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Original article

Investigation of depression, anxiety and quality of life in patients with knee osteoarthritis: a comparative study☆

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ABSTRACT

Introduction: Osteoarthritis (OA) affects the articular cartilage and subchondral bone, compromising the joint as a whole. The knee joint is characterized as one of the main sites of involvement of OA and the most significant risk factors for developing the disease are aging, overweight and female gender. OA is considered one of the most frequent causes of disability, which may affect the quality of life of the patients, favoring the onset of mental disorders.
Objective: To investigate whether anxiety and depression symptoms are more significant in women with OA, when compared with women without this diagnosis, and to what extent this rheumatic disease affects the quality of life of these patients.
Methods: The study included 75 women, mean age 67 years; 40 were diagnosed with knee OA and 35 without this diagnosis. The following instruments were used: State-Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI) and SF-36, a quality of life questionnaire.
Results: Women with knee OA have higher rates of depression and anxiety when compared to controls; in addition, they have a lower quality of life.
Conclusion: We believe that the treatment of patients with OA should consider the combination of pharmacotherapy, psychotherapy, counseling and family support, in order to achieve a better quality of life.

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Investigação da ansiedade, depressão e qualidade de vida em pacientes portadores de osteoartrite no joelho: um estudo comparativo

Palavras-chave:
Osteoartrite
Ansiedade
Depressão
Mulheres
Qualidade de vida

RESUMO

Introdução: A osteoartrite (OA), artrose ou osteoartrose acomete a cartilagem hialina e o osso subcondral e compromete a articulação como um todo. A articulação do joelho caracteriza-se como um dos principais sítios de acometimento da OA. O envelhecimento, o sobrepeso e o gênero (prevalência em mulheres) são os fatores de risco mais significativos para o desenvolvimento da doença. A OA é considerada uma das mais frequentes causas de incapacidade laborativa e pode afetar a qualidade de vida de seus portadores e favorecer a emergência de transtornos mentais.

Objetivo: Avaliar se os sintomas de ansiedade e depressão são mais expressivos em mulheres com OA quando comparados com mulheres sem tal diagnóstico e o quanto essa doença reumática compromete a qualidade de vida desses pacientes.

Métodos: Participaram deste estudo 75 mulheres, com média de 67 anos, 40 com diagnóstico de OA no joelho e 35 sem. Foram usados os seguintes instrumentos: Inventário de Ansiedade Traço e Estado, Inventário de Depressão de Beck e SF-36, questionário de qualidade de vida.

Resultados: Mulheres portadoras de OA no joelho têm níveis maiores de depressão e ansiedade, além de apresentar qualidade de vida inferior em comparação com o grupo sem a doença.

Conclusão: Acreditamos que o tratamento aos portadores de OA deveria considerar a combinação de farmacoterapia, psicoterapia, orientação e apoio por parte dos parentes e/ou pessoas próximas para que o paciente possa atingir melhor qualidade de vida.

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Introduction

Osteoarthritis (OA) is the most common form of arthritis.[1] It can be defined as a syndrome that constitutes the final common pathway of biochemical, metabolic and physiological changes that occur, simultaneously, in articular cartilage (causing gradual loss), subchondral bone (sclerosis), synovial tissue (inflammation), ligaments, joint capsule and muscles surrounding the affected joint. There is also active bony growth at the joint margins.[2] In the early stages of OA, chondrocytes, synovial cells and osteoblasts make an attempt to repair the lesions produced in the cartilage and subchondral bone.[3]

The knee joint is characterized as one of the main sites of involvement of OA, being present in about 6% of adults above 30 years.[2] The prevalence increases to 10% in people over 60 years of age.[4] OA occurs predominantly in women after the age of 40 in the period of menopause and in the presence of overweight, causing limitations and adversely affecting the quality of life of this population.[1,2]

Rheumatic diseases are characterized mainly by their chronic and disabling impairment, causing physical damage that limits the patient's functional ability, directly interfering with his/her daily activities. In this context, OA emerges as one of the most frequent causes of labor incapacity and, therefore, it is critical to evaluate the psychological impacts that such a disease may cause, as well as the quality of life of women with this diagnosis.[5]

Anxiety and depressive disorders can affect patients with a diagnosis of OA, as the chronic pain caused by the disease increases the risk of emergence of these commorbidities.[4] Elderly patients with chronic medical illnesses have shown an increased risk of non-adherence to medical recommendations, as well as the mortality rate associated with depressive symptoms.[6]

