



# World News of Natural Sciences

An International Scientific Journal

WNOFNS 56 (2024) 1-10

EISSN 2543-5426

---

---

## Psychological and ethical issues in the management of patients with Rheumatoid Arthritis

**Helena van Oers**

Counselling Psychologist, Durban Oncology Centre, Durban, South Africa

E-mail address: [fransvo@dtinc.co.za](mailto:fransvo@dtinc.co.za)

### ABSTRACT

Rheumatoid arthritis (RA) is a chronic autoimmune disease of unknown etiopathogenesis, characterised by persistent joint pain, stiffness and swelling due to inflammation and erosion of the synovial joints. Uncontrolled active RA leads to decreased quality of life, disability, and comorbidity. Despite surgical and pharmacological interventions, many patients with RA continue to experience symptoms such as pain, fatigue and psychological distress such as anxiety and depression. Research shows that these psychological factors in turn, lead to adverse physiological outcomes and negatively affect treatment compliance. In addition, some RA medications have psychological side-effects especially when taken over long periods making psychotherapeutic interventions an important but often overlooked adjuvant treatment option. The focus of psychological treatments in RA is to attain better quality of life including, inter alia, increased self-efficacy, management of psychological distress, enhancing the patient's emotional and cognitive state, and exploring adaptive coping styles. Research demonstrates that Cognitive Behaviour Therapy (CBT) is an effective intervention in ameliorating psychological distress in patients with RA. Ethical and effective adjuvant psychotherapy is an important component in the management of RA patients.

**Keywords:** comorbidity, Cognitive Behaviour Therapy, ethics, psychotherapy, rheumatoid arthritis

### 1. INTRODUCTION

Rheumatoid arthritis (RA) is a common systemic long-term inflammatory autoimmune disease with both musculoskeletal and systemic features and is the most common rheumatic

disorder among connective tissue disorders [1]. It can be severe, chronic and disabling and is characterized by joint pain and inflammation as the primary physical symptoms, but commonly impairs the somatic, emotional, and psychological functioning of patients [2].

Psychological distress including depression, anxiety, decreased self-esteem and body image, together with psychiatric disorders such as bipolar disorder are common co-morbidities in RA [3, 4].

Although psychiatric comorbidity with a chronic disease is linked with poor patient outcomes, depression and anxiety are not generally considered in the routine care of RA patients and are repeatedly underdiagnosed, often remaining untreated [5]. This is significant as research suggests that depression negatively impacts almost all outcomes of RA including disease activity, levels of pain, possibility of remission, quality of life and mortality [1, 6, 7].

Recent advances show that inflammatory conditions and infectious states often lead to psychiatric morbidity.

Current psychiatric research reveals that the chronic inflammation associated with RA plays an important role in the pathogenesis of diseases such as depression and anxiety by inhibiting stress reactions and physiological coping mechanisms, and that RA in particular is frequently linked with poor patient outcomes as a result of increasing disability and low treatment compliance which can lead to a poor long-term prognosis for RA [5, 8].

## **2. RHEUMATOID ARTHRITIS**

The pathogenesis of RA has as yet not been fully identified. RA is regarded as an autoimmune disorder, where white blood cells attack the organism's own tissues. This process results in the presence of immune complexes in the synovial fluid, in combination with the rheumatoid factor (RF) ie antibodies against Immunoglobulin G (IgG). It is suggested that the RF initiates and sustains the inflammatory process in joints. However how and why it starts and maintains the course of disease remains unknown [2].

The prominent physiological feature of RA is persistent inflammatory synovitis, usually affecting peripheral joints, often symmetrically. This synovial inflammation often leads to destruction of articular tissues, the impairment of articular function together with bone erosion and as such affects the mobility of the joint commonly resulting in deformities of joints that seriously affect the quality of life [9]. The age of onset is typically between 40 and 60 years and the incidence of RA is 3 to 4 times higher in women. Patients affected by rheumatoid arthritis experience the somatic problems associated with the deformation and deterioration of joints, chronic pain, fatigue, weight loss, and fever but moreover must also deal with psychological challenges, which may include negative affect, inter alia anxiety, depression and feelings of loss.

