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DOI:
10.4103/jehp.jehp_1384_24

Uncovering essential skills for effective rheumatoid arthritis management: A qualitative grounded theory study

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Abstract:

BACKGROUND: Effective management of rheumatoid arthritis (RA) relies on patients acquiring a specific set of skills. Patient education is a promising approach to achieve this. Despite extensive research in this area, a complete understanding of the necessary skills for persons living with RA remains elusive. This study aims to identify the essential skills required for individuals with RA, develop a hierarchical framework, and provide insights for targeted therapeutic education programs.

MATERIALS AND METHODS: A qualitative approach using constructivist grounded theory was employed. Semi-structured interviews were conducted with (23) medical professionals specializing in RA and (16) RA patients. The data were analyzed using Atlas.ti software.

RESULTS: Six major themes emerged: self-care and coping, emotional and psychological resilience, knowledge and literacy in RA, personal development, communication and relationship building, and self-learning and problem-solving. These themes suggest a hierarchical structure, with knowledge serving as the foundation and progressing to more complex skills such as problem-solving and communication.

CONCLUSION: This study provides an overview of the multifaceted nature of the skills required for optimal RA management. The proposed hierarchical structure offers a robust framework for developing targeted therapeutic education programs. The findings highlight the significance of a patient-centered approach in the effective management of RA.

Keywords:

Grounded theory, patient education, patient skill, qualitative research, rheumatoid arthritis

Mesh Terms:

Rheumatoid, arthritis; patient education as topic.

Introduction

Rheumatoid arthritis (RA) is the most common immune-mediated inflammatory disease. It primarily manifests as inflammatory arthritis characterized by symmetrical polyarticular pain and swelling, typically affecting the small diarthrodial joints of the hands and feet. However, RA is a systemic disease associated with extra-articular manifestations and multiple comorbidities.^[1] Globally, RA affects approximately 1 in every 200 adults, with women more frequently

impacted than men. Although it can affect individuals of all ages, the highest incidence occurs between the ages of 50 and 59 years.^[2] Without adequate control, RA can lead to joint deformities, loss of function, and a significant decline in quality of life. Clinically, the primary goals are to achieve remission of synovitis, prevent or limit functional disability, and reduce the impact on work, dependency on caregivers, and strain on healthcare systems. For patients, priority is placed on relieving pain, improving mobility, reducing fatigue, and managing psychological effects such as depression.^[3]

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Received: 30-07-2024
Accepted: 04-11-2024
Published: 28-02-2025

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How to cite this article: Bounabe A, Elammare S, Janani S. Uncovering essential skills for effective rheumatoid arthritis management: A qualitative grounded theory study. J Edu Health Promot 2025;14:47.

The most effective treatment approach is currently recognized as multidisciplinary care, which includes patient education (PE), exercise, drug treatment, and joint surgery in late-stage disease.^[4] Central to this approach is the recognition of the pivotal role that patients themselves play in their care. There has been a concerted effort to shift from a care paradigm where patients are passive recipients to one where patients and their family members actively participate in care planning and decision-making. PE and empowerment are critical components of a successful management plan for RA, as they help patients understand their condition, make informed decisions, and take an active role in managing their symptoms and disease progression.^[5]

PE extends beyond information dissemination, teaching or coaching. It is a form of learning that is both practical and specialized, intended to help patients acquire therapeutic skills and support them in changing their self-care practices to achieve personalized objectives.^[6] To ensure that patients attain the required abilities, PE must be competency-based, with outcomes considered from the start of the patient education process.^[7]

In chronic illness, patient skills refer to the ability of a patient to mobilize their resources and knowledge to effectively manage their health circumstances.^[8] This concept is highly individualized, as it depends on the specific and unique context of each person's life. For instance, while one patient may have diabetes, another may have rheumatoid arthritis; one patient may feel completely overwhelmed by their illness, while another may integrate it into their life with relative ease.^[9] Patient skills involve the ability to make informed, voluntary, and value-consistent decisions.^[10]

Several frameworks have been proposed to categorize patient skills in chronic illness management. One model identifies four domains: self-management, relational, social, and democratic skills. Self-management focuses on coping and symptom control, while relational skills emphasize communication with healthcare providers for shared decision-making. Social skills involve engaging in support networks, and democratic skills relate to patients' participation in healthcare decisions.^[9] Another approach divides skills into self-care and life skills. Self-care involves actions directly affecting health, while life skills help patients adapt to their environment.^[11] A third model introduces transversal skills, covering daily crisis management and the use of medical technologies.^[12] Together, these models offer a comprehensive understanding of patient skills, although the specifics of RA-related skills remain underexplored.

The complex nature of RA has led to a significant focus on understanding its clinical progression and treatment

modalities. Research has discussed the efficacy of PE in managing RA.^[13,14] However, scientific inquiries often lack comprehensive elucidation of the implemented programs and procedures. Conn introduced to the concept of a "black box", suggesting the inability to ascertain the precise occurrences during an intervention, a notion that may be deemed inadequate from a purely epistemological standpoint.^[15] This has seemingly overshadowed the critical aspect of patient skills, resulting in a potential care gap.

