Journal of Psychosomatic Research 73 (2012) 251–256

Contents lists available at SciVerse ScienceDirect

Journal of Psychosomatic Research

The relative importance of psychosocial factors in arthritis: Findings from 10,509 Australian women

Melissa L. Harris [a,*], Deborah Loxton [a], David W. Sibbritt [a,b], Julie E. Byles [a]

[a] Priority Research Centre for Gender, Health and Ageing, Faculty of Health, University of Newcastle, Callaghan, NSW, Australia
[b] Centre for Clinical Epidemiology and Biostatistics, School of Medicine and Public Health, Faculty of Health, University of Newcastle, Callaghan, NSW, Australia

ARTICLE INFO

Article history:
Received 15 May 2012
received in revised form 19 June 2012
accepted 19 June 2012

Keywords:
Ageing
Anxiety
Arthritis
Psychosocial health
Psychological stress
Women

ABSTRACT

Objective: To determine the relative importance of psychosocial factors in arthritis diagnosis in an ageing cohort of Australian women.
Methods: This study focused on 10,509 women from the 1946–1951 cohort who responded to questions on arthritis in the fifth mailed population-based survey of the Australian Longitudinal Study on Women's Health conducted in 2007.
Results: Arthritis was characterised by widespread psychosocial concerns, particularly relating to chronic stress and poor mental health. Univariate analyses revealed that in comparison to women without stress, women with moderate/high stress levels had a 2.5-fold increase in reporting arthritis. Experiencing ongoing negative interpersonal life events concerning illness of a family member/close friend and relationship difficulties was also associated with a 1.4-fold increase in the reporting of arthritis. Likewise, significantly reduced levels of optimism and perceived social support were noted (all associations $p<.001$). Psychiatric diagnosis was also associated with a two-fold increase in having arthritis ($p<.001$). Following adjustment for behavioural, demographic and health-related characteristics, anxiety was the only psychosocial factor associated with arthritis (OR=1.4, 95% CI=1.2, 1.7; $p<.001$).
Conclusion: This study examined, epidemiologically, the relative importance of psychosocial factors in arthritis in an ageing cohort of Australian women. The findings from this population-based study indicate that women with arthritis are more likely to report a range of psychosocial-related problems, particularly with regard to chronic stress perception and anxiety. Longitudinal analyses are required to examine the processes by which stress and psychosocial factors may contribute to arthritis risk and poor adaptation in terms of health-related quality of life.

Introduction

Arthritis represents an ongoing public health challenge. The disease contributes substantially to global healthcare expenditure and is a major cause of disability, limited mobility and chronic pain [1–4]. The prevalence of arthritis has been estimated to be around 20%, with figures often exceeding 50% when focused on middle-aged and older adults [5–7]. Arthritis also disproportionately affects women and when present post-menopause is more debilitating [8,9]. With significant variability associated with arthritis disability, factors extraneous to the disease may contribute to the burden of arthritis, particularly for women as they age [3,4]. As such, it is pertinent to understand factors contributing to the disease burden that may provide additional avenues for intervention. Limited epidemiologically-based research exists regarding the relative importance of psychosocial factors in arthritis diagnosis for women as they age. As such, this will provide the focus of this paper.

The influence of psychosocial factors on disease processes in arthritis has primarily focused on psychological adaptation (most notably depression). However, inconsistent evidence for an increased association between poor mental health and arthritis has been found [10–14]. Hawley and Wolfe [15] in a ten year study of consecutive rheumatoid arthritis (RA) outpatients found that 20% fulfilled criteria for 'probable' depression, while cross-sectionally, Ho and colleagues found that 15 and 26% of RA patients reported depression and anxiety, respectively [16]. Similar findings have been reported for osteoarthritis (OA) populations [17]. When specifically focused on women, El-Miedany and El Rasheed noted that around 60% of women with RA experienced depression, with anxiety found to approach 70% [14]. Meanwhile, prospective findings indicate that the prevalence or severity of depression in RA is not dissimilar to individuals with other chronic diseases, and as such may be a factor of reduced health-related quality of life and not a function of the disease, per se [15]. In a cohort study, Courvoisier et al. [18] found pain to be the most important predictor of psychological health. Thus, it is

---

* Corresponding author at: Priority Research Centre for Gender, Health and Ageing, Faculty of Health, University of Newcastle, University Drive, Callaghan, NSW 2308, Australia. Tel.: +61 240420621; fax: +61 240420043.
E-mail address: Melissa.Harris@uon.edu.au (M.L. Harris).

0022-3999/$ – see front matter © 2012 Elsevier Inc. All rights reserved.
doi:10.1016/j.jpsychores.2012.06.009

important to understand the role of psychosocial factors within a comprehensive model, taking into account current health perceptions.

Psychological stress may also play an important role in the poor adjustment to arthritis, particularly for women. The majority of stress-related research within the arthritis field has focused on the occurrence of major or minor negative life events in relation to symptom expression or psychological adaptation in RA [19–24]. Turner et al. [21] found that patients who experienced more chronic major and minor daily stressors over a six month period experienced poorer mood, while Treharne and colleagues [20] noted that greater life stress impacted psychological well-being over the course of the disease, particularly in relation to anxiety. Additionally Thomason et al. [23] found that following the adjustment for disease severity and major life stress, minor stressful life events accounted for a significant amount of the variance associated with inflammation levels. Other studies, depending upon the stress measurement employed and covariates examined have produced null and negative findings [25,26]. In one of the few studies to examine specific life events in relation to disease onset, Fuller-Thomson and colleagues [27] found that physical abuse was associated with a two-fold increase in being diagnosed with OA in adulthood, following the adjustment for demographics. The findings, however, are limited as the researchers did not control for additional psychosocial processes or traditional arthritis risk/protective factors, such as obesity.

