

ORIGINAL ARTICLE

## Relationship of Self-Efficacy and Disability in Patients with Rheumatoid Arthritis

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### ABSTRACT

**Objective:** To investigate the level of self-efficacy and disability in patients with rheumatoid arthritis (RA) and to examine the relationship of patient self-efficacy and disability with age and disease duration.

**Methods:** A cross-sectional survey was conducted at the department of rheumatology in JPMC, Karachi from June to November 2017. Patients who had RA as main disease, age above fifteen years, disease duration of three months or above and cognitively able to answer the questionnaires were consecutively included. Self-efficacy was measured by Arthritis Self-Efficacy Scale (ASES) and disability assessed by Health Assessment Questionnaire. The relationship between ASES and disability, age and disease duration were examined using Spearman's rho test. Statistical analysis was undertaken using SPSS for Windows, version 22.

**Results:** Of 100 RA patients, 32% had average self-efficacy. Whereas moderate to severe disability existed in 59% of the patients. A spearman's correlation showed that arthritis self-efficacy was strongly correlated with disability ( $r = -0.751, p < .0001$ ), moderately with disease duration ( $r = -0.359, p < 0.0001$ ) and weakly with age ( $r = -0.284, p = 0.004$ ) whereas disability had direct moderate correlation with age and disease duration ( $r = 0.396, p < 0.0001$  and  $r = 0.423, p < 0.0001$ , respectively).

**Conclusion:** This cross-sectional survey concluded that average self-efficacy and moderate to severe disability exist in RA patients. Enhancing the patient's self-efficacy should be an essential part of a total treatment program of RA so that disability, treatment cost and visits to health care system could be reduced.

**Keywords:** *Self-efficacy, rheumatoid arthritis, disability, patient education.*

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### INTRODUCTION

Rheumatoid Arthritis (RA) is the most common inflammatory arthritis and is a major cause of disability. It is progressive, autoimmune disorder that affect multiple systems. RA is chronic and disabling having adverse effects on the physical, mental and social well-being of affected individuals.<sup>1</sup>

RA has a worldwide prevalence of approximately 0.5% to 1% among adults.<sup>1</sup> Prevalence of arthritis in Pakistan is scarce.<sup>2</sup> The exact etiology of RA is unknown. Women are at two to three time's higher risk than men.<sup>3</sup>

The clinical presentation of RA varies greatly, depending on the stage and severity, joint pain, stiffness (lasting for more than 30 minutes), swelling, warmth and loss of function are classic symptoms. Small joints are mostly affected.<sup>4</sup> The onset of symptoms is usually acute and bilateral. A study concluded huge impact of rheumatic disorder on the

quality of life of those affected.<sup>5</sup> There is no single investigation to diagnose RA. A positive Rheumatoid factor along with symptoms confirms the diagnosis.<sup>6</sup>

The optimal treatments of RA consist of a combination of medications, exercises and patient (and family) education. Regular low-impact exercises decrease pressure on joints. Physical activity has been shown to decrease inflammation.<sup>7</sup> RA prognosis varies greatly from patient to patient.<sup>8</sup> The therapeutic goals of RA management is not only to reduce disability but also to maintain a healthy life style.

Self-efficacy is defined as one's beliefs about their ability to produce desired outcomes.<sup>9</sup> Interventions aimed at improving self-efficacy enhance participation of RA patients.<sup>10</sup> Higher the self-efficacy lowers the levels of fatigue in RA.<sup>11</sup> Self-efficacy is a key determinant in the maintenance of effects of intervention.<sup>12</sup> Previous studies have shown that psychosocial treatments can lead to increased self-efficacy in arthritic patients.<sup>13</sup>

The aim of this survey was to investigate the level of arthritis self-efficacy and disability in patients with RA and to determine what kind of relationship exist between RA patients arthritis self-efficacy and disability, age and disease duration, also difference in the level of arthritis self-efficacy between genders.

## METHODS

A cross-sectional survey was conducted on RA out-patients from the department of rheumatology, Jinnah Postgraduate Medical Centre (JPMC), Karachi in June 2017 using non-probability convenient sampling.

Approval was obtained from the Institutional Review Board (IRB) (Ref No.F.2-81-IRB/2017-GENL/1519/JPMC) prior conducting of the study. Participating RA patients were volunteers and those who give their consent and met the inclusion criteria were enrolled in a study.

Patients who had RA as a main disease, age above fifteen years, disease duration of three months or above and cognitively able to answer the questionnaires were included in the study. Subjects diagnosed with congenital or joint pain other than RA were excluded.

