Impact of health literacy, training, and patient empowerment in the management of chronic rheumatic disease

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Abstract

Given the high prevalence of rheumatic diseases in Portugal, contributing to significant disability and impacts on work, the study aims to assess the impact of health literacy, training, and empowerment on chronic disease management among patients with rheumatic diseases.

Data were collected from a cross-sectional study involving rheumatic patients, including 209 participants, all of whom had various chronic rheumatic diseases.

Health literacy, training, and empowerment play a significant role in the effective management of these diseases. Low levels of health literacy observed in this study can negatively impact both individual and community health, leading to increased health inequalities and affecting disease management.

The analysed variables show significant roles of empowerment and health literacy in influencing areas such as autonomy, therapeutic adherence, social support, and quality of life. Considering this, new public and private approaches are needed to enhance patients' behavior, to improve their literacy, training, and empowerment. Furthermore, it is crucial to provide health professionals with effective communication strategies that foster a more comprehensive and holistic approach during their interactions with patients.

This study highlights the importance of promoting health literacy and empowerment for transdisciplinary and multisectoral interventions. It emphasizes the importance of implementing actions that support health promotion policies and behavioral sciences. Such actions should focus on engaging communities in adopting healthy lifestyles, thereby contributing to a more sustainable future for global health.

Keywords: Health literacy, training, empowerment, chronic diseases, disease management.

Background

Rheumatic diseases are high-prevalence diseases that affect individuals of all ages (Jacinto et al. 2022). According to the results of the epidemiologic study, EpiReumaPt (Branco et al. 2016), in Portugal, rheumatic

diseases affect 53% of the population, contributing to 40-60% of cases of prolonged physical disability and loss of autonomy. Additionally, they account for 43% of workplace absenteeism and 35-41% of early retirements due to health issues. (DGS 2005). Early retirement due to rheumatic diseases costs more than 900 million euros per year (Branco et al., 2016). They have an enormous economic burden on health systems and are the most expensive diseases for European socioeconomic and health systems. Compared to other chronically ill people, patients with rheumatic diseases experience a lower quality of life (Branco et al., 2016). The European Alliance of Associations for Rheumatology (EULAR) emphasizes that prompt diagnosis and treatment can prevent permanent damage and enhance the quality of life for those affected. Inflammatory rheumatic conditions require early diagnosis and effective therapy to enable patients to manage their disease and its effects more effectively (Jacinto et al. 2022). This urgent need has led to the development of the current study, which aims to assist patients and healthcare professionals in improving the management of chronic rheumatic diseases.

Most studies carried out, not only in Portugal, but also throughout Europe, and the United States of America, indicate low levels of health literacy in the population. A cross-sectional study conducted by Portuguese researchers (Pedro, Amaral, and Escoval, 2016) translated and validated the European Health Literacy Survey (HLS-EU) for the Portuguese context, revealing that 61% of the surveyed population in Portugal has problematic or inadequate general health literacy. Another Portuguese study: "Health Literacy Survey in Portugal/Inquérito à Literacia em Saúde em Portugal" (Espanha et al., 2015) reported that 60% individuals in vulnerable groups also displayed problematic or inadequate health literacy levels. In this study, the primary aim is to investigate how the independent variables "health literacy," "empowerment," and "training" affect the management of patients with chronic rheumatic diseases. This objective is important because effective disease management is associated with improved disease control and enhanced quality of life for patients. The analysis is based on a model developed by Schulz & Nakamoto (2013), which posits that treating health literacy and empowerment as distinct, yet interconnected factors is vital for effective health communication strategies. Their framework identifies four distinct patient types, highlighting the need for tailored health communication approaches based on each patient's profile. This framework assists in both understanding and enhancing motivation and autonomy: i) A chronic rheumatic patient with a high level of health literacy and empowerment is capable of managing their disease; ii) A chronic rheumatic patient with a high health literacy but low empowerment is aware of their condition but demonstrates limited autonomy in managing it; iii) A chronic rheumatic patient with a low health literacy and high training may experience detrimental effects on disease management; and iv) A chronic rheumatic patient with both low health literacy and low training is unable to effectively manage their condition. The authors argue that improving patient knowledge alone is insufficient; knowledge must be accompanied by the confidence and capability for patients to take action and feel autonomous in their care. This study aims to demonstrate the influence of various factors, including health literacy, patient training, empowerment, and appropriate communication strategies, on better management of rheumatic diseases.

Health literacy has been defined by various experts over the years. The Joint Committee on National Health Education Standards (1995) defines health literacy for the first time as the capacity of individuals to obtain, interpret, and understand basic health information and services, as well as the competence to use this information and these services in ways that enhance one's health. Since 1998, the World Health Organization has revised its definition of health literacy, with the current definition from 2021 stating that health literacy

represents the knowledge and personal skills acquired through daily activities, social interactions, and generational learning. This personal knowledge and skill set is influenced by organizational structures and the availability, which enable individuals to access, understand, evaluate, and use information and services to promote and maintain good health and well-being for themselves and those around them. (WHO 2021).

In 2000, Nutbeam furthered the study of health literacy by proposing three levels of health literacy. The first level is basic and functional health literacy, which includes skills like reading, writing, and calculating to process information. The second level is interactive and communicational health literacy, which involves the ability to share information and actively engage in healthcare. The final level is critical health literacy, which is the capacity to critically analyse information and make informed decisions regarding health behaviors. This classification shows that different levels of health literacy encompass skills ranging from reading simple texts to more advanced skills that promote individual autonomy and empowerment. Achieving higher levels of health literacy, particularly critical health literacy, equips individuals to access, understand, and utilize information effectively to promote and maintain good health for themselves, their families, and their communities.

Sørensen et al. (2012) introduced a groundbreaking conceptual model designed to define and operationalize health literacy. This model is the most widely accepted definition of the concept, covering its broadest dimensions. It emphasizes both the close and distant factors that influence health literacy, as well as the pathways that connect the concept to health outcomes. The model explains that health literacy includes individuals' knowledge, motivation, and skills to access, understand, evaluate, and apply health information. This understanding guides decision-making in healthcare, disease prevention, and health promotion in everyday life. Additionally, it highlights the role of health literacy in enhancing quality of life throughout a person's lifespan (Sørensen, 2019).

All of these definitions by Nutbeam (2000), Sørensen (2012), and WHO (2021) emphasize the importance of training and empowering individuals to enhance their quality of life. As Pelikan et al. (2020) noted, measuring the level of health literacy is essential for planning health interventions aimed at improving both health literacy and the overall health of the population. This information also serves as a foundation for policies and health services that address the specific needs of different communities. According to WHO (2021), health literacy promotion enables citizens to actively engage in improving their health, participate in community health initiatives, and hold governments accountable for their responsibilities in addressing health and health equity. Addressing the health literacy needs of the most disadvantaged and marginalized groups will significantly contribute to reducing health inequities and advancing overall well-being.

While health literacy refers to knowledge and understanding, the concepts of empowerment and training focus on the attitudes patients hold towards their illnesses (WHO 1998, 2021). A comprehensive review by Cerezo et al. (2016) defines patient empowerment as "an enabling process or an outcome of a process that involves a change in the balance of power". Policymakers and healthcare professionals, according to Small et al. (2013), view patient empowerment as a means to help individuals with illnesses—particularly those with chronic conditions—better manage their health and achieve improved outcomes. Aujoulat et al. (2007) describe a "capable" patient as someone who understands their health and possesses the capacity and motivation to influence it. Kuijpers et al. (2013) suggest that patient empowerment reflects an individual's ability to positively affect their health and health behaviors, such as physical activity.