The anxiety disorder is more common in patients with chronic diseases, being related to the limitations experienced by elderly patients.[7,8] Considering OA as a chronic debilitating disease, it is reasonable to assume that it can be a major stressor, favoring the emergence of this disorder. Anxiety, characterized by an uncomfortable emotional state, manifests itself accompanied by a series of cognitive, emotional, behavioral and physiological changes. These changes often include increased motor tension, autonomic hyperactivity, poor concentration, distractibility, increased vigilance and attention, fear of losing control and of being unable to cope with the imposed situation, escape and avoidance behaviors, nervousness and increased irritability.[9]

Depression is a psychiatric disorder whose prevalence is estimated at around 3–5% of the general population.[7] The most typical features of depression are: prominence of feelings of sadness or emptiness, loss of ability to experience pleasure in general activities and reduced interest in the environment. Depression may be associated with fatigue and excessive tiredness, as well as with psychomotor changes.[6]

Considering the impact of variables of emotional order in the worsening of OA symptoms, this study sought to evaluate whether the symptoms of anxiety and depression are more significant in women with this disease compared with women without such a diagnosis. Additionally, the impact of OA in the quality of life of patients was investigated, since the pain and their implications prove to be important components for understanding the quality of life of patients.[10]

Table 1 – Descriptive measures of age.

Group	Age
With osteoarthritis	
Mean	68.36
Standard deviation	9.92
Without osteoarthritis	
Mean	65.91
Standard deviation	9.12
Descriptive level	0.276

Descriptive means of age of groups with and without knee osteoarthritis.

Table 2 – Performance in State-Trait Anxiety Inventory (STAI) and Beck Depression Inventory.

Group	STAI-T	STAI-S	BDI
With osteoarthritis			
Mean	46.85	40.38	17.95
Standard deviation	13.62	10.21	12.70
Without osteoarthritis			
Mean	37.65	35.06	9.15
Standard deviation	10.15	10.01	6.80
Descriptive level	0.001	0.027	0.001

STAI, State-Trait Anxiety Inventory; STAI-S, anxiety-state; STAI-T, anxiety-trait; BDI, Beck Depression Inventory.

Methods

This is a cross-sectional, quantitative study. The study was approved by the Research Ethics Committee of the Universidade Federal de São Paulo (protocol 10894/2012).

Sample

The study included 75 women aged 50–72 years. Of this total, 40 women had a diagnosis of knee OA according to the American College of Rheumatology criteria,[11] and 35 were healthy, asymptomatic subjects, matched by gender and age. The mean age of the group with OA was 68 years, while the mean age in the group without OA was 65 years (Table 1). OA patients were seen at an outpatient clinic of a university in the city of Santos/SP. They were selected through a survey conducted by the local medical team, coordinated by a rheumatologist. The patients were being treated with NSAIDs and physiotherapy for at least 1 year and at most for 2 years. The 35 women of the control group attended to the Universidade Aberta da Terceira Idade – UnATI, campus Santos, UNIFESP.

Instruments

The instruments used in data collection were:

State-Trait Anxiety Inventory (STAI)[12]
The STAI comprises two scales, each consisting of 20 items, assessing state (STAI-S) and trait (STAI-T) levels of anxiety respectively. It is a Likert scale-type instrument, with scores ranging from 1 (almost never) to 4 (almost always) for STAI-T, and from 1 (not at all) to 4 (very much) for STAI-S.

Beck Depression Inventory[13]
This is a self-reported scale which contains 21 items, each with four alternatives, with scores ascribed of 0, 1, 2 or 3. BDI items relate to cognitive-affective symptoms and somatic/performance sensations.

Medical outcomes study 36-item Short-Form Health Survey (SF-36)[14]
This instrument consists of 36 items that assess the quality of life over eight sections, ranging from 0 to 100, where 0 = worst and 100 = best, for each domain, namely: (1) physical functioning (10 items); (2) role limitations due to physical health (four items); (3) bodily pain (two items); (4) general health status (five items); (5) vitality (four items); (6) social role functioning (two items); (7) role limitations due to emotional problems (three items); (8) mental health (five items).

Procedures

Data collection was performed at an office in the outpatient clinic or in another place defined by the participant in agreement with the investigator. The instruments were applied individually, in a single session, lasting on average 30 min.

Analysis

A descriptive analysis was performed in order to study the behavior of groups with and without OA, for each variable of interest: State Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI) and Medical Outcomes Study 36-item short-Form Health Survey (SF-36). Student's *t*-test for unrelated samples was used to compare the two groups, regarding these variables. Differences were considered significant when $p \leq 0.05$.

