Examining Workplace Supports in the Context of RA Disease Activity

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Introduction

- RA is the most common autoimmune inflammatory arthritis in adults and is characterized by progressive disease activity and symptoms such as pain, fatigue and unpredictable flares.[1,2]
- Individuals living with RA tend to have a higher than average probability of missing work, particularly when disease activity is high.[3–5]
- Evidence suggests that workplace adjustments, such as modified working hours, assistive equipment, or a shift to self-employment may facilitate ongoing employment.[6]
- To date, no study has associated disease activity with employment status, work productivity and workplace characteristics from the perspective of individuals living with RA.

Objective

- To explore the impact of RA disease activity and its treatment on patients' employment status and work productivity, and to identify workplace characteristics that facilitate or hinder productive employment from the patient perspective.

Methods

Data source and study population

- US adults aged ⩾19 years, with RA diagnosed by a physician and a history of or current DMARD use, were recruited through the ArthritisPower® research registry, a real-world database of patients with rheumatological and musculoskeletal disease.
- A 61-item survey was developed collaboratively by the researchers and patient advocacy partners following a targeted literature review.

Study variables and data analysis

- Respondents completed a web-based survey to collect self-reported, patient-level information on the following:
  - sociodemographic characteristics (age, sex, race, education, current employment status and health insurance type)
  - clinical characteristics (Patient-Reported Outcomes Measurement Information System Computer Adaptive Tests [PROMIS-CATs] for pain interference, fatigue, sleep disturbance, physical function and social participation; Routine Assessment of Patient Index Data 3 [RAPID3];[7] serostatus determined by self-report of RF and anti-cyclic citrullinated peptide antibody tests; self-reported RA erosions; and morning stiffness)
  - impact of RA on work productivity (Health and Retirement Study questionnaire;[8] Work Productivity and Activity Impairment [WPAI] questionnaire;[9] Flexible Work Options survey;[10] diagnosis disclosure to employer).
- Sociodemographic and workplace characteristics were compared across disease activity (high disease activity [HDA] vs non-HDA) and employment status (currently working vs not currently working).
- Chi-square tests were used to test associations between categorical data, and analysis of variance tests were used to compare mean scores for continuous variables.
- Odds ratios with 95% CIs were estimated for employment status (currently working vs not currently working) using multivariate logistic regression analysis.

Results

- A total of 296 participants completed the survey, of which 91% were female and 92% were white. Mean (SD) age was 49.8 (10.6) years (Table 1).

Table 1. Patient Characteristics (N=296)

Variable	
Age, years, mean (range; SD)	49.78 (22–74; 10.55)
Diagnosis year, (range; SD)	2007 (1966–2018; 9.81)
Female	269 (90.88)
Race/ethnicity White Black/African American Hispanic	 272 (91.89) 9 (3.04) 10 (3.38)
Married	172 (58.11)
2-year college degree or higher	200 (67.57)
Total household income Less than $25,000 $25,000 to $49,999 $50,000 to $74,999 $75,000 to $99,999 $100,000 or more	 57 (19.26) 62 (20.95) 56 (18.92) 50 (16.89) 49 (16.55)
Employment status Employed/currently working (working full-time, part-time or self-employed) Unemployed/not currently working (unemployed, on leave, or on disability)	 170 (57.43) 126 (42.57)
Current RA therapy Biologic DMARDs Non-biologic DMARDs only Other	 176 (59.46) 86 (29.05) 34 (11.49)
Seropositive (RF or anti-CCP)*	145 (74.7)
RAPID3 (General Health Assessment), mean (range; SD) High disease activity (>12) Non-high disease activity (⩽12)	16 (1–27; 1.93) 218 (73.6) 78 (26.4)
PROMIS satisfaction with participation in social roles, mean (range; SD)	42.63 (26.83–68.95; 7.79)
PROMIS pain interference, mean (range; SD)	64.17 (38.67–83.84; 6.92)
PROMIS physical function, mean (range; SD)	36.82 (17.75–69.39; 6.45)
PROMIS sleep disturbance, mean (range; SD)	59.83 (28.54–83.79; 8.52)
PROMIS fatigue, mean (range; SD)	63.84 (29.11–82.85; 8.36)

Data are n (%) unless otherwise stated
PROMIS raw scores are converted to T-scores and standardized such that 50 represents the mean for the general US population and higher scores reflect more of the concept. SD around the mean is 10 points (e.g. a participant with a T-score of 60 is one SD better or worse than the general US population)[11]
*Seropositivity among participants who knew results of RF and/or anti-CCP tests (n=194)
Anti-CCP=anti-cyclic citrullinated peptide; PROMIS=Patient-Reported Outcomes Measurement Information System; RAPID3=Routine Assessment of Patient Index Data 3

- Over half (57%) of participants were employed (full-time, part-time, self-employed); the remainder were not currently employed (unemployed, on leave, on disability).
- A total of 89% of participants were currently treated with DMARDs, and 74% of participants had HDA assessed by RAPID3 (>12).