The World Health Organization designates empowerment as a continuous process that enables individuals and communities to gain confidence, self-esteem, understanding, and the necessary power to pursue their interests. This process ensures that individuals know their actions are aimed at preparing themselves and, more broadly, gaining control over their lives. In the context of health promotion, empowerment involves helping people gain greater control over decisions and actions that affect their health (WHO, 2021).

Improving health literacy can be achieved through clear information delivery, effective communication, and structured education. Although many health communication and education initiatives focus primarily on individual health and lifestyle factors, there is a significant need to develop, implement, and assess interventions that enhance awareness, understanding, and the ability to address social, economic, and environmental factors impacting health. Governments can play a crucial leadership role in promoting health literacy by providing sustained funding, launching special projects, coordinating actions across various sectors, and regularly conducting health literacy assessments. It is especially important to improve and evaluate health literacy—considering both strengths and needs—in poorer areas, so vulnerable populations are empowered to engage in proactive health-promoting actions, whether for preventing acute and chronic conditions or for supporting active and curative treatments (WHO, 2021).

This study aims to evaluate the impact of health literacy, training, and empowerment on the management of chronic rheumatic diseases. When examining the relationships between health literacy, patient training, empowerment, and disease management, it is essential to create pathways that enhance patients' access to information, knowledge, and resources. This will enable more positive health outcomes, resulting in a reduced demand for healthcare services and lower overall health expenditures.

Chronic diseases are the primary cause of mortality worldwide, responsible for 60% of all deaths. In 2021, the top ten causes of death accounted for 39 million fatalities, making up 57% of the total 68 million deaths globally (WHO, 2021). This epidemic predominantly affects low- and middle-income countries, where 80% of chronic disease-related deaths occur. The World Health Organization reports that seven of the ten leading causes of death are chronic non-communicable diseases. Since these conditions require long-term management rather than a cure, this study seeks to identify effective strategies for managing them. Various authors emphasize the importance of addressing chronic diseases. Machado (2009) points out that these illnesses require prolonged management and often involve a gradual worsening of symptoms. Taylor (2012) stresses the necessity of psychological support due to the absence of a cure. Bastos (2008) reinforces this idea by stating that chronic diseases are characterized by their incurability rather than severity. Thus, this study underscores the significance of psychological support and effective disease management.

The literature review indicates that the term "disease management" can differ based on its focus, purpose, depth, and level of intervention (whether primary or secondary). It is also influenced by the author's perspective, such as whether they are a researcher, economist, or clinician (Norris et al., 2003; Escoval et al., 2010). As previously noted, disease management should be viewed as a multidisciplinary approach that involves a comprehensive healthcare system capable of proactively identifying populations at risk of developing chronic diseases (Coons, 1996).

Moreover, the concept of “self-management” pertains to the responsibility individuals with chronic health conditions have for their daily care. It requires them to make continuous, small decisions (referred to as micro-decisions), while healthcare providers make broader decisions (macro-decisions), such as developing treatment plans, in collaboration with these individuals (Martz, Erin, 2017).

As highlighted by several authors, chronic diseases should be prioritized within the context of disease management, as they are among the most complex, difficult to manage, and costly for healthcare systems, requiring significant resource allocation. However, Escoval warns that "poor management of chronic diseases can result in a more expensive health problem than those that health systems can face." (Escoval et al., 2010).

This study also aims to improve the management of chronic rheumatic diseases by assessing health literacy and patient empowerment. Sørensen (2012) emphasizes that effective disease management relies on early diagnosis, disease knowledge, and informed decision-making, ultimately reducing healthcare utilization and costs. Key components of disease management include: i) adherence to therapy; ii) quality of life; and iii) social support. Training for patients is crucial; inadequate understanding of health professionals' prescriptions can undermine their management efforts (Schulz & Nakamoto, 2013), and inadequate management often leads to hospitalization and increased healthcare needs (Bastos, 2015). Several authors recognize that individuals with chronic illnesses require social support, which will also be addressed throughout this study. Social support is essential for those with chronic conditions as it alleviates loneliness and improves health outcomes (Kool et al., 2012). Luchesi et al. (2015) note that social support can protect against cognitive decline and promote assistance, while Bastos (2008) highlights it as a vital coping strategy for managing chronic rheumatic diseases.

Social support is often regarded as a strong coping mechanism against anxiety and depression in elderly individuals, according to Sharpley, Hussain, Wark, McEvoy, and Attiea (2015). Research by Reis et al. (2014) shows that robust social connections are associated with better recovery and decreased morbidity, particularly among the elderly. Consequently, strategies to enhance social support and prevent isolation are essential for effective disease management. In this study, the key factors under evaluation for managing chronic rheumatic diseases include social support, quality of life, and therapy adherence.

Communication is a crucial aspect of health promotion. Ratzan et al. (1996) define health communication as the art and technique of informing, influencing, and motivating the public about important health issues, which encompasses disease prevention and health policy. The Healthy People 2010 program highlights the strategic use of communication to improve health outcomes. In the context of this study, effective health communication is vital, as its success not only relies on the level of health literacy but also on the degree of empowerment displayed by patients. Neuhauser and Kreps (2003) found that behavior change initiatives often fail due to insufficient engagement with the complex life contexts of individuals. For health communication to be effective, it must be participatory, meaningful, empathetic, and relevant. Tailoring health information to specific target groups is essential.

The domains of health communication are vast, encompassing intrapersonal dynamics, interpersonal relationships, group communication, and broader organizational and social perspectives (Ruão et al., 2012). We can identify two major strands: individual communication and social communication. Kreps et al. (1998) distinguish these as the analysis of communication's influence on healthcare delivery and the study of public health promotion through communication strategies. In an age of widespread media consumption, these platforms serve as central channels for health communication. For many people, the media represents their preferred source of health information, with news being a primary outlet. Ruão et al. (2012) state, "Media communication has come to be understood as the privileged means of increasing the knowledge and

awareness of populations on health issues, as well as influencing their perceptions, beliefs and attitudes, far beyond the classic doctor-patient communication model" (p. 277).

Kreps (2003) emphasizes several areas where health communication plays a vital role: 1. Patient-centered communication: effective communication between healthcare professionals and patients is essential. It should be grounded in empathy, active listening, and respect, as these elements strengthen the therapeutic relationship and enhance health outcomes. 2. Access to clear and understandable information: health information must be accessible, free from technical jargon, and tailored to meet the audience's specific needs, considering factors such as health literacy and sociocultural context. 3. Reducing health inequalities: effective communication can help address the social, cultural, linguistic, and economic barriers that hinder access to healthcare, promoting greater equity. 4. Strategic use of media and technologies: with the rise of digital media, including the internet and social media platforms, these channels have become powerful tools for disseminating health messages and engaging the public. 5. Education and empowerment: communication should serve to inform and empower individuals, enabling them to make informed decisions regarding their health. Kreps advocates for a strategic, inclusive, and human-centered approach to health communication to enhance the quality of life for populations.

Street (2009) emphasizes the importance of patient-centered care, which involves considering patients' preferences, values, and narratives. This approach enhances satisfaction, adherence to treatment, and long-term health outcomes. Healthcare communication is crucial to clinical outcomes, emphasizing the importance of dialogue, empathy, and active patient participation. Street's work explores how doctor-patient interaction can enhance or hinder the quality of care.

