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# Psychological correlates of fatigue in rheumatoid arthritis: A systematic review

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## HIGHLIGHTS

- Systematic review of the psychological associates of fatigue in RA.
- Reduced mood frequently associated with increased fatigue.
- Some evidence for an association between RA-related cognitions and fatigue.
- Limited evidence for an associated between stress and personality and fatigue.
- Suggested intervention targets include mental health and RA-related cognitions.

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## ABSTRACT

Fatigue is common and debilitating in Rheumatoid Arthritis (RA). A focus on the psychological variables associated with fatigue may help to identify targets for intervention which could enhance the treatment of fatigue in RA. The purpose of this review was to systematically identify psychological variables related to fatigue in RA, with the overall aim of suggesting evidence-based targets for fatigue intervention in RA. Twenty-nine studies met inclusion criteria and were included in the narrative synthesis. A wide range of psychological variables were addressed, spanning 6 categories: affect and common mental disorders; RA-related cognitions; non-RA-related cognitions; personality traits; stress and coping; and social support/interpersonal relationships. The most consistent relationship was found between mood and fatigue, with low mood frequently associated with increased fatigue. Some evidence also highlighted the relationship between RA-related cognitions (such as RA self-efficacy) and fatigue, and non-RA-cognitions (such as goal ownership) and fatigue. Limited evidence was found to support the relationship between stress and coping or personality traits and fatigue, although mixed evidence was found for the relationship between social support and fatigue. The results of this review suggest the interventions for fatigue in RA may benefit from a focus on mental health, and disease-related cognitions.



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## 1. Introduction

Rheumatoid Arthritis (RA) is a chronic autoimmune disease which affects 0.2–1.2% of the adult population (Alamanos et al., 2006). RA is progressive and primarily affects the joints, leading to increased pain, functional disability and joint destruction (Kvien, 2004). In addition to the impact RA has on joints and physical disability, there are other extra-articular manifestations which can also contribute to poor patient outcomes. RA significantly impacts quality of life, with RA patients showing notably lower fatigue-related quality-of-life in comparison to the general population (Matcham et al., 2014). Fatigue is reported in over 80% of RA patients (Belza, 1995; Belza et al., 1993; Pollard et al., 2006). More conservative estimates are still high: approximately 40% of RA patients experience persistent fatigue over one year (Repping-Wuts et al., 2007) and 57% of RA patients identify fatigue as the most problematic symptom of their condition (Wolfe et al., 1996).

Fatigue is often experienced in healthy people (Pawlikowska et al., 1994); it is usually transient and can be caused by a lack of sleep or high stress levels (Loge et al., 1998). In the general population, fatigue is a universal symptom, existing on a spectrum of severity and chronicity, at one end of which patients have persistent fatigue, contributing to substantial impairment. Qualitative studies have revealed that despite fatigue being the most problematic symptom for the majority of patients with RA, patients' experiences are that this is often dismissed by healthcare professionals (Hewlett et al., 2005). Furthermore, despite the high prevalence of fatigue in RA, and the clear impact fatigue has on patients' well-being, fatigue is infrequently reported in RA trials (Kalyoncu et al., 2009). Fatigue in RA tends to be chronic and is associated with increased levels of pain and depression, and reduced functional status and quality-of-life (Mayoux-Benhamou 2006; Rupp et al., 2004; van Hoogmoed et al., 2010).

A recent review examining variables relating to fatigue in RA found that the most consistent relationships were between fatigue and pain, disability and depression (Nikolaus et al., 2013). Whilst this review examined a broad range of variables relating to fatigue, there was limited focus on social and behavioural variables. In their guidelines for the for management of early rheumatoid arthritis, Luqmani et al. (2006) report that the strong associations between fatigue and reduced quality-of-life and increased work dysfunction highlight a need for further research establishing the course of fatigue in RA and developing effective treatment strategies for fatigue management.

Meta-analysis evidence suggest that biotherapies have small-to-moderate effects on fatigue outcomes (Chauffier et al., 2012). This systematic review found an overall effect size of 0.45 (95%CI: 0.31-0.58) when comparing all disease modifying RA drugs with placebo. There is currently no systematic review examining the impact of other pharmacological interventions (such as antidepressants) on fatigue outcomes in RA. Psychological factors may also help to identify patients at risk of reduced fatigue biotherapy response (Druce et al., 2014). A focus on the psychological variables associated with fatigue may be crucial not only for developing psychological interventions for fatigue, but also for identifying patients who may not benefit from traditional biotherapy for fatigue.

There is some evidence to suggest that psychological interventions may improve fatigue outcomes (Cramp et al., 2013; Hewlett et al., 2011a). A conceptual, dynamic model of fatigue incorporating disease-related factors (such as inflammation and medication), personal factors (social support and work environment), and cognitive behavioural factors (including thoughts and feelings), has been developed (Hewlett et al., 2011b). However in comparison to other physical conditions, there has been limited systematic assessment of the psychological variables associated with fatigue in RA, and until such a review is conducted, the most useful target variables for intervention in this population remain unknown.

The aim of this review is to identify studies assessing psychological factors which may be associated with, predict or explain fatigue outcomes in RA. The aims are: a) to ascertain the strength of evidence for relationships between psychological variables and fatigue in RA; b) to map identified psychological variables onto commonly used models of chronic fatigue, in an attempt to clarify the most useful target variables for interventions; and c) to identify methodological issues and gaps in literature the with the aim to advise the direction of future research. For the purposes of this review, psychological factors are defined as variables which relate to behaviours, feelings, thoughts and attitudes which would be modifiable for the purposes of intervention, or which may moderate the effects of treatment.

## 2. Method

### 2.1. Search strategy and selection criteria

The systematic review protocol and data extraction forms were designed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Moher et al., 2009). Electronic databases (PsychINFO, Web of Science, MEDLINE, EMBASE, CINAHL) were systematically searched from inception to March 2013, using customised search terms for each database. Search terms involved combining key word searches for fatigue ("Fatigue" or "tiredness"), the terms "determine$", "predict$" or correlate$", and "Rheum*" or "Rheumatoid Arthritis".

### 2.2. Inclusion and exclusion criteria

Included studies met the following criteria: (i) observational design, or baseline cross-sectional data from a trial; (ii) published quantitative studies examining psychological factors relating to fatigue in RA; (iii) reported results for RA separately from other rheumatological conditions.