They may also face social difficulties related to changes in abilities in fulfilling social roles. Extra-articular comorbidities (heart disease, interstitial pneumonia) may further exacerbate the psychological experience of requisite lifestyle changes and adjustments to manage the impact of the condition [2, 10].

In addition, RA medications carry significant side-effects when taken over a longer term [11]. This may significantly precipitate the decline of the patient's quality of life [9, 12]. Studies show that despite pharmacological therapies, psychological distress such as increased anxiety and depression is commonplace, and is often attributed to fatigue and pain [2, 11, 13].

### **3. DEPRESSION**

The Statistical Manual of Mental Disorders [14] criteria for the diagnosis of depression stipulate that patients must experience five or more symptoms such as significant weight change, cognitive disturbance, psychomotor agitation or retardation, feelings of worthlessness, suicidal ideation, fatigue) during the preceding two weeks together with the presence of either depressed mood or a loss of interest or pleasure. These symptoms must be clinically significant and result in a marked impairment in daily activities [15].

Research has shown that anxiety and depressive symptoms are the most common comorbidities of RA and it is estimated that between 14% and 62% of patients also suffer from these symptoms[2, 7, 16].

Studies suggest that this occurs through either neuroimmunobiological or psychological mechanisms. The neuroimmunobiological hypothesis implicates the negative role of proinflammatory cytokines such as interleukin (IL-6) and tumor necrosis factor (TNF- $\alpha$ ) in the disruption of the serotonergic system and suggests that inflammation contributes to the development of depression by inducing illness behaviors associated with the neurovegetative features of depression through the dysregulation of the hypothalamic– pituitary–adrenal axis (HPA), alteration of neurotransmitter synthesis and reuptake and through its action on the neuroprogression pathway [8, 17, 18]. Moreover, IL-6 plays a major role in the pathogenesis of RA, propelling the process of synovitis and inflammation in addition to other systemic symptoms such as anemia, osteoporosis, and fatigue [19].

Recent studies suggest a bidirectional causative association between RA and depression, beyond mere co-morbidity and growing evidence indicates that depression is a pro-inflammatory state which shares the cytokine activation and the recognised pathophysiological pathways seen in RA. Psychological stressors have frequently been identified as risk factors in RA, triggering the onset of disease, leading to flare-ups and negatively impacting compliance with treatment plans.

By contrast, RA disease activity such as recurrent pain, fatigue, prolonged inflammation are themselves stressors and influence psychological wellbeing through alterations in cognitive appraisal, affective states, and behavioural coping mechanisms [20, 21, 22]. Studies indicate that psychiatric disease leads to increased disease activity, greater deterioration of dysfunction, decrease in quality of life and may reduce response to first-line antirheumatic pharmacotherapy in patients with RA [23].

These studies also suggest that this bidirectional relationship is particularly marked in the elderly which increases risk of mortality [3, 22, 24].

The psychological theory, on the other hand, suggests that increasing impairment as a result of gradual deterioration of function causes the patient to feel helpless, powerless and ultimately worthless, which gives rise to depressive symptoms [2]. The chronic inflammation that identifies RA may inhibit the patient's stress reactions and physiological coping mechanisms which leads to depression with concomitant lower medication adherence, sleeping difficulties, a higher risk of suicidal behavior and a reduced likelihood of reaching complete remission. This poses a poor long-term prognosis for RA [8].

It is generally accepted that depression scores in RA decrease with time. Research indicates that several factors, inter alia better control of disease and less inflammation may contribute to this decrease [1].