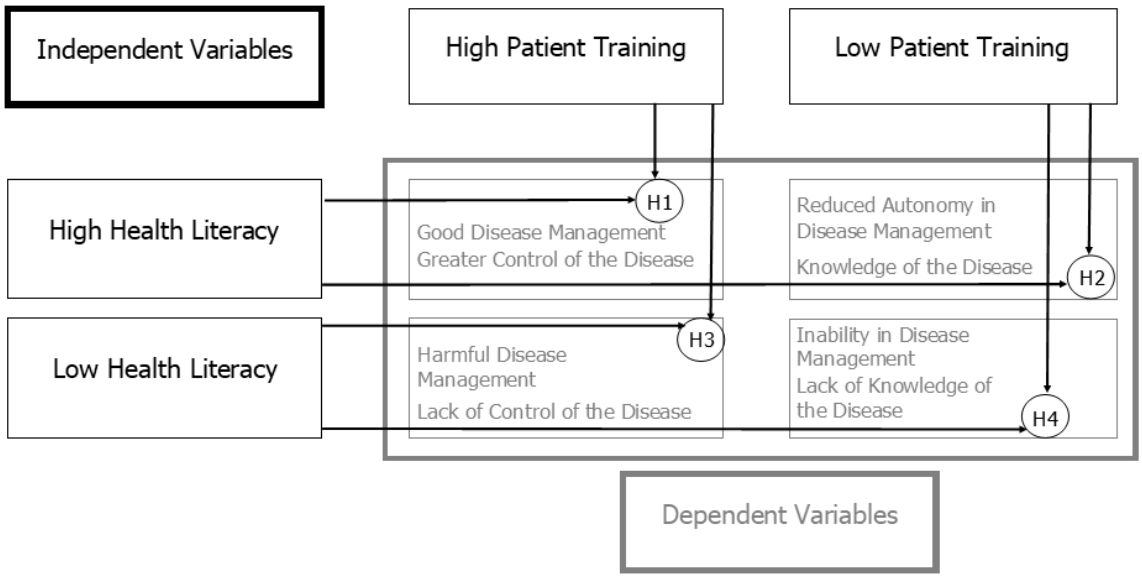
Methods

The present research aims to innovate and explore the relationship between the variables "health literacy," "empowerment," and "training," and their connection to "disease management," specifically through the factors of "adherence to therapy," "social support," and "quality of life." To investigate the influence and outcomes of these variables, a comprehensive survey was conducted, which was based on several previously tested surveys, and a conceptual model was developed, drawing on the theory proposed by Schulz and Nakamoto. Although patient empowerment and health literacy have been studied empirically, it was not until 2013 that these authors established an explicit link between the two concepts. They argued that while empowerment and health literacy are conceptually and empirically distinct, their impacts are deeply interconnected. Schulz and Nakamoto (2013) pointed out that a high level of health literacy does not necessarily imply adequate training, and vice versa. These mismatches can lead to significant negative consequences. The management of a patient's disease—whether good or poor—depends on the relationship between their level of health literacy and their training. The proposed model outlines the following scenarios for chronic rheumatic patients: i) Patients with high levels of health literacy and training can effectively manage their disease. ii) Patients with high health literacy but low training understand their disease but have limited control over managing it. iii) Patients with low health literacy but high training may manage their disease poorly. iv) Patients with low health literacy and low training are unable to manage their disease. Schulz and Nakamoto (2013) emphasize that patient empowerment and health literacy have both been studied empirically, but they have rarely been explicitly linked. It is crucial to recognize that these concepts

are distinct, both conceptually and empirically. However, the impacts of health literacy and patient empowerment are deeply intertwined. High literacy does not necessarily entail empowerment, and vice versa. Mismatches between the two can lead to harmful consequences. A high level of health literacy without a corresponding degree of patient empowerment creates unnecessary dependence on health professionals, while a high degree of empowerment without adequate health literacy poses the risk of dangerous health choices.

To address the issues raised, this study defined a theoretical framework comprising various proposed hypotheses based on a conceptual model that includes the independent variables "health literacy" and "patient training," and the dependent variable "disease management." The conceptual model presented aligns closely with the framework advocated by Schulz and Nakamoto (2013) and aims to analyse the correlation between the variables as a positive or negative outcome.

Figure 1 – Conceptual model analysing the dependency relationship between independent variables (health literacy and patient training) and the dependent variable (disease management)



The model proposes the following hypotheses to be investigated in this study:

H1 - Chronic rheumatic patients with high levels of health literacy and training can effectively manage their disease, resulting in better disease control.

H2 - Chronic rheumatic patients with high levels of health literacy but low levels of training may have a good understanding of their condition but lack the autonomy needed to manage it.

H3 - Chronic rheumatic patients with low levels of health literacy and high levels of training may unintentionally mismanage their disease, leading to a loss of control.

H4 - Chronic rheumatic patients with low levels of both health literacy and training may find it difficult to manage their disease effectively.

Managing chronic rheumatic disease requires executing specific actions and evaluating their effectiveness, while controlling the disease involves adopting particular behaviors.

Design and Instruments

To evaluate the variables of "health literacy", "training", and "empowerment" among patients with rheumatic diseases, as well as to analyse the relationship between these factors and "disease management," a cross-sectional study was conducted. This study involved administering a survey composed of questions selected from several pre-existing, translated, and tested surveys tailored for the Portuguese population. The survey utilized nominal or Likert-type response options and included instruments such as the "Health Literacy Survey – 12 Questions Version," the "Empowerment Scale Individual in the context of chronic illness," the "Measure of Adherence to Treatments – MAT," the "Social Support Satisfaction Scale – ESSS," the "WHOQOL-bref" (an abbreviated version of "WHOQOL-100"), and the "Patient Innovation" survey. The final survey, titled "Health Literacy, Empowerment, and Disease Management," is integrative, designed to assess the levels of health literacy, training, and empowerment among rheumatic patients, while also relating these variables to the management of their diseases. The complexity of "chronic disease management" led to an evaluation across several critical components, specifically patients' "adherence to treatments," their "quality of life," and their satisfaction with the "social support" available to them. The study targeted patients with rheumatic diseases and referred to national Rheumatic Patients' Associations, both in Portugal and abroad.

Distributing the survey through these associations was anticipated to yield better results. This approach facilitated access to a diverse group of patients with various rheumatic conditions and secured initial support from the association presidents, making it more likely that patients would find the study credible. Additionally, rheumatic patient associations have a vested interest in supporting research aimed at enhancing the quality of life for their members.

The health literacy level of the sample was assessed using the 12-question version of the Health Literacy Survey PT, which is a translation of HLS-EU based on the Sørensen (2012) model, as illustrated in Table 1.

Table 1 - 12-question version of the Health Literacy Survey PT

On a scale of: 1-Very Difficult; 2-Difficult; 3-Easy; 4-Very easy; 5-I don't know, how do you classify the following situations:	
P1	Find information on treatments of illnesses that concern you?
P2	Understand what to do in a medical emergency?
P3	Judge the advantages and disadvantages of different treatment options?
P4	Follow the instructions on medication?
P5	Find information on how to manage mental health problems like stress or depression?
P6	Understand why you need health screenings (e.g. breast exam, blood sugar test, blood pressure)?
P7	Judge if the information in the media on health risks is reliable (TV, internet or other media)?
P8	Decide how you can protect yourself from illness based on advice from family and friends?
P9	Find information on healthy activities such as exercise, healthy food and nutrition?
P10	Understand information on food packaging?
P11	Judge which everyday behaviour is related to your health (drinking and eating habits, exercise etc.)?
P12	Make decisions to improve your health?

The assessment of patients' training and empowerment was conducted using questions from a scale proposed by Luz et al. (2020) ("Individual Empowerment Scale in the context of chronic illness").

