Depressed and absent from work: predicting prolonged depressive symptomatology among employees

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Introduction

Sickness and work disability constitute serious social problems in our society, in particular where depressive complaints are concerned. The World Health Organization recognizes depression as a major health problem of the near future and as a leading cause of disability [1]. Depression not only affects the individual but also the employer and on a more general level, society with the resultant loss of labour force, loss of productivity [2] and the costs associated with sickness and disability benefits.

A number of demographic variables may influence the course of depressive complaints including female sex [3,4], education, age, marital status, caring for children and being in the position of breadwinner [5–7]. In addition, certain work-related characteristics may be influential such as high task demands [8,9], a low level of decision latitude [8,10], a high physical load/risk or a high chemical risk [11,12], reorganizations and the threat of job loss [12]. It is also possible that the method of work resumption could have an influence on the prognosis of depressive illness. Both partial and full work resumption may be helpful for depressive symptoms by challenging dysfunctional beliefs [13,14]. Work resumption might also help to establish a daily working routine, offer distraction and promote commitment to work and colleagues [15]. The actions of employers might also influence the outcome in cases of depression. Employers may, for instance, contact the employee and ask how he/she is feeling [16]. Employers may also help the employee back into the workplace by adapting the employee’s work schedule, workplace or work environment [17]. Employers may offer additional training or additional equipment...
and assistance. Finally, employers may take action to solve conflicts and may implement organizational changes to aid the employee. The government in the Netherlands has introduced various methods to increase the responsibility of employers in the reduction of sickness and work disability.

The aim of this study was to identify factors which may predict the prolongation of depressive symptoms in employees who are on long-term absence (LTA).

**Methods**

This study was part of a cohort study among employees on LTA for mental health reasons (INVENT) [18]. The study focused on depressive symptoms, rather than on clinical depression per se (i.e. a major depressive disorder). High levels of depressive symptoms are characteristic of individuals with clinical depression, yet do not necessarily imply that clinical depression is present. Depressive symptoms might also indicate that an adjustment disorder or other disorder is present and may even occur in ‘healthy’ persons.

The study involved an initial screening and a first interview (at T1, after 13 weeks of sickness) and a second interview after 1 year (at T2). Screening questionnaires were sent out by three large social insurance companies in the Netherlands, serving different employment sectors. We approached a total of 7864 employees who had been reported sick by their employers (employers in the Netherlands are obligated to report an individual sick in the 13th week of sickness). The screening addressed the background characteristics of the employee, the presence of health complaints using the General Health Questionnaire (GHQ) [19] and the reasons for reporting sick. Participants were assured that their answers would remain confidential. Inclusion criteria for the project were the following:

- Being sick listed for 12–20 weeks.
- Showing willingness to cooperate in the study by reporting name and address.
- Meeting one or more of the following additional inclusion criteria:

  - The level of psychological distress was high (GHQ-12 = 5). Instead of the usual cut-off point of 1, we used a score of 5 as we expected elevated levels of health complaints among employees on LTA.
  - Sickness was fully or partly due to psychological complaints (as reported by the respondent).
  - Circumstances in the work situation or in individuals’ private life were the major cause of sickness.

The interviews addressed depressive symptoms, work-related characteristics, work resumption and actions by employers. Items were answered with yes or no, unless stated otherwise.

Depressive symptoms were measured using the depression subscale of the SCL-90 [20], an instrument for measuring a broad range of mental health complaints. This subscale consists of 16 items, such as ‘feeling lonely’ and ‘thinking of death or dying’. Respondents were asked how they had felt the previous week. Responses to items were given on a scale from 1 (not at all) to 5 (very much). The internal consistency of the scale was high at both measurements (Cronbach’s alpha = 0.93 for both measurements).

