Recurrence of sickness absence
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Chapter 7

Gender and age differences in the recurrence of sickness absence due to common mental disorders in the Netherlands

Submitted

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Abstract

Objectives
Common mental disorders (CMDs) are an important cause of sickness absence and long-term work disability. Although CMDs are known to have high recurrence rates, little is known about the recurrence of sickness absence due to CMDs. The aim of this study was to investigate the recurrence of sickness absence due to CMDs, including distress, adjustment disorders, depressive disorders and anxiety disorders, according to age, in male and female employees in the Netherlands.

Methods
Data on sickness absence episodes due to CMDs were obtained for 137,172 employees working in the Dutch Post and Telecommunication companies between 2001 and 2007. The incidence density (ID) and recurrence density (RD) of sickness absence due to CMDs was calculated per 1000 person-years in men and women in the age-groups of < 35 years, 35–44 years, 45–54 years, and ≥ 55 years.

Results
The ID of one episode of CMDs sickness absence was 25.0 per 1000 person-years between 2001 and 2007, and the RD was 76.7 per 1000 person-years. The ID of sickness absence due to CMDs was higher in women than in men, but the RD was similar. Recurrences were more frequent in women < 35 years of age and in women between 35 and 44 years of age. No differences between age groups in men was observed. The median time-to-onset of recurrence among employees with recurrent episodes varied between 8 and 14 months, but did not differ across age-groups.

Conclusions
Employees who have been absent from work due to CMDs are at increased risk of recurrent sickness absence due to CMDs and should be monitored after they return to work.
Introduction
Mental disorders are common in the general population, particularly among women between 25 and 45 years of age, and there is a high risk of recurrence. For depressive disorders, recurrences have been reported in 50–85% of patients, and there are very few baseline demographic or clinical characteristics that can predict who will or will not experience a recurrence after recovery from a major depressive disorder. It has recently been reported that the more recurrences of depressive episodes, the higher the likelihood of a subsequent episode. Depressive episodes remit but may leave psychological scars, such as negative cognitive patterns which were not present prior to the episode. Such cognitive scars can also be caused by anxiety disorders, and may contribute to the recurrence of mental disorders. Patients who have had two or more lifetime episodes of mental disorders, risk long-term pharmacotherapy, especially if they have had comorbid disorders, ongoing psychosocial stressors, poor symptom control, or severe symptoms. Despite pharmacotherapy, a chronic clinical course with low rates of recovery and a high probability of recurrence is found in the majority of patients suffering from anxiety disorders. Common mental disorders (CMDs) are the second most frequent cause of sickness absence, after musculoskeletal disorders which are the main cause. The incidence of sickness absence due to CMDs is increasing relative to sickness absence due to other diagnoses. Sickness absence due to CMDs has been associated with long-term work disability resulting in high social and economic costs. Research on sickness absence among employees with psychiatric diagnoses has focused on the duration of the episodes of sickness absence and the risk of a disability pension. However, little is known about the risk of recurrence after return to work. Vaez et al. found that 65% of those who returned to work after being absent due to mental disorders had high levels of all cause sickness absence in the following three years. We assume that there is a high risk of recurrent sickness absence due to CMDs in employees who have returned to work after a previous episode of absence due to CMDs. Although mental disorders are known to have high recurrence rates, the recurrence of sickness absence due to CMDs has not been investigated. The recurrence risks found in the present study are stratified according to gender and age.

The aim of the present study was to fill the gap in our knowledge as to whether the recurrence of sickness absence due to CMDs differs according to gender or age. We compared the incidence of at least one episode of absence from work due to CMDs in the study population with recurrence in the sub-population of employees with a previous episode of sickness absence due to CMDs. Our hypothesis was that the recurrence of sickness absence due to CMDs in this sub-population
would be higher than the incidence in the study population. For occupational health care, it is important to know the period of time until recurrence. Therefore, we also computed the time-to-onset of recurrent episodes of sickness absence due to CMDs.

