Research Paper
Impact Factor: 5.483
Peer Reviewed & Indexed Journal

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

DISEASE ACTIVITY, ILLNESS COGNITION, PAIN SELF-EFFICACYAND PERCEIVED SOCIAL SUPPORT AMONG RHEUMATOID ARTHRITIS PATIENTS

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Abstract
The main aim is to study the disease activity, illness cognition, pain self-efficacy and perceived social support among rheumatoid arthritis patients. The sample of the study consisted of 56 female rheumatoid arthritis patients. The age of the subjects ranged from 18 years and above. A personal data sheet was included in the questionnaire to collect data from the patients regarding their age, socioeconomic status, exercise and family history of illness. The major tools used in the study are Patient Activity Score II (PAS II) by Frederick Wolfe (2005), Illness Cognition Questionnaire (ICQ) by A W M Evers and F W Kraaimmat (1998), pain self-efficacy questionnaire (PSEQ) by Michael Nicholas (1980) and Multidimensional scale of perceived social support (MSPSS) by Zimet et al. 1990. The result shows that there is significant difference in disease activity, illness cognition, pain self-efficacy and perceived social support on the basis of age, socioeconomic status, family history and exercise. Correlation analysis reveals that there is significant positive correlation between helplessness and disease activity, acceptance and pain self-efficacy, perceived benefits and perceived social support as well as pain self-efficacy and perceived social support and significant negative correlation among helplessness and pain self-efficacy, perceived social support as well as disease activity and pain self-efficacy. Regression analysis shows that helplessness, disease activity and perceived social support significantly predicts pain self-efficacy.

Key Words: Disease Activity, Illness Cognition, Pain Self- Efficacy, Perceived Social Support, Rheumatoid Arthritis.

Introduction

Rheumatoid arthritis (RA) is a chronic disabling inflammatory arthritis, which is associated with a significant morbidity and an increased mortality. RA refers to the systemic inflammatory health condition that is characterized by insistent synovitis in various joints and autoantibodies which can be causing pain, swelling, stiffness and disability (Scott et al., 2010). Rheumatoid arthritis affects 0.8% of the population and has definite genetic and lifestyle risk factors. It is three times more likely to occur in women than men. Recently the number of patients seeking treatment for rheumatoid arthritis is increasing. The frequent symptoms of RA are: flare-ups, pain, fatigue, stiffness, warmth and redness. An individual with RA may experience flare-ups at any time over the day or night. There are various reasons for the cause of the flare; however in RA a flare can be related to stress (Hewlett et al., 2011)though, this has not been adequately understood yet.

Patients with RA require long term pharmacological treatments and so need to cope with the consequences of the medication in order to manage their daily lives. Patients may come to doubt their abilities to manage vital life activities, which can contribute to low self-esteem, self-efficacy, negative view about their illness and contribute to depressive symptoms. Cognitive distortions and helplessness can aggravate these symptoms and other emotional responses to arthritis. Gaps in social support may also be a consequence. Unfavorable social reactions to people with rheumatoid arthritis may contribute to disability as well. They have to deal adequately with the psychosocial, behavioral and emotional consequences of the illness on a regular basis thus affecting impression of them. Patient's perception of the disease is very important in case of good prognosis. The increasing use of psychological treatment strategies to reduce the pain and disability associated with RA also reflects the growing collaboration between rheumatologists and psychologists. Thus, understanding the psychosocial aspects is essential as a researcher helps in formulating new models and relationships between variables that might be helpful in treatment. Not much study have been conducted on disease activity, illness cognition, pain self-efficacy and perceived social support of rheumatoid arthritis patientsin Kerala thus paving the way for managing the disease and related psychological condition of people in Kerala.