Results

In Table 2 one can see that the patients in the group with OA have higher rates in all variables studied. It is worth noting that STAI considers as more anxious those people whose scores are higher on the questionnaire. On the other hand, BDI scores between 0–9 are considered as no depression, 10–18 as mild depression, 19–29 as moderate depression, 30–63 as severe depression.[14]

In Table 3, one can see that patients with OA had a significantly lower score in all domains examined by SF-36, when compared with the scores of the control group.

Discussion

The aim of this study was to evaluate whether the symptoms of anxiety and depression are more significant in women with OA compared to women without such a diagnosis, and in which grade this rheumatic disease affects the quality of life of these patients.

Table 3 – Performance in the Medical Outcomes Study 36-item Short-Form Health Survey.

Domains	With osteoarthritis		Without osteoarthritis		Descriptive level
	Mean	SD	Mean	SD	
Physical functioning	44.25	25.53	78.53	21.20	0.001
Role limitations due to physical health	38.75	41.97	80.88	30.81	0.001
Pain	38.45	26.50	75.76	20.41	0.001
General health status	56.53	28.09	75.38	20.87	0.001
Vitality	52.13	27.31	66.91	20.82	0.010
Social role functioning	58.75	29.03	78.68	19.35	0.001
Role limitations due to emotional problems	52.50	43.29	80.39	32.94	0.002
Mental health	57.50	25.33	77.29	15.72	0.001

SD, standard deviation.

Depression in the elderly may emerge as a consequence of general medical illnesses, especially those, such as OA, that cause prolonged suffering, leading the patient to physical disability and loss of autonomy.[15] In this study, BDI results demonstrate that the impact of depression is important, since depressed individuals are more likely to report chronic pain, or pain of greater intensity. This fact can be a complicating factor in the process of treatment adherence, and may still increase the perception of pain.[16] The depressive disorder, when associated with physical illness, can cause the emergence of anxiety symptoms.[8] In this context, the results of this study corroborate this finding.

In addition to depression and anxiety, pain and its implications on the physical and mental state of patients with OA appear to be important components, affecting decisively the quality of life of these patients. The results of this study indicate a significant worsening in the domains of SF-36 instrument. This trend manifested itself both in the areas most directly related to physical health (bodily pain, physical functioning, role limitations due to physical health, vitality and general health state) and in those domains related to social aspects and psychological health (role limitations due to emotional problems and mental health).

In domains related to physical health, it was found that the group with OA had significantly higher levels of body pain compared to the control group, negatively affecting the quality of life. Regarding the domain physical functioning, which refers to the ability of an individual to live independently in his/her community, a decrease was observed in the group with OA. A study indicative of the quality of life in patients with chronic rheumatic diseases[5] showed that OA is characterized by being particularly debilitating, causing physical damage that affects the functional ability of the patient. The results of this study also corroborate such claims. Findings of a more recent study[15] also show that patients with chronic pain and with depression exhibit a high degree of physical disability – a finding which was also evidenced in this study. The results observed in the domain role limitations due to physical health indicated a score twice higher in the group with OA, compared to the control group.

The domain vitality was evaluated from the responses of the volunteers, about how long they felt exhausted, fatigued and with energy and vigor to carry out activities. The group with OA reported feeling more fatigue and tiredness and lower energy and vigor to carry out activities, demonstrating a loss in this domain. The same instrument also assessed social aspects, based on questions about how and for how long the physical health influenced the development of social activities.

Pain and difficulty in daily life activities, physical disability and restriction of mobility and social integration generated by disabilities can increase anxiety and discouragement,[17] intensifying the effects of OA and leading to a worsening of the patient's perception regarding his/her mental health.

It is interesting to note that the result of an inferential analysis of comparison between the two groups (with and without OA) showed significant differences for all variables investigated in this study, encompassing physical, social and emotional dimensions. The exception was made to the variable "age", in which the difference between the two groups was not significant. This finding was due to the fact that the minimum age of 50 was chosen for the composition of the samples. The results revealed that the group with OA showed declines in all other variables, when compared to the control group.

Conclusion

Together, the results observed in this study showed that symptoms of anxiety and depression were more significant in women with OA compared to women without such a diagnosis, emphasizing the negative impact that this disease causes in the psychic domain and quality of life of the patients. In this context, it is believed that the treatment of patients with OA should consider a number of approaches, involving the combination of pharmacotherapy, psychotherapy, counseling and family support, so that these patients can achieve a better quality of life. Therefore, it would be critical to involve a support network, including professionals from different areas such as physicians, psychologists, occupational therapists and social workers.

Conflicts of interest

The authors declare no conflicts of interest.

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