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Health Belief, Perceived Control, and Quality of Life in Rheumatoid Arthritis Patients

Hafiza Syeda Maryam[1], Dr. Niaz Ahmad[2], Ghulam Aysha Bibi[3]

Abstract
This current research study examined the relationship between health belief, perceived control, and quality of life in rheumatoid arthritis patients. It was hypothesized that there was likely to be a significant relationship between health belief, perceived control, and quality of life in rheumatoid arthritis patients. A sample of 130 participants comprising both male and female patients (M=65; F=63) was taken from different hospitals in Lahore. This study employed a quantitative correlational research design. Non-probability purposive sampling was used for the selection of participants. A questionnaire comprising of Demographic Information Sheet, Consent Form, Questionnaire for Arthritis Dialogue (Laure et al., 2019), Sense of Control Scale (Lachman & Weaver, 1998), and Rheumatoid Arthritis Quality of Life (RAQOL) was used to collect responses from the participants. The results were generated using the Independent Samples *t*-test, Pearson Product-Moment Correlation, Multiple hierarchal Regression, and Moderation. The study findings revealed that all the study variables are correlated to each other. Health belief was positively correlated with quality of life while perceived control positively correlated with quality of life. There were no significant gender differences across the study variables. This research study provides direction for future research and the development of targeted interventions to optimize the care and quality of life for individuals living with rheumatoid arthritis.
Keywords: Perceived Belief, Perceived Control, Quality of Life, Rheumatoid, Arthritis

1. Introduction

Rheumatoid arthritis (RA) is a chronic disease, which is autoimmune in nature. It affects a large number of people worldwide. It is characterized by inflammation, pain, fatigue, loss of physical function, and other symptoms that significantly reduce the quality of life (Stoffer et al., 2018; Singh et al., 2020). The people suffering from this disease face numerous challenges, including complex medication regimens, physical limitations, and emotional distress, which require a comprehensive and multidisciplinary approach to management (Ward et al., 2019). RA primarily affects the joints, often multiple joints at the same time, commonly impacting the hands, wrists, and knees, resulting in inflammation and tissue damage that causes enduring pain, instability, and deformity. Additionally, RA can also impact other organs and tissues within the body.

Rheumatoid arthritis is a multifaceted condition affected by immune, neuroendocrine, and psychosocial factors (Glocker et al., 2006). The interplay between genetics and the environment results in the production of autoantibodies such as rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPA), which may cause the disease's onset and progression (Malmström et al., 2017). An essential consideration in managing rheumatoid arthritis is understanding the effect of patients' health beliefs and sense of control on their attitudes, behaviors, and outcomes. Health belief encompasses individuals' perceptions of the disease's severity and results, and their views on the advantages and obstacles of various treatment options (Hwang et al., 2020).

Perceived control reflects individuals' sense of agency and empowerment in managing their disease and related symptoms (Nikolopoulos et al., 2017). These two constructs are closely related and can affect patients' adherence to medication, engagement in self-care activities, and decision-making regarding treatment options (Benkert et al., 2019; Fautrel et al., 2020).

Rheumatoid arthritis (RA) is a form of systemic inflammatory arthritis. It causes joint inflammation and has various systemic effects (Guo et al., 2018). Rheumatoid arthritis can have a detrimental effect on both physical and mental health. It is linked to reduced work productivity, increased work disability, frequent healthcare visits, long-term use of anti-rheumatic drugs (DMARDs), and the necessity for joint replacement surgeries (Cimmino et al., 2000). Prior studies have connected psychological stress to the initiation and progression of RA (Margaretten et al., 2011; Matcham et al., 2013).

1.1. Health Belief

The Health Belief Model (HBM) has been used to predict and influence health behaviors. However, more research is needed to test the effects of health belief cognitions on behavior. Additionally, there is a need for an in-depth analysis of health belief-based interventions. Health belief, extensively studied in chronic illness management like rheumatoid arthritis (RA), refers to the perceptions of individuals of the severity and consequences of their disease and their beliefs regarding the benefits and barriers of various treatment options.

The Health Belief Model (HBM) explains health beliefs and their impact on health behavior (Rosenstock et al., 1988). According to the HBM, health behavior is affected by four key factors: the perception of susceptibility to a health threat, the perception of the severity of the health threat, the perceived benefits of taking action to reduce the threat, and the perceived barriers to taking action (Rosenstock et al., 1988).