Objectives

1. To find out the difference in disease activity, illness cognition, pain self-efficacy and perceived social support based on age in rheumatoid patients.
2. To find out the difference in disease activity, illness cognition, pain self-efficacy and perceived social support based on SES.
3. To find out the difference in disease activity, illness cognition, pain self-efficacy and perceived social support based on family history present or absent.
4. To find out the difference in disease activity, illness cognition, pain self-efficacy and perceived social support based on exercise present or absent.
5. To find out the relation among disease activity, illness cognition, pain self-efficacy and perceived social support in rheumatoid arthritis patients.
6. To identify the variables that can predict pain self-efficacy among rheumatoid arthritis patients.

Hypothesis

1. There is no significant difference in disease activity, illness cognition, pain self-efficacy and perceived social support among early adults, middle adults and late adults in rheumatoid arthritis patients.
2. There is no significant difference in disease activity, illness cognition, pain self-efficacy and perceived social support between low and medium socioeconomic status.
3. There is no significant difference in disease activity, illness cognition, pain self-efficacy and perceived social support between family history present or absent.
4. There is no significant difference in disease activity, illness cognition, pain self-efficacy and perceived social support between exercise present or absent.
5. There is no significant relationship among disease activity, illness cognition, pain self-efficacy and perceived social support in rheumatoid arthritis patients.
6. Pain self-efficacy will not be predicted by age, disease activity, helplessness, acceptance, perceived benefits and perceived social support.

Method

In the current study, 56 female Rheumatoid arthritis patients were randomly selected from various outpatient clinics. The selected patients were under treatment for more than 1year and were referred by Rheumatologist. The sample included patients who are 18 years and above. Individuals who have basic knowledge in English and working and non-working persons were included. Rheumatoid arthritis in pregnancy was avoided. Individuals who are having others severe physical or mental disorders were excluded. Handicapped people were excluded.

Instruments

Personal Data Sheet: It included age, sex, occupation, marital status, socioeconomic status, age at which the illness is diagnosed, duration of illness, treatment method, family history of illness, and exercise.

Patient Activity Score-II (PAS II): PAS II is a self-report inventory developed by Frederick Wolfe in 2005. PASII combine single measures into an overall continuous measure of rheumatoid arthritis (RA) disease activity. PASII have 3 items each. There are no subscales. The PASII contain only patient derived data and include a patient assessment of pain on a 10-cm visual analog scale (VAS), patient global assessment of disease activity (PtGA) on a 10-cm VAS, and the Health Assessment Questionnaire-II (HAQII) for the PASII.

Illness Cognition Questionnaire: A self-report instrument, the Illness Cognition Questionnaire was developed by A W M Evers and F W Kraaimmat (1998) to assess these cognitions across different chronic diseases. The ICQ was used to measure helplessness, acceptance and perceived benefits..The validity analysis show that factor loadings for all items of Illness Cognition Questionnaire (ICQ) ranged from 0.77 to 0.93. Cronbach's alpha demonstrated adequate internal consistencies for all scales, ranging from 0.84 to 0.91 in the samples.

Pain Self-Efficacy Questionnaire: The pain self-efficacy questionnaire (PSEQ) is a 10 item questionnaire developed in the 1980s by Michael Nicholas to assess the confidence people with ongoing pain have in performing activities in pain. Clients are asked to rate how confidently they can perform the activities described at present, despite their pain. Internal consistency is excellent (0.92 Cronbach's alpha) and test retest reliability is high over 3 month period.

Multidimensional Scale of Perceived Social Support: A self-report measure of subjectively assessed social support. Three subscales, each addressing a different source of support, were identified and found to have strong factorial validity: Family, Friends, and Significant Other. The research demonstrated that the MSPSS has good internal and test-retest reliability as wellas moderate construct validity.

Result and Discussion

Demographic and Clinical Details of the Samples

Table 1: The Frequency And Percentage Distribution of Rheumatoid Arthritis Patients Based on The Age, Socioeconomic Status, Exercise, Family History, Severity Disease Activity, Illness Cognition Pain Self-Efficacy, And Perceived Social Support.