**Study population and methods**

**Study population**
This dynamic cohort study included employees who worked in the Dutch Post and Telecommunication companies in the period from 2001 to 2007. Those already employed were included on 1 January 2001. Employees who started working later were included on the date on which they entered employment, and those who resigned or retired during the study period were censored on the day on which they left employment. The total population consisted of 137,172 employees, 85,102 (62%) of whom were men and 52,070 (38%) were women, with a total of 363,461 person-years at risk. Approximately 70% of the employees worked as post sorters, postmen and post officers in the Post companies. The other 30% of the employees worked in the Telecommunication companies, and were charged with installing and maintaining telephone, telefax and internet systems or worked in the call center or client services. Many employees, especially those in the Post companies, worked on a temporary basis. In both companies there was a high turnover in employees. Of the 67,316 employees who were included in the study on 1 January 2001, 51,280 resigned or were discharged and right censored on the date they left employment. Employees (n = 69,856) who started working for the Post and Telecommunication companies after 1 January 2001, were included on the date on which they entered employment; 48,231 of them left their job again before the end of the study period, and were right censored on the date on which they left employment.

**Ethical approval**
The Medical Ethics Committee of the University Medical Center in Groningen informed us that ethical approval was not required because the data were analysed in retrospect at group level.

**Sickness absence in the Netherlands**
In the Netherlands, most employers continue to pay to maximum of 100% of the income of an employee who is on sick-leave. In general, episodes of sickness absence lasting for one or two weeks are self-certified. Employees in the Post and Telecommunication companies have to visit the occupational physician in the third week of sickness absence for medical certification. Occupational physicians certify mental disorders according to the 10th International Classification
of Diseases (ICD-10). The employer is responsible for the return to work process and the occupational physician gives advice about the possibilities of return to work and work adjustment. The occupational physician updates medical, social and vocational data in follow-up assessments every four to six weeks, and helps sick-listed employees to return to work in the best as possible way. Before 2004, a disability pension was granted after one year of work disability, but since 2004 a disability pension is granted after two years of work disability. For uniformity we applied the more conservative one year limit throughout the entire study period from 2001 to 2007, and censored the data of persons who were absent for longer than 365 days.

Data on episodes of medically certified sickness absence between 1 January 2001 and 31 December 2007 were retrieved from the records of ArboNed occupational health services. Employees who were absent for more than 13 weeks due to sickness on 1 January 2001 were excluded, irrespective of the cause of the sickness absence. Sickness absence due to CMDs was medically certified as follows: distress (ICD-10 code R45), adjustment disorders (ICD-10 code F43), mild to moderate depressive disorders (ICD-10 codes F32.0 and F32.1), and anxiety disorders (ICD-10 codes F40.0, F40.1, F40.2, F41.0, F41.1, F41.2, and F41.3).

Statistical analysis

The incidence density (ID) in the study population was calculated by dividing the number of employees with a first episode of sickness absence due to CMDs between 2001 and 2007 by the person-years of the total population at risk. The recurrence density (RD) of sickness absence due to CMDs was computed by dividing the number of employees with recurrent episodes by the person-years in the sub-population of men and women with a previous episode of sickness absence due to CMDs in the different age groups. A recurrence was defined as the start of a new episode of absence due to CMDs after a recovery period of at least 28 days. The person-years for RD were counted from the moment of the first episode of sickness absence due to CMDs. Figure 1 shows the periods at risk for incidence and recurrence in different situations. In situation a) there is one episode of sickness absence due to CMDs and no recurrent episode. The person-years for the calculation of the ID was the total period of employment between 1 January 2001 and 31 December 2007. In situation b) a second absence due to CMDs occurs > 28 days after return to work. We define this situation as recurrent sickness absence due to CMDs. The person-years for recurrence are counted after the start of the first episode of sickness absence due to CMDs. In the example, the employee is employed during the entire period. The person-years for the ID amount to seven
years and the person-years for the RD start at the beginning of the first episode of absence due to CMDs. In situation c) there is a second episode of sickness absence due to CMDs within 28 days after return to work, which is not counted as a recurrence. In situation d) there is an episode of sickness absence due to CMDs lasting more than 365 days. The person-years for the ID and the RD have a cut-off point after one year of absence.