Table 2 - Items withdrawn from the Individual Empowerment Scale in the context of chronic illness

On a scale of: 1-Totally disagree; 2-Partially disagree; 3-Neither agree nor disagree; 4-Partially agree; 5-Totally agree, how do you classify the following statements:	
P13	I have the right to live my own life the way I want.
P14	When I need help managing my therapeutic regimen, I ask.
P15	I see myself as a capable person.
P16	I can inform and educate others with the same problem as me.
P17	When I make plans for my health and treatment, I am usually confident that I can follow them.
P18	Healthcare professionals involve me in my care and establish the goals of my treatment regimen with me.

Table 3 - Items withdrawn from the Patient Innovation Survey to analyse the level of autonomy

On a scale of: 1-Totally disagree; 2-Partially disagree; 3-Neither agree nor disagree; 4-Partially agree; 5-Totally agree, how do you classify the following statements:	
P19	More than anyone else, I am responsible for my health and well-being.
P20	The most important factor influencing my well-being and health is my active role and responsibility for my health.
P21	I completely trust my doctor, and so I always try to follow his advice.
P22	I have the feeling that the doctor does everything he should regarding my medical treatment.

Table 4 - Items withdrawn from the Measure of Adherence to Therapy

P23	Have you ever stopped taking medication for your illness for any reason other than your doctor's instructions?
	1 - Always; 2 – Almost always; 3 – Often; 4 – Sometimes; 5 – Rarely; 6 - Never

Table 5 - Items withdrawn from the Social Support Satisfaction Scale

On a scale of: 1-Totally disagree; 2-Partially disagree; 3-Neither agree nor disagree; 4-Partially agree; 5-Totally agree, how do you classify the following statements:	
P24	Even in the most embarrassing situations, if I need emergency support, I have several people I can turn to.
P25	I miss social activities that satisfy me.
P26	I am satisfied with the way I relate to my family.
P27	I am satisfied with the kind of friends I have.

Table 6 - Items withdrawn from the WHOWOL-BRIEF Survey

P28	How do you rate your quality of life?
	1 - Very bad; 2 – Bad; 3 - Neither good nor bad; 4 – Good; 5 - Very good.
P29	How satisfied are you with your health?
	1 - Very dissatisfied; 2 – Dissatisfied; 3 - Neither satisfied nor dissatisfied; 4 – Satisfied; 5 - Very satisfied.
P30	How satisfied are you with your access to health services?

	1 - Very dissatisfied; 2 – Dissatisfied; 3 - Neither satisfied nor dissatisfied; 4 – Satisfied; 5 - Very satisfied.
P31	To what extent do you need medical care to carry out your daily life?
	1 - Noting; 2 – Little; 3 - Not much, not much; 4 - A lot; 5 - Very much.
P32	How easily do you have access to the information you need to organize your daily life?
	1 - Noting; 2 – Little; 3 - Not much, not much; 4 - A lot; 5 - Very much.

Due to the complexity of the "Disease Management" variable, a multifaceted approach was employed, as recommended by Coons (1996), which includes treatment adherence, quality of life, and satisfaction with available social support.

The identification of the 13 rheumatic diseases listed in the survey and the information about the sources of data for the sample were obtained from the "Patient Innovation" survey, developed by EpiDoc in 2018. For the health literacy level assessment, all 12 questions were utilized. Additionally, one group of questions was selected from each dimension of the remaining surveys, making a total of 37 questions. Sociodemographic information was compiled based on the data requested in all the surveys that contributed to the final survey.

Participants and setting

The survey was distributed to associations of rheumatic patients identified by the Portuguese Society of Rheumatology. Each association was asked to share it with its members. The survey was conducted online from August 28, 2022, to February 8, 2023, and garnered a total of 209 responses, resulting in a non-probabilistic convenience sample. Determining the size of the overall population was not possible, as the associations did not have precise information about how many individuals received the questionnaire. Additionally, the survey was accessible on the websites and social media platforms of some associations.

Results

The survey responses were statistically analysed using the SPSS program.

The average age of the respondents is 54.7 years, with ages ranging from 15 to 81 years. The highest frequency of respondents falls within the 46 to 60 years age group, representing a total of 82 individuals, which accounts for 39.4% of the sample. In the age group of 61 to 81 years, there were 74 responses (35.4%), while only 52 responses (24.9%) were recorded from those aged 45 years and younger.

Tabela 7 – Table of internal consistency

Variables	Alpha Cronbach	# items
Health Literacy	.877	12
Training	.770	6
Autonomy	.832	4
Social Support	.636	4
Quality of Life	.684	5

The internal consistency of the constructs used in this study was analysed using Cronbach's Alpha, with results ranging from a minimum of .636 (considered weak but acceptable) to a maximum of .877 (indicating good consistency). The alpha values are categorized based on Hill (2014) as a reference. Therefore, it can be concluded that the internal consistency of the constructs presented is, overall, good.

The correlations among the variables studied in this research are generally positive and statistically significant. This suggests that all variables associated with disease management show a positive correlation with both health literacy and empowerment. This relationship is also reflected in the model developed for the study. Furthermore, the empirical results indicate that levels of health literacy can influence patients' empowerment. This, in turn, affects the variables identified in this study as critical to chronic disease management, including quality of life, social support, and adherence to therapy.

Table 8 - Table of age frequencies by categories

	Frequency	%
Until 45	52	24,9
46-60	82	39,2
>60	74	35,4
Sub-Total	208	99,5
Omitted	1	,5
Total	209	100,0

Table 9 - Sample characterization (N = 209)

	N	%
Gender		
Feminine	176	84,2
Masculine	33	15,8
Other	1	,6
Education		
Knows how to read and/or write	1	,5
1st Cycle (1st-4th years)	6	2,9
2nd Cycle (5th-6th years)	7	3,3
3rd Cycle (7th-9th years)	30	14,4
Secondary (10th-12th years)	71	34,0
Graduation	69	33,0
Master's Degree	17	8,1
PhD	8	3,8
Marital Status		
Married or common-law marriage	131	62,7
Divorced or Separated	35	16,7
Single	34	16,3
Widower	9	4,3
Health Situation towards work		
With Permanent Incapacity	18	8,6
Unemployed	12	5,7
Full-Time Housekeeper	2	1,0
Student	6	2,9
Practice a profession, for a family person	4	1,9

Full-time	82	39,2
Inactive	3	1,4
Other	12	5,7
Part-time	10	4,8
Retired	60	28,7
Health Professional		
No	188	90,0
Yes	21	10,0

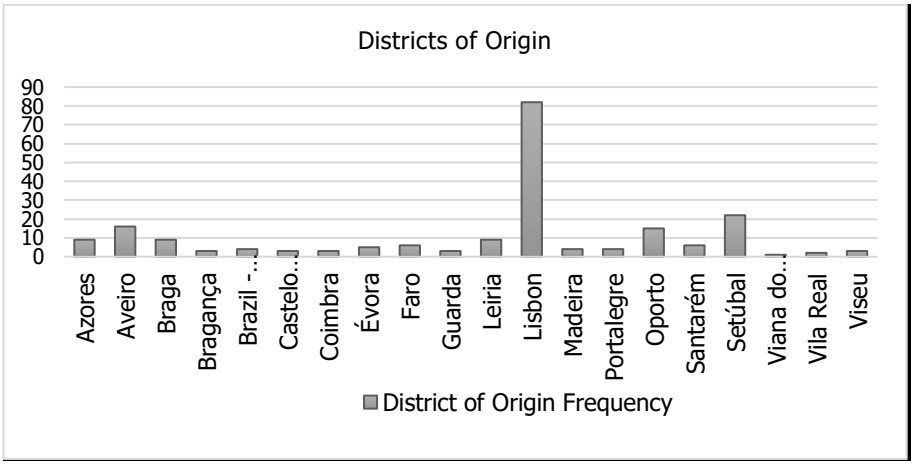
According to Table 9, most of the sample is female, accounting for 84.2% compared to 15.8% male respondents. These results corroborate findings from several studies on rheumatic diseases, including those conducted by the National Health Observatory in 2005 and 2010, which reported a higher self-declared prevalence of rheumatic diseases among women than men. Regarding marital status, 131 respondents, or 62.7% of the sample, reported being married or in a civil partnership. This factor appears to facilitate social support for many rheumatic patients and is considered a crucial variable in managing chronic diseases. The sample also demonstrates a range of academic qualifications: 3.4% have basic qualifications (can read and/or write plus completed the 1st Cycle), while 3.8% hold a PhD. However, the majority, at 67%, are between secondary education and a bachelor's degree. This educational information is vital for the current research, which investigates health literacy levels. In terms of professional status, a significant portion of the sample (39.2%) reports working full-time, while 28.7% are retired. Additionally, 8.6% of respondents have a permanent disability. Notably, the number of individuals who are retired (39.2% + 8.6%) is almost half of the sample, which is greater than the 19.6% of respondents (41 individuals) who are of retirement age. The minimum retirement age in Portugal is 66 years and 4 months, according to information from the Ministry of Labor and Social Security (2023). This data highlights the importance of timely diagnosis and treatment in preventing further complications and improving the quality of life for rheumatic patients. Enhancing health literacy and empowerment is likely to provide significant benefits.