Domain	Rheumatoid arthritis patients (N=56)	Frequency	Percentage (%)
Age	young adult	10	17.85
	middle adult	23	41.07
	late adult	23	41.07
Socioeconomic status	Medium (up to—6253 per capita monthly income)	37	66.07
	Low (up to- 938 per capita monthly income)	19	33.92
Exercise	Present	32	57.14
	Absent	24	42.85
Family History	Present	29	51.78
	Absent	27	48.21
Disease activity	Low	27	48.21
	Moderate	29	51.78
Illness Cognition	Helplessness	21	37.5
	Acceptance	22	39.28
	Perceived benefits	13	23.21
Pain self-efficacy	Low	4	7.14
	Medium	32	57.14
	High	20	35.71
Perceived social support	Low	15	26.78
	Moderate	24	42.85
	High	17	30.35

Table 1 indicates the frequency and percentage distribution of Rheumatoid arthritis patients on the basis of age, socioeconomic status, family history, exercise, disease activity, illness cognition (helplessness, acceptance and perceived benefits), pain self-efficacy, and perceived social support. The first domain is age. The samples are in the range group between the ages 35-64 years. The ages were classified according to International classification of Diseases for general purpose, Geneva (1977). The number of samples is equal in category middle (41.07%) and late (41.07%). Young adults constitute only 17.85 of the total sample. The second variable is socioeconomic status. It was classified into medium and low status. Most of them fall into medium socioeconomic status (66.07%). They were also enquired about the exercise status present or absent. Most of the RA patients do exercise i. e. 57.14 percent. Samples were also classified on the basis of family history and most of them did have a history (51.78%). Next domain is disease activity and most of the sample fall into moderate category (51.78%) and 48.21% of the sample under the low category. The next domain is of illness cognition. Most of the samples have an acceptance regarding the illness (39.28%) but 37.5 % of them still believe themselves as helpless and only 23.21% of them believe that illness do have benefits. The next domain is pain self-efficacy and majority of them have moderate self- efficacy despite pain (57.14%) followed by people who have high pain self-efficacy (35.71%). Only 7.14% of them have low pain self-efficacy. Perceived social support is the next category. Most of the samples believe they have moderate social support (42.85) whereas 30.25% of them claims of having high social support and 26.78% of them fall into low social support.

Comparison of Rheumatoid Arthritis Patients on the Basis of Age

This section main include comparison of the 3 age group using one way ANOVA. Rheumatoid arthritis patients are mainly divided into 3 age category, 35-44 (young adult), 45-54 (middle adult), and 55-64 (late adult). This age classification was accepted by WHO (International classification of diseases, 1975) for general purpose.

Table 2: One Way ANOVA Obtained By Early, Middle And Late Adulthood Rheumatoid Arthritis Patients In Disease Activity, Illness Cognition & Its Dimension (Helplessness, Acceptance And Perceived Benefits), Pain Self-Efficacy And Perceived Social Support.

ANOVA					
		Sumof Squares	**df**	**Mean Square**	**F**
Disease Activity	Between Groups	24.967	2	12.483	2.309
	Within Groups	286.587	53	5.407	
	Total	311.554	55		
Helplessness	Between Groups	7.265	2	3.632	.158
	Within Groups	1217.717	53	22.976	
	Total	1224.982	55		
Acceptance	Between Groups	111.567	2	55.783	3.020
	Within Groups	978.987	53	18.471	
	Total	1090.554	55		
Perceived Benefits	Between Groups	274.984	2	137.492	7.278*
	Within Groups	1001.230	53	18.891	
	Total	1276.214	55		
Pain Selfefficacy	Between Groups	73.252	2	36.626	.229
	Within Groups	8476.748	53	159.939	
	Total	8550.000	55		
Perceived Social Support	Between Groups	1382.491	2	691.246	2.484
	Within Groups	14751.509	53	278.330	
	otal	16134.000	55		

*Significant at 0.05 level

Table 2 shows that the result of the one-way ANOVA, in which the disease activity, illness cognition, pain self-efficacy and perceived social support are analyzed in 3 age group such as young, middle and late adulthood. In this study analysis of variance was used to determine whether there are significant differences in different age

groups of rheumatoid arthritis patients. From the ANOVA table, the results indicate that F-value obtained for the perceived benefit dimension of the illness cognition has only significance difference based on age. This means that the three age groups differ in perception of perceived benefits of illness. The perceived benefit construct is most often applied to health behaviors and is specific to an individual's perception of the benefits that will accrue by engaging in a specific health action.