While numerous studies have been conducted to investigate the impact of various treatment methods on disease outcomes, a void remains in research concentrating explicitly on patient skills in RA. This article aims to address this gap by uncovering the essential skills required for effective self-management and successful treatment outcomes in persons living with rheumatoid arthritis (PLRA). In this regard, our research contributes to the existing body of knowledge by:

- Determining the specific skill sets that PLRA needs to develop
- Providing a hierarchical structure and prioritizing these domains.
- explicitly mapping out these domains, which can guide the development of more tailored PE programs.

Materials and Methods

Study design and setting

The study adopted a qualitative approach employing a grounded theory (GT) methodology. Before data collection, an examination of the current literature was performed. This step, although different from standard GT methods, was deliberately taken to comprehend the ongoing conversations, detect potential biases stemming from established theories, and formulate our research questions effectively. This knowledge enabled a productive post-data collection and comparative analysis process.^[16]

Study participants and sampling

The recruitment process was carried out by an advertisement containing the study's objectives and criteria across various social media networks and discussion forums such as Facebook and WhatsApp. After a potential participant expressed interest, they were contacted via direct telephone contact or email to determine their suitability for the study.

A total of (23) medical professionals with expertise in rheumatoid arthritis were included in the investigation. Additionally, the study included (16) PLRA who represented diverse demographics, disease severity levels, and treatment experiences. The characteristics of participants are shown in [Table 1]. The interviews

were stopped at the moment of data saturation. We were careful to ensure that the opinions from all groups were sufficiently represented. It was accepted as an indication of saturation when each subgroup's experiences and opinions were consistently reflected in the data without the emergence of new perspectives.

Data collection and technique

Data was collected using semi-structured interviews, a method chosen for its effectiveness in capturing individual experiences and perspectives. The flexibility of this approach, with open-ended questions, allows for building rapport with participants, thereby improving the depth and quality of data gathered.^[17]

The researchers designed two interview grids tailored for both medical experts [Table 2] and PLRA [Table 3]. The interviews were based on the study's aim and existing literature. The formulated questions underwent an in-depth review procedure with third-party individuals to get more suggestions and feedback. Researchers were able to improve the interview grids during this phase by choosing questions that were more pertinent to the study's objective and by ensuring the adequateness of the tone and wording used in these queries.

The data collection phase involved individual face-to-face and Zoom meeting with medical experts and patients. Zoom was used due to its ease of use, cost-effectiveness, security, and data storage features.^[18] the interviews were audio recorded with participants' permission to ensure accurate data transcription. Additionally, detailed notes were diligently taken during the interviews to capture non-verbal cues and observations.

Data analysis

The interview recordings were transcribed, and the data was systematically organized to facilitate further analysis. A thematic analysis was conducted using GT to identify recurring themes, patterns, and key findings related to patient skills in RA. This approach involved three stages of coding: initial coding, focused coding, and theoretical coding.^[19]

The constructivist GT method was chosen as it allows for theory development while balancing the perspectives of both participants and researchers in the findings.^[20] Line-by-line coding was used for the initial coding of the data since it allows for a more critical review of the data and enables the emergence of several questions to investigate novel concepts. Focused coding was utilized to produce more succinct codes and categories by comparing the codes from the preliminary coding and memos, noting the codes that appeared frequently, and examining the relationships between the initial codes. These categories were compared in the theoretical

Table 1: Characteristics of Participants

	Categories	Count
Healthcare experts (n=23)		
Specialization	Nurse	3
	Rheumatologist	2
	Physiotherapist	10
	Occupational Therapist	3
	Instructor	5
Years of Experience	Less than 5 years	3
	[5–10]	12
	More than 10 years	8
Persons living with RA (n=16)		
Gender	Female	11
	Male	5
Age	Mean	33.8
	Range	[25–45]
Occupation	Nurse	2
	Educator	4
	Unemployed	10
Marital Status	Married	7
	Single	9
Education Level	bac+3	6
	Master's degree	10
Duration of Disease	[1–5] years	9
	More than 5 years	7
Associated Diseases	None	15
	Hashimoto's Thyroiditis	1

Table 2: Interview Guide (healthcare experts)

Grand tour	
Specialization	
Years of experience	
Core questions	
Essential Skills	Identify the fundamental abilities required for RA
Skill ranking	Assess the relative significance of the identified abilities in terms of treatment effectiveness and quality of life.
Disease Management	Understand how these abilities apply to the control of pain, the administration of medications, and the general management of diseases.
Psychological Skills	Explore the role that particular emotional and psychological skills have in the treatment of RA.
Effective Strategies	Discuss strategies that have been shown to improve patients' abilities.

coding, and themes were created. To retain participant meaning and avoid researcher bias during the coding process, in-vivo codes made up of specific terms used by participants were applied.^[21,22] Atlas.ti was employed to assist the management and the analysis of the data. This tool supports efficient data handling. However, it does not replace the researcher's critical analysis.^[23]

Validity was assured by cross-checking codes with a second researcher and routine data comparison. After the analysis, several participants were called to ensure the correctness of the researcher's interpretations (member-checking).

