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Impact Of Nurse-Directed Interventions On Self-Efficacy And Social Support Among Individuals With Rheumatoid Arthritis: A Quasi-Experimental Study

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Abstract
Rheumatoid arthritis (RA) is a chronic autoimmune disorder marked by ongoing joint inflammation, pain, and functional impairments, along with considerable psychological challenges including despair, anxiety, and social isolation. This quasi-experimental study aimed to evaluate the effectiveness of a nurse-led intervention on self-efficacy and perceived social support in patients with rheumatoid arthritis. Sixty patients from the Rheumatology Department at Rajiv Gandhi Government General Hospital in Chennai were recruited and allocated into experimental and control groups. The intervention group underwent organised educational sessions focused on symptom management, medication compliance, physical activity, and family involvement, whereas the control group received conventional care. Data was collected via the Arthritis Self-Efficacy Scale (ASES) and the Multidimensional Perceived Social Support Scale (MPSSS) prior to and subsequent to the 21-day intervention. Baseline characteristics were comparable across groups. Post-intervention analysis revealed a significant improvement in the experimental group's self-efficacy (mean score increased from 64.67 to 88.80; $p = 0.001$) and perceived social support (from 37.93 to 64.13; $p = 0.001$), whereas changes in the control group were minimal and statistically non-significant. Additionally, post-test scores showed significant associations with age, residence, and illness duration. These findings confirm that nurse-led educational interventions can substantially enhance self-efficacy and perceived social support in RA patients, especially those with shorter disease duration and urban residency. This approach emphasizes the role of nurses in chronic illness management and advocates for integrating such interventions into routine care to promote psychological resilience, treatment adherence, and quality of life.
Keywords: *Rheumatoid arthritis, Self-efficacy, Social support, Nurse-led intervention, Patient education.*

BACKGROUND

Rheumatoid arthritis (RA) is a chronic autoimmune condition marked by inflammation of the synovial joints, leading to gradual joint deterioration, discomfort, and functional impairment. Approximately 1% of the global population is affected, with a disproportionate impact on women, especially those aged 30 to 60 [1]. Patients frequently endure a range of incapacitating symptoms such as joint stiffness, fatigue and chronic pain, which significantly hinder daily activities and may require carer assistance or adaptive devices [2].

The psychosocial effects of rheumatoid arthritis are significant. Depression and anxiety are common, impacting up to 51% of patients, intensified by both the apparent and latent consequences of the illness and societal stigma [3]. This psychological distress is exacerbated by economic repercussions, as 40% of rheumatoid arthritis patients become unemployed after five years of diagnosis due to pain, exhaustion, and functional impairments [4]. The expenses associated with treatment impose additional strain on patients, particularly in resource-limited environments.

A considerable proportion of patients express feelings of being misunderstood or unsupported by family, friends, and society as a whole [5]. As many as 61% report diminished perceived social support, which is associated with heightened depression, anxiety, and disease burden [6]. Emotional, educational, and practical social support is crucial for patients to manage rheumatoid arthritis efficiently.

Self-efficacy, characterised as a belief in one's ability to perform actions required for illness treatment, is a crucial psychological asset in rheumatoid arthritis care. Low self-efficacy is prevalent and is associated with heightened symptom burden, inadequate treatment adherence, and diminished physical activity [7]. In contrast, elevated self-efficacy fosters resilience, enhances coping mechanisms, and encourages self-care habits, including consistent exercise and adherence to medication [8]. It is correlated with reduced depression rates and improved quality of life [9].

Despite of these interconnected psychosocial and physical obstacles, nurse-led interventions have proven to be effective ways for improving both self-efficacy and perceived social support in patients with rheumatoid arthritis. These therapies typically encompass patient education, goal formulation, and family engagement. Nurse-led educational programs significantly enhance patients' confidence in managing their symptoms and promote a proactive approach to care [10]. Research indicates that patients participating in these programs exhibit enhanced treatment adherence and self-management practices.

By engaging families, nurses create supportive environments that enhance patients' emotional well-being and reduce social isolation. Group educational sessions foster communities of shared experience, thereby alleviating emotional suffering [11]. Empirical data associates these therapies with quantifiable enhancements in physical outcomes, including decreased pain and enhanced joint mobility [12].

MATERIALS AND METHODS

Study Design

This study adopted a quasi-experimental, non-randomized control group design to assess the efficacy of a nurse-led intervention on self-efficacy and perceived social support in patients with rheumatoid arthritis (RA). The design included pre-test and post-test evaluations for both the experimental and control groups without random assignment.

