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REVIEW PAPER

Effectiveness of telemedicine interventions in the impact of rheumatoid arthritis: an umbrella review protocol

Efetividade das intervenções de telemedicina no impacto da artrite reumatóide: protocolo de uma revisão umbrella

Eficacia de las intervenciones de telemedicina en el impacto de la artritis reumatoide: protocolo de una revisión paraguas

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Abstract

Context: Rheumatoid arthritis (RA) is a chronic and potentially disabling disease associated with a poor quality of life that affects 0.5% of the adult population worldwide. Telemedicine interventions are a measure for improving health care, reducing the costs and the impact of the disease.

Objective: To assess the effectiveness of telemedicine interventions in improving the self-care, pain and fatigue management, health literacy, and quality of life of people with RA.

Method of review: The Joanna Briggs Institute methodology for umbrella reviews will be used. Two independent reviewers will identify, select, and extract the studies.

Presentation and interpretation of results: The aim is to obtain data on the effectiveness of telemedicine interventions in the impact of RA on people, contributing to the dissemination of the best available evidence.

Conclusion: This protocol will contribute to an effective planning of nursing interventions that minimize the impact of RA on self-care, pain and fatigue management, health literacy, and quality of life.

Keywords: telemedicine; arthritis, rheumatoid; health education; quality of life; self care

Resumo

Contexto: Crónica e potencialmente incapacitante, com uma baixa qualidade de vida descrita, a artrite reumatoide (AR) afeta 0,5% da população adulta mundial. As intervenções de telemedicina apresentam-se como uma medida que melhora os cuidados de saúde, reduzindo os custos e o impacto da doença.

Objetivo: Avaliar a efetividade das intervenções de telemedicina no autocuidado, gestão da dor e da fadiga, literacia e qualidade de vida, nas pessoas com AR.

Método de revisão: Será utilizada a metodologia do *Joanna Briggs Institute* para revisões *umbrella*. A localização, seleção e extração dos estudos será realizada por dois revisores independentes.

Apresentação e interpretação dos resultados: Pretende-se obter dados sobre a efetividade das intervenções de telemedicina no impacto da AR nas pessoas, contribuindo para a divulgação da melhor evidência disponível.

Conclusão: O protocolo estabelecido possibilita uma execução precisa por parte de todos os investigadores, contribuindo para o planeamento de intervenções de enfermagem que minorizem o impacto da AR nos autocuidados, gestão da dor e da fadiga, literacia em saúde e qualidade de vida.

Palavras-chave: telemedicina; artrite reumatóide; educação em saúde; qualidade de vida; autocuidado

Resumen

Marco contextual: Crónica y potencialmente discapacitante, con una baja calidad de vida descrita, la artritis reumatoide (AR) afecta al 0,5% de la población adulta mundial. Las intervenciones de telemedicina se presentan como una medida que mejora la atención de la salud, reduciendo así los costes y el impacto de la enfermedad.

Objetivo: Evaluar la efectividad de las intervenciones de telemedicina en el autocuidado, manejo del dolor y fatiga, la alfabetización y la calidad de vida en personas con AR.

Método de revisión: La metodología del Instituto Joanna Briggs se utilizará para las revisiones *umbrella*. La ubicación, selección y extracción de los estudios será realizada por dos revisores independientes.

Presentación e interpretación de los resultados: El objetivo es obtener datos sobre la eficacia de las intervenciones de telemedicina en el impacto de la AR en las personas, contribuyendo así a la difusión de las mejores pruebas disponibles.

Conclusión: El protocolo establecido permite una ejecución precisa por parte de todos los investigadores, lo que contribuye a la planificación de intervenciones de enfermería que minimicen el impacto de la AR en el autocuidado, la gestión del dolor y la fatiga, la alfabetización en la salud y la calidad de vida.