Table 10 - Table of respondents aged 66 or over (accepted retirement age in Portugal)

Age	Frequency
66	6
67	5
68	2
69	3
70	3
72	2
73	5
74	2
75	3
76	1
77	3
79	3
80	1
81	2
Total	41

Graph 1 shows that most respondents are from Lisbon, with 78 participants. Additionally, there are a significant number of respondents from Aveiro (16), Porto (14), and Setúbal (15). Overall, the sample includes participants from 26 districts within Portugal and abroad, covering regions such as Madeira, the Azores, and Brazil (specifically Paraná, São Paulo, and Rio Grande do Sul). This indicates a strong geographic representation in the study.

Graph 1 – Districts of origin of the sample

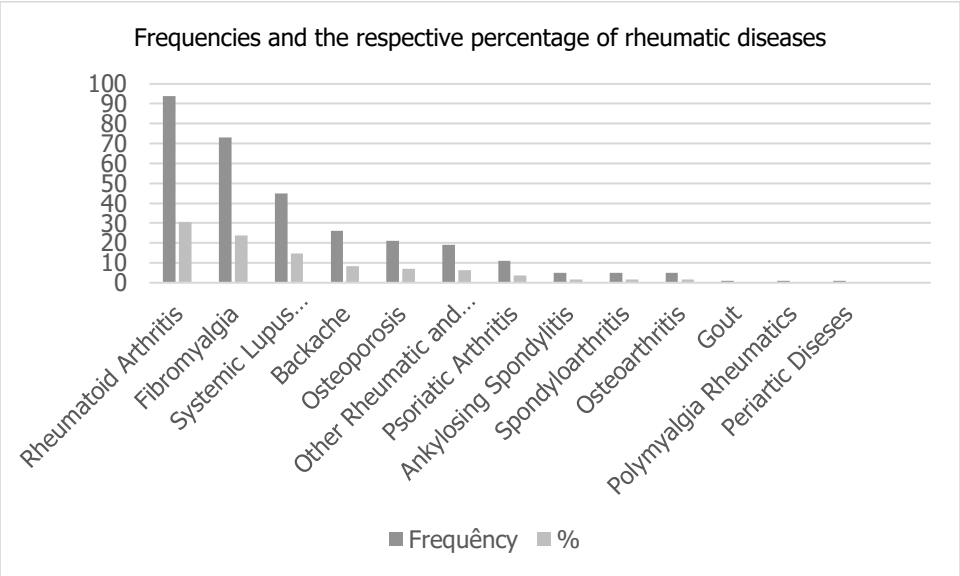


In the clinical characterization of the sample, the survey identified 13 different rheumatic diseases based on the question, "What rheumatic disease do you suffer from?" This classification was derived from the Epidoc survey. The frequency of each disease is presented in the table and graph below:

Table 11 - Table of frequencies and the respective percentage of rheumatic diseases

Type of Rheumatic Diseases	Frequency	%
Rheumatoid arthritis	94	30,62
Fibromyalgia	73	23,78
Systemic lupus erythematosus	45	14,66
Backache	26	8,47
Osteoporosis	21	6,84
Other rheumatic and musculoskeletal diseases (RMD)	19	6,19
Psoriatic arthritis	11	3,58
Ankylosing spondylitis	5	1,63
Osteoarthritis	5	1,63
Spondyloarthritis	5	1,63
Periartic Diseases	1	0,33
Periarticular diseases	1	0,33
Polymyalgia rheumatics	1	0,33
Total	307	100,00

Graph 2 – Frequencies and the respective percentage of rheumatic diseases



Rheumatoid Arthritis firmly claims its position as the most prevalent disease in the sample, with Fibromyalgia and Systemic Lupus Erythematosus following closely behind. These findings underscore the urgent need for attention and research in these critical areas of health.

Descriptive statistics and correlations

The following descriptive statistics provide a comprehensive overview of the variables: Health Literacy, Training, and Autonomy, Adherence to Therapy, Social Support, and Quality of Life. These statistics summarize the central tendency, dispersion, and variability of the data. The variable Autonomy specifically evaluates patient empowerment, while Adherence to Therapy, Social Support, and Quality of Life provide essential information related to disease management.

For the variable Health Literacy, the mean score is 31.6647 with a standard error of 0.43677, indicating a precise estimate of the mean. The median value is 32.0000, suggesting that half of the participants scored below this value and half scored above it. The variance is 33.003, which indicates the degree of spread in the scores, while the standard deviation is 5.74484, reflecting the average deviation from the mean. The interquartile range (IQR) is 7.00, showing the range within which the central 50% of the scores lie.

The variable Adherence to Therapy has a mean score of 5.11 with a standard error of 0.079, again indicating a precise estimate of the mean. The median value is 5.00, suggesting symmetry around the mean. The variance is 1.087, indicating a relatively low spread of scores, and the standard deviation is 1.042, reflecting a low average deviation from the mean. The IQR is 2, indicating the range within which the central 50% of the scores lie.

For Social Support, the mean score is 14.88 with a standard error of 0.271, indicating a precise estimate of the mean. The median value is 16.00, slightly higher than the mean, indicating a slight skew in the data. The variance is 12.731, indicating a moderate spread in the scores, while the standard deviation is 3.568, reflecting a moderate average deviation from the mean. The IQR is 5, showing the range within which the central 50% of the scores lie.

The variable Quality of Life has a mean score of 3.0243 with a standard error of 0.05441, indicating a precise estimate of the mean. The median value is 3.0000, suggesting symmetry around the mean. The variance is 0.512, indicating a low spread of scores, and the standard deviation is 0.71568, reflecting a low average deviation from the mean. The IQR is 1.20, indicating the range within which the central 50% of the scores lie.

For Training, the mean score is 3.8410 with a standard error of 0.06162, indicating a precise estimate of the mean. The median value is 4.0000, suggesting that the data is symmetrically distributed around the mean. The variance is 0.657, indicating a moderate spread of scores, while the standard deviation is 0.81050, reflecting a moderate average deviation from the mean. The IQR is 1.00, indicating the range within which the central 50% of the scores lie.

Lastly, the variable Autonomy has a mean score of 4.1488 with a standard error of 0.07013, indicating a precise estimate of the mean. The median value is 4.5000, slightly higher than the mean, indicating a slight skew in the data. The variance is 0.851, indicating a moderate spread of scores, and the standard deviation is 0.92244, reflecting a moderate average deviation from the mean. The IQR is 0.75, indicating the range within which the central 50% of the scores lie.