Two tools were administered in total i.e. Health Assessment Questionnaire (HAQ) and Arthritis Self-Efficacy Scale-8 Item (ASES-8) in addition to that demographic information was collected. Both the tools were self-administered and explained by researcher.

HAQ developed by James and colleagues<sup>14</sup> in which 8 categories assessed by the Disability Index (DI) are 1. dressing and grooming, 2. arising, 3. eating, 4. walking, 5. hygiene, 6. reach, 7. grip, and 8. daily activities.<sup>15</sup> The score for the DI was the mean of the 8 category scores.<sup>16</sup> Construct validity of the HAQ was good however internal consistency and the ICC was 0.81, reflects good reliability.<sup>17</sup>

ASES-8 developed by Lorig and colleges.<sup>18</sup> The scale includes 8 items, related to pain, other symptoms, and preventing pain and fatigue from interfering performance. Response scale (likert type) range from 1 (very uncertain) to 10 (very certain).<sup>18</sup> Scoring was done by calculating mean scores for each subscale. Internal consistency reliability of ASES-8 was 0.9.<sup>19</sup>

Statistical analysis was undertaken using SPSS for Windows, version 22. The normality of the data was checked out using the Kolmogorov-Smirnov test which showed that all the variables were not normally distributed. Therefore, non-parametric tests were applied. The relationship between ASES and disability, disease duration, and age were investigated using Spearman's rho test. The difference of ASES and DI

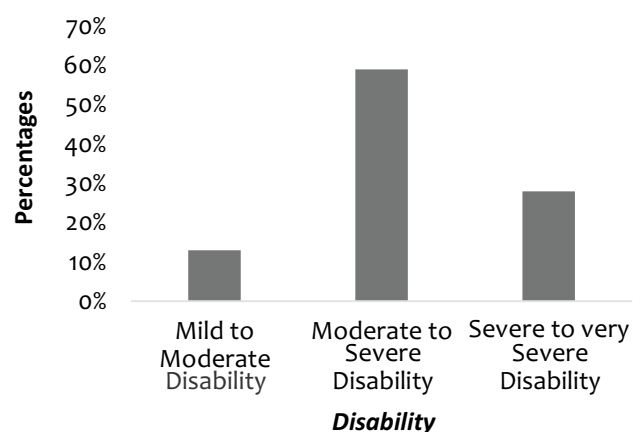
between baseline characteristics were explored using Mann-Whitney U test. P-value <0.05 was taken as significant.

## RESULTS

Out of 100 patients with RA, median age was 48.50 (IQR 3-55) years (range=20 to 80 years), and their disease duration ranged from 3 months to 27 years (Median=4 years, IQR =1-10). The median ASE of RA patient was 5.37 (IQR=3.75-6.75), median of disability index (DI) was 1.63 (IQR: 1.25-2.13). Most of the patients (94%) were women. The overall response rate was good (98%).

Most of the patients responses were in the range of average to weak self-efficacy when they were asked regarding their certainty to manage/decrease their arthritis pain, its interference with sleep, the things they want to do, during daily activities and also regarding activity without aggravating their arthritis while majority of RA patients were having weak self-efficacy to deal with the frustration of arthritis and to do something to make them feel better. The overall score showed that most of the RA patients (32%) were moderately uncertain i.e. having average level of self-efficacy.

The physical functioning in RA patients showed that most of the RA patients (59%) were having moderate to severe disability while some were having severe to very severe disability and only few patients were having mild to moderate disability. (Figure 1).



**Figure 1: Disability in patients with Rheumatoid Arthritis**  
A Spearman's correlation reported that arthritis self-efficacy was strongly correlated with disability ( $r = -0.751, p < .0001$ ), moderately with disease duration ( $r = -0.359, p < 0.0001$ ) and weakly with age ( $r = -0.284, p = 0.004$ ) whereas disability had direct moderate correlation with age and disease duration ( $r = 0.396, p < 0.0001$  and  $r = 0.423, p < 0.0001$ , respectively). All the

findings were statistically significant (See table 1). The comparison of self-efficacy and disability index with the baseline characteristics showed a significant difference of ASE with duration of disease (p-value 0.005) whereas a significant difference of DI was observed with age (p-value 0.005) and duration of disease (p-value <0.001). (Table 2)

## DISCUSSION

The finding of this survey shows that average ASE exist in most of the RA patients however previous study by Paula et al. in Finland reported quite strong self-efficacy in RA patients.<sup>20</sup> Thus, it is very important that health

care practitioners, should play their role in enhance self-efficacy as it is one of the important factor in the management of RA along with medications. Study by Gong G et al. reported that improving self-efficacy and controlling the disease activity plays a vital role in enhancing health related quality of life in RA patients.<sup>21</sup> Similarly another study highlighted the importance of self-efficacy in facilitating activity participation in RA patients.<sup>22</sup>

