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## Beyond return to work from sickness absence due to mental disorders: 5-year longitudinal study of employment status among production workers

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**Background:** Mental disorders are increasing and account for one-third of all disability benefits in OECD countries. This study investigated the work status after mental sickness absence (SA). **Methods:** Five-year longitudinal cohort study of 6678 male production workers. Work status, work schedule and work hours/week were retrieved from employer records in five years following RTW from mental SA. Longitudinal analysis was done with linear and logistic generalized estimating equations estimating relative risks (RRs) and odds ratios (ORs), respectively, controlled for age, marital status and occupational grade. **Results:** In total, 4613 (69%) workers had complete data and were included in the analyses; 552 of them had experienced mental SA. In the years following mental SA, 102 (18%) workers left employment compared to 384 (9%) workers without mental SA. In the first year after mental SA, workers left employment at their own request and in later years they were dismissed because of poor work functioning. After mental SA, workers more often (RR = 2.93; 95% CI 1.83–4.03) reduced their work hours/week than those without mental SA, whereas the odds of changing work schedule did not differ between them (OR = 1.02; 95% CI 0.84–1.24). **Conclusions:** After mental SA, workers left employment or reduced work hours/week more often than those without mental SA. The results suggest that changes in employment status are more common after SA caused by mental disorders as compared with somatic disorders.

## Introduction

Mental disorders, particularly stress-related, depressive and anxiety disorders are increasing in OECD countries.<sup>1</sup> One in five workers experience mental symptoms at any one day.<sup>1,2</sup> Some workers with mental disorders remain at work while others report sick.<sup>3</sup> Mental disorders account for one-third of all disability benefits across OECD countries. Disability pension distances workers from the labor market resulting in a downward spiral from unemployment and poverty, to further deterioration of mental health, which in turn reduces the chances of regaining employment.<sup>3</sup> It is important to retain workers in employment after they have experienced mental disorders, because work participation leads to better health outcomes, promotes social participation and improves the quality of life.<sup>4</sup>

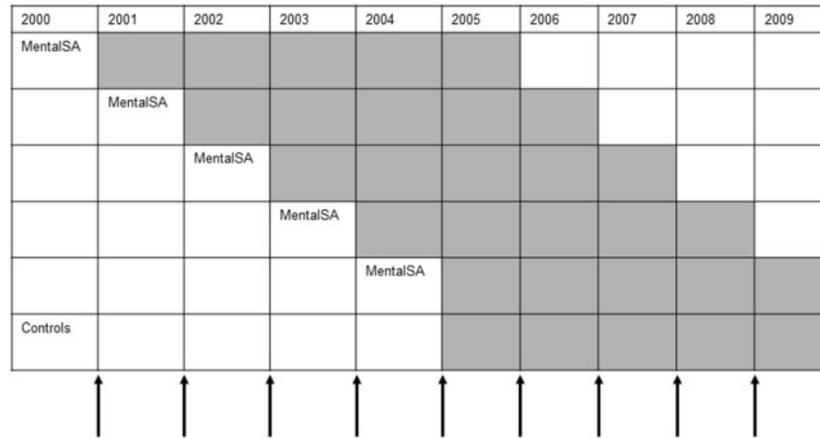
The knowledge about return to work (RTW) from sickness absence (SA) due to mental disorders is growing,<sup>5–10</sup> but little is known of what happens with workers in the years after RTW from mental SA.

In a systematic review of the literature, Lagerveld *et al.*<sup>11</sup> found that longer and more severe depressive episodes, comorbid mental and

physical disorders, older age, a history of previous sick leave and poor work ability reduced work participation and work functioning among depressed workers. The Finnish Vantaa studies showed that the time spent in depressive episodes, co-morbidity, low education and economic difficulties negatively affected functioning in work and social roles, but not functioning in the family role.<sup>12–14</sup> Two-thirds of the workers with depressive disorders were granted sick leave benefits and 20% received disability pension benefits in the 5 years following an episode of depression.<sup>14</sup> Workers seem to remain at risk of leaving employment in the years following RTW from mental SA.

The objective of the present register-based longitudinal study was to investigate the employment status in the years following RTW from mental SA. RTW was defined as the end of sick leave on the moment workers resumed work for the contracted work hours/week. We addressed the following research questions:

- Do workers leave employment in the 5 years following RTW from mental SA and for what reasons?
- Do workers change work schedule and work hours in the 5 years following RTW from mental SA?



