



BMJ Open Outcomes of psychiatric interviews and self-rated symptom scales in people on sick leave for common mental disorders: an observational study

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ABSTRACT

Objectives To investigate the correspondence between diagnoses on sick leave certificates and diagnoses made in structured psychiatric interviews. Secondary aims were to investigate length of sick leave by diagnoses on sick leave certificates, diagnoses made in structured interviews and symptom severity.

Design Observational study consisting of a secondary analysis of data from a randomised controlled trial and an observational study.

Setting The regions of Stockholm and Västra Götaland, Sweden.

Participants 480 people on sick leave for common mental disorders.

Interventions Participants were examined with structured psychiatric interviews and self-rated symptom severity scales.

Outcome measures (1) Sick leave certificate diagnoses, (2) diagnoses from the Mini International Neuropsychiatric Interview and the Self-rated Stress-Induced Exhaustion Disorder (SED) Instrument (s-ED), (3) symptom severity (Montgomery-Asberg Depression Rating Scale-self-rating version and the Karolinska Exhaustion Disorder Scale) and (4) number of sick leave days.

Results There was little correspondence between diagnoses on sick leave certificates and diagnoses made in structured psychiatric interviews. Many participants on sick leave for SED, anxiety disorder or depression fulfilled criteria for other mental disorders. Most on sick leave for SED (76%) and anxiety disorder (67%) had depression ($p=0.041$). Length of sick leave did not differ by certificate diagnoses. Participants with SED (s-ED) had longer sick leave than participants without SED (144 vs 84 days; 1.72 (1.37–2.16); $p<0.001$). More severe symptoms were associated with longer sick leave.

Conclusion Diagnoses on sick leave certificates did not reflect the complex and overlapping nature of the diagnoses found in the structured psychiatric interviews. This finding is relevant to the interpretation of information from health data registers, including studies and guidelines based on these data. A result of clinical interest was that more severe symptoms predicted long-term sick leave better than actual diagnoses.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The use of structured psychiatric assessments is a strength of the study.
- ⇒ The structured psychiatric interviews were conducted by trained independent assessors, which could decrease bias.
- ⇒ The findings are the result of secondary analyses of data from two studies with differing designs, including different recruitment procedures.
- ⇒ The instruments used to assess stress-induced exhaustion disorder have not been validated outside Sweden.
- ⇒ Lack of data on anxiety symptoms in the study population meant that it was not possible to investigate the association between anxiety symptoms and sick leave length.

INTRODUCTION

Common mental disorders such as depression, anxiety and stress-related disorders are the major cause of sick leave in many countries.^{1–5} In some countries, a shift in the cause of long-term sick leave from musculoskeletal to mental disorders, as well as a shift from affective disorders to stress-related disorders, has been observed.^{6–8} This may reflect increased mental stress in working life. It is also possible that when a structured psychiatric interview is not part of the diagnostic process, doctors' and patients' preconceived ideas about stress-related conditions as plausible explanations for mental conditions may take precedence in diagnosis.

In Sweden, approximately 30% of sick leave longer than 2 years is caused by stress-induced exhaustion disorder (SED).⁷ The Swedish diagnostic criteria for SED (online supplemental table 1) are similar to those for depression and Generalised Anxiety Disorder (GAD) in several ways. Symptoms of all three disorders include reduced mental and physical energy,

sleep disturbance, concentration and memory difficulties, emotional irritability, and sometimes physical symptoms such as pain and vertigo. To result in a diagnosis of SED, the symptoms must have been present for at least 2 weeks, have led to reduced work ability and function, and be related to at least 6 months of identifiable stressors. SED is sometimes referred to in English as job burnout or clinical burnout. In countries where SED is not used as a diagnosis, it is probably subsumed under depression or adjustment disorder.

Most people with common mental disorders seek treatment and receive sick leave certificates in primary care.^{9–12} However, procedures used to diagnose common mental disorders, their comorbidity and their severity vary widely between primary healthcare centres and between general practitioners,^{13–19} and may or may not include a structured psychiatric interview. According to a meta-analysis of studies on diagnostic psychiatric assessment,¹³ the inclusion of a structured psychiatric interview such as the Mini International Neuropsychiatric Interview (M.I.N.I.)²⁰ in the clinical assessment of mental disorders can increase the accuracy of differential diagnoses, including both sensitivity and specificity.¹³ Accurate diagnoses, in turn, are crucial to providing appropriate treatment, including sick leave. However, general practitioners often perceive such instruments as incompatible with open consultation methods²¹ and time-consuming and thus hard to fit into time-pressured consultations.^{18 21}

Swedish national guidelines recommend no or short sick leave for anxiety disorders and short or part-time sick leave for depressive episodes.²² They state that longer sick leave may be necessary for SED or recurrent depression. Sick leave certificates can include up to three diagnoses and are required to include free-text information about the symptoms that cause the patient's loss of function and inability to work.²² However, according to the guidelines, it is the main diagnosis on the sick leave certificate that guides the length and degree (part time or full time) of sick leave.²² Currently, it is unclear how well diagnoses of common mental disorders on sick leave certificates correspond to psychiatric diagnoses determined by structured psychiatric interviews. Filling this gap could add valuable knowledge about how the large body of epidemiological research on sick leave caused by common mental disorders should be interpreted.