#### **4. ANXIETY**

Anxiety may be defined as a distressing subjective experience in response to a perceived threat [25]. Anxiety comprises a heterogeneous range of symptoms, from contextual physiological anxiety right through to anxiety disorders, with some but not others associated with some degree of inflammation. It is yet to be determined if there is an anxiety phenotype in RA that may be linked to inflammation [1]. The DSM lists symptoms such as, *inter alia*, excessive worry, tension, apprehension, restlessness and irritability as well as physiological symptoms which can add to the presentation of RA symptoms, such as palpitations and tremor, as amongst the diagnostic criteria for diagnosis [14, 26]. Anxiety may commonly co-occur with a presentation of depression, increasing the accumulative comorbidity burden [26].

Some studies suggest that the association between disease activity and anxiety is weaker when compared to depression, while others indicate that anxiety is found to be the most prevalent comorbid condition and is highly prevalent in early RA, especially in young women [1, 26-28]. Findings show that even at subclinical levels, anxiety has significant impacts on pain, fatigue, sleep and physical function which impact on the overall management of RA and should therefore be regularly screened for and treated as necessary [26, 29].

Moreover, several recent studies suggest that baseline depression and anxiety levels in RA appear to be associated with a decreased probability of achieving remission, while other studies on early RA indicate that higher joint involvement at baseline may be associated with increased anxiety and depression 6 months post diagnosis [1].

#### **5. TREATMENT**

Since the primary cause of rheumatoid arthritis has not been identified, treatment is symptomatic and aimed at halting the progress of disease and so inducing remission. Initial treatment typically employs analgesic and anti-inflammatory and/or immunosuppressive drugs, which include nonsteroidal anti-inflammatory drugs (NSAIDs) and glucocorticosteroids (GCs) as well as synthetic disease-modifying antirheumatic drugs (DMARDs), conventionally methotrexate. In addition, targeted biologic DMARDs are prescribed for patients who have an insufficient response to conventional therapy and these are currently the most advanced form of treatment [30]. These new therapies target and inhibit immune mediators and cytokines and have proven to be much more effective in countering immunological response, achieving remissions which last several years [2, 15, 19].

However, studies show that RA pharmacotherapy may have an effect on mental health outcomes through the action of relieving pain and stiffness and thereby potentially targeting the inflammatory processes common to RA and depression. There appears to be a lack of consensus in the literature as to whether the pharmacological treatments for RA improve mental health or have an adverse effect on patients treated with these drugs and in cases where there is improvement, it remains unclear as to whether the extent to which improvements in mental health observed in patients are through DMARDs having a direct impact on inflammatory pathways or indirectly through the reduction of pain and impaired ability [30].

Recent studies indicate that levels of depression and anxiety may differ between patients with RA depending on the type of DMARDs used. Some studies suggest that treatment with biologic DMARDs such as TNF- $\alpha$  antagonists, appear to result in greater numbers of patients

with increased scores for depression as compared to patients treated with conventional DMARDs such as methotrexate and leflunomide, whereas other research indicates that such TNF- $\alpha$  antagonists could decrease depression symptoms in RA patients [19, 23].

In contrast, a recent finding suggests that a significant association exists between anxiety and depression and taking leflunomide. RA patients on leflunomide demonstrated significantly higher scores for anxiety and depression when compared to those using other DMARDs, with the proportion of non-depressed RA patients not taking leflunomide being higher than that of patients on leflunomide. Only one common conventional DMARD, hydroxychloroquine used for treating RA has been shown to have no psychiatric effects such as depression, anxiety, and suicidal ideation [19]. Furthermore, these adverse drug effects are exacerbated when they are taken over long periods [31].

## **6. PSYCHOLOGICAL MANAGEMENT**

RA has been shown to be a complex chronic disease that has effects on mental health. Studies demonstrate that while pharmacological interventions alone have limited success effect in treating RA and many patients still experience significant psychological distress, pain and fatigue, most studies show significant positive effects of psychological interventions [22].