Ethical considerations

The study adhered to the World Medical Association (WMA) statement of ethical principles for medical research involving human subjects. Ethical approval was obtained from the high Institute of Nursing and Health Professions – Agadir (approval number: 1777/24). All participants gave written informed consent. Anonymization and the subsequent destruction of records after processing were used to ensure confidentiality.

Results

This study aimed to delineate the specific skills necessary for PLRA. The coding process yielded six interconnected themes, indicating that patient skills in the RA context are multidimensional. These skills encompass cognitive aspects (such as self-learning, problem-solving, knowledge, and literacy); psychosocial elements (specifically emotional and psychological resilience, as well as communication and relationship building); and technical skills (including coping and self-care strategies). The themes, along with their respective code occurrences, are listed in Table 4:

Considering absolute counts and their associated percentages relative to the total counts from each group, Table 4 provides insights into the perceptions of participants regarding the necessary skills for PLRA.

Self-care and Coping were ranked highest by both experts and PLRA, with 27.67% and 31.25% of the total votes, respectively. This consensus underscores the shared recognition of the importance of everyday management and coping mechanisms in dealing with RA.

A notable disparity exists in the emphasis on Knowledge and Literacy in RA, with specialists allocating 23.30% of their focus to it, compared to only 10.42% by PLRA. This discrepancy suggests that professionals prioritize informational competency, whereas PLRA may either feel sufficiently informed or prefer to concentrate on other experiential aspects of their illness.

Communication and Relationship Building stand out, as PLRA rated it significantly higher (22.92%) than professionals (7.28%). This difference indicates that PLRA considers developing and maintaining positive relationships with healthcare professionals and effective communication with them as crucial.

Although Emotional and Psychological Resilience is valued by both groups, professionals place slightly more importance on it (21.84% vs. 16.67%). This suggests that while both parties acknowledge the emotional challenges posed by RA, professionals emphasize the development of psychological resilience more.

Table 3: Interview Guide (PLRA)

Grand tour	
Demographic Information	
Status: Patient diagnosed with RA/Caregiver or support person for a person with RA	
Duration since RA Diagnosis	
Other Health Conditions	
Core questions	
Descriptive Insight	The personal journey with Rheumatoid Arthritis
	The predominant challenges encountered on a daily basis
Self-Management Tactics	The techniques or self-guided strategies that have been proven to be successful in managing RA
	Their impact on recovery post-treatment and overall well-being
Essential Skills	The key skills considered indispensable for effective management of the disease
Life's Vital Sectors	Pivotal segments in life, such as occupational commitments, interpersonal dynamics, or recreational pursuits, where self-management skills are seen as paramount
Health management success	Experiences about situations or events where good health management skills came in useful during RA flare-ups or difficult times
Counsel for Counterparts	suggestions or guidelines to other patients

Table 4: Codes primary documents

Categories	Code occurrence			
	Experts	%	Patients	%
Coping and self-care	57	27.67	30	31.25
Emotional and Psychological Resilience	45	21.84	16	16.67
Knowledge and Literacy	48	23.30	10	10.42
Personal development	24	11.65	6	6.25
Communication and relationship building	15	7.28	22	22.92
Self-learning and Problem Solving	17	8.25	12	12.50
Totals:	206	100	96	100

Both groups give relatively lower ratings to Self-Learning and Problem-Solving compared to other categories. However, it is noteworthy that PLRA assigns a higher proportion to Self-Learning and Problem-Solving (12.50%) than experts do (8.25%). This may indicate a degree of patient autonomy in their pursuit of knowledge.

In summary, the percentage rankings reveal that experts prioritize coping, knowledge, emotional resilience, personal growth, self-learning, and communication, in that order. PLRA, conversely, places higher value on coping, communication, emotional stability, self-improvement, learning, and personal development. These findings highlight the differing perspectives between PLRA and professionals, emphasizing the need for a patient-centered approach in therapeutic education programs for RA.

Self-care and coping

Self-care and coping encompass an extensive range of activities and attitudes that patients utilize to manage their diseases and adapt to their specific conditions [Table 5]. One of the primary categories identified is Treatment Management, which pertains to how PLRA handles its therapeutic regimen, encompassing both medical and non-medical aspects. This category underscores the critical importance of patient safety and vigilance during treatments. As one PLRA remarked, *“It’s not just about taking the medication, it’s about understanding it, monitoring for side effects, and being proactive in my care”*.

The focal point of Activity Maintenance is on patients’ daily activities, highlighting the constant balancing act required to manage health-related needs alongside everyday life activities, including professional and family responsibilities. A healthcare expert noted, *“Patients must integrate their health management into their daily routines without compromising their personal and professional lives.”* A PLRA echoed this saying, *“ my joints are inflamed. It’s not easy to lead a normal life. I have to plan my day accordingly, making sure I don’t overexert myself while still fulfilling my responsibilities.”*

Pain and Complication Management includes both reactive and preventive measures that patients should undertake to address the more adverse aspects of their conditions. This category emphasizes the significance of early detection, management of flare-ups, fatigue management, and innovative approaches such as Nausea Mitigation Techniques. A healthcare expert shared, *“Patients should recognize the early signs of a flare-up and take action before it becomes debilitating”*. A PLRA added, *“Learning techniques to manage my pain has been crucial; My main difficulty is related to the side effects of the treatment (injectable methotrexate), especially nausea and fatigue the day after the injection”*.

