards et al., 2011).

Arthritis is a highly prevalent condition and can lead to physical impairments and psychological morbidity, including depression, anxiety and feeling of helplessness(Blamey et al., 2009). Osteoarthritis(OA) is the most common form of Arthritis affecting 25% of the population over the age of 65 years. The knee is most frequently affected joint, and is estimated to be the most common cause of disability in adults. OA is a major medical problem for the medical, psycho social, and economic aspects, that has a significant impact on daily activities, function and independence. In addition, The high incidence of OA in elderly people and the aging of the people will direct to increased OA and costs to treat these patients as a result(Boutron et al., 2008). Rheumatic diseases have a great impact on the quality of life. They affect not only physical functioning but also psychological and social aspects(Anderson et al., 1985). Pain, stiffness, functional impairment(Smeltzer et al., 2010), low quality of life and poor psychological health status(Khaltaev et al., 2003) are frequent features of OA.

Maisiak (1990) found that OA patients were triple as likely as nonarthritic people to have a depressed mood. Various studies have demonstrated the association between arthritis and depression(Fifield et al., 1991; Hawley and Wolfe, 1988).

There are no common treatments for OA that could be prevented the development of joint damage caused by OA, at present. Consequently, pain control, decrease of disability, improve the quality of life and

educate the patient about his or her role in self management are the aimes of management of OA patient(Fajardo and Di Cesare, 2005).

According to the Arthritis Research Campaign (2002), pain is the worst and most frequent problem(Jinks et al., 2002) of OA patients that leads to disability(Katz et al., 2006; Tsai and Tak, 2003; Dieppe, 1995), decreased psychosocial health(Khaltaev et al., 2003; Tsai et al., 2003), lower self-efficacy(James et al., 2005), depression(Wolfe and Michaud, 2009; Covic et al., 2006; Dickens et al., 2002) and sleep disturbance (Vitiello et al., 2009). Old people are mostly exposed to OA pain and may be unconscious of effective treatment options(Hill and Bird, 2007).

Indeed, pain is one of the main symptoms of physician visits by affected persons. Several studies have demonstrated the role of psychosocial factors in the course and experience of pain. It seems that high level of OA pain is longitudinally associated with depression, by the effect of pain on disability and fatigue(Edwards et al., 2011). Despite available therapies for patients with OA, persistent pain and stiffness remains as daily experiences (Lawrence et al., 2008). Furthermore, medical and surgical procedures are high-risk profile particularly for the old patients(Gross and Hillstrom, 2009; Fajardo and Di Cesare, 2005).

Few studies have shown relations between pain and psychological variables such as catastrophizing thoughts(Somers et al., 2009), poor coping strategies(van Baar et al., 1998) ,depression, and having a weak social network(Rosemann et al., 2008). There is no study in Iran to explore the forms of relationships among pain and demographic characteristics with social and emotional function of patients with knee OA. Therefore, this study was undertaken.

MATERIALS AND METHODS

This descriptive, correlational study was conducted among 81 in the knee OA patients reffering to Rheumatology clinic of Tabriz University of Medical Science during the period October 2011 through March 2012 in Tabriz, Iran. The participants selected by convenience sampling method.

First, patients were examined by a rheumatologist. They were selected if they have inclusion criterias. Inclusion criteria were: (a) patients with age above 35 years and (b) having idiopathic form of disease, and exclusion criteria included (a) having other diseases causing pain and disability and (b) having a history of surgery on knee joint.

 Data was collected through the Social and Emotional subscales of Western Ontario and McMaster Universities (WOMAC) questionnaire. The WOMAC was developed for use among patients with knee and / or hip OA, developed by Nicholas Bellamy. The questionnaire copyright was obtained. The instrument items have been ranked on a 5-point Likert-type scale. Higher scores on the WOMAC indicate worse social and emotional functional limitations. To insure the accuracy of the persian translation it was given to three faculty members including two master degrees in English language and one Master degree in nursing. The questionnaire was revised considering their suggestions. In the second part of the process, the content validity of the questionnaire was checked by 10 faculty members of Tabriz University of Medical Sciences. Internal reliability of the questionnaire was confirmed by calculating Cronbach's alpha as 0.95. The researcher collected data by interviewing. Descriptive (number, percent, mean, and standard deviation) and inferential (Regression model) statistics were used to analyze the data in SPSS.

RESULTS AND DISCUSSION

 Studying the demographic characteristics of the participants showed that 69 of the participants were married (82.2%) and the educational level of the majority of the participants (87.7%) were secondary level (Table1).