We measured several work-related characteristics. Job insecurity was measured using one item based on the Job Content Questionnaire (JCQ) [21]: ‘How probable is it that you will lose your job in the coming years?’ Answer categories were ‘not probable’ (1), ‘somewhat probable’ (2) and ‘very probable’ (3). Work atmosphere was measured using the following item: ‘Did you find the atmosphere among colleagues positive?’ Decision latitude was measured using items based on the JCQ [21] relating to autonomy (three items, e.g. ‘Could you decide about the way in which you performed your work?’) and skill discretion (five items, e.g. ‘Was it necessary for your job to be professionally skilled?’). Items referred to the respondent’s work situation before the onset of sickness (Cronbach’s alpha = 0.62). We measured quantitative task demands using five items based on the JCQ [21]. An example is ‘Did you have to work very fast?’ (Cronbach’s alpha = 0.77). Two questions were used to assess physical load/risk: ‘Did you often have to carry heavy things in your work?’ and ‘Did you often have to work in a twisted position?’ (Cronbach’s alpha = 0.64). Leadership quality was assessed using one item: ‘Were you working under good leadership?’ Chemical risk was assessed using one item: ‘Were you working in an area with poisonous materials, gasses or fumes?’ We also assessed a variety of other work-related aspects, such as the number of years worked (in the job and in the organization), the number of working hours (official and overtime), the number of travelling hours, the variability of the work schedule (i.e. working days/nights/weekends), management function (i.e. whether the respondent had a management function), the size of the organization and the occurrence of reorganizations at work.

Work resumption was measured at both T1 and T2. Individuals were asked whether they had resumed work fully, partially or not at all.

Actions by employers were assessed by asking individuals to indicate whether their employer had engaged in various activities between T1 and T2 (see Table 2). Because ‘offering courses’ appeared to occur infrequently (n = 5), this category was merged with the category ‘offering equipment/aids’. Categories mentioned by <15 respondents (‘action to solve conflict’ and ‘organizational change’) were excluded from further analysis.
To analyse our data, we first regressed depressive complaints at T1 on demographic variables. Second, we regressed depressive complaints at T2 on demographic variables while controlling for T1. Similar analyses were performed for work-related characteristics, work resumption and actions by employers. Analyses were done both univariately and multivariately, but univariate analyses are presented only in the tables.

**Results**

The screening questionnaire was returned by 3289 individuals. The number of returned questionnaires was evenly distributed among the three social insurance agencies. However, 279 of the questionnaires were not sufficiently filled in, and 992 respondents did not meet the criterion of 12–20 weeks of sickness absence. Of the remaining 2018 respondents, 838 were willing to participate in the cohort study, of whom 597 met the additional inclusion criteria. Forty-two individuals were not interviewed for various reasons, often because the respondent could not be reached or because they feared that the interview would be emotionally too demanding. A total of 555 respondents were interviewed by telephone after the initial screening. Table 1 shows the demographic characteristics of these respondents. A total of 436 individuals participated in the second interview. Table 2 describes work resumption after 1 year and the interventions by employers after T1.

The response rate was 42% for the screening questionnaire, 93% for the first interview (for individuals meeting the inclusion criteria) and 79% for the second interview. Unfortunately, non-response analyses could not be performed for the screener due to insufficient information about the characteristics of the individuals who had been approached by the social insurance companies. Compared to the general working population in the Netherlands, however, our sample was found to be older, more highly educated and more often working in non-commercial services. The percentage of women was relatively high.

Non-response analyses for the first interview showed that younger people (younger than 35) and those with low education were more willing to respond. Response did not depend on the reason for absence. Non-response analyses for the second interview showed that response was higher among women. No differences were found with respect to age, education, sector, GHQ scores and depressive symptoms between responders and non-responders.

In general, depressive symptoms decreased between T1 and T2 (M1 = 34.4, SD = 13.1 versus M2 = 27.5, SD = 11.1; P < 0.01). Seventy-two per cent of the participants showed a decrease in depressive symptoms, 24% showed an increase and 4% remained at the same level.