Palabras clave: telemedicina; artritis reumatoide; educación en salud; calidad de vida; autocuidado

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Introduction

Rheumatoid arthritis (RA) is a chronic, progressive, and potentially disabling disease. It affects 0.5% of the adult population worldwide, with a prevalence of 0.7% in Portugal (Sousa, Santos, Cunha, Ferreira, & Marques, 2017). RA is underdiagnosed in Portugal, and it is associated with low levels of quality of life. It is characterized by symptoms such as pain, fatigue, morning stiffness, sleep disorders or depression (Sousa et al., 2017). Disease progression can lead to chronic pain and loss of function and deformity of the joints. On the other hand, comorbidities are also common in people with RA, creating the need for a more active role in health self-management, which is only possible with the implementation of strategies to increase health literacy.

One of the priorities of the Portuguese Directorate-General of Health, health literacy contributes to health promotion and disease prevention. Thus, health professionals, in addition to the specific scientific aspects of the professions, are currently faced with the need to emphasize their role as educators and health promotors because people require more information and greater interaction with health professionals (Almeida et al., 2019). Also, at the 9th Global Conference on Health Promotion in 2016, the World Health Organization (WHO) considered health literacy as one of the three pillars of health promotion (WHO, 2017). Nurses are key in the interface between patients with RA and other professionals of the multidisciplinary team (Eijk-Hustings et al., 2012). Therefore, the European League Against Rheumatism (EULAR) has developed a set of recommendations for the role of today's nurse in the management of chronic inflammatory diseases, emphasizing the optimization of their competencies and skills as part of the overall management of the disease (Sousa et al., 2017). However, although health professionals can advise people during visits and consultations, patients have to make decisions about disease management. Thus, with the increasing access to the Internet, an online self-management program can be a sustainable way of supporting patient empowerment and disease self-management (Zuidema, van Gaal, van Dulmen, Repping-Wuts, & Schoonhoven, 2015), with the digitalization of communication in nursing being an opportunity for improving healthcare.

Compared to face-to-face programs, online programs offer greater accessibility, while allowing for more flexible time management adapted to individual needs (Zuidema et al., 2015). According to WHO, health promotion programs based on principles of engagement and empowerment, including improvement of health literacy, can offer real benefits for the population (Kickbusch, Pelikan, Apfel, & Tsouros, 2013). Health literacy services for people with chronic diseases need to be better supported and strengthened. In addition, there is a major potential for telemedicine initiatives, which need to be further explored. Telemedicine has a long history, but it was the arrival of low-cost computers at the end of the 1980s that made it more feasible to expand and be incorporated in health care. Telemedicine involves an interaction between a health care provider and a patient when the two are separated by distance, which may occur in real time, synchronously (as, for example, by telephone or use of a video link) or asynchronously, when a query is submitted and an answer provided later via, for example, an e-mail (WHO, 2016). One of its major benefits is that it improves access to health care, increasing the speed of access and reducing costs (Piga, Cangemi, Mathieu, & Cauli, 2017). Telemedicine also provides equitable access to health care, regardless of the origin of the person with RA (WHO, 2016), making it essential in low-resource settings, such as the current one in Portugal. The same access can be given to health professionals, facilitating the continuity of care, which leads to health gains.

Systematic reviews on the effectiveness of telemedicine interventions in people with RA (McDougall, Ferucci, Glover, & Fraenkel, 2017; Piga et al., 2017) point to different results, thus an umbrella review is of utmost importance to provide a systematization and overview of the available information. This review will contribute to the improvement of clinical practice and the establishment of priorities for action.

A prior search in the JBI Database of Systematic Reviews and Implementation Reports, the Cochrane Database of Systematic Reviews, PROSPERO, MEDLINE, and CINAHL found no umbrella reviews, published or in progress, about the topic under analysis. Therefore, this review aims to synthesize the evidence found in systematic reviews on the impact of telemedicine interventions on patients with RA.