Table 12 – Descriptive information about variables

Descriptive statistics and correlations			
		Statistic	Std. Error
Health Literacy	Mean	31.6647	.43677
	Median	32.0000	
	Variance	33.003	
	Std. Deviation	5.74484	
	Interquartile Range	7.00	
Adherence to Therapy	Mean	5.11	.079
	Median	5.00	
	Variance	1.087	
	Std. Deviation	1.042	
	Interquartile Range	2	
Social Support	Mean	14.88	.271
	Median	16.00	
	Variance	12.731	
	Std. Deviation	3.568	
	Interquartile Range	5	
Quality Life	Mean	3.0243	.05441
	Median	3.0000	
	Variance	.512	
	Std. Deviation	.71568	
	Interquartile Range	1.20	
Training	Mean	3.8410	.06162
	Median	4.0000	
	Variance	.657	
	Std. Deviation	.81050	
	Interquartile Range	1.00	
Autonomy	Mean	4.1488	.07013
	Median	4.5000	

	Variance	.851	
	Std. Deviation	.92244	
	Interquartile Range	.75	

The table below presents Spearman's rho correlation coefficients, significance levels, and sample sizes for the relationships among Training, Quality of Life, Autonomy, Social Support, Adherence to Therapy, and Health Literacy. Spearman's rho is used to assess the strength and direction of the monotonic relationship between the variables.

Key Findings

Training:

Positively correlated with Quality of Life ($r = 0.424$, $p < 0.001$), Autonomy ($r = 0.569$, $p < 0.001$), Social Support ($r = 0.380$, $p < 0.001$), Adherence to Therapy ($r = 0.241$, $p < 0.001$), and Health Literacy ($r = 0.444$, $p < 0.001$). The strongest correlation is with Autonomy, indicating a significant and robust relationship.

Quality of Life:

Positively correlated with Training ($r = 0.424$, $p < 0.001$), Autonomy ($r = 0.389$, $p < 0.001$), Social Support ($r = 0.251$, $p < 0.001$), Adherence to Therapy ($r = 0.150$, $p = 0.030$), and Health Literacy ($r = 0.416$, $p < 0.001$). The correlation with Adherence to Therapy, while significant, is weaker compared to other variables.

Autonomy:

Positively correlated with Training ($r = 0.569$, $p < 0.001$), Quality of Life ($r = 0.389$, $p < 0.001$), Social Support ($r = 0.540$, $p < 0.001$), Adherence to Therapy ($r = 0.336$, $p < 0.001$), and Health Literacy ($r = 0.374$, $p < 0.001$). The strongest correlations are with Training and Social Support, suggesting a close relationship between these constructs.

Social Support:

Positively correlated with Training ($r = 0.380$, $p < 0.001$), Quality of Life ($r = 0.251$, $p < 0.001$), Autonomy ($r = 0.540$, $p < 0.001$), Adherence to Therapy ($r = 0.154$, $p = 0.026$), and Health Literacy ($r = 0.286$, $p < 0.001$). Shows a notably strong correlation with Autonomy.

Adherence to Therapy:

Positively correlated with Training ($r = 0.241$, $p < 0.001$), Quality of Life ($r = 0.150$, $p = 0.030$), Autonomy ($r = 0.336$, $p < 0.001$), Social Support ($r = 0.154$, $p = 0.026$), and Health Literacy ($r = 0.243$, $p = 0.001$). The correlation with Quality of Life is weaker but still significant.

Health Literacy:

Positively correlated with Training ($r = 0.444$, $p < 0.001$), Quality of Life ($r = 0.416$, $p < 0.001$), Autonomy ($r = 0.374$, $p < 0.001$), Social Support ($r = 0.286$, $p < 0.001$), and Adherence to Therapy ($r = 0.243$, $p = 0.001$). It exhibits a relatively strong correlation between Training and Quality of Life.

The correlations among the variables are generally positive and statistically significant. Training, Quality of Life, Autonomy, Social Support, Adherence to Therapy, and Health Literacy exhibit significant interrelationships, with particularly strong associations observed between Training and Autonomy, and

between Autonomy and Social Support. These findings underscore the interconnection of these constructs within the study's context.

The study found a strong correlation between Autonomy and Training, indicating that these variables can be analysed together. Quality of Life, a key variable of the study related to Chronic Disease Management, is conclusively shown to have a positive and significant impact on Health Literacy. It was also revealed that Autonomy, which is considered a form of Empowerment, is positively influenced by the Social Support given to rheumatic patients. Higher levels of Social Support lead to greater demonstration of Autonomy by the patients, and this relationship works both ways. Furthermore, Adherence to Therapy is positively influenced by Training. The strong correlation among Health Literacy, Autonomy, and Training suggests an overall positive relationship among these factors.

The table below illustrates that patients who demonstrate higher Adherence to Therapy experience an improved Quality of Life. Additionally, those with Social Support tend to show greater Autonomy and Empowerment, and the patients with higher levels of Autonomy are more likely to adhere to their therapy, a factor significantly influenced by their Empowerment. Additionally, this analysis reveals a direct correlation between increased Health Literacy and better Training outcomes, which also contribute to an enhanced Quality of Life. This correlation reliably confirms Hypotheses 1 and 4 (patients with high levels of health literacy and training can effectively manage their disease / patients with low levels of both health literacy and training may find it difficult to manage their disease effectively), resulting in better disease control, while also backing Hypotheses 2 and 3 (patients with high levels of health literacy but low levels of training may have a good understanding of their condition but lack the autonomy needed to manage it / patients with low levels of health literacy and high levels of training may unintentionally mismanage their disease, leading to a loss of control). Finally, the study decisively confirms that Health Literacy, Training, and Empowerment positively influence Disease Management.

Table 13 - Correlations between variables

Correlations between variables								
			Training	QLife	Autonomy	SSupport	AdherenceT	HLiteracy
Spearman's rho	Training	Correlation Coefficient	1.000	.424**	.569**	.380**	.241**	.444**
		Sig. (2-tailed)	.	<.001	<.001	<.001	<.001	<.001
		N	209	209	209	209	209	173
	Quality of Life	Correlation Coefficient	.424**	1.000	.389**	.251**	.150*	.416**
		Sig. (2-tailed)	<.001	.	<.001	<.001	.030	<.001
		N	209	209	209	209	209	173
	Autonomy	Correlation Coefficient	.569**	.389**	1.000	.540**	.336**	.374**
		Sig. (2-tailed)	<.001	<.001	.	<.001	<.001	<.001
		N	209	209	209	209	209	173
	Social Support	Correlation Coefficient	.380**	.251**	.540**	1.000	.154*	.286**
		Sig. (2-tailed)	<.001	<.001	<.001	.	.026	<.001
		N	209	209	209	209	209	173

	Adherence to Therapy	Correlation Coefficient	.241**	.150*	.336**	.154*	1.000	.243**
		Sig. (2-tailed)	<.001	.030	<.001	.026	.	.001
		N	209	209	209	209	209	173
	Health Literacy	Correlation Coefficient	.444**	.416**	.374**	.286**	.243**	1.000
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.001	.
		N	173	173	173	173	173	173
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Additionally, it was deemed valuable to analyse the literacy levels of the study sample in relation to the variable "sex".