The mean (standard deviation) age of participants was 57 (30.8). Furthermore, In terms of variables disease characteristics (as duration of disease, comorbidities, Use of assistive devices and Body Mass Index) and the mean (standard deviation) of the outcomes of disease include pain, social and emotional function are displayed in Table 1.

Most participants expressed their limitations on participation in leisure activities, community events and religious programs, items of social function, as "Severe" and in response to emotional function, items of anxiety, irritability, frustration and stress was "Severe" (Table 2).

 Table 3 indicates the results of linear regression analysis to examine the relationship among social and emotional function, pain and the participants' demographic characteristics. As observed social and emotional function and comorbidities were significantly associated with pain.

This current correlational study was conducted on knee OA patients due to the high prevalence of OA and impact on functional status and healthcare costs. Our results suggested significant relations among pain, social and emotional function and comorbidities.

Evidence have indicated the psychological and social impact on pain. Few studies have shown relations between pain and psychological variables such as catastrophizing thoughts(Somers et al., 2009), poor coping strategies(van Baar et al., 1998), depression, and having a weak social network(Rosemann et al., 2008). A study in a combined group of women with rheumatoid arthritis or OA expressed that anxiety and depression were related to both current pain and increase of pain in the future(Smith and Zautra, 2008).

Morover, association between anxiety and knee pain in women has been found(Wise et al., 2010). It can be concluded that OA pain may impact emotional status of OA pateint particularly older adults who confront many mental problems especially depression. Therefore, pain relief is a priority in OA patient and nurses should pay attention to this issue and inform patient with pharmacological and non pharmacological pain relief methods.

Our study results indicate relationship between pain and social function. However, Rosemann and collogues (2008) concluded that the relationship between pain and a weak social network was statically significant. On the other hand, Blixen(1999) have shown Social support appeared to play an important role in moderating the effects of Pain and functional limitation in older adults with OA. Social support seems to have a strong effect on functional status in knee OA(Weinberger et al., 1990).

It can be concluded that OA pain may impact on social status of OA pateint. Thus, OA pain may be decrease patient involvement in family, friendly and religious gatherings. It seems that in addition to physical abilities, OA patients need to empower social function. Moreover, Development of social networks make patients to participate in the community.

Table 1. Patients' characteristics and their OA profile

variable		N (%)
Age, Mean(SD)		57 (30.8)
Duration of disease(years), Mean(SD)		6.04 (5.68)
BMI, Mean(SD)		30.67 (5.54)
pain, Mean(SD)		11.04 (4.74)
Social function, Mean(SD)		12.94 (8.03)
Emotional function, Mean(SD)		17.81 (10.18)
Marital status	Married	69 (85.2)
	Widowed	12 (14.8)
Education	Primary	26 (32.1)
	Secondary	45 (55.6)
	university	10 (12.3)
Occupation	Housewife	68 (84)
	Employee	4 (4.9)
	Retired	9 (11.1)
Use of assistive devices	Yes	3 (3.7)
	No	78 (96.3)
comorbidities	No	45 (56.3)
	Hypertension	19 (23.8)
	Diabetes	9 (11.2)
	Heart disease	6 (7.5)
	Kidney disease	1 (1.2)

SD= Standard Deviation
BMI= Body Mass Index

Table 2. Frequency and percentage of OA patients' answer to items of social and emotional function

		None F(%)	Slight F (%)	Moderate F (%)	Sever F (%)	Extreme F (%)
Social function	leisure activities	13(16)	10(12.3)	15(18.5)	24(29.6)	19(23.5)
	community events	14(17.3)	17(21)	12(14.8)	28(34.6)	10(12.3)
	religious programs	15(18.5)	16(19.8)	16(19.8)	24(29.6)	10(12.3)
	with spouse	17(21.5)	20(25.3)	23(29.1)	17(21.5)	2(2.5)
	with family	14(17.3)	23(28.4)	24(29.6)	18(22.2)	2(2.5)
	with friends	14(17.3)	26(32.1)	13(16)	23(28.4)	5(6.2)
	with others	15(18.5)	23(28.4)	14(17.3)	22(27.2)	7(8.6)
Emotional function	anxiety	13(16)	11(13.6)	12(14.8)	26(32.1)	19(23.5)
	irritability	14(17.3)	10(12.3)	23(28.4)	25(30.9)	9(11.1)
	frustration	24(29.6)	12(14.8)	18(22.2)	25(30.9)	2(2.5)
	depression	28(34.6)	14(17.3)	17(21)	17(21)	5(6.2)
	relaxation	11(13.6)	18(22.2)	27(33.3)	21(25.9)	4(4.9)
	insomnia	24(29.6)	17(21)	12(14.8)	17(21)	11(13.6)
	boredom	23(28.4)	18(22.2)	19(23.5)	17(21)	4(4.9)
	loneliness	24(29.6)	16(19.8)	13(16)	23(28.4)	5(6.2)
	stress	18(22.2)	12(14.8)	17(21)	24(29.6)	10(12.3)
	well-being	14(17.3)	18(22.2)	28(34.6)	17(21)	4(4.9)