This study used data from two Swedish studies in which people on sick leave for common mental disorders were examined with structured psychiatric interviews and self-rated symptom severity scales. The primary aim was to investigate the correspondence between diagnoses on sick leave certificates and diagnoses made in structured psychiatric interviews. Secondary aims were to investigate length of sick leave associated with diagnoses on sick leave certificates, diagnoses according to structured interviews and symptom severity.

MATERIALS AND METHODS

The data in this study were gathered between 2012 and 2017 as part of two studies that investigated sick leave in

people with common mental disorders: a randomised controlled trial (RCT) in the region of Stockholm,²³ and an observational study in the region of Västra Götaland.²⁴ These two regions include rural and urban areas and areas of varying socioeconomic status.

Study population

The analyses included data from 300 participants from the region of Stockholm and 180 participants from the region of Västra Götaland. [Figure 1](#) shows the recruitment of participants.

In the region of Stockholm, people on sick leave for common mental disorders were recruited via letters from the Swedish Social Insurance Agency and advertisements in the press. In the region of Västra Götaland, patients on sick leave for common mental disorders were recruited by rehabilitation coordinators at 28 primary healthcare centres. Inclusion criteria were providing written informed consent; being on sick leave of 2 weeks or more for depression (International Classification of Diseases, 10th edition (ICD-10) code F32, F33, F34), anxiety disorders (ICD-10 code F 40, F41) or SED (Swedish ICD-10-code F43); being employed >20 hours a week; and being between 18 and 60 years old. Exclusion criteria included a current sick leave episode of longer than 12 months, severe mental disorders (eg, severe depression, psychosis and bipolar disorder), post-traumatic stress disorder (PTSD), substance use disorder and inability to understand Swedish.

Patient and public involvement

Neither patients nor members of the public were involved in the design or performance of the study.

Data collection

Data collection is described in greater detail in previous publications.^{23 24} In summary, people already on sick leave were invited to participate, and those who fulfilled the study criteria after assessment and who provided written informed consent were included. At baseline, information on background variables and responses to self-rated symptom severity scales were gathered, and structured psychiatric interviews (M.I.N.I.) were performed by nurses and psychologists trained in administering M.I.N.I. This training occurred prior to the intervention or as part of their professional education. Baseline assessments took place between 14 days and 3 months after the physician completed the sick leave certificate. Data on sick leave covered days of sick leave from study baseline to the end of follow-up. Information on length and degree (percentage of full-time work) of sick leave were collected 12 months after baseline.

Variables and instruments

Background variables included self-reported data on age, sex, employment status, marital status and level of education.