With respect to demographic variables, no significant predictors appeared for depressive symptoms at T1 (see Table 3). The course of depressive symptoms was influenced by two demographic variables: education and breadwinner’s role. Individuals with lower education participated in the second interview. Table 2 describes work resumption after 1 year and the interventions by employers after T1.

| Table 1. Demographic characteristics of the respondents interviewed at T1 (N = 555) |
|-------------------------------|-------------------|-----------------|
| **Variable** | **Category** | **n (%)** |
| Gender | Men | 257 (46) |
| | Women | 298 (54) |
| Age | <35 | 116 (21) |
| | 35–44 | 185 (33) |
| | 45–54 | 210 (36) |
| | 55–65 | 33 (10) |
| Education | Elementary school | 23 (4) |
| | Lower vocational/general secondary education | 177 (32) |
| | Intermediate vocational education | 79 (14) |
| | Higher general secondary/pre-university education | 39 (7) |
| | Higher vocational education/University | 202 (36) |
| | Other | 29 (5) |
| Sector | Agriculture, fishery, forestry | 6 (1) |
| | Industry | 58 (11) |
| | Building, construction | 12 (2) |
| | Trade (retail, wholesale, catering) | 67 (12) |
| | Transport, storage, communication | 64 (12) |
| | Banking, insurance, financial services | 49 (9) |
| | Public administration | 44 (8) |
| | Education, religious organizations | 90 (17) |
| | Health care, well-being services | 110 (20) |
| | Sociocultural institutions | 20 (4) |
| | Research and other social institutions | 11 (2) |
| | Other | 9 (2) |

| Table 2. Work resumption at baseline (T1) and after 1 year (T2) and interventions by employer (N = 436) |
|-------------------------------|-------------------|-----------------|
| **Variable** | **Category** | **n (%)** |
| Work resumption at T1 | Full resumption | 51 (12) |
| | Partial resumption | 169 (39) |
| | No resumption | 216 (50) |
| Work resumption at T2 | Full resumption | 256 (59) |
| | Partial resumption | 75 (17) |
| | No resumption | 105 (24) |
| Interventions by employer | Change of tasks | 30 (7) |
| | Reduction of tasks | 22 (5) |
| | Reduction of hours | 16 (4) |
| | Change of position/department | 15 (3) |
| | Offering equipment/aids | 11 (3) |
| | Showing interest | 51 (12) |
| | Offering courses | 5 (1) |
| | Action to solve conflict | 5 (1) |
| | Organizational change | 4 (1) |
and sole breadwinners had a less favourable course of depressive symptoms ($\beta = 0.10$ and $\beta = 0.14$; $P < 0.05$).

Regarding work-related characteristics, individuals who had witnessed a reorganization reported more depressive symptoms. Individuals who had received good leadership, who had a high level of decision latitude or who worked in a large organization reported fewer depressive complaints at $T1$ (Table 4).

The course of depressive symptoms over time was influenced only by leadership quality (Table 4). It appeared that individuals receiving good leadership had a less favourable course. This effect may be due to the

### Table 3. Relationship between depressive complaints at $T1$ and $T2$ (corrected for $T1$) and demographic variables

<table>
<thead>
<tr>
<th></th>
<th>Depression at $T1$</th>
<th>Depression at $T2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Univariate</td>
<td>Multivariate*</td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression $T1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.14**</td>
<td>0.11</td>
</tr>
<tr>
<td>Age</td>
<td>-0.07</td>
<td>-0.02</td>
</tr>
<tr>
<td>Education</td>
<td>-0.04</td>
<td>-0.05</td>
</tr>
<tr>
<td>Care for children</td>
<td>-0.04</td>
<td>-0.02</td>
</tr>
<tr>
<td>Breadwinner's role</td>
<td>-0.08</td>
<td>-0.03</td>
</tr>
<tr>
<td>Marital status</td>
<td>-0.03</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Multivariate regression takes into account several predictive variables simultaneously; $\beta$ = the standardized regression coefficient; $\Delta R^2$ = the proportion of variance explained by adding a set (step) of variables.