Lastly, Dietary Management reflects the autonomy and commitment of patients in making informed dietary choices that align with their health objectives. A PLRA articulated, *“By understanding the impact of my diet on my condition, I can make choices that support my treatment and overall well-being.”* Another person explained, *“ I’ve noticed that reducing food intake the day after the injection (especially skipping breakfast) reduces nausea caused by methotrexate”*.

Emotional and psychological resilience

Emotional and Psychological Resilience encompasses a wide array of tactics and mindsets that PLRA may employ to effectively strengthen their mental health [Table 6]. One significant area within this domain is Stress Mastery. Stress can exacerbate the chronic nature of the illness, leading to a recurrent cycle of

Table 5: Theme 1: Coping and self-care

Subcategory	Category	Theme
Patient-led rehabilitation	Treatment management	Coping and self-care
Practical symptom management		
Joint conservation		
Treatment adaptation and vigilance		
Natural healing belief	Activity maintenance	
Adherence to treatment regimen		
Balancing occupational demands with health management		
Balancing parental demands with health management		
Daily activities performance	Pain and complication management	
Life style and hygiene importance		
Direct pain and complication management		
Early detection of complication		
Fatigue management		
Progression and deformity management		
Recognizing and preventing complications		
Recognizing flare-up		
Supplementary nausea mitigation technique	Dietary management	
Dietary coping mechanism		
Dietary discipline		
Dietary self-management		

Table 6: Theme 2: Emotional and Psychological Resilience

Subcategory	Category	Theme
Stress mastery to prevent flare-ups	Stress mastery	Emotional and Psychological Resilience
Stress avoidance for better self-management		
Stress distancing for symptom control		
Alleviating emotional tensions	Disease acceptance	
Disease acceptance: strategies and journey		
Objectif centric thinking		
Psychological endurance and attentiveness	Emotional intelligence	
Disease reactivation and current health		
Emotional intelligence		

increased stress and worsening symptoms. Therefore, PLRA should employ techniques that alleviate emotional tensions and maintain stress at a manageable level to control symptoms and prevent flare-ups. As one healthcare expert expressed, *“Learning to manage stress is crucial to prevent symptoms from worsening”*. Another expert emphasized, *“By practicing mindfulness and relaxation techniques, patients will be able to keep stress levels in check, which has a positive impact on their overall health”*. A PLRA shared, *“Like many people, I sometimes experience stressful episodes that cause stiffness in my joints. However, by managing and controlling this stress, I am able to stop these symptoms and prevent a serious flare-up of my condition”*.

Another important category is Disease Acceptance. This highlights the strategies patients use to come to terms

with their conditions, placing considerable value on objective-centric thinking and instructing patients to concentrate on achievable goals along their journey to optimal well-being. A healthcare expert emphasized, *“Encouraging patients to set realistic, achievable goals can significantly improve their quality of life and emotional resilience”*.

The Emotional Intelligence category accentuates the critical role of psychological endurance and attentiveness in overcoming health difficulties. This focuses on maintaining awareness of one’s current state of health and using emotional intelligence to anticipate health-related needs. One PLRA noted, *“Understanding my emotional triggers and responses has been key in managing my condition more effectively. I advise every person with RA not to give up in the face of the disease”*.

Knowledge and literacy in RA

In terms of cognitive and intellectual capacities, knowledge and literacy constitute the foundation of how patients manage and understand their illnesses [Table 7]. This refers to the ability to find, understand, and use information to make health-related decisions.^[24]

This skill emphasizes the importance of comprehensive knowledge of the disease, indicating that patients should be aware of the nature of their condition and the potential challenges they might face. As one expert stated, *“Thoroughly understanding their condition helps patients anticipate and prepare for potential issues”*. Another expert added, *“The more patients know about their illness, the better they can manage it”*.

It suggests that PLRA should acquire knowledge about the various therapeutic options available to them, techniques and gestures they might perform, and coping strategies to navigate the challenges of their health journey. A healthcare expert highlighted, *“Educating patients about their treatment options and self-care techniques empowers them to take an active role in their health management”*. A PLRA echoed this sentiment, saying, *“Knowing my treatment options gives me a sense of control and helps me make informed decisions”*.

Knowledge serves as the fundamental component in mastering medication and self-care within a broad context. One person remarked, *“Being informed about my medications and how to manage my care has significantly improved my confidence and ability to handle my illness”*. Another person stated, *“Understanding the ins and outs of my treatment regimen allows me to be proactive and better manage my health”*.

Personal development

Personal development encompasses attributes and qualities that PLRA can cultivate to enhance their effectiveness in various life situations [Table 8].