There is no significance in the age among the disease activity, helplessness & acceptance dimension of illness cognition, pain self-efficacy and perceived social support. This means that it does not matter which age group one is there is no change in severity of illness, feelings of helplessness, acceptance of illness, self-efficacy related to pain and perception of buffer system.

In a study by Radovits et al. disease activity scores tend to equal among all age groups which supports this result. Nicassio et al. in his study reported that greater helplessness correlated with greater age, lesser education, lower self-esteem, lower internal health locus of control, higher anxiety, and depression, and impairment in performing activities of daily living in rheumatoid arthritis patients which is controversial to the finding. Fyrand et al. in their study found that number of friends, age, and personality type all contributed to the variance in social support in rheumatoid arthritis patients.

Perceived benefits dimension has more significance among groups but in order to find the main effects, the researcher used the Duncan's analysis.

Table 3: Duncan's Tests For Different Age Groups of Rheumatoid Arthritis Patients Group In Perceived Benefits Of Illness Cognition Domain.

Perceived Benefits			
AGE	**N**	**Subset for alpha = 0.05**	
		1	2
Middle adult	23	11.57	
Late adult	23	14.39	
Young adult	10		17.70
Sig.		.071	1.000

Table 3 shows the Duncan's test result for different age groups of Rheumatoid arthritis patients group in perceived benefits of illness cognition domain. In this study significance difference is obtained in the perceived benefits dimension of illness cognition. In order to find, which group has main effects, Post Hoc comparison is used. The results show that there is significant difference in perceived benefit dimension of illness cognition in young adult group than other two groups.

Many studies have reported the negative effects of rheumatoid arthritis on people's lives such as being helpless, dependency etc. but this study reveal that young adults group have more beliefs about the positive outcome of illness which will help them engage in healthy actions such as exercise, diet, medical assistance and follow ups unlike the other two groups. People in this age group tend to be highly interested in the broader world, their place in it and how they can or do make a difference. They are strongly affected by the rapid changes in society but are less conflicted than older adults. As early adopters to modern technologies they have more access to the knowledge about illness thus helping them adapt better. There is no difference between middle and late adult groups as they believe that illness is not under their control and thus there is no benefit from illness. This indicates that as age increases, there are chances for people to ignore the positive outcomes related to illness and the need to engage in healthy behaviors.

Table 4: The Mean And The Standard Deviation of The Scores Obtained In Disease Activity, Illness Cognition (Helplessness, Acceptance, Perceived Benefits), Pain Self-Efficacy And Perceived Social Support And The Corresponding 'T' Values Between Medium And Low Socioeconomic Status.

Domain		Medium SES (N=37)		Low SES(N=19)		t value
		Mean	SD	Mean	SD	
Disease activity		3.51	1.8	5.42	2.87	.2.639*
Illness cognition	Helplessness	13.03	4.4	16.68	4.53	2.893*
	Acceptance	15.81	4.2	13.16	4.5	2.11*
	Perceived benefits	14.35	4.6	12.79	5.0	1.120
Pain self-efficacy		39.51	10.4	27.68	12.64	3.511**
Perceived social support		61.27	15.0	50.16	18.90	2.226*

*significant at 0.05 level ** Significant at 0.01 level

In this study the samples are divided into medium and low socio economic status on the basis of Modified BG Prasad socio economic scale (January 2017).According to this, individuals whose per capita monthly income fall below 938 is grouped into Low SES and below 6253 is grouped into Medium SES group.