Currently psychological treatments in RA are aimed at improving quality of life including factors such as, inter alia, improved self-efficacy, anxiety and depression, the patient's cognitive states, more adaptive coping styles and more active lifestyles while also minimizing learned helplessness, perceived pain, stress, fatigue and psychological distress [32].

Research demonstrates that among psychological interventions which achieve significant improvements with RA patients are patient education, stress management which aims to modify stress appraisal and lower subjective perceptions of anxiety, and cognitive behavioural therapy (CBT) [31, 33].

CBT is the most researched psychotherapy for RA in particular. It is a short-term intervention, typically 8 to 12 sessions, either individually or in groups, which is a well-established and widely acknowledged psychotherapeutic approach. CBT employs a variety of techniques such as cognitive restructuring, exposure and behavioural procedures and has been shown to improve clinical outcomes in inflammatory arthritis patients. CBT focuses on improving patients' problem solving skills, achieving behavioral changes and exploring the relationship between beliefs, cognition and feelings and how these factors influence behaviors [31]. An important aspect of CBT is enhancing patients' self-efficacy thus lessening the interference that pain, fatigue and psychological distress causes in their everyday lives [32].

Through education the patient and therapist explore the nature of symptoms, treatment options and the importance of the patient playing an active role in their own health management. Secondly, self-management skills such as relaxation techniques and graded activation, which target pain, cognition, affect and functional status are considered. In addition, CBT involves the promotion of life style change, maintenance of improvements and prevention of relapse. These include goal setting, reframing, and communication skills. In order to better learn and integrate skills into one's life style, CBT relies upon self-monitoring, skill rehearsal, and social reinforcement to allow the patient to discover and integrate these skills into their lifestyle [31].

The overall aim of CBT is to develop more efficient coping skills to deal with pain sensations, anxiety, fatigue and to improve functionality. Recent studies confirm that CBT

significantly improves psychosocial wellbeing related to more active coping styles, improved self-efficacy and a reduction in the perception of disease stressors and provides a feasible, effective approach to management and enhances patients' beliefs in their ability to control pain and fatigue [31, 34-36].

One of the main benefits of psychological interventions is their availability and applicability in various settings for the whole duration of the disease. Importantly, it has been shown that interventions like CBT are as effective when sessions are web-based as when they are held in-person. This has far-reaching benefits for RA patients [36].

## **7. ETHICAL ISSUES IN RA MANAGEMENT.**

Despite the frequency and significance of ethical issues arising in the field of rheumatology, literature on the ethical discourse is sparse [37]. Recent research has identified concepts such as autonomy, identity, transparency, privacy and distributive equity, namely the need for cultural, gender-based and racial parity in assessment and treatment, as being among the most common bioethical principles which must be addressed in clinical practice [38].

Further ethical issues which arise for clinicians and therapists include the provision of adequate information on treatment options, shared decision making, negotiating mutual trustworthiness and the preservation of the patient's self-respect [39].

Shared decision-making is a collaborative process whereby patients and clinicians cooperate to better understand the patient's psychological and physical position and build a treatment plan in which evidence based information, clinician experience and into which the patient's choices and goals are integrated. Studies indicate that this process leads to improved patient knowledge and participation in care and improved self-reported health outcomes in a variety of clinical contexts. Recent research demonstrates that this process also reduces decisional differences and patient indecision, which leads to optimal treatment adherence [40].

Ethical healthcare requires wide public knowledge about early RA symptoms, effective communication between patient and clinician and practical support between primary and secondary care (Leese et al., 2022).

## **8. CONCLUSION**

RA is a complex disease that has effects on the entire functioning personality. Despite pharmacological and surgical treatment, patients commonly experience anxiety, depression, self-esteem disorders, helplessness and decreased self-esteem, which studies have demonstrated to be significantly debilitating and may influence other outcomes such as compliance with medication and disease activity. The aim of psychotherapeutic treatment in RA is to improve the patient's quality of life in terms of self-efficacy, decreased psychological distress and more adaptive coping styles. It has been shown that an ethically sound and collaborative therapeutic strategy can achieve these goals.