Table 7: Theme 3: Knowledge and literacy

Subcategory	Theme
Comprehensive disease knowledge	Knowledge and literacy: cognitive and intellectual ability
Comprehensive medical and non-medical treatments	
Self-care measures knowledge	
Knowledge and techniques	
Coping knowledge	
Medication and care management	
Mastery of medication regimen	

Table 8: Theme 4: Personal development

Subcategory	Theme
Managerial capacities	Personal development
self-awareness	
Self-efficacy	
Self-confidence	
Determination as a trait of personality	
spirituality	
Energy conservation	
Mindset of normalcy	
Active participation and engagement in care	

One pivotal aspect is managerial capabilities, which highlights a person’s ability to plan and organize actions related to disease management. As one expert stated, *“Being organized and planning daily activities around treatment schedules simplifies disease management”*. Another expert noted, *“Effective planning allows patients to balance their health needs with daily responsibilities more efficiently”*.

Self-awareness refers to a person’s ability to recognize and understand their emotions, motivations, and desires. A healthcare expert emphasized, *“Self-awareness is crucial for patients to identify their emotional and physical needs, which enables them to seek timely interventions”*.

Another important attribute is Self-Efficacy, which pertains to a person’s confidence in their ability to perform the behaviors necessary for managing their health. A PLRA expressed, *“Believing in my ability to manage my health has empowered me to take necessary actions”*. Relatedly, Self-Confidence reflects a person’s consistent faith in their skills. Another person remarked, *“Having confidence in my abilities has been instrumental in facing health challenges head-on”*.

Determination as a Trait of Personality emphasizes the persistence required to achieve goals, especially amidst difficulties. A healthcare expert highlighted, *“Patients should cultivate determination to push through tough times and stay committed to their treatment plan”*.

Energy Conservation underscores the importance of judiciously managing one’s energy and resources. Additionally, Spirituality reflects the role of spiritual beliefs and practices in personal growth. A PLRA

commented, “Conserving my energy allows me to focus on what’s truly important. Believing in God and my spiritual practices provide me with strength and peace”.

The Mindset of Normalcy suggests that patients should strive to maintain a sense of routine and regularity despite their health issues. Patients should avoid adopting a victim mindset and instead view themselves as capable individuals. A healthcare expert mentioned, “Maintaining a normal routine helps patients feel more in control and less defined by their illness”.

Finally, Active Participation and Engagement in Care reflect the proactive role that patients must adopt, rather than being passive recipients of care. A healthcare expert, “Patients should take an active role in their care to gain a sense of ownership and control over their health journey”.

Communication and relationship building

To establish stronger connections with their environment and better manage their health journeys, persons living with RA should develop a range of communication and relationship-building skills and attitudes [Table 9]. At the forefront is the category of Communication Ability. This includes various aspects of communication within the health context, from self-expression to advocating for multidisciplinary interaction. It highlights the importance of timely and clear communication, especially during flare-ups. As one PLRA noted, “The ability to communicate quickly via email, followed by a consultation with my doctor, allowed for the rapid implementation of a treatment. Having the opportunity to initially express my feelings and pain via email directly to the rheumatologist is essential for me”.

Another crucial aspect of communication is drawing inspiration from shared experiences. This suggests that patients can find motivation and solutions by learning from those who have navigated similar medical challenges. A healthcare expert pointed out, “Learning from others’ experiences provides valuable insights and strategies for managing one’s own health”. A PLRA shared, “Hearing about how others handle their conditions has given me new ideas and hope”. Another person remarked, “Connecting with others who face similar issues has been a source of strength and practical advice”.

Conversely, Relationship Building involves securing and gaining support from rheumatologists, family members, or the broader community. This indicates that having a supportive and understanding environment is crucial for effective disease management. One PLRA remarked, “Having a supportive family and a compassionate healthcare team has made all the difference in my treatment journey”. A healthcare expert emphasized, “Non-judgmental and supportive interactions are crucial for effective disease management and patient well-being”.

Self-learning and problem solving

Self-learning and problem-solving encompass a dynamic blend of skills and attitudes that patients should utilize to effectively manage their health journey [Table 10]. The category Self-learning covers the intrinsic motivation and learning strategies employed by PLRA. This aspect of continuous therapeutic learning highlights the constant evolution in medical care and the necessity for patients to remain informed about the latest advancements. As one healthcare expert noted, “Keeping up with the latest treatments and medical advancements is crucial for health management”. A PLRA added, “Staying informed helps me make better decisions about my treatment and adapt to changes in my condition”.

The emphasis on skills linked to know-how underscores the importance of practical knowledge in health management, as well as the essential ability to learn how to learn. A healthcare expert remarked, “Patients who develop effective learning strategies and practical skills are better equipped to manage their conditions”. Furthermore, the act of seeking help highlights that while individual effort is crucial, external guidance is equally important.

Table 9: Theme 5: Communication and relationship building

Subcategory	Category	Theme
Advocacy for multidisciplinary communication	Communication ability	Communication and relationship building
Self-expression		
Prompt communication and treatment during flare ups		
Inspiration through shared experiences		
Rheumatologist supports	Relationship building	
Family support		
Community support for disease self-management		
Trust based medical relationships		
Non stigmatization and communication		
Emotional support		

Table 10: Theme 6: Self-learning and Problem Solving

Subcategory	Category	Theme
Skills linked to knowing how	Self-learning	Self-learning and Problem Solving
Continuous therapeutic learning		
Seeking helps	Problem-solving	
Skills for various scenarios		
Overcoming external barriers		
Self-directed health management		
Overcoming daily problems:		
Eye-related challenges		
Treatment side effects		
Challenges in basic or complex mobility function		
Seeking alternative solutions		
Positive prognosis		

A PLRA commented, “Knowing when and how to ask for help has been a key part of my self-learning process”.