Table 14 – Health Literacy levels vs Sex

Cross-table Health Literacy levels * Sex				
		Sex		Total
		Feminine	Masculine	
Health Literacy Levels	Inadequate Health Literacy	71 (41,8%)	12 (36,4%)	83 (40,9%)
	Problematic Health Literacy	59 (34,7%)	13 (39,4%	72 (35,5%)
	Sufficient Health Literacy	32 (18,8%)	7 (21,2%)	39 (19,2%)
	Excellent Health Literacy	8 (4,7%)	1 (3,03%)	9 (4,4%)
Total		170	33	203

The results from Table 14 indicate that nearly half of the women surveyed (41.8%) have an inadequate level of health literacy, while 34.7% have a problematic level. The situation for men is similar: a total of 76.5% of women and 75.8% of men exhibit very low levels of health literacy (comprising both inadequate and problematic levels). Although these values do not significantly contribute to the primary findings of this research, it is noteworthy that they exceed the figures reported in the 2015 Health Literacy Survey conducted in Portugal (ILS-PT, 2015). According to that study, 11% of the Portuguese population has an inadequate level of health literacy, and approximately 38% have a problematic level. Conversely, 50% of the population possesses either an excellent or sufficient level of health literacy, but the percentage achieving an excellent level is just 8.6%, the lowest among all countries surveyed. Spain and Greece follow closely, with 9.1% and 9.9%, respectively. In this recent study, the percentages of women and men with an excellent level of literacy are 4.7% and 3.03%, respectively.

Also, comparing this result with the academic qualifications of the sample (71% with secondary education and 69% with a bachelor's degree), it is concluded that the level of health literacy is not related to the academic degree of chronic rheumatic patients.

Furthermore, when the variables associated with Disease Management are examined with the sex of the sample, it becomes evident that men and women perceive these variables differently, and that men have a more positive perception of Quality of Life than women. This factor influences the way patients manage their illnesses, leading to the belief that men may manage their health conditions more effectively than women.

Table 15 – Correlation between Disease Management and Sex

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.a,b	Decision
1	The distribution of Adherence to Therapy is equal across the Sex categories.	Mann-Whitney U Test Independent Samples	,306	Retain the null hypothesis.
2	The distribution of Social Support is equal across the Sex categories.	Mann-Whitney U Test Independent Samples	,960	Retain the null hypothesis.
3	The distribution of Quality of Life is equal across the Sex categories.	Mann-Whitney U Test Independent Samples	,039	Reject the null hypothesis.
a. The level of significance is ,050.				
b. Asymptotic significance is displayed.				

Discussion

The correlations between the variables in this study are generally positive and statistically significant. The findings indicate that the variables associated with disease management correlate positively with both health literacy and empowerment. This relationship is supported by the underlying model employed in the study. Empirical research suggests that health literacy levels can influence patients' empowerment, which, in turn, affects various aspects related to chronic disease management, including quality of life, social support, and adherence to therapy. This study references several other works that outline the topic's development and the initial research questions.

The study on health literacy levels found that age and education were not key factors for the sample population, which contrasts with findings from previous studies. For example, the 2015 Health Literacy Survey in Portugal indicated that older individuals with lower education levels exhibited lower health literacy. Similarly, the HLS-EU Consortium study identified education, financial status, and ethnicity as significant influences on health literacy. The results of this study contributed to the HLS-EU-PT (2016) survey, which revealed that a substantial portion of the population in both studies displayed problematic health literacy levels, with the current study indicating an even higher prevalence (75% compared to 61%). While past surveys suggested that around half of Portugal's population had inadequate health literacy, the DGS's 2018 report noted a positive trend between 2016 and 2019, showing a decrease in inadequate levels and an increase in sufficient levels. However, the current study's sample, which focused on patients with chronic rheumatic diseases, may face unique challenges that influence their health literacy. This highlights the need for strategies to improve health literacy for all populations, not just targeted groups.

Empowerment and patient-centered care are vital components of the "Health 2020 policy framework" established by the WHO Regional Office for Europe. These elements are crucial for improving health outcomes, enhancing patient satisfaction, and facilitating effective communication between patients and health professionals, as also defended by Kreps and Street and previously mentioned. This study provides compelling evidence that increased health literacy leads to significant improvements in empowerment and quality of life for patients with chronic rheumatic conditions. As noted by Kuijpers et al. (2013), true patient empowerment involves individuals who are well-informed who actively take responsibility for their health. It is important to differentiate empowerment from mere capacity; empowerment is a process through which individuals and communities gain the confidence and understanding necessary to advocate for their interests

(WHO, 2001). Bastos (2015) highlights the importance of social and family support in fostering empowerment and emphasizes the need for professional support for those who lack it. Assessing empowerment levels in individuals with chronic illness is not just beneficial; it is essential for evaluating the healthcare system's impact on self-management and the overall quality of services provided. The findings of this study align with those of Luz et al. (2020), revealing a strong positive correlation between empowerment and quality of life ($r = 0.389$, $p < 0.001$), as well as therapy adherence ($r = 0.336$, $p < 0.001$). Furthermore, these results underscore the significant connections between empowerment, social support, and health literacy. According to the health empowerment model proposed by Schulz & Nakamoto (2013), optimal health outcomes are achieved when high health literacy is combined with strong patient empowerment. This reinforces the critical importance of both factors in effective disease management.

Non-adherence to treatments is a primary cause of therapeutic failure yet measures to detect adherence are underdeveloped. In our study, when asked if they ever stopped taking medication for reasons other than a doctor's recommendation, approximately 75% of chronic rheumatic patients reported never or rarely doing so. This suggests that their strong adherence may stem from trust in their doctors. However, it is important to recognize that adherence should also include healthy lifestyle choices, such as physical exercise, which were not assessed in this research. Patient satisfaction with social support is critical in managing chronic rheumatic diseases. This study used the Social Support Satisfaction Scale and revealed that while patients expressed positive feelings about support from family and friends, there was a lack of available social support, reflecting insufficient public health policies. This finding contrasts with earlier research by Ridder and Schreurs (1996), which emphasized satisfaction with various forms of social support. However, it aligns with numerous studies linking social support to health protection and life satisfaction. Factors influencing therapy adherence include patient characteristics, the conditions of healthcare professionals, the severity of diseases, and the availability of health services. Osterberg and Blaschke (2005) categorize methods to improve adherence into four areas: patient education, communication with healthcare professionals, medication management, and accessible health services. Establishing a strong bond between patients and healthcare providers, while also addressing sociocultural and psychosocial needs, is vital for enhancing therapy adherence.

Research by Matthias et al. (2013) shows that trust is essential in the physician-patient relationship, especially for chronic pain patients who often face communication challenges. Patients frequently find interactions with physicians burdensome, feeling that their pain is dismissed or discredited, while physicians describe these conversations as frustrating and emotionally taxing. However, positive relationships based on trust can develop, as this study found that 57.6% of participants reported complete trust in their doctors. The present research highlights the varied ways patients access health information, revealing a preference for the internet, healthcare professionals, and scientific resources. This contrasts with the ILS-PT (2015) study, which favored direct contact with health experts and personal networks. Despite the reliance on the internet for health information, research suggests that it should complement, not replace, in-person consultations, particularly considering patients' health literacy levels. Additionally, the credibility of medical information is crucial, as these findings align with a 2017 Health Parliament study that cited doctors as the most reliable sources compared to digital media. This reinforces the importance of the doctor-patient interaction as a vital opportunity for health promotion. Furthermore, complex health systems often hinder access to care and information, indicating a lack of effective public policies at various government levels.