A multi-disciplinary approach to RA therapy, including psychological interventions, can considerably contribute to optimal medical care for patients with RA. As part of a holistic treatment plan, psychological interventions can address the connection between cognitions and feelings which may be helpful to patients in understanding and emotionally accepting their

disease, thereby promoting behavioral changes and improved psychological outcome. Consequently psychological intervention in RA treatment is relevant and should be used as an adjunctive therapy to enhance treatment response to the disease.

## References

- [1] Fragoulis GE, Cavanagh J, Tindell A, Derekhshan M, Paterson C, Porter D et al. Depression and anxiety in an early rheumatoid arthritis inception cohort: associations with demographic, socioeconomic and disease features. *Rheumatic & Skeletal Diseases* 2020; 6(3): e001376
- [2] Ziarko M, Siemiątkowska K, Sieński M, Samborski W, Samborska J, Mojs E. Mental Health and Rheumatoid Arthritis: Toward Understanding the Emotional Status of People with Chronic Disease. *BioMed Research International* 2019; <https://doi.org/10.1155/2019/1473925>
- [3] Ng CYH, Tay SH, McIntyre RS, Ho R, Tam WWS, Ho CSH. Elucidating a bidirectional association between rheumatoid arthritis and depression: A systematic review and meta-analysis. *J Affective Disorders*. 2022; 311: 407-415
- [4] Viberg Johansson J, Blyckert H, Schölin Bywall K. Experiences of individuals with rheumatoid arthritis interacting with health care and the use of a digital self-care application: a qualitative interview study. *BMJ Open* 2023; 13: e072274. doi: 10.1136/bmjopen-2023-072274
- [5] Jones Amaowei EE, Anwar S, Kavanoor Sridhar K, Shabbir K, Mohammed EH, Bahar AR, Talpur AS, Bhat S, Zafar S, Qadar LT. Correlation of Depression and Anxiety With Rheumatoid Arthritis. *Cureus*. 2022 Mar 14; 14(3): e23137
- [6] Fakra E, Marotte H. Rheumatoid arthritis and depression. *Joint Bone Spine*. 2021; 88(5): doi.org/10.1016/j.jbspin.2021.105200
- [7] Nicolau RR, Martins A, Santos Oliviera D, Bernardes M, Costa L. AB0296 The real impact of depression and anxiety on rheumatoid arthritis patients: a cohort study. *Annals of the Rheumatic Diseases*. 2023; 82(1). doi.org/10.1136/annrheumdis-2023-eular.2839
- [8] Azzam AI, Lamlom M & Khalifa AM. Screening for depressive symptoms in patients with rheumatoid arthritis: relationship with pain severity, disease activity, and sleep quality. *Middle East Curr Psychiatry*. 2022; 29(73). <https://doi.org/10.1186/s43045-022-00239-4>
- [9] Aundhia C, Patel S, Shah S et al. Psychological Effects and Management of Rheumatoid Arthritis. *Int J Pharm Res*. 2020; 12(2). DOI:<https://doi.org/10.31838/ijpr/2020.12.02.273>
- [10] Cheng L, Gao W, Xu Y, Yu Z, Wang W, Zhou J et al. Anxiety and depression in rheumatoid arthritis patients: prevalence, risk factors and consistency between the Hospital Anxiety and Depression Scale and Zung's Self-rating Anxiety