Table 4 shows the mean and the standard deviation of the scores obtained in disease activity, illness cognition (helplessness, acceptance, perceived benefits), pain self-efficacy and perceived social support and the corresponding 't' values between medium and low socioeconomic status. Medium group has 37 samples and low group has 19 samples. The obtained 't' value clearly shows that there is significant difference between these two groups in disease activity, helplessness, acceptance, pain self-efficacy and perceived social support but not in perceived benefits of illness cognition. Low SES group has higher mean value (5.42) in the disease activity level and helplessness domain of illness cognition (16.68) than medium SES group. Several studies have examined the role of socioeconomic status in the course of RA. Low SES and its correlates, such as lower educational achievement, poverty, and poor health, ultimately affect our society. Individuals with lower SES may be more susceptible to RA, more likely to experience worse outcomes in terms of greater inflammation, and physical disability and show less frequent utilization of health services. They also feel they are helpless victims of illness due to financial factors; that is treatment cost, regular medical checkups, follow up, doctor fees, distance to clinic etc.

Molina (2015) has cited in her study the association of socioeconomic status with treatment delays, disease activity and disability in rheumatoid arthritis patients and found that low socioeconomic status was associated with delay in treatment initiation and progress of disease activity. In this study also, low SES group has higher mean value in the disease activity level than medium SES group. Studies from number of countries have reported that RA patients of low SES had worse outcomes in terms of disease activity, functional disability, pain, physical and mental health and quality of life. Camacho, Verstappen and Symmons (2012) had studied that learned helplessness mediated a significant proportion of the relationship between SES and disease activity. Patients who felt the most helpless had a worse disease outcome than those who felt moderately helpless. People with low SES were found to be more helpless than with medium SES.

Medium SES group has higher mean value in acceptance dimension of illness cognition (15.81), pain self-efficacy (39.51) and perceived social support (61.27). Compared to low SES group, this group has more access to health care facilities because of stable financial status, better social situation, have better control of their life. This helps them in understanding their illness in a positive way. Their perception of social support makes them more adaptable to do things even when in pain and also in accepting their illness. People with medium SES have more of acceptance of illness compared to low SES. The results also show that medium SES has more pain self-efficacy and perceived social support compared to that of low SES group. Han, Chu Song, Li (2014) has reported similar results that low socioeconomic status is associated with low self-efficacy. It has been found that there is no significant difference in perceived benefits of illness cognition on the basis of socioeconomic status. An

individual's perception of positive outcomes related to illness does not depend on the income or the status one hold.

Table 5: The Mean And The Standard Deviation of The Scores Obtained In Disease Activity, Illness Cognition (Helplessness, Acceptance, Perceived Benefits), Pain Self-Efficacy And Perceived Social Support And The Corresponding 'T' Values Between Family History Present And Absent.

Domain		Family history present (N=29)		Family history absent (N=27)		t value
		Mean	SD	Mean	SD	
Disease activity		4.55	2.261	3.74	2.474	1.277
Illness cognition	Helplessness	15.59	4.725	12.85	4.365	2.251*
	Acceptance	14.34	4.490	15.52	4.415	0.986
	Perceived benefits	13.90	5.348	13.74	4.275	0.121
Pain self-efficacy		32.72	13.4	38.48	10.84	1.773
Perceived social support		56.76	19.79	58.3	14.04	0.337

*significant at 0.05 level

Table 5 shows the mean and the standard deviation of the scores obtained in disease activity, illness cognition (helplessness, acceptance, perceived benefits), pain self-efficacy and perceived social support and the corresponding 't' values between family history present and absent. The obtained't' value indicates that there is significant difference in the helplessness dimension of illness cognition between the two groups. The mean value is higher for the patients with family history of illness (15.59) which indicate that helplessness is more with patients who have a history rheumatoid arthritis than who don't have. The individuals with family history have seen and experienced the sufferings of significant ones in their life and they may be conditioned or learned the helplessness exhibited by them.

This was a contradictory result as a study conducted by Jose, Stefano, Adriana, Maria and Rosa (2003) which indicated that despite family history was present in 39% of their sample no association was established between any of the psychological dimension studied including helplessness.