Simultaneously, Problem-Solving refers to the diverse strategies patients develop to address challenges. This includes overcoming external barriers and managing specific disease-related issues, such as eye-related challenges, treatment side effects, and basic or complex mobility function. One PLRA stated, “Finding ways to manage side effects and mobility issues has required a lot of searching and creative problem-solving”.

Problem-solving is a skill of adaptability that patients must possess while facing various scenarios and evaluating their prognosis. A healthcare expert noted, “Adaptive problem-solving skills enable patients to navigate the complexities of their health conditions and make informed decisions”.

General mapping of RA skills

In this study, we identified a hierarchical structure of skills that PLRAs use in their journey toward health management. These skills are divided into three distinct levels, each building on the foundation of the previous level [Figure 1].

At the first level, Knowledge and Literacy serves as the fundamental base on which all other skills are developed. Patients need to understand the nature of the illness, the available treatments, and any potential difficulties and how to overcome them. Knowledge equips patients with the tools needed to navigate the complexities of RA.

As we progress to the second level, we encounter more action-oriented skills. Self-care and coping encompasses the practical measures patients take daily to manage their disease, including managing treatments, maintaining daily routines, and addressing pain and complications. At this stage, Emotional and Psychological Resilience is pivotal, as the chronic nature of RA necessitates sustained emotional resilience for effective long-term management. Additionally, Personal Development emerges as a critical component, emphasizing personal growth beyond the identity of an RA patient, fostering a sense of agency and enhancing self-management confidence.

At the third level, we identified skills focusing on external interactions and support systems. Communication and

Relationship Building underscores the importance of articulating needs clearly and forming connections with healthcare providers and community members. Self-Learning and Problem-Solving complete the framework by acknowledging that patients continuously acquire knowledge from their experiences and those of others, utilizing problem-solving skills to navigate the evolving challenges of RA. These skills fortify their foundational knowledge and individual mastery, creating a dynamic cycle of growth and adaptation.

Discussion

The objective of this study was to identify and classify the skills of PLRA. This research introduces a multi-dimensional skill model and provides new insights into the strategies RA patients use for self-management. The findings reveal six interrelated skills: coping and self-care; emotional and psychological resilience; knowledge and literacy; personal development; communication and relationship building; and self-learning and problem-solving. This information is vital for healthcare providers and other stakeholders to develop more effective interventions tailored to patients' specific needs.

A significant observation from this study is the consensus between experts and patients on the importance of coping and self-care. This may be attributed to the chronic nature of RA, which necessitates ongoing management and daily resilience. Previous research supports this crucial aspect,^[9,11,25] and the agreement between both groups highlights its universal relevance.

The study underscores the importance of self-care and coping in managing RA daily. One of the key findings is the significance of treatment management. PLRA must take an active role in managing their treatment, including both medical and non-medical aspects. This involves understanding their medications, monitoring for side effects, and making informed decisions about their care, which is essential for effective self-management.^[26] Activity maintenance is another crucial aspect, as people with RA need to balance their daily activities with their health needs. Ensuring that health management is seamlessly integrated into everyday life is vital to prevent overexertion and maintain a good quality of life.^[27] Additionally, pain and complication management is critical. Being proactive in detecting and managing pain and other complications can help maintain function and improve overall well-being. Lastly, dietary management has a significant impact on controlling RA symptoms. Making informed dietary choices can influence inflammation levels and contribute to better health outcomes, highlighting the importance of diet in self-care for RA patients.^[28]

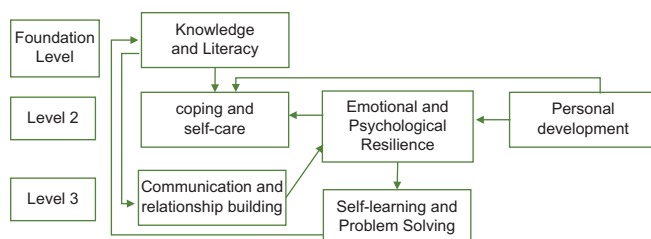


Figure 1: Mapping RA patients' skill

Both groups identified emotional and psychological resilience as a core skill. The psychological burden of managing RA, characterized by pain, reduced mobility, and constant medication, is substantial. The interplay between RA and mental health involves various factors, including cognitive, emotional, and behavioral responses to the disease. Notably, the relationship between RA and mental health is bidirectional.^[29] The emphasis on this skill by both professionals and patients indicates a growing recognition of managing RA as a holistic condition.

