WORK PARTICIPATION AND THE COVID19 PANDEMIC: A DUTCH PROSPECTIVE COHORT STUDY IN PEOPLE WITH INFLAMMATORY RHEUMATIC DISEASES AND HEALTHY CONTROLS

Keywords: COVID, Work-related issues

M. Butink1,2, L. Boekel1, A. Boonen1,2, A. De Rijk2, G. Woltink3,5, C. Webers1,4, 1 Maastricht University Medical Centre, 2 Department of Internal Medicine, Division of Rheumatology, Maastricht, Netherlands; 3 Maastricht University, Department of Social Medicine Care and Public Health Research Institute (CAPHRI), Maastricht, Netherlands; 4 Amsterdam Rheumatology and Immunology Center, Location Reade, Department of Rheumatology, Amsterdam, Netherlands; 5 Maastricht University, Care and Public Health Research Institute (CAPHRI), Maastricht, Netherlands; 6 Sanquin Research and Landsteiner Laboratory Academic Medical Center, Department of Immunopathology, Amsterdam, Netherlands

Background: People with inflammatory rheumatic diseases (IRD), such as rheumatoid arthritis (RA) and spondyloarthritis (SpA), experience restrictions in work participation. In times of crisis, such as the coronavirus disease 2019 (COVID19) pandemic, people with IRD might be more vulnerable for adverse work outcomes (i.e. (partial) job loss and sick leave) and restrictions in work ability while at work.

Objectives: To (a) compare occurrence of adverse work outcome (AWO) and change in work ability during the first two years of the pandemic (2020-2022), as well as current (2022) work ability, between people with IRD and healthy controls in the Netherlands; (b) understand which subgroups of patients are most vulnerable to incur work participation outcomes; and (c) explore the role of remote work characteristics on work performance.

Methods: Data from a Dutch longitudinal study on COVID19 at Reade and Amsterdam UMC were used. Information about work was collected at one fixed point in time. Patients (18-67 years) with IRD and controls were asked in March 2020 to answer questions on work participation and their work situation in March 2020 (pre-pandemic; retrospectively) and March 2022 (current), AWO was defined as any of: (1) shift between 2020-2022 from employment to unemployment; or from full to parttime employment; (2) reduction in working hours; (3) ongoing long-term sick leave. Work ability (change and current) was assessed with the Work Ability Index (range 0 [worst] to 10 [best]). Outcomes were compared between groups (IRD vs control) with statistical tests. Multivariable logistic or linear regression analyses were used to explore the associations between IRD and AWO or (change in) work ability. Interactions (effect modification) were tested and, if present, analyses were stratified. The role of remote work factors on remote work performance was described.

Results: In total, 1,438 IRD patients and 526 controls of working age (18-67) participated. The majority was female (67%) and was employed pre-pandemic (69% patients, 84% controls). Patients mainly had RA or SpA (85%). In pre-pandemic employed subjects, 227 patients (23%) and 79 controls (18%) experienced AWO (p=0.04). Only 35 patients (4%) and 12 controls (2%) of these, attributed this to COVID (impact by personal health or national pandemic measures; p=0.36). Logistic regressions of AWO were stratified because of interactions between group and sex, comorbidities or a physically demanding job. In all models, patients were more likely than controls to experience AWO (range OR 1.63 to 3.34 across models, Figure 1), and especially patients with comorbidities or a physically demanding job. Of note, COVID-related AWO was not significantly more likely in patients (OR=1.62, 95%CI 0.80-3.27). Change in work ability during the pandemic did not differ between groups (-0.3 (SD 1.8) patients vs -0.2 (SD 1.6) controls, p=0.38), and regression analyses also did not reveal significant differences. Linear regression of current work ability (stratified by sex due to interaction) showed female patients compared to female controls experienced lower work ability (B=-0.66; 95%CI -0.92 to -0.40), while this was not observed in males. Past SARS-CoV-2 infection was not associated with AWO/work ability. When working remotely, care for children and absence of colleagues had both positive (19% and 24%, resp.) and negative (34% and 57%, resp.) influence on work performance, while employer support and reduced commuting time had positive influence (83% and 86%, resp.).

Conclusion: During the COVID pandemic, patients experienced more AWO than healthy controls, and especially patients with physically demanding jobs and comorbidities were at higher risk. However, the frequency of COVID-related AWO was low and did not differ substantially between patients and controls. A likely explanation is that the governmental support for employers protected those in vulnerable positions, such as patients with IRD.

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Figure 1. cost-utility plane (spacing versus maintenance), with utilities derived from PP SF-6D

Table 1. ICUR in ABA subgroup, TCZ subgroup, using EQ-5D-derived utilities, and stochastic sensitivity analysis

<table>
<thead>
<tr>
<th>ABA subgroup</th>
<th>TCZ subgroup</th>
<th>PP EQ-5D</th>
<th>Stochastic sensitivity analysis</th>
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</thead>
<tbody>
<tr>
<td>(PP SF-6D)</td>
<td>(PP SF-6D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICUR, €GALY gained</td>
<td>-420,076.22</td>
<td>-1,008,225</td>
<td>-52,005</td>
</tr>
<tr>
<td>(95%CI -1,044,462; -52,005)</td>
<td>(95%CI -2,436,237; -1,008,225)</td>
<td>(95%CI -458,934; -481,029.28)</td>
<td></td>
</tr>
<tr>
<td>1,461,037</td>
<td>1,898,967</td>
<td>369,967</td>
<td>-1,300,747; 1,867,263</td>
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</tbody>
</table>

Figure 2. Association between group (patients vs controls), work absence or change in work ability, and change in work ability during the pandemic (2020-2022), as well as current (2022) work ability, between people with iRD and healthy controls.

Outcomes: absent from work due to illness (by cause)
Small dose fluctuation
Baseline fluctuation
No change in work ability
Statistical analysis
Significant (p<0.05)
Conclusion
Significant (p<0.05)
Figure 3. Association between group (patients vs controls), work absence or change in work ability, and change in work ability during the pandemic (2020-2022), as well as current (2022) work ability, between people with iRD and healthy controls.

Outcomes: change in work ability (pre-pandemic to current) (b) patient to controls
Small dose fluctuation
Baseline fluctuation
No change in work ability
Statistical analysis
Significant (p<0.05)
Conclusion
Significant (p<0.05)