To calculate the risk of a third episode of sickness absence in employees with two previous episodes of sickness absence due to CMDs, we counted the person-years from the start of the second episode. The ID and the RD of sickness absence due to CMDs was assessed in men and women in the age-groups of < 35 years, 35–44 years, 45–54 years, and ≥ 55 years. The median time-to-onset of a recurrent episode

Figure 1 Calculation of incidence density and recurrence density of sickness absence due to common mental disorders

absence = absence due to CMD (Common Mental Disorder)
ID = Incidence Density
RD = Recurrence Density
of sickness absence due to CMDs was computed with Kaplan-Meier survival curves. The survival curves for the age-groups were compared by means of the logrank test, based on the null hypothesis that the survival curves in the age-groups are the same.25

Results
Between 2001 and 2007, 8,951 employees (58% men and 42% women) had a total of 10,921 episodes of sickness absence episodes due to CMDs: 4,248 (39%) episodes with distress, 5,219 (48%) with adjustment disorders, 1,025 (9%) with depressive disorders and 429 (4%) with anxiety. In the period from 2001 to 2007, 7,379 employees (82%) had one episode of sickness absence due to CMDs; 1,274 (14%) had two episodes, 228 (3%) had three episodes and 70 (1%) had more than three episodes. The ID of sickness absence due to CMDs in the total population was 25.0 per 1000 person-years [95% confidence interval (CI) 24.5–25.5] between 2001 and 2007. After an episode of absence from work due to CMDs, the RD of sickness absence due to CMDs increased to 76.7 per 1000 person-years (95% CI 72.9–80.5). The RD of a third episode of sickness absence due to CMDs in employees who already had two previous episodes was 105.3 per 1000 person-years (95% CI 93.3–117.3). Of those with a recurrence, 90% had this recurrence within 3 years.

In men, the median duration of sickness absence due to CMDs was 57 days (95% CI 54–60) and the shortest duration was found in the age-group of < 35 years (logrank test p < 0.001), as shown in Table 1. The ID of sickness absence due to CMDs was 21.8 per 1000 person-years and the RD was 75.6 (95% CI 70.7–80.4). Recurrences were of shorter median duration (48 days; 95% CI 43–53 days) but the survival curve for recurrent sickness absence did not differ significantly from the curve for the first episode (logrank test p = 0.172). Recurrent sickness absence due to CMDs was most common in men in the age group of 35–44 years, whereas the median time-to-onset of recurrence in those with a recurrence was shortest (8 months) in men < 35 years of age. However, the RD of sickness absence due to CMDs was not associated with age-group (logrank test p = 0.636), and the difference in time-to-onset of recurrence in men with a recurrence was not significant across age-groups (logrank test p = 0.117).

In women, the mean duration of sickness absence due to CMDs was 67 days (95% CI 63–71), and the shortest duration was found in the age-group of < 35 years (logrank test p < 0.001), see Table 2. The ID of sickness absence due to CMDs was 31.5 per 1000 person-years, and the RD was 78.5 (95% CI 72.4–84.6). The RD of sickness absence due to CMDs decreased with age (logrank test p = 0.004).
Recurrences were of shorter median duration (62 days; 95% CI 55–69 days) but, as in men, the survival curve for recurrences did not differ from the curve for the first episode (logrank test $p = 0.102$). Recurrent sickness absence was due to CMDs most common in women < 35 years of age and between 35 and 44 years of age. In women < 35 years
Table 1 (Continued from page 132)