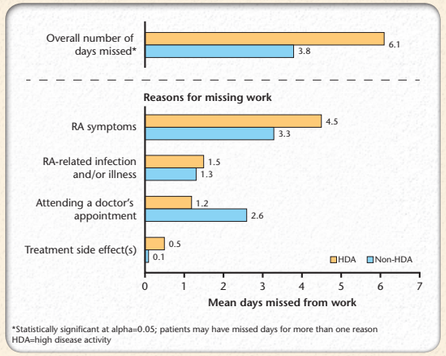
Impact on work and work productivity

- Among working HDA participants, the mean number of days missed over a 3-month period was 6.1 days compared with 3.8 days among participants in moderate/low disease categories (p=0.03; Figure 1).
  - The most frequent reason for missing work days was RA symptoms.
- Non-HDA participants missed more days to attend medical appointments than HDA participants (mean days: 2.6 vs 1.2; p=0.07), whereas HDA participants missed more days due to side effects from RA treatment than non-HDA participants (mean days: 0.5 vs 0.1; p=0.06).
- On a scale from 0 to 10, where 0=no effect on work and 10=completely prevented from working, HDA participants reported a greater negative impact of RA on their work productivity than non-HDA patients (mean WPAI score: 5.3 vs 3.3; p<0.0001).

Workplace environment and flexibility

- Participants who were not currently employed reported more physically demanding work environments and less flexibility in scheduling and working from home in their most recent job than participants who were currently working (Table 2).

Figure 1. Mean Days Missed From Work due to RA Overall and by Reason over a 3-Month Period



*Statistically significant at alpha=0.05; patients may have missed days for more than one reason
HDA=high disease activity

Table 2. Workplace Characteristics by Participant Employment Status (N=296)

Workplace characteristics	Currently employed (n=170)	Not currently employed (n=126)	p value
Physical demands, n (%)			
High physical effort	14 (8)	40 (32)	<0.0001*
Stooping, kneeling, crouching	9 (5)	40 (32)	<0.0001*
Lifting heavy loads	5 (3)	19 (15)	0.0002*
Standing for majority of time	15 (9)	28 (22)	0.001*
Sitting for majority of time	57 (34)	26 (21)	0.01*
Traveling within the community or long distance	12 (7)	19 (15)	0.03*
Scheduling demands, n (%)			
Personal control over break times	120 (71)	58 (46)	<0.0001*
Flexibility to frequently (i.e. daily) change work starting and quitting times	76 (45)	29 (23)	0.0001*
Vary work schedule from typical work schedule	71 (42)	27 (21)	0.0002*
Occasionally changing starting and quitting times	92 (54)	46 (37)	0.003*
Compress work week (i.e. longer hours on fewer days)	48 (28)	20 (16)	0.01*
Input into amount of overtime hours	66 (39)	33 (26)	0.02*
Working part-time	35 (21)	24 (19)	0.7
Cognitive demands, n (%)			
Intense concentration or attention	91 (54)	90 (71)	0.002*
Use of computers	124 (73)	72 (57)	0.005*
Use of people skills	126 (74)	104 (83)	0.09
Close supervision by an authority figure	15 (9)	17 (13)	0.2
Good eyesight	108 (64)	85 (67)	0.5
Benefits, n (%)			
Work from off-site location for part or all of work week	59 (35)	18 (14)	<0.0001*
Unpaid time for education or training	49 (29)	25 (20)	0.08
Take extra 'unpaid' vacation days	44 (26)	25 (20)	0.2
Can take sabbaticals	12 (7)	13 (10)	0.3
Able to transfer to job with reduced pay and responsibilities	9 (5)	5 (4)	0.6
Phase into retirement	11 (6)	8 (6)	1.0

*Statistically significant at p<0.05

- However, after controlling for covariates in the logistic regression model, we found that participants who could request changes in work start and quit times on a daily basis were 2.9 (95% CI: 1.53, 5.46) times more likely to be not currently employed (adjusting for age, disease activity and satisfaction with social participation) than those unable to make this request (p<0.0001).

Conclusions

- The majority of patients with RA surveyed had HDA and were more likely than those without HDA to be unemployed or disabled, despite treatment with DMARDs.
- Employed participants with HDA experienced worse absenteeism than non-HDA participants, particularly due to unmanaged symptoms and seeking care from healthcare professionals.
- Workplace flexibility, such as varying a typical work schedule, compressing the work week (i.e. longer hours on fewer days), having personal control over when to take breaks, and working from off-site locations (such as home) for part or all of the work week, seems to play a role in maintaining employment.
- Accommodations to the nature of the work (e.g. reducing physical effort or providing a standing desk or opportunities to sit) are likely to improve the opportunity to remain employed.
- Limitations to this study include survey recruitment which resulted in a selected sample, thus limiting the generalizability of the findings, and participants' self-reported diagnosis, treatment and experiences. Nevertheless, this study adds patient perceptions to previous findings in this area and indicates important directions for future research.

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