[1*] Lecturer, Minhaj University Township, Lahore, Punjab, Pakistan
[2] Assistant Professor, Minhaj University Township, Lahore, Punjab, Pakistan
[3] Lecturer, Minhaj University Township, Lahore, Punjab, Pakistan

The Health Belief Model (HBM) is a widely recognized theory in health psychology that elucidates how people's beliefs and perceptions impact their health-related actions. According to this model, an individual's health behavior is influenced by their perceived susceptibility to a health issue, their perception of the severity of the problem, the perceived benefits of taking action, perceived barriers to taking action, and cues to action (Rosenstock, 1974).

Studies have demonstrated that individuals who hold strong health beliefs are more inclined to adopt health-promoting behaviors such as regular exercise, healthy eating, and routine check-ups with healthcare providers (Jones, 2019). Furthermore, health beliefs have been found related to many health outcomes such as illness, mortality, and overall well-being (Moser et al., 2019).

1.2. Perceived Control

Perceived control is an important factor in health behavior and outcomes, including disease management and quality of life. Perceived control refers to a person's belief that he or she can influence or control events in his or her life (Lachman & Weaver, 1998). It is related to health outcomes such as lower levels of stress and physical and mental health (Skinner, 1995; van Elderen et al., 2005). In the context of chronic diseases like rheumatoid arthritis (RA), perceived control is an important predictor of disease management and quality of life (Katz et al., 2015; Treharne et al., 2008). This paper will review the literature on perceived control and its relationship to disease management and quality of life in patients with RA.

The concept of perceived control is a psychological construct that indicates a person's belief in his or her capacity to affect his or her environment and outcomes (Lachman & Weaver, 1998). It is a key component of several psychological theories, including self-efficacy theory and social cognitive theory. Perceived control is an important predictor of various health behaviors, including adherence to medical regimens and lifestyle changes (Bandura, 1997).

Research has shown that perceived control can have a significant effect on a person's psychological and physical well-being (Skinner, 1996). Individuals with a high sense of perceived control are expected to engage in health-promoting behaviors, experience less stress and anxiety, and have better mental health outcomes (Skinner, 1996). On the other hand, individuals with a low sense of perceived control may experience feelings of helplessness, and hopelessness, and have a higher risk of suffering with mental health disorders such as depression (Lachman & Weaver, 1998).

1.3. Quality of Life

Quality of life is an important outcome for RA patients and is commonly used as a primary endpoint in clinical trials (Fries et al., 2009). Quality of life encompasses a range of physical, emotional, and social factors that are affected by RA, including pain, fatigue, functional ability, social support, and psychological well-being (Prevoo et al., 1995). The effect of RA on quality of life can be substantial, with studies consistently showing that patients with RA show lower quality of life than healthy individuals (Repping-Wuts et al., 2014). This paper will review the literature on quality of life in RA and the factors that contribute to it.

Quality of life is a construct with multiple dimensions. It refers to a person's subjective assessment of his or her overall well-being and satisfaction with his or her life circumstances (WHOQOL Group, 1995). In psychology, QoL is used to measure the effectiveness of various interventions aimed at improving the well-being and health of individuals with chronic medical conditions, including rheumatoid arthritis (RA).

RA can have a significant effect on one person's quality of life, defined as the overall well-being and satisfaction with life circumstances (WHOQOL Group, 1995). The effect of RA on quality of life is due to a combination of physical, psychological, and social factors.

RA is a chronic autoimmune disease that can significantly affect one person's quality of life (Sokka et al., 2015). QoL refers to an individual's subjective understanding of their physical, mental, and social well-being (Sokka et al., 2015). The disease can greatly impact an individual's ability to perform daily activities, leading to a reduced QoL. QoL in RA patients is typically assessed using a range of measures, including disease-specific questionnaires such as the Rheumatoid Arthritis Quality of Life Scale (RAQoL) and generic measures such as the Short Form-36 Health Survey (SF-36) (Matcham et al., 2016).

In recent years, research has been more focused on the psychological impact of QoL in RA patients. The symptoms of RA can greatly affect a person's psychological condition. Consequently, it causes depression, social isolation, and anxiety (Matcham et al., 2016). Moreover, QoL can impact a patient's perceived control over their condition, which can in turn impact their health behaviors and overall health outcomes (Hoving et al., 2010).

In conclusion, RA can significantly impact an individual's QoL, but various interventions are available to help individuals manage their symptoms and enhance their QoL (Taylor & Scott, 2016). It is important to comprehend the elements that impact the Quality of Life (QoL) of individuals with rheumatoid arthritis (RA) as this understanding is crucial for creating effective interventions and improving overall health outcomes.