<table>
<thead>
<tr>
<th>N</th>
<th>Median duration (days (95% CI))</th>
<th>Median time-to-onset (95% CI)</th>
<th>Recurrence</th>
<th>Median time-to-onset (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107</td>
<td>36 (18-54)</td>
<td>74.9 (60.7-89.1)</td>
<td>8 (3-14)</td>
<td>8 (3-14)</td>
</tr>
<tr>
<td>318</td>
<td>48 (38-58)</td>
<td>77.7 (69.1-86.2)</td>
<td>12 (10-14)</td>
<td>35–44 years</td>
</tr>
<tr>
<td>417</td>
<td>50 (41-59)</td>
<td>75.0 (67.8-82.2)</td>
<td>12 (10-14)</td>
<td>45–54 years</td>
</tr>
<tr>
<td>95</td>
<td>42 (27-57)</td>
<td>72.2 (57.7-86.7)</td>
<td>10 (9-12)</td>
<td>≥ 55 years</td>
</tr>
<tr>
<td>937</td>
<td>48 (43-53)</td>
<td>75.6 (70.7-80.4)</td>
<td>11 (10-13)</td>
<td>Total</td>
</tr>
</tbody>
</table>

Table 2 (Continued from page 132)

<table>
<thead>
<tr>
<th>N</th>
<th>Median duration (days (95% CI))</th>
<th>Median time-to-onset (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>66 (53-79)</td>
<td>93.7 (80.0-107.5)</td>
</tr>
<tr>
<td>280</td>
<td>63 (52-74)</td>
<td>81.1 (71.6-90.6)</td>
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<tr>
<td>153</td>
<td>56 (40-72)</td>
<td>66.7 (50.1-77.3)</td>
</tr>
<tr>
<td>23</td>
<td>59 (1-121)</td>
<td>52.8 (31.2-74.4)</td>
</tr>
<tr>
<td>635</td>
<td>62 (55-69)</td>
<td>78.5 (72.4-84.6)</td>
</tr>
</tbody>
</table>

of age the time-to-onset of recurrent sickness absence was also the shortest. However, the difference in time-to-onset of recurrence in women with a recurrence was not significant across the age-groups (logrank test p = 0.667).
Men had a lower ID of sickness absence due to CMDs than women (21.8 per 1000 person-years versus 31.5 per 1000 person-years), but the RD of sickness absence due to CMDs was almost the same in men (75.6 per 1000 person-years) as in women (78.5 per 1000 person years), with a logrank test result of \( p = 0.360 \).

**Discussion**

After an episode of absence from work due to CMDs, the risk of recurrent sickness absence due to CMDs increases. Although sickness absence due to CMDs was most common in women, there were no differences in recurrence between women and men. Recurrences were more frequent in women < 35 years of age and in women between 35 and 44 years of age. In men no difference in recurrence according to age was observed. Recurrent episodes of sickness absence due to CMDs were of shorter duration in men, but the median time-to-onset of a recurrence ranged between 8 and 14 months and did not differ between the age-groups.

A strength of the present study is that we studied the sick-leave certificates with the diagnoses made by the occupational physicians instead of self-reports form the employees. However, the validity of psychiatric diagnoses on sickness absence certificates is a subject of ongoing scientific debate. In a pilot study of 8,500 post sorters working for the Post companies, all 546 employees who reported sick in 2003 consulted an occupational physician and a psychiatrist. There was 81% agreement between the occupational physicians and the psychiatrists with regard to the group diagnosis of CMDs, confirming the results reported by O’Niell et al. However, the occupational physicians frequently diagnosed distress or adjustment disorders, whereas the psychiatrists more often diagnosed depressive disorders and anxiety disorders. The incidence of sickness absence due to CMDs was lower in our study population (25.0 per 1000 person-years) than the incidence of depressive and anxiety disorders in the general population in the Netherlands, which was 56.8 per 1000 person-years in 1999. It is possible that employees with mild to moderate mental problems do not report sick. Depression and anxiety are known to be associated with presenteeism, i.e. being at work, but not able to function normally. Alternatively, employees with mental disorders usually present somatoform complaints, and in primary care it is not usual to ask detailed questions to discover the underlying mental disorders.