Table 3. Linear regression results for relationship among physical functioning, pain, stiffness, and the participants' demographic characteristics

variable	ß	Std.Error	Beta	P
Social function	0.23	0.06	0.39	< 0.001
Emotional function	0.14	0.05	0.3	0.006
Age	0.06	0.05	0.11	0.24
Education	-0.62	0.78	-0.08	0.43
Occupation	-0.73	0.68	-0.1	0.28
Marital status	0.29	0.54	0.04	0.59
Use of assistive devices	0.84	2.06	0.03	0.68
Duration of disease	0.04	0.06	0.05	0.5
comorbidities	0.4	0.15	0.21	0.01

Dependent variable: physical function; ß: Unstandardized Coefficients; Beta: Standardized Coefficients
P-value: <0.05

Co-morbidity is related with lower health-related quality of life (NPHP, 2001) and a higher level of disability in people with chronic diseases(Gabriel S et al., 1999a). More adults with OA have at least one co-morbid condition (Marks and Allegrante, 2002).

Our study showed a significant relationship between pain and Co-morbidity. Furthermore, the presence of co-morbidities enhances the impact of osteoarthritis(Breedveld, 2004; Marks and Allegrante, 2002). Co-morbid conditions, mainly obesity, heart disease and pulmonary disease, increase the chance of disability in people with knee osteoarthritis(Ettinger et al., 1994). Jordan(1997) concluded expressing pain in patients with knee OA is correlated with the patient's disability.

There are no effective cure for OA. Today, education is an important part of treating chronic diseases such as osteoarthritis. Therefore, it seems that educating pain relief methods and developing social networks for OA patients are helpful.

In order to provide comprehensive medical and nursing services, we recommend to explore the social and emotional needs of OA patients with qualitative research design.

Conflict of interest

The authors declare no conflict of interest in this study.

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Abbreviations

 OA- Osteoarthritis; WOMAC- Western Ontario and McMaster Universities; NPHP- National Public Health Partnership

REFERENCES

Anderson KO, Bradley LA, Young LD, Mcddaniel LK, Wise CM . 1985. Rheumatoid Arthritis: review of psychological factors related to etiology, effects, and treatment. Psychological Bulletin. 98: 358-387.
Blamey R, Jolly K, Greenfield S, Jobanputra P. 2009. Patterns of analgesic use, pain and self-efficacy: a cross-sectional study of patients attending a hospital rheumatology clinic. BMC Musculoskeletal Disorders. 10:137.
Boutron I, Rannou F, Jardinaud-Lopez M, Meric G, Revel M, Poirudeau S. 2008. Disability and quality of life of patients with knee or hip osteoarthritis in the primary care setting and factors associated with general practitioners' indication for prosthetic replacement within 1 year. Osteoarthritis and Cartilage. 16: 1024-1031.
Breedveld FC. 2004. Osteoarthritis: the impact of a serious disease. Rheumatology. 43: i4-i8.
Covic T, Tyson G, Spencer D, Howe G. 2006. Depression in rheumatoid arthritis patients: Demographic, clinical, and psychological predictors. Journal of Psychosomatic Research. 60:469-476.
Dickens C, McGowan L, Clark-Carter D, Creed F. 2002. Depression in rheumatoid arthritis: A systematic review of the literature with meta-analysis. Psychosomatic Medicine. 64: 52-60.
Dieppe P. 1995. Recommended methodology for assessing the progression of osteoarthritis of the hip and knee joints. Osteoarthritis Cartilage. 3: 73-77.
Edwards RR, Cahalan C, Mensing G, Smith M, Haythornthwaite JA. 2011. Pain, catastrophizing, and depression in the rheumatic diseases. Nat. Rev. Rheumatol. 7: 216-224.
Ettinger WH, Davis MA, Neuhaus JM, Mallon KP. 1994. Long-term physical functioning in persons with knee osteoarthritis from NHANES. I: Effects of comorbid medical conditions. J Clin Epidemiol. 47: 809-815.
Fajardo M, Di Cesare P. 2005. Disease modifying therapies for osteoarthritis: Current status. Drugs and Aging. 22: 141-161.
Fifield J, Reisine ST, Grady K. 1991. Work disability and the experience of pain and depression in rheumatoid arthritis. Social Science and Medicine. 33: 579-585.