**Figure 1** Five-year follow-up. The figure shows follow-up (grey cells) of workers who have had mental SA and workers without mental SA (controls); the arrows indicate repeated measurements of outcome variables and B indicates the baseline year.

## Methods

For this 5-year longitudinal cohort study, we used the employer records of 6678 male production workers of a manufacturing plant. A total of 2066 (31%) workers were excluded because employment status was missing at one or more measurement points during 5-year follow-up. The excluded workers were younger, but did not differ in work schedule, contracted work hours/week, occupational grade, and department from the 4612 workers included in the study. Baseline was set at 1 January of the year following RTW from mental SA, i.e. the year after the end of mental SA. For example, if mental SA ended on 11 October 2002 then the baseline for 5-year follow-up was set at 1 January 2003 (figure 1). For workers without mental SA, baseline was set at 1 January 2005. Workers who were sick-listed at baseline were not included in the study. The Medical Ethics Committee of the University Medical Center Groningen granted ethical clearance for this register-based study. All data were recorded and processed in accordance with Dutch privacy policies.

### Group variables

In the Netherlands, SA due to work-related and non-work-related injuries and illness is employer-compensated when medically certified by an occupational physician (OP), usually in the fourth or fifth week of sickness absence. OPs use diagnoses derived from the International Classification of Diseases (ICD-10) categories for SA certification. SA episodes OP-certified within ICD-10 categories R45 (emotional disturbance) or F00–F99 (mental and behavioural disorders) were defined as mental SA. Only one diagnosis can be recorded on the SA certificate. Thus, mental problems secondary to other disorders were not identified. Mental SA was used as group variable; outcomes of workers who had resumed work after mental SA were compared with outcomes of workers without mental SA. The group of workers without mental SA, not only included workers without SA, but also those with SA due to non-mental disorders.

### Outcome variables

The outcome variables employment status (employed versus left employment), reasons for leaving employment (own request, poor functioning, disability pension, retirement, other), work schedule (daytime or shift work) and contracted work hours/week were recorded by the Human Resources department of the manufacturing plant. The Human Resources department sent these records to the occupational health service each quarter. Outcome variables were

retrieved from the first quarter records of each follow-up year (figure 1).

### Statistics

Statistical analyses were conducted in IBM SPSS Statistics for Windows, version 20.0 (IBM Corp. Armonk, NY, released 2011). Longitudinal analyses were performed with generalized estimating equations (GEE), a statistical technique that accounts for correlations between repeated outcome measurements within one individual.<sup>15</sup> The employment status and work schedule of workers with and without mental SA were compared with binary logistic GEE models with unstructured correlation matrices, estimating odds ratios (ORs) and related 95% CI. The contracted work hours/week of workers with and without mental SA was compared with linear GEE with an unstructured correlation matrix estimating relative risks (RRs) and related 95% CI. All GEE analyses were controlled for age category (<35, 35–44, 45–54 and ≥55 years), marital status (single, married, divorced/widow), and occupational grade (unskilled, semiskilled skilled, skilled worker, technician, supervisor).

## Results

A total of 4612 workers had complete data for analysis; 552 (12%) of them had resumed work after mental SA. At baseline, workers who returned to work from mental SA were older, more often married, and employed in lower grade occupations than the workers without mental SA (Table 1). The contracted work hours/week did not differ between workers with and without mental SA (*t*-test *P* = 0.16).

### Employment status

A total of 102 (18%) workers left employment in the five years following RTW from mental SA compared with 384 (9%) workers without mental SA. Logistic GEE analysis showed that workers who returned to work from mental SA had higher odds of leaving employment (OR = 3.42; 95% CI 2.61–4.48) than workers without mental SA. Seventy-nine percent of the workers who left employment resigned at their own request in the first year after RTW from mental SA compared with 55% of the workers without mental SA (Table 2). In later years, workers were more often dismissed because of poor functioning after RTW from mental SA than workers without mental SA. During 5-year follow-up, 6% of the workers who returned to work from mental SA and 7% of the workers without mental SA were granted disability pension.