Participants

The study population included RA patients attending the Rheumatology Department at Rajiv Gandhi Government General Hospital, Chennai. Inclusion criteria were: age over 40 years, ongoing treatment for RA for more than 3 months, no comorbidities, and ability to communicate in Tamil or English. Patients with other autoimmune diseases, recent major surgeries, cognitive impairment, or those participating in other studies were excluded.

Sample Size Calculation

A total of 60 patients were selected using non-probability convenience sampling, with 30 patients in each group. The sample size was calculated using a 95% confidence interval and 15% relative precision based on a previous study reporting a 74.8% self-efficacy rate in RA patients, yielding a required sample of 58, rounded to 60 for feasibility.

Data Collection Procedure

After obtaining ethical approval and written consent, participants underwent a pre-test using four tools: (1) Sociodemographic questionnaire, (2) Clinical variable form, (3) Arthritis Self-Efficacy Scale (ASES), and (4) Multidimensional Perceived Social Support Scale (MPSSS). Data collection took approximately 10–15 minutes per participant. Following this, the experimental group received a nurse-led intervention, while the control group received routine care. A post-test was conducted 21 days later using the same instruments.

Intervention

The nurse-directed intervention included structured education for patients and family members. Content covered RA symptoms, disease progression, medication side effects, pain management, and physical activity (via pamphlets). For social support, family members received training via flashcards on home modifications, dietary guidance, and coping strategies.

Data Analysis

Data were encoded and entered into Microsoft Excel, then analysed utilising IBM SPSS version 26. Categorical variables were represented as frequencies and percentages, whereas continuous variables were summarised as mean ± standard deviation. Group comparisons were performed with Chi-square and Pearson correlation analyses. A p-value of < 0.05 was considered statistically significant.

RESULTS

Baseline characteristics

The mean age of the participants was 45.6 ± 5.3 years. Females comprised 56.66% of both groups. Most participants were married, had secondary education, and were unemployed. Rural residency and nuclear family structures were predominant. There were no significant differences in baseline demographic or clinical variables between groups ($p > 0.05$), confirming group comparability.

Pre-Intervention Measures

At baseline, both groups showed similar levels of self-efficacy and perceived social support. Moderate self-efficacy was observed in 66.67% of the experimental and 70% of the control group, with the remainder reporting low levels. No high self-efficacy scores were reported. Perceived social support was low in 76.67% (experimental) and 73.33% (control). Statistical analysis revealed no significant differences ($p = 0.78$ and $p = 0.77$, respectively).

Effectiveness of Nurse-Directed Intervention

The nurse-directed intervention showed a clear improvement in both confidence and support felt by patients with rheumatoid arthritis. In the experimental group, average self-confidence scores increased from 64.67 to 88.80, showing a 20% improvement. In comparison, the control group had only a 1.5% increase. For social support, scores in the experimental group rose from 37.93 to 64.13, a 31% improvement. The control group had only a small 0.8% gain. These results show that nurse-led education and support made a big difference in helping patients feel more confident in managing their illness and more supported by those around them (Table 1 & 2).

Table 1: Effectiveness of nurse-directed intervention on self-efficacy

Group	Assessments	Self-efficacy score			
		Maximum score	Mean self-efficacy score	Percentage of self-efficacy score	Percentage of self-efficacy gain score
Experiment	Pretest	120	64.67	53.89%	20.11%
	Posttest	120	88.80	74.00%	
Control	Pretest	120	65.97	54.98%	1.52%
	Posttest	120	67.80	56.50%	

Table 2: Effectiveness of nurse-directed intervention on perceived social support

Group	Assessments	Social support gain score			
		Maximum score	Mean social support score	Percentage of social support score	Percentage of social support score
Experiment	Pretest	84	37.93	45.15%	31.20%
	Posttest	84	64.13	76.35%	
Control	Pretest	84	38.83	46.23%	0.79%

	Posttest	84	39.50	47.02%	

Statistical Comparisons

Mean self-efficacy scores in the experimental group rose significantly from 64.67 ± 6.57 to 88.80 ± 6.60 ($p = 0.001$), whereas the control group showed a minimal change (65.97 ± 7.83 to 67.80 ± 8.85; $p = 0.15$). Similarly, mean social support scores increased from 37.93 ± 2.66 to 64.13 ± 3.59 in the experimental group ($p = 0.001$), compared to a non-significant shift in the control group (38.83 ± 3.21 to 39.50 ± 3.31; $p = 0.09$).

Associations with Demographic and Clinical Variables

Significant associations were found between post-test self-efficacy levels and age ($p = 0.05$), residence ($p = 0.05$), and duration of illness ($p = 0.05$) in the experimental group. Participants aged 51–60 years and those with disease duration less than one year were more likely to achieve high self-efficacy. Similarly, urban and semi-urban residents had better outcomes. Post-test perceived social support was also significantly associated with these variables ($p = 0.05$), reinforcing the influence of these variables on intervention efficacy.