It has been found that there is no significant difference in disease activity, acceptance and perceived benefits of illness cognition, pain self- efficacy and perceived social support on the basis on family history of illness. Having or not having family history is not factor in influencing severity of disease, accepting or seeing a positive outcome from illness, one's ability to do things despite pain or perception of social support.

Table 6: The Mean And The Standard Deviation of The Scores Obtained In Disease Activity, Illness Cognition (Helplessness, Acceptance, Perceived Benefits), Pain Self-Efficacy And Perceived Social Support And The Corresponding 'T' Values Between Exercise Present And Absent.

Domain		Exercise present (N=32)		Exercise absent (N=24)		t value
		Mean	SD	Mean	SD	
Disease activity		4.09	1.785	4.25	3.04	0.224
Illness cognition	Helplessness	14.06	4.64	14.54	4.89	0.37
	Acceptance	15.97	4.0	13.5	4.70	2.068*
	Perceived benefits	14.75	5.023	12.58	4.32	1.73
Pain self-efficacy		37.81	9.75	-32.42	15.04	1.53
Perceived social support		60.05	14.99	53.5	19.2	1.47

*significant at 0.05 level

Table 6 shows. the mean and the standard deviation of the scores obtained in disease activity, illness cognition (helplessness, acceptance, perceived benefits), pain self-efficacy and perceived social support and the corresponding 't' values between exercise present and absent. The obtained 't' value indicates that there is significant difference in the acceptance dimension of illness cognition between the two groups. The mean value is

higher for the patients who do exercise (15.97) which indicate that acceptance is more with patients who do exercise than who don't do (13.5). Many studies have revealed the role of exercise in enhancing the positive thought about illness and also in better prognosis. A lot of studies have indicated the benefits (both physiological and psychological) of doing exercise in arthritis management. The psychological benefit of doing exercise improves anxiety, mood and wellbeing, promotes a state of relaxation and reduces stress. Exercise can reduce fatigue and ease depression. Accepting chronic illness is not about resigning yourself to illness forever; it's about understanding. Because as long as we deny where we are, we can't formulate a plan to move forward. Thus exercise helps in understanding more about our body; controlling our perceptions about illness.

It has been found that there is no significant difference in disease activity, helplessness and perceived benefits of illness cognition, pain self- efficacy and perceived social support based on exercise. This means exercise is not a sole determining one's severity of illness, feelings of helplessness, benefits from illness, confidence in the things one does and perception of social support.

Correlational Analysis

Correlation analysis among disease activity, illness cognition and its dimensions, pain self-efficacy, perceived social support.

Table 7: Correlation Coefficient of Illness Cognition, Disease Activity, Pain Self-Efficacy and Perceived Social Support of Rheumatoid Arthritis Patients.

Variables		Disease Activity	Pain Self-Efficacy	Perceived Social Support
Illness cognition	Helplessness	0.483**	-0.614**	-0.450*
	Acceptance	-0.153	0.409**	0.398*
	Perceived benefits	0.069	0.262	0.452*

** Significant at 0.01 level *significant at 0.05 level

Table 7shows the correlation coefficient between different dimensions of illness cognition and disease activity, pain self-efficacy and perceived social support. The obtained correlations show that there is significant positive correlation between helplessness and disease activity. The magnitude of the correlation coefficient (0.483) indicates substantial relationship between the variables indicating that as helplessness increases disease activity also increases and vice versa. There are studies which support these findings. Parker (1992) in his study has tried to explore the relationship between helplessness and depression to disease activity in rheumatoid arthritis and found that changes in helplessness significantly correlated to increased disease activity.

There is significant negative correlation between helplessness and pain self-efficacy. The magnitude of the correlation coefficient (-0.614) indicates substantial relationship between the variables indicating that as helplessness increase pain self-efficacy decrease or vice versa. There are studies which support these findings. According to Vergara et al (2017), learned helplessness and pain self-efficacy is significantly correlated to disease activity in rheumatoid arthritis patients.