**Table 1** Baseline characteristics the study population of non-sicklisted male production workers ( $n = 4612$ )

|   | Workers who have had mental SA <sup>a</sup> ( $n=552$ ) |                 |          |    | Workers without mentalSA <sup>a</sup> ( $n = 4061$ ) |                 |          |    | Analysis     |
|---|---|-----------------|----------|----|--|-----------------|----------|----|--------------|
|   | Mean  | SD <sup>b</sup> | <i>n</i> | %  | Mean   | SD <sup>b</sup> | <i>n</i> | %  |              |
| Age category <35 years                              |   |                 | 0        | 0  |  |                 | 1020     | 25 | $P < 0.01^c$ |
| 35–44 years   |   |                 | 205      | 37 |  |                 | 1620     | 40 |              |
| 45–54 years   |   |                 | 320      | 58 |  |                 | 1417     | 35 |              |
| ≥55 years   |   |                 | 27       | 5  |  |                 | 3        | 0  |              |
| Marital status single                               |   |                 | 40       | 7  |  |                 | 1122     | 28 | $P < 0.01^c$ |
| Married   |   |                 | 441      | 80 |  |                 | 2905     | 72 |              |
| divorced/widow                                      |   |                 | 71       | 13 |  |                 | 34       | 1  |              |
| Work hours per week                                 | 35.5  | 3.0             |          |    | 35.4   | 4.0             |          |    | $P = 0.16^d$ |
| Work schedule daytime                               |   |                 | 137      | 25 |  |                 | 1018     | 25 | $P = 0.24^c$ |
| Shift work  |   |                 | 415      | 75 |  |                 | 3042     | 75 |              |
| Occupational grade range 5 (unskilled)—15 (manager) | 9.9   | 1.5             |          |    | 10.5   | 1.6             |          |    | $P < 0.01^d$ |

a: sickness absence.

b: SD.

c: Chi-square test.

d: *t*-test for independent samples.**Table 2** Employment status

|                                | First year | Second year | Third year | Fourth year | Fifth year | Total      |
|--------------------------------|------------|-------------|------------|-------------|------------|------------|
| Workers who have had mental SA | 24         | 27          | 21         | 18          | 12         | 102        |
| own request                    | 19 (79)    | 4 (15)      | 1 (5)      | 1 (6)       | 1 (8)      | 26 (25)    |
| poor functioning               | 5 (21)     | 12 (44)     | 6 (29)     | 5 (28)      | 3 (25)     | 31 (30)    |
| disability pension             | 0          | 1 (4)       | 1 (5)      | 1 (6)       | 3 (25)     | 6 (6)      |
| (early) retirement             | 0          | 7 (26)      | 11 (52)    | 10 (56)     | 4 (33)     | 32 (31)    |
| Other                          | 0          | 3 (11)      | 2 (10)     | 1 (6)       | 1 (8)      | 7 (7)      |
| Workers without mental SA      | 47         | 74          | 90         | 89          | 84         | 384        |
| own request                    | 26 (55)    | 24 (32)     | 18 (20)    | 11 (12)     | 10 (12)    | 89 (23)    |
| poor functioning               | 17 (36)    | 22 (30)     | 17 (19)    | 17 (19)     | 16 (19)    | 89 (23)    |
| disability pension             | 1 (2)      | 2 (3)       | 6 (7)      | 8 (9)       | 8 (9)      | 25 (7)     |
| (early) retirement             | 1 (2)      | 21 (28)     | 41 (46)    | 43 (48)     | 40 (48)    | 146 (38)   |
| Other                          | 2 (4)      | 5 (7)       | 8 (9)      | 10 (11)     | 10 (12)    | 35 (9)     |
| Chi-square test                | $P < 0.01$ | $P < 0.01$  | $P < 0.01$ | $P < 0.01$  | $P < 0.01$ | $P < 0.01$ |

The table shows the number (%) of workers and reasons for leaving employment in non-sicklisted male production workers who have had mental sickness absence ( $n = 522$ ) and workers without mental sickness absence ( $n = 4061$ ); SA=sickness absence.

**Table 3** Work schedule and hours

|                                | First year | Second year | Third year | Fourth year | Fifth year |
|--------------------------------|------------|-------------|------------|-------------|------------|
| Work schedule change           |            |             |            |             |            |
| Workers who have had mental SA |            |             |            |             |            |
| day to shift                   | 6 (1)      | 4 (1)       | 2 (0)      | 4 (1)       | 5 (1)      |
| shift to day                   | 7 (1)      | 5 (1)       | 9 (2)      | 12 (3)      | 13 (3)     |
| Workers without mental SA      |            |             |            |             |            |
| day to shift                   | 14 (0)     | 16 (0)      | 17 (0)     | 17 (0)      | 9(0)       |
| shift to day                   | 45 (1)     | 51 (1)      | 42 (1)     | 39 (1)      | 48 (1)     |
| Chi-square test                | $P = 0.04$ | $P = 0.41$  | $P = 0.36$ | $P = 0.04$  | $P < 0.01$ |
| Work hours/week                |            |             |            |             |            |
| Workers who have had mental SA | 34.2 (6.8) | 33.9 (7.3)  | 33.8 (7.6) | 33.8 (7.4)  | 33.6 (7.3) |
| Workers without mental SA      | 35.3 (3.9) | 35.4 (3.3)  | 35.2 (3.7) | 34.9 (4.2)  | 34.8 (4.4) |
| <i>t</i> -test                 | $P < 0.01$ | $P < 0.01$  | $P < 0.01$ | $P = 0.01$  | $P < 0.01$ |