The finding of this present study showed that RA patient self-efficacy was weak regarding the management of pain and its interference with daily activities. The results of the study<sup>23</sup> conducted by Ndosi M. et al. in 2016 suggested that needs-based education

**Table 1: Relationship between ASE, age, DI and disease duration (n=100)**

		ASE	AGE	DI	Disease duration
ASE	Correlation Coefficient	1	-.284**	-.751**	-.359**
	Sig. (2-tailed)	-	0.004	<0.001	<0.001
	N	100	100	100	100
AGE	Correlation Coefficient	-.284**	1	.396**	.405**
	Sig. (2-tailed)	0.004	-	<0.001	<0.001
	N	100	100	100	100
DI	Correlation Coefficient	-.751**	.396**	1	.423**
	Sig. (2-tailed)	<0.001	<0.001	-	<0.001
	N	100	100	100	100
Duration of Disease	Correlation Coefficient	-.359**	.405**	.423**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	-
	N	100	100	100	100

Spearman's rho applied, \*\*. Correlation is significant at the 0.01 level (2-tailed).

ASE: Arthritis Self-Efficacy, DI: Disability Index

**Table 2: Comparison of ASE and DI with respect to baseline characteristics (n=100)**

	Arthritis Self-Efficacy Score		Disability Index	
	Median (IQR)	p-value	Median (IQR)	p-value
<b>Age, years</b>				
≤50	5.68 (3.93-6.88)	0.068	1.38 (1.13-2.01)	0.005
>50	4.75 (3.19-6.25)		1.82 (1.50-2.25)	
<b>Gender</b>				
Male	5.31 (3.68-6.75)	0.783	1.63 (1.25-2.13)	0.689
Female	5.50 (4.25-6.59)		1.56 (1.18-1.91)	
<b>Duration of disease, years</b>				
≤4	5.81 (4.41-7.15)	0.005	1.38 (1.13-1.88)	<0.001
>4	4.51 (2.90-6.19)		1.94 (1.41-2.38)	

Mann-Whitney U Test applied, p-value <0.05 taken as significant

of RA patients helps to enhance self-efficacy and also having impact on health status i.e helps to deal better with pain the complications associated with RA.

One of the important finding of this study which has not been reported in any other study was that moderate to severe disability exist in majority of the RA patients. However the study conducted by Sokka et al. found that RA patients were at seven folds greater risk of disability compared with that in a general population.<sup>24</sup>

To our knowledge, no published studies have investigated the relationship of disability with age and disease duration. However, this study showed that disability was moderately, significantly correlated with age and disease duration. Thus it is important as the age increases special attention should be given to elderly RA patients so that the severity of joint destruction and other complications associated with RA could be reduced so that even in old age they could live an independent life.

This survey reported that men had quite stronger self-efficacy than women although the difference was not statistically significant. However according to the previous study by P Makelainen et al. men had weaker self-efficacy than women.<sup>22</sup> This finding had not been reported in previous studies.

Most of the participants of this cross-sectional survey were females as RA is more typical in women (three times greater than man). This same finding is reported in a study by Scott et al.<sup>1</sup>

Small sample size and that the respondents were not randomly selected are some of the limitations associated with this study. Despite of these limitations, this cross-sectional survey has given an insight about the level of self-efficacy and disability exist in patients suffering from RA. It has also highlighted the role of self-management to improve health status and that the functioning in RA patients improves not only by pharmacological treatment but also by enhancing self-efficacy. This survey achieved its purpose by investigating current level of self-efficacy, disability and the associated relationships in patients with RA and highlighted the issues that needs to be addressed. Further studies are needed to explore what types of educational interventions are effective and which factors can improve the quality of life in patient with RA.

## Conclusion

This study revealed that average self-efficacy and moderate to severe disability exist in most of the RA patients. The patient's self-efficacy strongly correlates with disability, moderately with disease duration, and

weakly with age whereas disability was moderately correlated with age and disease duration. This survey supports the idea that enhancing self-efficacy should be an important part of the total treatment program in patients with RA so that disability, treatment cost and visits to health care system could be reduced.

**AUTHORS' CONTRIBUTION:** HAS, MSK substantially contributed to the conception and design of the study. HAS, FH, K has worked in the acquisition, analysis and interpretation of the data also drafted the manuscript. HAS revised it critically for intellectual content and MSK gave final approval.

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