Study limitations

This exploratory study has some limitations that we would like to present. Notably, there is potential bias in sample selection, particularly due to the recruitment of respondents from patient associations, which may not accurately represent the broader population of individuals with chronic rheumatic diseases in Portugal. Given these concerns, future research could compare the findings of this study with those from investigations involving patients with a more diverse range of diseases and more healthcare professionals from several specialities, including physicians, psychologists, nurses, therapists, and technicians. Including caregivers and representatives from patient associations would also be valuable, as they play a crucial role in supporting patients. The variables identified in this study—such as adherence to therapy, social support, and quality of life—are significant in the management of chronic diseases. It would be beneficial to analyse additional variables that may also influence this process. Another important area for future research is the examination of how the challenges arising from increased reliance on technology and digital information impact health literacy. Various professionals are actively exploring this topic, and this study presents a significant opportunity to advance it further. The role of artificial intelligence in shaping the future of healthcare, particularly in the doctor-patient relationship, was only briefly mentioned; however, it deserves a more in-depth investigation, as it is already influencing the evolution of healthcare, related outcomes, and behavioral changes among both healthcare providers and patients.

Ethical Issues / Declarations

The study ensured that no respondents were identified or contacted directly, upholding the ethical principle of voluntary participation. The data collected from the patients who participated in the study were kept anonymous. No email addresses, IP addresses, or any other information that could identify the respondents were recorded. Each association shared the survey collaboration request with its members through various platforms, including email, websites, and social networks.

Consent was requested from all interviewees. The study prioritized careful processing of the obtained data and showed the utmost respect for the patients who willingly agreed to participate. It received approval from the Ethics Committee of the Faculty of Social and Human Sciences and the Data Protection Officer (DPO) at Universidade NOVA de Lisboa, both for conducting the study and for publishing related articles.

Conclusion

In 1998, the World Health Organization (WHO) defined "health" as a state of physical, mental, and social well-being, rather than merely the absence of disease (WHO, 1998). The WHO later emphasized that health is a vital resource for daily life and a key dimension of the quality of life (WHO, in Vilhena et al., 2016).

This study focuses on individuals experiencing chronic rheumatic diseases and aims to identify the impact of factors such as health literacy and empowerment on disease management. Specifically, it seeks to understand how these independent variables affect the dependent variable of disease management and the behaviors that chronic rheumatic patients adopt based on varying levels of literacy and empowerment. Additionally, the study explores potential measures to counteract negative behaviors or outcomes.

The analysis revealed that variables related to disease management—such as quality of life, adherence to therapy, and social support—are positively correlated with both health literacy and empowerment. These

findings align with the research conducted by Schulz and Nakamoto (2013), which confirms this kind of relation between health literacy and capacity building and highlights their significant role in managing diseases. Effective management is crucial for controlling chronic rheumatic diseases. According to Sørensen et al. (2012), high levels of health literacy, empowerment, and patient engagement can lead to more favorable health outcomes, potentially resulting in reduced demand for health services and lower healthcare expenditures. Therefore, it is essential to improve health literacy levels, as well as to provide training and empowerment for the population.

Recognizing the significant impact of health literacy, training, and empowerment on the management of rheumatic diseases, communication plays a central role in healthcare. In this context, it is necessary to develop communication strategies for both patients and healthcare professionals. This requires a new approach, both public and private, that addresses all aspects of healthcare management, particularly the doctor-patient relationship. This approach should prioritize promoting behavioral changes in patients to improve health literacy while also enhancing the training and qualifications of healthcare providers. Additionally, it is vital to consider the psychosocial factors that influence patient behavior in disease situations. Furthermore, the evidence highlights the need to equip healthcare professionals with communication strategies that foster a more comprehensive and holistic approach during consultations and other interactions, such as hospitalizations. Effective communication between healthcare professionals and patients is essential for keeping patients informed, educated, motivated, and engaged in their health management. The increasing interest and active participation of patients in maintaining their health and involvement in health policy are evident. Various emerging initiatives and programs aimed at patient empowerment and promoting health literacy, implemented by different organizations, highlight this trend. Governments should take advantage of this opportunity to encourage health behavior changes that benefit both patients and society.

In the document "Health 2020 Policy Framework and Strategy," published in 2012 by the Regional Office for Europe of the World Health Organization (WHO), empowering citizens and patients in Europe is highlighted as a key objective. This framework outlines strategic guidelines and priority areas for European political action on health and well-being through 2020. This report is still relevant today, highlighting the importance of training and patient-centered care in improving health outcomes, increasing user satisfaction with healthcare, and promoting better communication between patients and health professionals.

These improvements lead to better adherence to treatment and ensure efficient use of basic health resources (WHO, 2012). Despite the well-recognized benefits of health promotion and disease prevention, health systems' investment in these areas is significantly lower compared to spending on diagnosis and treatment—approximately 3% for OECD countries (European Commission, 2006). Citizen-centered healthcare must enhance health literacy, facilitate citizens' access to health information, and support shared decision-making. However, there is still much work to be done. All efforts should align with the Shanghai Declaration and the related agenda for health promotion, aiming for a healthy and sustainable future for all. An example of evidence-based public actions that governments can pursue is the WHO's identification of the links between health literacy and the Sustainable Development Goals (SDGs). For instance, the education sector can significantly contribute to health literacy among school-age children (Goals 4 and 5) by incorporating health topics into educational curricula. Additionally, workplaces can be designed to facilitate healthier choices, such as providing vending machines with healthier options and encouraging the use of stairs instead of

elevators. In the health sector, government interventions through universal public health actions and clinical services can enhance equitable access to health literacy services across all regions and cities (Goals 3 and 10). Several programs are currently underway to improve health literacy among populations and enhance the communication skills of healthcare professionals. A notable initiative is the National Health Literacy and Behavioral Sciences Plan 2023-2030 (SNS and DGS), which aims to promote health literacy across various age groups and includes proposed training courses focused on health communication for healthcare professionals. This study's proposal aligns with this initiative but expands it by suggesting that these communication training programs also include students from different healthcare fields, allowing them to interact directly with patients during their education.

The diagnosis presented in this study emphasizes the need for actions that focus on developing health promotion policies, enhancing health literacy, and utilizing behavioral sciences. The aim is to achieve better outcomes in health literacy, empower individuals, and encourage the adoption of healthy lifestyles. As highlighted throughout this study, communication plays a fundamental role, and many authors have recognized its significance in changing patient behavior. Health promotion initiatives should consider the value that individuals place on health to avoid trivializing important messages. The more meaningful these messages are to individuals, the greater their impact will be, potentially leading to behavior changes or increased demand for health services. When implementing health promotion strategies, it is essential to begin with the creation of truly impactful key messages.

Here are several examples provided in this study:

- Invest in health literacy initiatives for both young and senior citizens. This could include programs like senior universities, health fairs, screenings in collaboration with pharmacies and local authorities (such as parish councils), and academic projects focused on vulnerable groups such as the elderly, children, and the homeless;
- Leverage the new organization of the National Health Service (Local Health Units - ULS) to establish an integrated and patient-centered care system;
- Strengthen the connection between Patient Associations and Primary Care and Long-Term Care Units by implementing a prevention-based action strategy, contrasting with previous practices;
- Elevate health promotion on the political agenda to engage various public and private policy representatives, creating a supportive environment for necessary policy decisions;
- Incorporate health training modules into school curricula from an early age, fostering awareness and developing skills and competencies throughout life;
- Require the introduction of health communication in university health programs and establish postgraduate specialization programs in health communication to train health professionals in this area;
- Utilize current technological and scientific advancements to leverage digital resources for health promotion.

Digital communication has been consistently identified in this study as a powerful tool for promoting health, capable of reaching diverse audiences and effectively changing behaviors. However, it’s crucial to maintain oversight to prevent misinformation from undermining these efforts. In conclusion, a comprehensive communication approach involving all segments of society is urgently needed to ensure that health promotion strategies effectively encourage the adoption of healthier lifestyles, both individually and collectively.

In conclusion, everyone can and should be part of the solution, creating a healthier and more sustainable future for all!

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