The table shows the number (%) who changed work schedule and the mean (SD) contracted work hours per week of non-sicklisted male production workers who have had mental sickness absence ( $n = 522$ ) and male production workers without mental sickness absence ( $n = 4061$ ); SA, sickness absence.

### Working schedule and hours

In the 5 years following RTW from mental SA, 67 workers (13%) changed their work schedule: 46 from shift to day work and 21 from day to shift work. In comparison, 298 workers (7%) without mental SA changed their work schedule: 225 from shift to day work and 73

from day to shift work. The odds of changing work schedule did not differ between workers with and without mental SA (OR = 1.02; 95% CI 0.84–1.24). When assessed for each follow-up year, we found that more workers changed work schedule in the fourth and fifth year after RTW from mental SA as compared to workers without mental SA (Table 3).

Workers who returned to work from mental SA more often (RR = 2.93; 95% CI 1.83–4.03) reduced the contracted work hours/week than workers without mental SA. Table 3 shows that workers particularly reduced the contracted work hours in the first year after RTW from mental SA.

## Discussion

After RTW from mental SA, 18% of the workers left employment as compared with 9% of the workers without mental SA. In the first year after RTW from mental SA, workers resigned at their own request, while in later years they were dismissed because of poor work functioning. Workers reduced the contracted work hours/week, but did not change their work schedule after RTW from mental SA.

### Employment status

In the first year after RTW from mental SA, workers more often left employment at their own request than workers without mental SA. Information on why workers resigned work was not available, because the manufacturing plant would violate Dutch privacy policies by providing that kind of information. Hjarsbech *et al.*<sup>16</sup> reported that workers who RTW from mental SA find themselves in the dilemma of staying at the workplace or leaving the job, especially when they feel that they have returned to the same work situation as before mental SA. In the Netherlands, SA is employer-compensated irrespective of whether SA is work-related or not. Therefore, the work-relatedness of mental SA was not registered in the employer records. It would be interesting to separately analyse work-related and non-work-related mental SA, because returning to a job which has contributed to mental SA could well increase the risk of resigning work compared to non-work-related mental SA. Alternatively, workers may prefer to resign rather than being dismissed because of poor work functioning.

In the manufacturing plant, work functioning is assessed by the supervisor. If appropriate, the supervisor will propose a plan to improve work functioning, e.g. by provisional or permanent work accommodations. Work accommodations that reduce job demands and increase decision latitude and social support at work may modify or eliminate sources of work stress.<sup>18,19</sup> At the organizational level, workplace mental health promotion may help to retain workers who returned to work from mental SA at the workplace. Providing programmes matching a worker's interests and hobbies, enabling participation during working time, and including workers' families were suggested by the European Agency for Safety and Health at Work as innovative approaches to motivate workers for workplace mental health programmes.<sup>19</sup>

There is a large body of evidence that workers sick-listed with mental disorders are at increased risk of long-term SA and disability pension.<sup>5,6,9,20</sup> The present results showed that workers who had returned to work from mental SA had no increased risk of disability pension as compared to workers without mental SA. Workers may no longer be at risk of disability pension when they have fully resumed work after mental SA. However, we should be cautious to interpret this finding, because it might have been biased by selection if poor functioning workers resigned or were dismissed before calling in sick again.

### Work schedule and hours per week

After RTW from mental SA, workers did not change their work schedule more often than workers without mental SA. In a Swedish focus group study, workers with depressive and anxiety symptoms described that they could manage everyday work routines. Problems emerged when they had to do other work in other settings.<sup>17</sup> Workers might choose not to change their work schedule after RTW from mental SA to prevent being transferred

to an unfamiliar department with unknown colleagues. Although there was no overall significant change in work schedule, workers changed from shift to day work more often than those without mental SA four to five years after mental SA. However, the time lapse between mental SA and the change in work schedule was too long to infer that the change was associated with mental SA.