Systematic Review Method

This protocol was based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for systematic review protocols (PRISMA-P) as a reporting guideline (Moher et al., 2015).

The Joanna Briggs Institute methodology for umbrella reviews (Aromataris et al., 2017) will be used in this systematic review.

The inclusion criteria were specified as follows: (1) Type of participants: adults (aged ≥ 18 years), of any context, with the diagnosis of RA based on the ACR/EULAR criteria, which result from a joint work from the American College of Rheumatology (ACR) and the EULAR to develop a new approach for classifying RA, based on the presence of synovitis in at least one joint (absence of an alternative diagnosis that explains it) and the achievement of a total score of six or more points (out of 10 possible points) from the individual scores in four domains (number and site of involved joints; serologic abnormality; elevated acute-phase response; and symptom duration; Aletaha et al., 2010); (2) Intervention: Telemedicine interventions will be considered as those that use technology to transmit care and lead to clinical practice, and may occur synchronously or asynchronously, between two or more parties (health professionals, patient, family, caregivers, community; WHO, 2016); (3) Comparison group: Usual care, which covers interventions that do

not involve telemedicine. In-person hospital visits will be considered as usual care; Outcomes: The following outcomes will be included in this review: (i) Primary outcomes: overall disease burden, in one of the following domains: self-care, health literacy, and quality of life, assessed through validated instruments such as the Health Assessment Questionnaire (HAQ; Santos et al., 1996), the Portuguese version of the European Health Literacy Survey (Nunes et al., 2014), and the Portuguese version of the EQ-5D (EQ-5Dv2; Ferreira, Ferreira, & Pereira, 2013); (ii) Secondary outcomes: disease burden, assessed individually in at least one of the following domains: pain and fatigue, assessed through validated scales such as the Visual Analogue Scale (VAS) and the Portuguese version of the FACIT Fatigue Scale (Miranda et al., 2010); and anxiety and depression, assessed, for example, through the Portuguese version of the Hospital Anxiety and Depression Scale (HADS; Pais-Ribeiro et al., 2007) (4) Type of studies: This review will only include systematic literature reviews, with or without meta-analysis, systematic reviews of interventions, and mixed-methods systematic reviews.

Their inclusion should take into account the following criteria: (i) present a clear, articulated, and comprehensive search strategy, using different databases; (ii) assess the quality of the studies and the risk of bias. Due to changes in the criteria for disease classification in 2010 (Aletaha et al., 2010), only systematic reviews published after that date, in English, French, Spanish, and Portuguese will be considered.

Search strategy

The search strategy aims to find only published systematic reviews.

A prior search was conducted in the JBI Database of Systematic Reviews and Implementation Reports, the Cochrane Database of Systematic Review, and Scopus, to identify articles on the topic under analysis, and the words in titles, abstracts, and index terms were analyzed to serve as a basis for the development of search terms to be used in different databases that will be included in this review.

Table 1 shows the search proposal for PubMed.

Table 1
Example of a search strategy for PubMed, on 14 October 2019

Search	Search formula	No. of reviews obtained
#1	(((((((((((((rheumat*[Title/Abstract]) OR reumat*[Title/Abstract]) OR arthrit*[Title/Abstract]) OR artrit*[Title/Abstract]) OR Arthritis, Rheumatoid[MeSH Terms])) OR ((((telemedicine[MeSH Terms]) OR telehealth*[Title/Abstract]) OR enurs*[Title/Abstract]))) OR (((pain[MeSH Terms] OR fatigue[MeSH Terms] OR sleep[MeSH Terms] OR coping[MeSH Terms] OR anxiety[MeSH Terms] OR depression[MeSH Terms] OR pain*[Title/Abstract] OR fatigue[Title/Abstract] OR tired*[Title/Abstract] OR exhaust*[Title/Abstract] OR coping[Title/Abstract] OR anxiety[Title/Abstract] OR depression[Title/Abstract])))) OR (((care,self[MeSH Terms]) OR quality of life[MeSH Terms]) OR health-related quality of life[MeSH Terms]) OR selfmanagement*[Title/Abstract]) OR self-care [Title/Abstract]) OR quality of life[Title/Abstract])) AND (((literacy[MeSH Terms] OR literacy, health[MeSH Terms] OR literac*[Title/Abstract] OR health literac*[Title/Abstract]))) AND systematic [sb]	104
#2	Filters: Publication date from 2010/01/01; English; French; Portuguese; Spanish	99