There is significant negative correlation between helplessness and perceived social support. The magnitude of the correlation coefficient (-0.450) indicates substantial relationship between the variables indicating that as helplessness increases perceived social support decreases. Many studies have revealed similar results. In a review of previous western literature on the functions of social support, buffering role of social support was found in adult research (Cohen and Hobberman, 1983) revealing social support is functional in alleviating depressive symptoms like helplessness.

There is significant positive relationship between acceptance and pain self-efficacy. The magnitude of the correlation coefficient (0.409) indicates substantial relationship between the variables indicating that as acceptance increases pain self-efficacy also increases and vice versa. Higher levels of pain self-efficacy and acceptance in an individual experiencing pain are associated with more positive outcomes.

Pain self-efficacy has been linked to positive pain-related outcomes in a small sample of children with chronic pain (Bursch, Tsao, Meldrum, &Zeltzer, 2006) and has also been shown to partially mediate the relationship between pain-related fear and outcomes of disability, school functioning, and depressive symptoms (Carpino, Segal, Logan, Lebel, & Simons, 2014). It has been characterized as a protective psychological resource associated with positive pain-related outcomes (King et al., 1998) and better functioning in adults with chronic pain (Miles, Pincus, Carnes, Taylor, & Underwood, 2011; Wright, Zautra, & Going, 2008), thereby suggesting its potential as a resilience process.

There is a significant positive correlation between acceptance and perceived social support and vice versa. This means that when an individual accepts his / her illness, they are more likely to perceive the support system positively helpful. Also if they have a good buffering system to rely on, they can openly talk about their condition and understands in a better way. Many studies have shown the importance of social support in chronic illness especially in case of RA.

There is no significant relationship found between acceptance and disease activity, perceived benefits and disease activity, and perceived benefits and pain self-efficacy.

There is a significant positive relationship between perceived benefits and perceived social support. The magnitude of the correlation coefficient indicates substantial relationship between the variables indicating that as perceived benefits increases perceived social support also increases and vice versa. When the individual's perception of social support is adequate, then he/she is more likely to engage in behaviors that help them control their illness which brings out positive outcome. It is easier to be positive when one has enough buffering systems including friends, family and significant others.

Table 8: Correlation Coefficient of Disease Activity, Pain Self-Efficacy and Perceived Social Support of Rheumatoid Arthritis Patients.

Variables	**Disease Activity**	**Pain Self-Efficacy**	**Perceived Social Support**
Disease activity	1	-0.517**	-0.166
Pain self-efficacy	-0.517**	1	0.452**
Perceived social support	-0.166	0.452**	1

**significant at 0.01level

Table 8 shows the correlation coefficient between disease activity, pain self-efficacy and perceived social support. The results indicate that there is significant negative correlation between disease activity and pain self-efficacy. The magnitude of the correlation coefficient (-0.517) indicates substantial relationship between the variables indicating that as disease activity increases pain self-efficacy decreases. It is understood as when one's illness flares up, they will be less confident in the activities they do or when ones confidence level goes down, they are likely to experience more symptoms than they actually are.

There is a significant positive correlation between pain self-efficacy and perceived social support. The magnitude of correlation coefficient (0.452) indicates substantial relationship between variables indicating as pain self-efficacy increases perceived social support also increases and vice versa. When an individual's capacity to perform task in daily life especially in this case; managing pain is good then his/ her perception of social networks will also be good. Likewise if he/she believes that social groups around them are sufficient to meet their demands their confidence to manage pain will raise significantly. There is no significant relationship between disease activity and perceived social support.

Regression Analysis

This section presents the results of the analyses carried out to find the predictors of pain self-efficacy. This part of analysis has been done with a view of finding out the predictor variables which may best predict pain self-efficacy. Pain self-efficacy refers to one's confidence regarding one's ability to function effectively while in pain (Nicholas, 2007). It has been characterized as a protective psychological resource associated with positive pain-related outcomes and better functioning in adults with chronic pain thereby suggesting its potential as a resilience process. Specifically, as self-efficacy increases persons with RA show less helplessness, less depression, and higher functional status. Thus it is important to understand which all factors in the research contribute to pain self-efficacy.