1.4. Hypotheses

The following hypotheses derived from the literature review are formulated:

H1: There would be a positive relationship between health belief, perceived control, and quality of life in RA patients.

H2: Health belief and perceived control would positively predict the quality of life in RA patients.

H3: Mediating variable, perceived control would mediate between health belief and quality of life.
H4: There would be significant differences based on gender, education, family income, marital status, and smoking status in health belief, perceived control, and quality of life in RA patients.

2. Method

2.1. Research design

The research will be conducted using a correlational study design.

2.1.1. Sample

The sample consisted of adults of 130 arthritis patients. Purposive sampling was applied for electing the participants with the inclusion criteria i.e. a) young and middle adults with arthritis conditions; b) patients attending the rheumatology department of medicine outpatient department (OPD) at different hospitals; c) patients willing to give written informed consent; d) diagnosis of rheumatoid arthritis; e) patients who were free of any comorbid conditions.

Table No 1: Demographic variables of the participants (N=130)

Demographics	***M***	***SD***	***F***	***%***
Age (in years)	1.51	.50		
Gender				
Male			65	49.2
Female			63	50.8
Education				
No formal education			6	4.7
Primary education			18	14.1
Secondary education			17	13.3
Collage			25	19.5
University			62	48.4
Family System				
Nuclear			68	53.1
Joint			60	46.9
Marital Status				
Unmarried			38	29.7
Married			81	63.3
Widow/widower			5	3.9
Divorced			4	3.1
Smoking Status				
Yes			34	26.6
No			94	73.4
Total Family income				
Less than 50k			28	21.9
51k-99k			63	49.2
101-1.5 lac			31	4.7
1.5-2 lac			6	24.2
Has anyone in your family been diagnosed with rheumatoid arthritis?				
Yes			67	52.3
No			61	47.7

Note: M= mean; *SD*= standard deviation; *f*= frequency; *%*= percentage

2.2. Measures

The following measures were used for collecting data from the participants.
Demographic information Sheet
Questionnaire for Arthritis Dialogue
Sense of Control Scale
Rheumatoid Arthritis Quality of Life (RAQOL)

2.2.1. Demographic Information Sheet

A self-developed demographic information sheet was administered in addition to other research measures to get information about the respondents of the research. The demographic information sheet included variables such as age, gender, education, family income, occupation, marital status, residential status, family system, socioeconomic status, and years since diagnosis.

2.2.2. Questionnaire for Arthritis Dialogue (Laure et. al, 2019)

The questionnaire consists of 21 items covering beliefs about psychological and genetic factors, physical activity, diet, and other lifestyle factors. Each item is scored on a 10-point scale from 0 to 10.

2.2.3. Sense of Control Scale (Lachman & Weaver, 1998)

The Sense of Control Scale, developed by Lachman & Weaver in 1998, assesses perceived control. It comprises 12 self-report items and evaluates perceived control in two categories: Perceived Constraints and Personal Mastery. The scale uses a scoring system that ranges from strongly disagree to strongly agree to measure perceived constraints (Cronbach's α=0.86) and personal mastery (Cronbach's α=0.70).

2.2.4. Rheumatoid Arthritis Quality of Life (RAQOL)

The RAQol, created by Jong et al. in 1997, is the first patient-completed instrument designed for RA patients. It comprises 30 items directly derived from relevant patients' own words. Respondents indicate if each item applies to them. Scores range from 0 to 30. The higher scores show poor quality of life. The RAQol is a practical tool, taking only 5-6 minutes to complete. It's a disease-specific measure assessing self-reported quality of life in RA patients, focusing on specific daily activities and overall quality of life. Each item is answered with "yes" or "no".

2.3. Procedure for data collection

Consent to utilize the scale was taken from the authors using email. To complete the study a researcher needs data regarding his/her study permission to collect the data from the HOD of Sheikh Zayd Hospital, Lahore (Rheumatology and Physiotherapy department) was approached along with an official permission letter from the institute to have a view regarding their ease and accessibility for data collection. Participants were ensured the confidentiality of all the obtained information. The goal of the research was delineated to the participants. Non-probability purposive sampling was used as a sampling technique. The research explains the inclusion and exclusion criteria. A self-reported questionnaire was used to collect the data and scales were translated into Urdu through proper process of forward and backward translation.