* $P < 0.05$, ** $P < 0.01$.

### Table 4. Relationship between depressive complaints at $T1$ and $T2$ (corrected for $T1$) and work-related variables

<table>
<thead>
<tr>
<th></th>
<th>Depression at $T1$</th>
<th>Depression at $T2$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Univariate</td>
<td>Multivariate</td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression $T1$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable work schedule</td>
<td>-0.05</td>
<td>-0.04</td>
</tr>
<tr>
<td>Management function</td>
<td>-0.05</td>
<td>-0.05</td>
</tr>
<tr>
<td>Reorganization</td>
<td>0.08</td>
<td>0.10*</td>
</tr>
<tr>
<td>Job insecurity</td>
<td>0.11*</td>
<td>0.04</td>
</tr>
<tr>
<td>Leadership quality</td>
<td>-0.21**</td>
<td>-0.14**</td>
</tr>
<tr>
<td>Years in organization</td>
<td>-0.02</td>
<td>-0.03</td>
</tr>
<tr>
<td>Years in function</td>
<td>-0.03</td>
<td>-0.03</td>
</tr>
<tr>
<td>Working hours (official)</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Overtime work</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>Travelling hours</td>
<td>-0.03</td>
<td>-0.03</td>
</tr>
<tr>
<td>Size of organization</td>
<td>-0.14**</td>
<td>-0.16**</td>
</tr>
<tr>
<td>Physical load/risk</td>
<td>0.07</td>
<td>0.01</td>
</tr>
<tr>
<td>Chemical risk</td>
<td>0.01</td>
<td>-0.03</td>
</tr>
<tr>
<td>Decision latitude</td>
<td>-0.20**</td>
<td>-0.18**</td>
</tr>
<tr>
<td>Task demands</td>
<td>0.13**</td>
<td>0.09</td>
</tr>
<tr>
<td>Work atmosphere</td>
<td>-0.18**</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

* $P < 0.05$, ** $P < 0.01$. 
lowered levels of depressive symptoms at T1 among these individuals. These levels were no longer lowered at T2.

We found that individuals who reported partial or full work resumption at T2 appeared to have a more favourable course of depressive complaints (Table 5).

Regarding actions by employers, individuals whose employers had changed or modified their work tasks showed a more favourable course (Table 6). Other interventions did not show any significant effects.

**Discussion**

Our study identified two demographic characteristics that increase the risk of prolonged depressive symptomatology: having a low level of education and being in the position of breadwinner. These findings might be ascribed to low levels of control or to having worries and concerns about one’s obligations or limitations. These kind of feelings appear to be significantly related to depressive complaints [22]. With regards to the influence of being the ‘breadwinner’, the seemingly unfavourable course in these individuals might be attributed to their low initial levels of depression.

Work-related variables (at T1) hardly influenced the course of depressive symptoms. Both full and partial work resumption were associated with a more favourable course of depressive symptoms. It would therefore seem that work resumption may be an important tool for recovery. However, this could also mean that a favourable course of depressive symptoms enables work resumption.

One action by the employer seemed to be particularly effective in promoting a favourable course of depressive symptoms, i.e. changing or modifying the employee’s work tasks. No effect was found for other actions by the employer.

The strength of our study is that it provides valuable insight into the factors associated with long-term absenteeism for mental health reasons. By following a cohort of employees on LTA for mental health reasons, we addressed in this study a particular population in which depressive symptomatology may have important consequences.

**Table 5. Relationship between depressive complaints at T1 and T2 (corrected for T1) and partial and full work resumption**

<table>
<thead>
<tr>
<th>Depression at T1</th>
<th>Depression at T2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Step 2</strong></td>
</tr>
<tr>
<td>Depression T1</td>
<td></td>
</tr>
<tr>
<td><strong>ΔR²</strong></td>
<td>0.23**</td>
</tr>
<tr>
<td><strong>β</strong></td>
<td>0.48**</td>
</tr>
<tr>
<td>Partial work resumption T2</td>
<td>0.02*</td>
</tr>
<tr>
<td>Full work resumption T2</td>
<td>0.06**</td>
</tr>
<tr>
<td>Partial work resumption T2</td>
<td>-0.06</td>
</tr>
<tr>
<td>Full work resumption T2</td>
<td>-0.15**</td>
</tr>
<tr>
<td>Partial and full work resumption are dummy variables.</td>
<td></td>
</tr>
</tbody>
</table>

*P < 0.05, **P < 0.01.