DISCUSSION

This study highlights the effectiveness of nurse-directed interventions in enhancing self-efficacy and perceived social support among patients with rheumatoid arthritis (RA). Participants initially demonstrated moderate to low levels of self-efficacy and social support, reflecting the psychosocial burdens commonly associated with RA, including chronic pain, fatigue, and social withdrawal [13,14].

Following the intervention, the experimental group demonstrated a substantial improvement in self-efficacy (from 64.67 to 88.80) and perceived social support (from 37.93 to 64.13), with statistically significant differences compared to the control group. These results are consistent with the findings of Moghadam et al., who reported that structured educational programs delivered by nurses significantly increased self-efficacy among women with RA [15]. Similarly, Kanagaraj's recent experimental study found that nurse-led self-management education improved quality of life and treatment adherence [16].

Perceived social support, particularly from family and healthcare providers, also showed marked improvement following the intervention. Prior evidence suggests that such support mitigates stress, enhances coping mechanisms, and correlates with better disease outcomes [17]. Bergström et al. emphasized the influence of social support from significant others in shaping work capacity and functional adaptation in early RA [18].

The study found significant associations between post-test scores and demographic factors such as age, duration of illness, and place of residence. Participants aged 51–60 years and those living in urban or semi-urban areas showed greater improvements, in line with observations by Hsiao et al., who found that disease duration and socio-demographic factors influence self-efficacy [19]. Zhu et al. also reported similar links between self-efficacy and demographic factors such as BMI, disease duration, and retirement status [20].

CONCLUSION

This study establishes the usefulness of nurse-led treatments in markedly improving self-efficacy and perceived social support in patients with rheumatoid arthritis. Comprehensive education for patients and their families resulted in quantifiable enhancements in psychosocial outcomes, particularly for individuals with a brief disease duration and those residing in urban areas. These findings underscore the essential role of nurses in chronic disease management by empowering patients via customised, supportive care. Incorporating these strategies into standard clinical practice may enhance adherence, resilience, and quality of life in rheumatoid arthritis populations. Ongoing study is advised to investigate long-term effects and scalability in various healthcare environments.

REFERENCES

[1] Jahid M et al. Mediterr J Rheumatol. 2023;34(3):284-91. [PMID: 38103221]
[2] Tada M et al. Osteoporos Sarcopenia. 2023;9(1):32-7. [PMID: 36895449]

[3] Amaowei EE et al. Cureus. 2022;14(3):e22983. [PMID: 35310799]
[4] Kirkeskov L et al. BMC Rheumatol. 2023;7(1):41. [PMID: 37958933]
[5] Holland P et al. Int J Hum Resour Manag. 2022;33(3):539-60. [PMID: 33826679]
[6] Van Zanten JJ et al. Mediterr J Rheumatol. 2020;31(Suppl 2):284-7. [PMID: 33376312]
[7] Staszkiewicz M et al. Reumatologia. 2023;61(3):175-81. [PMID: 37366736]
[8] Hsiao IY et al. Medicina (Kaunas). 2024;60(10):1653. [PMID: 37945394]
[9] Vestergaard SB et al. RMD Open. 2024;10(1):e003412. [PMID: 38142074]
[10] Moghadam MH et al. Int J Community Based Nurs Midwifery. 2018;6(1):12-9. [PMID: 29332153]
[11] Amini S et al. Front Public Health. 2023;11:1093282. [PMID: 36861485]
[12] Nagy Z et al. Life (Basel). 2023;13(3):849. [PMID: 36985453]
[13] Amaowei EE et al. Cureus. 2022;14(3):e22983. [PMID: 35444896]
[14] Hedenstierna L et al. . Arthritis Res Ther. 2022;24(1):203. [PMID: 35999588]
[15] Moghadam MH et al. Int J Community Based Nurs Midwifery. 2018;6(1):12-9.
16] Kanagaraj P et al. Int J Orthop Trauma Nurs. 2025;101178. [PMID: 38664335]
[17] Karp N et al. Patient Prefer Adherence. 2023;17:2433-49. [PMID: 37808273]
[18] Bergström M et al. Scand J Rheumatol. 2021;50(6):427-34. [PMID: 33678129]
[19] Hsiao IY et al. Medicina (Kaunas). 2024;60(10):1653. [PMID: 39459440]
[20] Zhu L et al. BMC Rheumatol. 2024;8(1):2. [PMID: 38238799]