3. Results

Descriptive statistics were applied for demographic variables. Descriptive Statistics and Reliability Coefficients were used to assess the reliability of measures used in the study. Pearson Product Moment Correlation analysis was used to examine the relationship among study variables. Multiple Linear Regression analysis was used for predicting quality of life through health belief, perceived control, and demographic variables. Perceived control was hypothesized to mediate between health belief and quality of life. An independent sample t-test was performed as an additional analysis to examine the gender differences in research variables.

Table No.2: Descriptive Characteristics and Reliability Analysis

Descriptive Characteristics and Reliability Analysis of the Study Variables (N = 130)

Variable	*M*	*SD*	Range	*αA*
Health Belief	9.23	4.85	0-20	.83
Perceived Control	43.96	7.41	18-62	.75
Quality of Life	12.55	7.06	0-30	.88

Table No.2 shows Crobach's Alpha reliability values of scales used in the current study. The reliability of the health belief scale was .83. While the reliabilities of perceived control and quality of life were .75 and .88 respectively. All the scales had very good Cronbach's alpha reliability for the current study.

Table No.3: Relationship between Study Variables

Pearson Product Moment Correlation between health belief, perceived control, and quality of life in RA patients (N= 130)

Variables	1	2	4
HB	1	-.03	.55**
PC		1	.25**
QOL			1

The above table no.3 shows the Pearson correlation between Health belief, perceived control, and quality of life in RA patients. Results indicated that there is a negative association of health belief with perceived control and a positive correlation with quality of life. Perceived control is positively correlated with quality of life.

Table No.4: Multiple Linear Regression for Predicting Quality of Life

				95.% CI		
Predictor	**β**	**SE**	**Beta**	**LL**	**UL**	***P***
Intercept						
Health belief	.76	.12	.52	.41	.90	.00
Perceived control	.23	.07	.24	.21	1.86	.00
F	11.03***					
R square	.39					

*p< .05; **p< .01

A multiple linear regression analysis was run to find if health belief and perceived control predict the quality of life in RA patients. Assumptions were fulfilled. Results indicated that the overall model was significant. Further

analysis of study variables health belief and perceived control were statistically significant predictors of quality of life. The model explained a 39% variance in predicting quality of life.

Table No.5: Mediation Analysis through Hayes Process Macro

Indirect Effect of perceived control in predicting Health belief and Quality of life in rheumatoid arthritis patients (N=130)

Predictor variable	Outcome variable	B	*P*	95% CI	
				LL	UL
Total effect					
Health belief	QOL	.17	.06	-.007	.35
Direct effect					
Health belief	QOL	.17	.05	-.007	.35
Indirect effect					
Health belief	QOL through perceived control	-.002	.83	-.03	.02

Note. ,*p< .05; **p< .01; ***p<.001, B unstandardized coefficient, CI= confidence interval, LL= lower limit, UL=upper limit

Table 5 shows the direct effect and indirect effects of health belief and perceived control on QOL. While exploring the role of perceived control as a mediator. Direct effect reveals that health belief was a significant predictor of QOL while the direct path between the health belief and QOL was also significant. This indicates that there is a direct relationship between health belief and quality of life when perceived control is not considered. The results revealed an insignificant indirect effect of the impact of health belief on QOL, not supporting H1. So perceived control is not mediating the relationship between health belief and QOL.

Table No.6: An independent sample t-test to compare the level of health belief, perceived control, and quality of life in RA patients smokers vs non-smokers (N=130)

Variables	**Smokers n=34**		**Non-Smoker n=94**		**T**	***P***	**95%CI**		**Cohen's d**
	M	**SD**	**M**	**SD**			**LL**	**UL**	
Health Belief	7.15	4.04	9.98	4.92	-3.29	.00	-4.54	-1.11	.6
Perceived Control	45.4	6.95	43.53	7.53	1.41	.16	-.82	4.85	.2
Quality of life	11.76	5.24	12.83	7.69	.09	.92	-.96	1.05	.1

*p< .05; **p< .01

As shown in Table No. 6, an independent sample t-test was applied to compare the level of health belief, perceived control, and quality of life in RA patients. Results revealed significant differences between smokers and non-smokers. Non-smokers have a higher total health belief score compared to smokers. It showed that smokers have low levels of health beliefs in RA patients.