- Scale/Depression Scale. *Rheumatology Advances in Practice*. 2023; 7(3).  
<https://doi.org/10.1093/rap/rkad100>
- [11] Prothero L, Barley E, Galloway J et al. The evidence base for psychological interventions for rheumatoid arthritis: A systematic review of reviews. *Int J of Nurs Studies*. 2018; 82: 20-29
- [12] Luo W, Zhang X, Ren K. Self-Management in Patients with Rheumatoid Arthritis. In: Mohammed RHA. (Ed) *Rheumatoid Arthritis - Other Perspectives towards a Better Practice* [Internet]. London: IntechOpen; 2020
- [13] Dures E, Fraser I, Almeida C et al. Patients' Perspectives on the Psychological Impact of Inflammatory Arthritis and Meeting the Associated Support Needs: Open-Ended Responses in a Multi-Centre Survey. *Musculoskelet. Care* 2017; 15: 175-185
- [14] American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. 2013.
- [15] Wenger A, Calabrese P. Comparing underlying mechanisms of depression in multiple sclerosis and rheumatoid arthritis. *J. Integr. Neurosci*. 2021; 20(3): 765–776
- [16] Liu N, Yan W, Su R, Zhang L, Wang X, Li Z et al. Research progress on rheumatoid arthritis-associated depression. *Front Behav Neurosci*. 2023; 16: 992223. doi: 10.3389/fnbeh.2022.992223
- [17] Grygiel-Gornak B, Limphaibool N, Puszczewicz M. Cytokine secretion and the risk of depression development in patients with connective tissue diseases. *Psychiatry and Clinical Neurosciences*. 2019; 73: 302–316
- [18] Pamukcu M, Duran, T, Ulusoy H Altinbas, K. Investigation of the correlation between mood disorder symptoms and disease activity and functional status in rheumatoid arthritis patients. *Turkish Journal of Medical Sciences*. 2021; 51(6).  
<https://doi.org/10.3906/sag-2107-283>
- [19] Baghdadi LR, Alhassan M, Alotaibi FH, Alsuwaida AA, Shehadah AE, Alzahrani MT. Effect of type of disease-modifying antirheumatic drugs on depression and anxiety of patients with rheumatoid arthritis in Saudi Arabia: a cross-sectional study. *Front. Psychiatry*. 2023; 14. <https://doi.org/10.3389/fpsyt.2023.1184720>
- [20] Moudi S, Heidari B, Yousefghahari B, Gholami R, Gholinia H, Babei M. The prevalence and correlation of depression and anxiety with disease activity in rheumatoid arthritis. *Reumatologia*. 2023; 61(2): 86–91. doi: 10.5114/reum/154905
- [21] Zhang L, Zhu W, Wu B. Network analysis of depression and anxiety symptoms in Chinese rheumatoid arthritis patients. *PeerJ* 11: e16356  
<https://doi.org/10.7717/peerj.16356>
- [22] [Seizer L, Huber E, Schirmer M, Hilbert S, Wiest EM, Schubert C. Personalized therapy in rheumatoid arthritis (PETRA): a protocol for a randomized controlled trial to test the effect of a psychological intervention in rheumatoid arthritis. *Trials*. 2023; 24(743)  
<https://doi.org/10.1186/s13063-023-07707-0>
- [23] Xiang S, Wang R, Hua L, Song J, Qian S, Jin Y et al. Assessment of bidirectional relationships between mental illness and Rheumatoid Arthritis: A two-sample