Stress mastery is highlighted as a crucial component of emotional and psychological resilience. Given that stress can significantly exacerbate RA symptoms, PLRA needs to develop effective strategies for managing stress. Techniques such as mindfulness and relaxation have been shown to help control stress levels, thereby preventing symptom flare-ups and improving overall quality of life.^[30]

Disease acceptance is another critical aspect of resilience. The process of accepting RA as a chronic condition is essential for long-term well-being. Patients who learn to set realistic goals and focus on achievable outcomes are better equipped to navigate the challenges of living with RA. Disease acceptance is not merely about resignation; it involves actively adapting to one's condition, which is a significant psychological journey for many patients.^[31]

Emotional intelligence also plays a key role in managing RA. This skill involves the ability to understand and regulate one's emotional responses to the disease. Patients with higher emotional intelligence are more adept at anticipating their health-related needs and making informed decisions about their care. By cultivating emotional intelligence, patients can better manage the psychological challenges posed by RA, leading to improved mental and physical health outcomes.^[32]

The recognition of emotional and psychological resilience as a vital skill in RA management reflects a broader understanding that RA is not just a physical condition, but one that deeply affects the mental and emotional well-being of those who live with it. As such, comprehensive RA care must address these psychological dimensions, equipping patients with the tools they need to manage both the physical and emotional impacts of the disease.

A clear difference emerged between experts and PLRA regarding the importance of knowledge and literacy, while professionals value medical knowledge, patients may prioritize personal experiences over formal information. This aligns with previous findings that patients with chronic conditions often rely on personal

experiences or peer narratives rather than solely on medical information.^[33-35]

Comprehensive disease knowledge is essential, patients who are well-informed about RA and the various treatment options available are better equipped to anticipate challenges and make informed, proactive decisions about their care. This foundational understanding is crucial for effective disease management.^[32] Additionally, knowledge of self-care measures is vital. Patients must be familiar with both medical and non-medical interventions that can help them maintain their health and manage symptoms effectively. This includes understanding various techniques that support daily self-care practices. Finally, mastery of the medication regimen is a key component. Patients need to be knowledgeable about their medications, including how to use them correctly and how to manage potential side effects. This knowledge empowers them to take control of their treatment, instilling confidence in their ability to manage their health proactively and effectively.^[36]

PLRA placed a much higher value on communication and relationship building compared to experts. This finding reflects patients' need for a robust support system, especially during crises, and the importance of articulating their needs, fears, and expectations. Effective communication between patients and healthcare providers is widely recognized as critical for improving health outcomes.^[37-39]

Effective communication is indispensable for patients diagnosed with Rheumatoid Arthritis (RA), particularly when engaging with healthcare professionals. Precise and prompt discourse, especially during periods of exacerbation, is instrumental in securing immediate and appropriate medical attention. Proficient communication helps prevent misinterpretations, ensures the accurate description of symptoms, and facilitates necessary adjustments to treatment regimens. Thus, the significance of patient-provider dialogue in managing chronic conditions such as RA cannot be overstated.^[40]

Drawing inspiration from shared experiences constitutes another key aspect of RA management. Gleaning insights from individuals with similar experiences can be remarkably encouraging and provide practical guidance rooted in everyday life. This mutual support can alleviate feelings of isolation and empower patients to take control of their condition. Research attests that peer support groups and shared experiences substantially enhance mental well-being and treatment compliance among RA patients.^[41]

The cultivation of relationships extends beyond interactions with medical professionals to encompass bonds with family, friends, and the wider community.

Forging robust and supportive connections is fundamental to effective RA management. A supportive milieu offers both emotional sustenance and practical assistance, helping patients to confront the daily challenges posed by RA. Studies demonstrate that patients with strong social support networks achieve more favorable health outcomes and exhibit greater adherence to treatment protocols.^[42]

PLRA showed a stronger emphasis on self-learning and problem-solving than experts, suggesting that patients value the ability to independently navigate their condition. This reflects a desire for greater autonomy in managing their health. Personal development, though ranked lower, still plays an important role in helping patients grow beyond the limitations imposed by their condition. These results highlight the need for healthcare providers to encourage patient autonomy through education and support, enabling patients to develop the skills and confidence to manage RA effectively.

Continuous therapeutic learning is essential due to the evolving nature of medical treatments for RA. As new treatments and advancements become available, it is crucial for patients to stay informed so they can make the best decisions regarding their care. Ongoing learning empowers patients to be proactive in their treatment, allowing them to adjust to new therapies as they arise. This continuous learning process is vital for maintaining effective disease management over time.

Skills linked to know-how involve the practical knowledge and learning strategies that RA patients develop to manage their condition. These skills are particularly important because they enable patients to apply theoretical knowledge to real-world situations. Research has shown that patients who possess strong problem-solving skills are better equipped to manage their RA, as they can adapt to the daily challenges presented by the disease. This practical know-how is a critical component of effective self-management.^[43]

Problem solving is the ability to develop strategies to overcome the various barriers that arise in managing RA. Adaptability and creativity are key components of effective problem-solving, as RA often presents unpredictable challenges that require innovative solutions. Recent studies emphasize the importance of these skills, noting that patients who are adept at problem-solving tend to have better health outcomes and are more successful in managing the complexities of their condition.^[44]

When comparing our findings with earlier frameworks, it becomes clear that medical knowledge and self-care remain foundational elements in the management of RA.