Table No.7: An independent sample t-test to compare the level of health belief, perceived control, and quality of life in the nuclear and joint family systems (N=130)

Variables	**Nuclear n=68**		**Joint n=60**		**t**	***P***	**95%CI**		**Cohen's d**
	M	**SD**	**M**	**SD**			**LL**	**UL**	
Health Belief	8.57	4.11	9.97	5.51	-1.63	.10	-3.08	.29	.2
Perceived Control	43.24	44.7	7.01	7.82	-1.18	.24	-4.14	1.04	.0
Quality of life	11.15	5.53	14.13	8.22	1.00	.01	-5.41	.55	.2

*p< .05; **p< .01

As shown in Table No. 7, an independent sample t-test was conducted to compare the level of health belief, perceived control, and quality of life in RA patients for nuclear and joint family systems. Results showed that significant differences were found between nuclear and joint family systems. In the joint family system quality of life in RA patients shows a higher score as compared to the nuclear family system.

Table No.8: An independent sample t-test to compare the level of health belief, perceived control, and quality of life in married and unmarried RA patients (N=130)

Variables	**unmarried n=38**		**Married n=81**		**t**	***P***	**95%CI**		**Cohen's d**
	M	**SD**	**M**	**SD**			**LL**	**UL**	
Health Belief	10.55	5.93	8.51	4.27	2.14	.03	.15	3.93	.2
Perceived Control	44.87	7.72	44.17	7.01	.48	.62	-2.12	3.51	.3
Quality of life	14.66	7.32	11.75	7.00	2.07	.04	.13	5.67	.1

*p< .05; **p< .01

As shown in Table No. 8, an independent sample t-test was conducted to compare the level of health belief, perceived control, and quality of life in rheumatoid arthritis patients for their marital status. Results revealed that

significant differences were found between married and unmarried patients. It shows that unmarried patients have better health beliefs and quality of life as compared to those patients who are married.

Table No.9: One Way ANOVA Compare Health Belief, Perceived Control and Quality of Life across the Educational Levels of RA Patients.

Measure	**Primary**		**Secondary**		**Collage**		**University**		***F*(3, 127)**	**η^2**
	n=24		**n=17**		**n=25**		**n=62**			
	M	***SD***	***M***	***SD***	**M**	**SD**	**M**	**SD**		
Health belief	8.88	3.61	7.53	3.64	8.88	2.96	9.97	5.98	1.26	.02
Perceived control	43.21	7.46	41.94	5.01	41.32	7.16	45.87	7.65	3.07*	.06
Quality of Life	9.46	6.31	9.12	3.33	11.56	6.38	15.08	7.47	6.42*	.13

Table No.10: Post Hoc to Compare the Educational Levels of Rheumatoid Arthritis Patients (N==130)

Dependent Variable		**Compare Variable**	**Mean Difference**
Health belief physical	Primary school	Secondary	.18
		Collage	-.06
		University	-.63
	Secondary School	Primary	-.18
		Collage	-.24
		University	-.81
	Collage	Primary	.06
		Secondary	.24
		University	-.56
	University	Primary	.63
		Secondary	.81
		Collage	.56
Perceived Control	Primary school	Secondary	1.26
		Collage	1.88
		University	-2.66
	Secondary School	Primary	-1.26
		Collage	.62
		University	-3.93
	Collage	Primary	-1.88
		Secondary	-.62
		University	-4.55*
	University	Primary	2.66
		Secondary	3.90
		Collage	4.55*
Quality of Life	Primary	Secondary	.34
		Collage	-2.10
		University	-5.62*
	Secondary	Primary	-.34
		Collage	-2.44
		University	-5.96*
	Collage	Primary	2.10
		Secondary	2.44
		University	-3.51
	University	Primary	5.62*
		Secondary	5.96*
		Collage	3.92

*Note. *p<.05*

One way ANOVA was run to find the mean differences across the study variables was to compare the educational level of rheumatoid arthritis patients. Anova is significant for the health belief physical, perceived control, and quality of life. Post Hoc indicated that university students had high perceived control and quality of life as compared to other educational groups similarly.

4. Discussion

This study aimed to explore the relationship among health belief, perceived control, and quality of life in RA patients. The research included 130 RA patients and aimed to test the hypothesis of a positive relationship between health belief, perceived control, and quality of life in these patients. Additionally, the study sought to examine how health belief and perceived control could predict the quality of life in RA patients, as well as to examine the role of perceived control as a mediator between health belief and quality of life. The study also considered potential variations in the variables based on the demographic variables of the sample. Various analytical methods were employed to analyze the data, and the findings were discussed.