After the identification of keywords and index terms, a search will be conducted in the following databases: JBI Database of Systematic Reviews and Implementation Reports, Cochrane Database of Systematic Reviews, Scopus, CINAHL, PubMed, Embase, PsycINFO, PEDro, PROSPERO register, and Campbell Collaboration Library of Systematic Reviews. Concerning study selection, two independent reviewers will analyze all the titles and abstracts of the articles found in the search based on the inclusion criteria. The independent reviewers will obtain the articles based on all abstracts selected and use a checklist of eligibility to select the study (inclusion criteria). Any disagreements concerning study inclusion will be resolved by both researchers or by a third reviewer if necessary. If the information provided in the articles is not sufficient to determine their eligibility, the reviewers will contact the authors of the studies to request additional data.

References will be managed using EndNote X7.

Assessment of the methodological quality of the studies

Two reviewers will assess the studies and their quality using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Synthesis (Aromataris & Munn, 2017), and a third reviewer will be contacted in case of lack of consensus. Authors of studies will be contacted for additional information.

Studies will be included if they have a score of 7 or more. The quality of the studies will be scored as follows: 0-3, *very low quality*; 4-6, *low quality*; 7-9, *moderate quality*; and 10-11, *high quality*.

Data extraction

Similar to study selection, data extraction will be performed by two reviewers, independently, using a standardized data extraction form (JBI SUMARI; Aromataris et al., 2017). In order to cover all relevant outcomes obtained in the selected studies, data will be methodologically extracted. Any disagreements or inconsistencies will be resolved through discussion between both reviewers or,

if necessary, by a third reviewer. If necessary, the reviewers will also contact authors of studies to obtain additional information.

The following data will be extracted from each study: type of study, participants' demographic data, telemedicine intervention, considering the TIDieR criteria (Hoffmann et al., 2014), details of the measured outcomes (primary and secondary), study methodology, randomization, blinding, data analysis, duration of the intervention, findings, and others (for example, risk of information bias; source(s) of research funding; potential conflicts of interest, implications for replication).

Data synthesis

Data will be detailed in a table entitled "Characteristics of included studies", which will include a summary of the data from on each study, with a visual indicator of the effectiveness of the intervention: green (beneficial or effective intervention when compared to the control group), orange (no difference or effect when compared to the control group), and red (detrimental or less effective intervention when compared to the control group; Aromataris & Munn, 2017). Finally, the reviewers will use GRADE Pro GTD software (Guyatt et al., 2008) to produce a synthesis of findings and recommendations.

Presentation and interpretation of results

This systematic review aims to obtain data about the effectiveness of telemedicine interventions on the impact of AR, particularly in terms of self-care, pain and fatigue management, health literacy, and quality of life, contributing to the dissemination of the best available evidence.

Conclusion

Health education cannot be restricted to the nursing consultation because the individuals living with RA experience their limitations and the impact of the disease on their daily lives. Telemedicine can be a key ally in this matter, reducing the distance between the health professional and the person with RA and allowing health professionals to intervene more effectively in empowering the patient to act in future situations in the management of self-care, pain, fatigue, health literacy, and quality of life.

The overview of the available information, the improvement of clinical practice, and the establishment of priorities for action will be the most significant implications of the review resulting from the application of this protocol.

Author contribution
Conceptualization: Rocha, A. I., Santos, E. J.
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