Gabriel S, Crowson C, O'Fallon M. 1999a. Co-morbidity in arthritis. Journal of Rheumatology. 26: 2475-2479.

Gross KD, Hillstrom H. 2009. Knee Osteoarthritis :Primary Care Using Noninvasive Devices and Biomechanical Principles. Med Clin North America. 179-200.

Hawley DJ, Wolfe F.1988. Anxiety and depression in patients with rheumatoid arthritis: A prospective study of 400 patients. Journal of Rheumatology. 15: 932-941.

Hill J, Bird H. 2007. Patient knowledge and misconceptions of osteoarthritis assessed by a validated self-completion knowledge questionnaire (PKQ-OA). Rheumatology. 46:796-800.

James NT, Miller CW, Brown KC, Weaver M.2005. Pain disability among older adults with arthritis. J Aging Health. 17: 56- 69.

Jinks C, Jordan K, Croft P. 2002. Measuring the population impact of knee pain and disability with the Western Ontario and McMaster universities osteoarthritis index (WOMAC). Pain. 100: 55-64.

Katz PP, Morris A, Yelin E. 2006. Prevalence and predictors of disability in valued life activities among individuals with rheumatoid arthritis. Ann Rheum Dis. 65: 763-769.

Khaltaev N, Pfleger B, Woolf A D, Mathers C, Akesson K, Hazes J M, et al. 2003. Assessing the burden of musculoskeletal conditions: a joint World Health Organization-bone and joint decade project .Arthritis Res Ther. 5: 174.

Lawrence R, Felson D, Helmick C, Arnold L, Choi H, Deyo R. 2008. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Arthritis and Rheumatism. 58: 26-35.

Marks R, Allegrante J.2002. Body mass indices in patients with disabling hip osteoarthritis. Arthritis and Rheumatism. 4: 112-116.

+National Public Health Partnership (NPHP). 2001. Preventing chronic disease: a strategic framework. Melbourne: NPHP. Available: http://www.nphp.gov.au [Online Accessed]

Rosemann T, Laux G, Szecsenyi J, Wensing M, Grol R. 2008. Pain and osteoarthritis in primary care: factors associated with pain perception in a sample of 1,021 patients. Pain Med. 9: 903-910.

Smeltzer SC, Bare BG, Hinkle JL, Cheever KH. 2010. Brunner & suddarth 's textbook of medical _ surgical nursing, Philadelphia, Lippincott Williams& wilkins.

Smith BW, Zautra AJ. 2008. The effects of anxiety and depression on weekly pain in women with arthritis. Pain Me., 138: 354-361.

Somers TJ, Keefe FJ, Pells JJ, Dixon KE, Waters SJ, Riordan PA. et al. 2009. Pain catastrophizing and pain-related fear in osteoarthritis patients: relationships to pain and disability. J Pain Symptom Manage. 37: 863-872.

Tsai P, Tak S. 2003. Disease-specific pain measures for osteoarthritis of the knee or hip. Geriatric Nursing. 24: 106-109.

Tsai P, Tak S, Moore C, Palencia I. 2003. Testing a theory of chronic pain. J Adv Nurs. 43: 158-169.

Van Baar ME, Dekker J, Lemmens JAM, Oostendorp RAB, Bijlsma JWJ.1998. Pain and disability in patients with osteoarthritis of hip or knee: the relationship with articular, kinesiological, and psychological characteristics. J Rheumatol. 25: 125-133.

Vitiello MV, Rybarczyk B, Von Korff M, Stepanski EJ . 2009. Cognitive-behavioral therapy for insomnia improves sleep and decreases pain in older adults with co-morbid insomnia and osteoarthritis. J Clin Sleep Med. 5: 355-62.

Weinberger M, Tierney W, Booher P, Hiner SL. 1990. ocial support, stress and functional status in patients with osteoarthritis. Social Science and Medicine. 30: 503-508.

Wise BL, Niu J, Zhang Y, Wang N, Jordan JM, Choy E. et al. 2010. Psychological factors and their relation to osteoarthritis pain. Osteoarthritis and Cartilage. 18: 883-887.

Wolfe F, Michaud K. 2009. Predicting depression in rheumatoid arthritis: The signal importance of pain extent and fatigue, and comorbidity. Arthritis Care & Research. 61: 667-673.