Moreover, it is increasingly being acknowledged that stress appraisal (i.e. the extent to which an event is perceived as stressful) in the absence of perceived personal coping resources (such as social support and personality characteristics) may be more critical to the adjustment process and as such may have a greater impact on the disease than the exposure to chronic stressors [28]. Particularly, Epel and colleagues [29] have demonstrated that chronic perceived stress is associated with key physical markers of cellular ageing, with high levels of perceived stress found to increase cellular ageing by one decade in comparison to women with low stress levels. Research related to the impact of perceived stress on women with arthritis however is limited. Curtis and colleagues [30] found perceived stress to be associated with affective disturbance in Irish women with established RA (mean age=60 years), while Zautra and Smith [31] in their study of postmenopausal women with RA and OA found perceived stress to be associated with both pain sensitivity and poor mood. Interpersonal stress has also been found to be associated with elevated biological and clinical markers of disease activity in American women with RA [32]. Studies to date however have generally focused on small RA sub-samples and have failed to consider various aspects of the stress process (including additional psychosocial factors that may facilitate the response) within the one model, thereby limiting the scope of their findings [30,33].

Given arthritis is projected to affect upwards of 40% of women by the year 2050 [1,34] and women have been found to have greater stress reactivity in comparison to men, particularly as they age [35,36], it is pertinent to gain an understanding of how psychosocial processes may be associated with arthritis at an epidemiological level, taking into account factors that influence psychosocial health including traditional risk/protective factors and current health perceptions. Therefore, the aim of this study is to determine the relative importance of psychosocial factors in arthritis diagnosis using a broadly representative cohort of ageing Australian women.

Methodology

Overview of the Australian Longitudinal Study on Women's Health (ALSWH)

The ALSWH is a longitudinal cohort study assessing physical, psychological, environmental, social and economic factors in Australian women. Using self-report mailed surveys, in excess of 42,000 women were randomly recruited through the national health insurer's database (Medicare Australia). To ensure an adequate representation of Australian women, a stratified random sampling frame was used with women from rural and remote areas sampled at twice the rate as those from urban areas [37]. This project has ongoing ethical clearance from both the University of Newcastle and University of Queensland's Human Research Ethics Committees.

Sample

For the purposes of this study, data from the 1946–1951 cohort who completed the fifth survey in 2007 were analysed. Of the 14,099 women who responded to the initial invitation in 1996, 10,638 (75.5%; unweighted data) women aged between 56 and 61 years completed the follow up survey in 2007. This sample was found to be largely representative of the original cohort, with a slight over-representation of married, Australian born and tertiary educated women [38]. The final sample for this analysis however, related only to those women who responded to the questions about arthritis diagnosis. The final sample comprised 10,509 (74.5%) women (unweighted data).

Measures

Arthritis case definition (outcome variable)

'Arthritis' was defined as those women who reported being diagnosed with, or treated for OA, RA, or another form of arthritis (other), in the past three years at survey 5. As there are inherent difficulties associated with the self-reporting of specific arthritis forms [39], responses were dichotomised to indicate the presence or absence of at least one form of arthritis.

Psychosocial factors

The Perceived Stress Scale [40] was used to assess levels of psychological stress across ten life domains, including own health, health of a family member, money and personal relationships. Women were asked to rate how stressed they had felt in these areas within a 12 month period on a five point Likert-type scale from 'not stressed at all' to 'extremely stressed'. Mean scores were aggregated into 'no stress' (mean score of 0), 'minimal stress' (scores >0 and ≤ 1) and 'moderate/high stress' (scores >1). This method of classification has been previously adopted [41,42]. This scale has been found to have acceptable psychometric properties [43]. Cohort-specific life events were extracted from a modified version of the Life Event Questionnaire [44]. Women were asked to indicate whether they had experienced life events of varying severity and chronicity including a significant trauma (e.g. death of a spouse) or constant sources of stress (e.g. financial difficulties) in the previous 12 months. Women were considered to have depression or anxiety if they reported being diagnosed with, or treated for these conditions in the past three years [45].

The abbreviated version of the Medical Outcomes Study Social Support Survey [46] was used to measure perceived social support. This version includes two items from each of the emotional/informational, tangible and affectionate/positive social interaction scales. Respondents were asked to rate how often these types of support were made available to them when needed, on a five point Likert-type scale from 'none of the time' to 'all of the time'. Mean scores for the scale were aggregated into 'all of the time' (scores >4 and ≤ 5), 'most of the time' (scores >3 and ≤ 4), 'some of the time' (>2 and ≤ 3) and 'none/little of the time' (scores ≤ 2). The abbreviated index has shown strong agreement with the original 19 item scale [40]. The revised Life Orientation Test (LOT-R) [47] was used as a measure of dispositional optimistic life approach. For the purposes of the study, only the six active items related to positive and negative expectations were utilised. Summed scores ranged from 0 to 30, with higher scores reflecting more optimism. Through confirmatory analysis, the LOT-R for the 1946–1951