The finding that workers reduced the contracted work hours/week in the year following RTW from mental SA is more likely related to mental SA. Workers with mental problems may have a greater need to recover from the cognitive and social demands of work.<sup>17</sup> After mental SA, workers may also have come to the insight that the combination of work and domestic tasks requires too much effort, leading them to work less and restore the work–family life balance. The reduction of contracted work hours is not necessarily negative, because it might reduce overburden and strain, herewith preventing that workers leave employment or experience recurrent mental SA.

### Study strengths and limitations

The large cohort, 5-year follow-up period, and use of recorded instead of worker-reported data were strengths of the study. All workers were employed in the same manufacturing plant so that differences in what happened after mental SA could not be attributed to different organizational policies, practices, or cultures. This study should be regarded as a first step towards gaining insight in employment states after mental SA and its results warrant further research in other workplace settings.

It should be noted that. OPs could only certify SA with one ICD-10 diagnosis. Thus, workers with mental problems secondary to SA due to other causes were not included, which might have under-estimated the number of mental SA episodes, restricting the statistical power of the study. The study lacked the statistical power to differentiate the probability of leaving employment by ICD-10 diagnostic subcategories, mental SA duration, and mental SA recurrences. Larger-scale studies are required to investigate if workers changes in employment status are associated with ICD-10 diagnosis and both long-term and recurring mental SA.

All reasons for leaving employment were recorded by the Human Resources department of the manufacturing plant. Some reasons, particularly leaving employment at own request or as a result of poor functioning are subjective and difficult to verify. Therefore, we should be cautious to differentiate between leaving employment at own request and being dismissed because of poor work functioning. Potential misclassification within these categories; however, does not influence the conclusion that workers who returned to work from mental SA more frequently leave employment than workers without mental SA.

The exclusion of 31% of the workers with missing data on employment status is a point of concern. Missing data on employment status could have been imputed if data were randomly missing, for example because of administrative errors in records provided by the manufacturing plant. The finding that workers with missing employment status data were younger than those with complete data might indicate that missings are due to non-paid leaves, as younger workers frequently take non-paid care leaves. In that case, there would be a non-random mechanism underlying the missing data on employment status. Therefore, we decided not to impute the missing employment status data. Bias by missing data on the employment status was not likely, because the frequency of missing data did not differ significantly between workers with and without mental SA.

### Practical implications

Although the present study did not investigate occupational rehabilitation of workers sick-listed with mental disorders, the results can have implications for guiding workers with mental SA. For example, health care providers can bring up the dilemma of staying at the

workplace or changing jobs and advise workers about the pros and cons when they guide workers sick-listed with mental disorders back to work. Insight in facilitators and barriers of changing jobs is important to support workers who are inclined to take the big step to go looking for a new job.

The present results also indicate that occupational health guidance should not end when workers have resumed work after mental SA. Previously, Norder *et al.*<sup>8</sup> pleaded continued care and attention to workers after RTW from mental SA because of the increased risk of recurrent mental SA. The present results add that it is important to monitor the work functioning of workers after RTW from mental SA. We should, however, be careful not to impose a patient role and look for ways to monitor workers without troubling them too much. For example, health care providers could ask supervisors how workers function in work after RTW from mental SA, although information obtained this way may be biased by prejudice and the supervisor's ideas about mental illness in general.<sup>21</sup> Alternatively, workers could periodically complete the Work Role Functioning Questionnaire, which measures the perceived difficulties in meeting work demands in workers experiencing physical or mental health problems.<sup>22</sup> Information of work functioning should be recorded discretely and protected from unauthorized use.

We studied the employment status in the years following an episode of mental SA. Workers who resume their work after an episode of non-mental SA may also be likely to change their employment status. In this study, workers with RTW from non-mental SA were included in the group of workers without mental SA. The finding that (reasons for) changes in employment status differed between workers who have had mental SA and those without mental SA suggests that changes in employment status are more common after RTW from mental SA.

## Conclusion

After mental SA, male production workers more often leave employment and change work hours, but not work schedules as compared with workers without mental SA. Health care providers should monitor work functioning and support workers in preserving work after RTW from mental SA.

*Conflicts of interest:* None declared.

### Key points

- Male production workers remain at increased risk of leaving employment for up to 5 years after sickness absence (SA) due to mental disorders.
- After SA due to mental disorders, male production workers are more often dismissed than those without SA due to mental disorders.
- After SA due to mental disorders, male production workers more often reduced the contracted work hours/week than those without SA due to mental disorders.
- Health care providers should continue occupational health guidance and monitor work functioning of workers who have returned to work from SA due to mental disorders.

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