The variables that were entered in stepwise regression analysis in order to predict pain self-efficacy are given below:

1. Age.
2. Disease activity.
3. Helplessness.
4. Acceptance.
5. Perceived benefits.
6. Perceived social support.

Table 9: Results of Stepwise Regression Analysis for Pain Self-Efficacy

Step	Predictor Variables	R	R Square	Adjusted R Square	B	Std. Error	Beta	F
1	Helplessness	.614[a]	.377	.366	-1.622	.284	-.614	32.699*
2	Helplessness, Disease Activity	.654[b]	.428	.407	-1.283 -1.513	.316 .695	-.486 -.260	19.849*
3	Helplessness, Disease Activity, Perceived Social Support	.688[c]	.473	.443	-.980 -1.603 .173	.338 .675 082	-.371 -.276 .237	15.558*

*significant at 0.05 level

1. Predictors: (Constant), helplessness.
2. Predictors: (Constant), helplessness, disease activity.
3. Predictors: (Constant), helplessness, disease activity, social support.

Table 9 shows the result of the stepwise regression analysis using pain self-efficacy as the dependent variable and 8 other variables mentioned above as the predicator variables. The obtained results indicate that out of the eight variables, only 3 accounted for a significant proportion of variance (44.3%) in pain self-efficacy. These three variables are found to be helplessness, disease activity and perceived social support. In other words, helplessness, disease activity and perceived social support are found to be significant individual predictor of pain self-efficacy, with helplessness accounting for 36.6percent of the unique variance ($F=32.699$, $P<0.05$), disease activity accounting for 4.1 percent of the unique variance ($F=19.849$, $p<0.05$) and perceived social support accounting for 3.6 percent of the unique variance ($F=15.558$, $p<0.05$) in pain self-efficacy (Table 10). The results reveal that helplessness and disease activity contribute negatively to pain self-efficacy whereas perceived social support contribute positively to pain self-efficacy which makes sense. This means that increase in helplessness and disease activity decreases the pain self-efficacy of an individual whereas increase in perceived social support increases the pain self-efficacy of an individual.

Table 10: Details Regarding Increase in Percentage Variation for Pain Self-Efficacy

Step	Variable entered	Percentage variation	Increase in percentage variation	F
1	Helplessness	36.6		32.699*
2	Disease activity	40.7	4.1	19.849*
3	Social support	44.3	3.6	15.558*

*significant at 0.05 level

Thus the step wise regression reveals that 44.3 percent of the variance in pain self-efficacy is explained by helplessness, disease activity and perceived social support making a significant contribution to the prediction of pain self-efficacy. Helplessness is the best predictor of pain self-efficacy among the variables followed by disease activity and perceived social support. There are few studies that support the findings. According toVergara, Bertiller et al pain self-efficacy is an important cognitive factor which is defined as the individual's abilities to cope with the disease despite pain and other important cognitive factor is the learned helplessness and it has been reported that patients with more learned helplessness have more pain, functional disability and low pain self-efficacy. Thus helplessness, disease activity and perceived social support are the important factors in determining pain self-efficacy of an individual.

Rheumatoid arthritis (RA), which is a chronic disease with no known cause or cures that typically, follows an unpredictable course. Thus examining the psychological variables helps in establishing a better connection with disease activity. By understanding the psychological factor underlying, one is able to manage their illness more effectively.The continued study of the rheumatoid arthritis may yield important knowledge in other areas of medical science. Improved public awareness and understanding will enable patients and their families to cope more effectively with the disturbing course of illness. The increasing use of psychological treatment strategies to reduce the pain and disability associated with RA also reflects the growing collaboration between rheumatologists and psychologists. Intervention focusing on changing the negative attitudes and evaluations about self and negative expectations about outcomes and cognitive dysfunctions among patients, may lead to improved treatment outcomes, including better to manage the symptoms more positively and to adapt well from the source of stressful situations improving the quality of their life and subjective wellbeing.

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