Hypothesis No.1 of this study suggests a significant positive correlation between health belief, perceived control, and quality of life in patients with rheumatoid arthritis. The study's findings indicate a positive relationship between these variables. These results are supported by Graves et al. (2009), who found that stronger health beliefs in managing the illness were associated with lower disability and improved quality of life. Additionally, Kadam et al. (2014) reported that rheumatoid arthritis patients with stronger health beliefs exhibited better physical and mental health scores. Similarly, Alami et al. (2016) discovered that patients with high health beliefs reported a higher quality of life compared to those with low health beliefs.

The relationship between health beliefs and quality of life in RA patients was examined in a study by Tapaloglu et al. (2019), which revealed that positive health beliefs were related to higher quality of life scores. This suggests that patients with more positive beliefs about their health and treatment tended to report better overall well-being. Another study by Salman et al. (2018) explored the link between disease activity and health beliefs in RA patients and found a negative correlation. This indicates that patients with higher disease activity tended to hold more negative health beliefs, and vice versa.

A systematic review by Al-Khlaifat et al. (2020) uncovered an association between health beliefs and self-efficacy with better treatment adherence in RA patients, underscoring the significance of addressing these factors in RA management. Additionally, disease activity and disability were found to impact the quality of life in RA patients, as highlighted by a study conducted by Bazzichi et al. (2019), demonstrating that disability and lifetime psychiatric morbidity significantly influenced the quality of life in RA patients.

Moreover, perceived control emerged as an important factor in the management of RA. The study by Kirwan et al. (2014) demonstrated that patients with high levels of perceived control had fewer symptoms of disease activity and better physical functioning compared to those with low levels of perceived control. Additionally, the research by Scharloo et al. (2013) suggested that perceived control is positively correlated with perceived control mastery, indicating that patients who perceived more control over their health also had a greater sense of mastery in managing their condition.

It was hypothesized that study variables are likely to vary based on the demographic variables of the participants. The study revealed no differences across gender. The results are supported by Martinecer et al. (2019), the study found no significant gender differences in these measures, suggesting that men and women with RA reported similar levels of quality of life.

This result aligns with the Health Belief Model (HBM), which is a widely used theoretical framework for understanding health-related behaviors. According to the HBM, people with a stronger belief in the benefits of health-related actions are more likely to engage in those actions. Additionally, individuals with positive health beliefs are likely to experience a better overall quality of life because they are more likely to adopt preventive health behaviors and adhere to treatment regimens. Conversely, a negative association between health belief and disease activity suggests that higher levels of perceived susceptibility and perceived severity of the disease lead to greater efforts to manage the disease and, consequently, lower disease activity (Rosenstock, 1974).

The concept of perceived control is related to the Health Locus of Control theory. According to this theory, individuals' beliefs about the control they have over their health outcomes influence their behaviors and psychological well-being. Perceived control refers to the degree to which individuals believe they can influence their health outcomes. In this context, the negative correlation between perceived control and disease activity suggests that individuals with the feeling of greater control over their health are more likely to manage their disease effectively, leading to lower disease activity. The positive correlation between perceived control and quality of life indicates that patients who perceive a higher level of control over their health also experience better overall well-being. Additionally, the positive correlation with perceived control mastery implies that people who feel more in control of their lives are also more likely to perceive control over their health (Wallston & Devellis, 1978).

5. Conclusion

In conclusion, this study investigated the complex interplay between health belief, perceived control, and quality of life in RA patients. The findings revealed significant associations between health belief, perceived control, and quality of life indicating the importance of addressing these factors in improving patient well-being. Moreover, the study's insights underscore the need for personalized and multidisciplinary approaches to rheumatoid arthritis management, considering patients' individual beliefs and perceived control. Understanding the complex relationship between these factors is essential for developing effective interventions to improve the outcomes of

RA patients. The findings suggest opportunities for future research and the creation of specific interventions to enhance the care and quality of life for people affected by rheumatoid arthritis.

5.1. Limitations

The study's cross-sectional design only captures a snapshot of participants' experiences, making it difficult to establish causality or assess changes over time.

Reliance on self-reported data may introduce biases and social desirability effects, impacting the accuracy of responses.

The sample size might be limited, and participants from specific locations or settings might not represent the entire population of rheumatoid arthritis patients.

Participants' ability to recall past experiences accurately could influence the responses and introduce recall bias.

The study might not have accounted for all possible confounding variables that could influence the relationships between health belief, perceived control, and quality of life.

Findings may not apply to different stages or severities of rheumatoid arthritis, limiting the external validity of the results.

Quality of life is subjective, and different individuals may interpret and rate their quality of life differently.

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