These earlier studies^[9,11,12] emphasize the critical need for patients to thoroughly understand their conditions and take an active role in managing their health. Our study reaffirms these aspects but also expands on them by emphasizing the importance of communication, a dimension that, while acknowledged in previous frameworks, takes on even greater significance in our findings. Additionally, we introduce Personal Development as a distinct and crucial dimension, one that has not been explicitly addressed in earlier models. This addition reflects the evolving understanding of RA management, where personal growth and the development of self-efficacy are recognized as essential for long-term well-being.

The hierarchical structure proposed in our study offers a comprehensive roadmap for developing therapeutic education programs tailored to RA patients. This model outlines a logical progression: starting with the acquisition of knowledge, moving through self-care and coping strategies, and culminating in effective external interactions and a commitment to continuous learning. By aligning healthcare interventions with this framework, professionals can provide a more holistic, patient-centered approach to RA management. This approach not only addresses the physical aspects of the disease but also empowers patients by fostering their personal growth and enhancing their ability to manage their condition in a sustained and proactive manner.

Limitations and future recommendations

This study has some limitations to consider. First, the sample size, though adequate for qualitative research, was restricted to a specific demographic, limiting the generalizability of the findings. Participants were recruited through social media and patient forums, which may introduce selection bias, as those more engaged online may differ from the broader RA population. The data analysis, while thorough, remains subject to researcher interpretation, potentially introducing bias during coding and theme development.

Despite these limitations, the study offers significant contributions. It highlights a comprehensive set of skills necessary for effective RA management, an area underexplored in previous research. The grounded theory approach allowed for a detailed framework reflecting the complexities of living with RA. The inclusion of both medical professionals and RA patients offers a balanced perspective, enriching the findings with clinically relevant and practical insights. The proposed hierarchical structure of skills is a strength, offering a clear way to prioritize competencies for RA management.

Future research should expand the sample size and include more diverse participants to improve

generalizability. Longitudinal studies could further explore how these skills evolve and affect long-term outcomes. Additionally, future work should examine the role of digital health interventions in developing RA management skills and consider integrating quantitative measures alongside qualitative approaches for a more comprehensive analysis.

Conclusion

RA is a complex condition requiring a holistic and patient-centered approach for effective management. This study identified a range of essential skills that RA patients need, from foundational knowledge to key communication and relationship-building abilities.

A significant finding is the importance of coping and self-care strategies in daily RA management. These skills help patients maintain quality of life while navigating the challenges of the disease. The study also highlights differences in how patients and healthcare providers prioritize skills such as knowledge and literacy versus communication and relationship-building, emphasizing the need for educational programs informed by patients' real experiences. Aligning these perspectives ensures that support strategies are practical and relevant to the challenges patients face.

The emphasis on self-learning and problem-solving is particularly noteworthy, suggesting that healthcare systems should actively support patients in becoming proactive learners. This shift from passive to active engagement is crucial for fostering self-reliance and resilience in managing RA.

The study also underscores the critical role of communication, while drawing attention to personal development, an often-overlooked aspect. The hierarchical structure of skills proposed provides a clear framework for designing educational programs that are truly patient-centered and address the full spectrum of RA patients' needs.

From a health policy perspective, this study outlines several key benchmarks to guide the development and implementation of effective RA management strategies:

- **Comprehensive educational programs:** Policies should mandate curricula addressing both the physiological and emotional aspects of RA, equipping patients with the knowledge and skills necessary to manage the disease. These programs must be adaptable to include patients' personal experiences, ensuring relevance and practicality.
- **Emphasis on self-care and coping:** Educational programs should focus on teaching practical self-care and coping strategies that help patients manage

symptoms, maintain functionality, and improve quality of life.

- **Promotion of self-directed learning:** Policies should encourage the provision of resources such as online programs and forums that empower patients to take an active role in their care, fostering autonomy and continuous personal growth.
- **Facilitation of peer support:** Health policies should promote peer-led support groups where experienced RA patients can share insights, creating a community of understanding and practical advice.
- **Personal development:** Educational programs should include modules on personal development, focusing on self-efficacy, determination, and goal-setting, which boost patients' confidence in managing their condition.
- **Enhanced communication:** Policies should ensure that healthcare professionals are trained to engage with patients in supportive ways that foster strong therapeutic relationships.

Ethical considerations

The study adhered to the World Medical Association (WMA) statement of ethical principles for medical research involving human subjects. Ethical approval was obtained from the high Institute of Nursing and Health Professions – Agadir (approval number: 1777/24).

All participants gave written informed consent. Anonymization and the subsequent destruction of records after processing were used to ensure confidentiality.

Contributorship

All authors included have made substantial contributions to the design of the work, analysis, and draft of the article. The version of the article being submitted has been approved by all the listed authors.

Acknowledgments

The authors were the only contributors to the article, and therefore, they have no additional acknowledgments to state.

Abbreviation

EULAR	European League Against Rheumatism
GT	Grounded Theory
PLRA	Persons Living with Rheumatoid Arthritis
RA	Rheumatoid Arthritis
TPE	Therapeutic Patient Education

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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