Apart from under-estimation of the incidence of sickness absence due to CMDs, the lack of knowledge about comorbidity was another weakness of our study. The sick-leave certificate only contained one diagnosis. Depression with comorbid disorders has been reported
to have a higher likelihood of recurrence. Moreover, we did not know whether the diagnoses changed over time, which is a common shortcoming in studies of this type. It may be that the RD person-years are over-estimated, because we used the time from the start of the first episode due to CMDs instead of the recovery date, whereas an employee who is on sick-leave is actually not at risk for recurrent sickness absence. The reason we did this is because the end of an episode of absence is more unreliable than the start of an absence episode, because it can end due to several reasons: not only return to work, but also leaving employment, the end of the company’s contract with the occupational health service, administrative closure of the case after one year of sickness absence, and change in the labour contract. Over-estimation of the person-years at risk may have resulted in an under-estimation of the risk of recurrence. This risk may also have been under-estimated because of the high turnover in the study population. Employees who have been absent due to sickness are more likely to resign or to be discharged than those who have never been absent due to sickness.

The results of this study confirm our hypothesis that the risk of recurrent sickness absence due to CMDs increases after a previous episode of sickness absence due to CMDs. The RD of sickness absence due to CMDs increased further after a second episode of sickness absence due to CMDs.

After an episode of absence from work due to CMDs, the recurrence risk was similar among men and women. It is possible that this finding is due to the fact that women had longer episodes of sickness absence than men. When more men than women return to the population at risk, it is to be expected that the incidence of recurrent sickness absence will be relatively higher among men. A recent meta-analysis showed conflicting results with regard to gender differences in return to work in employees with episodes of poor mental health. Our results demonstrate that the risks of recurrence in men do not differ significantly across the age groups. However, in women there was a difference according to age. Women under 35 years of age and women between 35 and 44 years of age had the highest recurrence of sickness absence due to CMDs. This is in line with the incidence of mental disorders in the general population in the Netherlands. Women between 45 and 54 years of age and women ≥ 55 years of age had the lowest recurrence of sickness absence due to CMDs. Nieuwenhuijsen et al. reported a poorer recovery from mental disorders in employees over 50 years of age. Women ≥ 45 years of age with a poorer recovery might have been absent for a longer period of time and therefore had either a shorter risk of a recurrence or a higher risk of being censored after 365 days of absence from work due to CMDs.
The results of our study show that the median duration of sickness absence due to CMDs was shortest in both men and women under 35 years of age. Interestingly, the median time-to-onset of recurrence among those with a recurrence was also shortest in the same age-groups. It is possible that they return to work too soon. Our results also indicate that recurrent episodes of sickness absence due to CMDs were shorter than the first episode especially in men. Perhaps employees who have had a previous sickness absence episode due to CMDs recognize their complaints and seek help at an earlier stage, or rely on their previous experiences of returning to work after mental health complaints. However, the survival curve for recurrent sickness absence due to CMDs did not differ significantly from the curve for the first sickness absence episode due to CMDs. It should be noted that in the present study the first episode of sickness absence due to CMDs after 1 January 2001 was counted as the first episode, regardless of any sickness absence before that date. Future studies should take into account a period of several years with no sickness absence due to CMDs to make sure that the first episode of sickness absence due to CMDs is, indeed, the very first episode.

The median time-to-onset for employees with a recurrence varied between 8 and 14 months, and there was no significant difference across the age-groups, with lower limits of the 95% confidence intervals ranging from 3 to 12 months and upper limits ranging from 11 to 16 months. Of the employees who had a recurrence, 90% had this recurrence within 3 years. Based on our results, we suggest that employees should be monitored for at least 3 years after they return to work following sickness absence due to CMDs. Whether or not it is feasible in practice, there should be more intense monitoring in the first 18 months and low-frequency monitoring in the following 18 months. If, however, their mental health and performance deteriorate, early consultation and interventions could prevent the recurrence of sickness absence. Future research should investigate the effects of monitoring employees after they return to work following sickness absence due to CMDs. Women under 35 years and between 35 and 44 years of age have a high risk of recurrence, and should be offered regular prevention consultations to avoid a relapse. However, because the risks of recurrence in women in other age-groups and in men are also high, we recommend that men and women in all age-groups should be monitored after they return to work.
Recurrence of sickness absence due to mental disorders by gender and age

References