**Table 6. Relationship between depressive complaints at T1 and T2 (corrected for T1) and actions by employers**

<table>
<thead>
<tr>
<th>Depression at T1</th>
<th>Depression at T2</th>
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<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>Step 2</strong></td>
</tr>
<tr>
<td>Depression T1</td>
<td></td>
</tr>
<tr>
<td><strong>β</strong></td>
<td>0.48**</td>
</tr>
<tr>
<td><strong>ΔR²</strong></td>
<td>0.02</td>
</tr>
<tr>
<td><strong>β</strong></td>
<td>0.48**</td>
</tr>
<tr>
<td>Change of tasks</td>
<td></td>
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<tr>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Reduction of tasks</td>
<td>-0.03</td>
</tr>
<tr>
<td>-0.03</td>
<td>-0.02</td>
</tr>
<tr>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>Equipment/aids/courses</td>
<td>0.01</td>
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<tr>
<td>0.01</td>
<td>0.04</td>
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<tr>
<td>0.04</td>
<td>0.04</td>
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<tr>
<td>Showing interest</td>
<td></td>
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<tr>
<td>-0.12*</td>
<td>-0.13*</td>
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<tr>
<td>-0.13*</td>
<td>-0.02</td>
</tr>
<tr>
<td>Change of position/department</td>
<td>0.03</td>
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<tr>
<td>0.03</td>
<td>0.03</td>
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<tr>
<td>0.03</td>
<td>0.02</td>
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</table>

*P < 0.05, **P < 0.01.
Nevertheless, the study has some weaknesses. The first weakness is that our study is essentially a survey and so any inferences need to be interpreted with caution. A second criticism of the study concerns its representativeness. As only 6% of the initial cohort participated in both interviews (T1 and T2), our sample may not be representative of employees on LTA for mental health reasons. Moreover, compared to the general working population, our sample was older, more highly educated, more often female and more likely to work in non-commercial services. This should be taken into account in the interpretation of our results. A third weakness is the low incidence of interventions by employers. Although we excluded interventions that were reported by <15 individuals, our study’s power would have increased considerably if interventions had been delivered more often. A further weakness concerns the measurement of work-related characteristics. Some constructs were, for practical reasons, measured using only one item, thereby reducing the reliability of these measurements.

Our findings regarding the influence of gender on the course of depressive symptoms are not consistent with other studies which have pointed to a higher vulnerability in women for depression [3,4]. In our study, the effect of gender was not significant. Our findings on the beneficial effects of work resumption are in line with research results showing the importance of (partial) work resumption to promote recovery [13,23,24]. Finally, our finding of a favourable effect of a change or modification of work tasks on the course of depressive symptoms is in line with other results of the INVENT study showing a favourable effect of this intervention with respect to work resumption [18]. In the INVENT study, however, reducing the number of tasks or the number of working hours also promoted work resumption, whereas in the present study, these interventions had no effect.

In conclusion, our findings provide insight into the factors influencing prolonged depressive symptomatology, in particular among employees on LTA for mental health reasons. From a practical stance, our insights may be valuable for professionals such as occupational health practitioners, human resources professionals and employers.

**Key points**

- The course of depressive symptoms in employees who are on LTA is less favourable among those with low education and sole breadwinners.
- Work resumption (partial and full) and changing the employee's tasks promote a more favourable course of depressive symptoms.
- Using these insights, management of employees suffering from depressive complaints may be improved.

**Funding**


**Conflicts of interest**

None declared.

**References**