- Mendelian randomization study. *J. Clin. Med.* 2023; 12(3): 944; <https://doi.org/10.3390/jcm12030944>
- [24] Shand G, Fuller DT, Lufkin L, Lovelett C, Pal N, Mondal S and Sur S (2023). A stronger association of depression with rheumatoid arthritis in presence of obesity and hypertriglyceridemia. *Front. Epidemiol.* 3: 1216497. doi: 10.3389/fepid.2023.1216497
- [25] van Oers H, Schlebusch L. The experience of anxiety and depression and its sequelae in breast cancer patients: A review of effects of disease and treatment on patient self-esteem, body image, and the prevalence of hopelessness and suicidal ideation. *Global Journal of Breast Cancer Research.* 2016; 4(1)
- [26] Meade T, Joyce C, Perich T, Maniolis N, Conaghan PG, Katz P. Prevalence, Severity, and Measures of Anxiety in Rheumatoid Arthritis: A Systematic Review. *Arthritis Care & Research.* 2023; 76(2): 171-180
- [27] Machin, A.R., Babatunde, O., Haththotuwa, R. *et al.* The association between anxiety and disease activity and quality of life in rheumatoid arthritis: a systematic review and meta-analysis. *Clin Rheumatol* 39, 1471–1482 (2020). <https://doi.org/10.1007/s10067-019-04900-y>
- [28] Watad A, Bragazzi NL, Adawi M, Aljadeff G, Amital H, Comaneshter D et al. Anxiety disorder among rheumatoid arthritis patients: Insights from real-life data. *Journal of Affective Disorders.* 2017; 213: 30-34
- [29] DiRenzo DD, Craig ET, Bingham CO, Bartlett SJ. Anxiety impacts rheumatoid arthritis symptoms and health-related quality of life even at low levels. *Clin Exp Rheumatol.* 2021; 38(6): 1176–1181
- [30] Matcham F, Galloway J, Hotopf M, Roberts E, Scott IC, Steer S et al. The impact of targeted rheumatoid arthritis pharmacologic treatment on mental health. *Arthritis and Rheumatology.* 2018; 70(9); 1377-1391
- [31] Nagy Z, Szigedi E, Takacs S, Csaszar-Nagy N. The Effectiveness of Psychological Interventions for Rheumatoid Arthritis (RA): A Systematic Review and Meta-Analysis. *Life (Basel).* 2023; 13(3): 849. doi: 10.3390/life13030849
- [32] Bopaeda MMA, Ahmed AH, Al Sadik AA. Effectiveness of Cognitive-Behavioral Therapy in Improving Psychological Symptoms in a Sample of Rheumatoid Arthritis Patients. *Journal of Psychology and Behavior Studies.* 2022; 2(1): 96–113
- [33] Piglowska-Juhnke A, Rutkowska A, Samborski W, Kalmus P, Mojs E. Effectiveness of cognitive-behavioural therapy in patients with rheumatoid arthritis. Research review. *Forum Reumatol.* 2018; 4(1): 15-25
- [34] Shen B, Li Y, Du X, Chen H, Xu Y, Li H et al. Effects of cognitive behavioral therapy for patients with rheumatoid arthritis: a systematic review and meta-analysis. *Psychology, Health & Medicine.* 2020; 25(10): 1179–1191
- [35] Van Breda A, De Cock D, Vervloesem C, et al. Does cognitive behavioral therapy improve psychosocial outcome in rheumatoid arthritis: a systematic literature review. *Annals of the Rheumatic Diseases.* 2021; 80: 375

- [36] Omidvar R, Nayyeri M, Teimoori, S. The Impact of Web-Based Cognitive-Behavioral Therapy on Pain Self-Efficacy in Patients with Rheumatoid Arthritis. *J Assessment and Research in Applied Counseling* 2024; 6(2): 144-151
- [37] Mackenzie CR, Meltzer M, Kitsis EA, Mancuso CA. Ethical challenges in rheumatology: a survey of the American college of rheumatology membership. *Arthritis Rheum.* 2013; 65(10): 2524–32
- [38] Sharma, R., Dale, S.A., Wadhawan, S. *et al.* Identifying the Presence of Ethics Concepts in Chronic Pain Research: A Scoping Review of Neuroscience Journals. *Neuroethics* 15, 21 (2022). <https://doi.org/10.1007/s12152-022-09499-7>
- [39] Leese J, Zhu S, Townsend AF, Backman CL, Nimmon L, Li LC. Ethical issues experienced by persons with rheumatoid arthritis in a wearable-enabled physical activity intervention study. *Health Expect.* 2022; 25(4): 1418–1431 doi: 10.1111/hex.13481
- [40] Morrison T, Foster E, Dougherty J, Barton J. Shared decision making in rheumatology: A scoping review. *Rheumatism.* 2022; 56: 152041