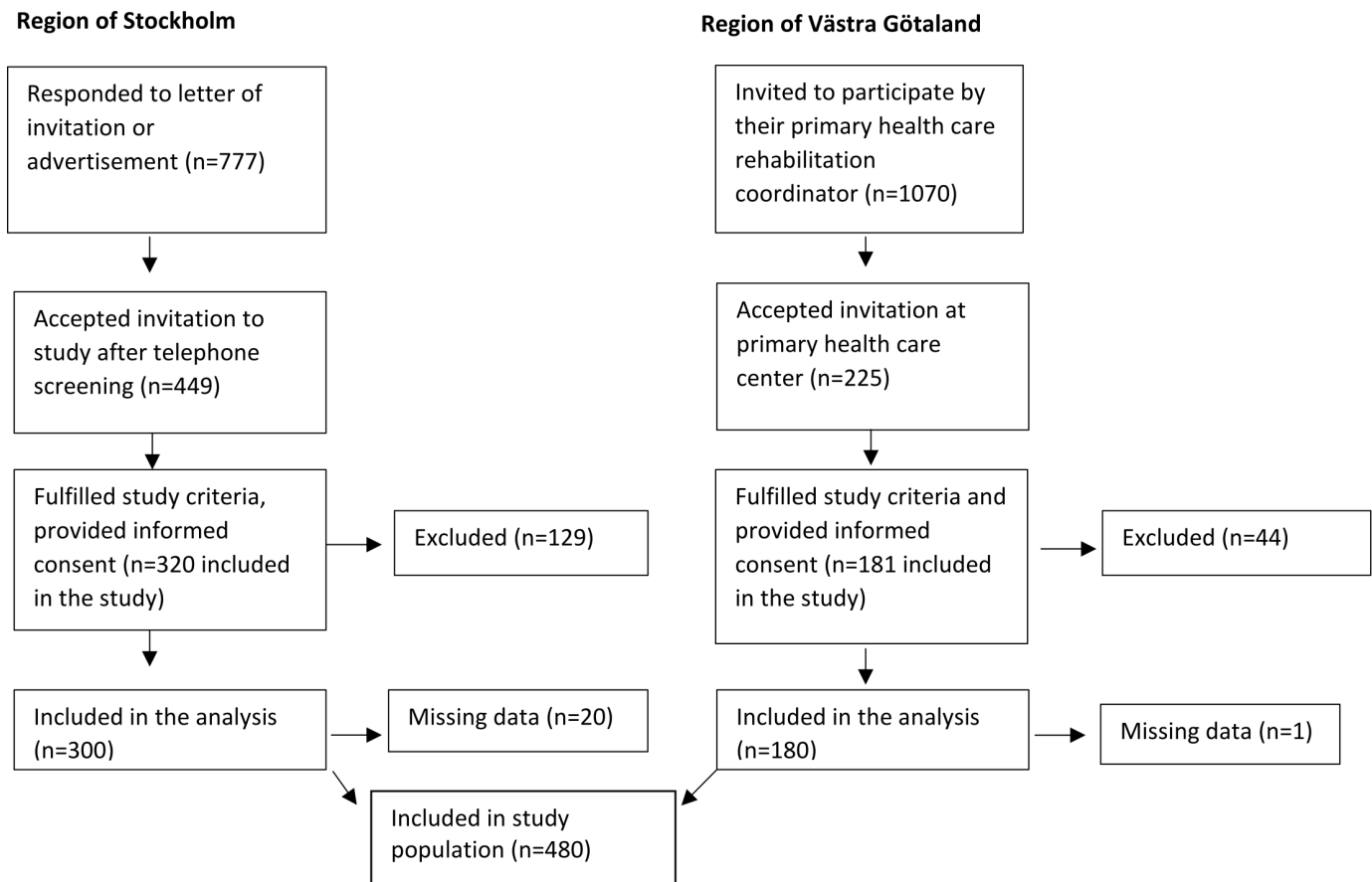


Figure 1 Recruitment in the studies.

Treatment data

In both regions, data on prescriptions for antidepressants were gathered via self-report. In the region of Västra Götaland, prescription data were also obtained from participants' medical records.²⁴ In the region of Stockholm, treatment also included psychotherapy (acceptance and commitment therapy) and a workplace dialogue intervention, which were part of the RCT.²³

For participants in the region of Stockholm, sick leave data, including sick leave certificate diagnoses, were gathered from the Swedish Social Insurance Agency's register. For participants in the region of Västra Götaland, these data were obtained from the electronic medical records. In Sweden, sick leave certificate diagnoses are classified in accordance with the ICD-10.²⁵ Sick leave certificate diagnoses were sorted into three groups for the analyses: SED (ICD-10 F43), anxiety disorders (ICD-10 F40 and F41) and depression (ICD-10 F32, F33 and F34). In both regions, sick leave data also included the number of days on sick leave and degree (percentage of full-time work) of sick leave. Net sick leave days were calculated by converting part-time sick leave into whole days.

Psychiatric diagnoses of depression and anxiety disorders, eating disorders and disorders that resulted in exclusion from the study (including bipolar disorder, psychosis, PTSD and substance use disorder) were obtained via M.I.N.I. 6.0.²⁰ M.I.N.I. 6.0 uses the Diagnostic

and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria for mental disorders.²⁶

M.I.N.I. 6.0 does not cover ICD-10 code F43, so it could not be used to diagnose SED. To receive a diagnosis of SED, participants had to fulfil the criteria for SED on the Self-rated SED Instrument (s-ED)²⁷ (in Swedish, s-UMS). The s-ED was developed in Sweden by the Institute for Stress Medicine, Region Västra Götaland and is based on the Swedish ICD-10 criteria F43.8 for SED (online supplemental table 1).²⁷ During the study period, there was an additional criterion for this diagnosis. If people who fulfilled the criteria for SED also fulfilled criteria for depression and/or GAD, SED should be considered a secondary diagnosis, not the main diagnosis.

Depression severity was measured with the Montgomery Asberg Depression Rating Scale-self-rating version (MADRS-S).^{28 29} MADRS-S has nine items and asks about depressive symptoms in the past 3 days. Responses are provided on a Likert scale that measures symptom severity from 0 (lowest) to 6 (highest). Total scores range from 0 to 54. A total of 0 to 12 points indicates no or very mild symptoms of depression; 13 to 19 points, mild symptoms; 20 to 34 points, moderate symptoms; and 35 to 54 points, severe symptoms.^{28 29}

SED severity was measured with the Karolinska Exhaustion Disorder Scale (KEDS), developed at Karolinska Institutet, Stockholm.^{30 31} KEDS has nine items that ask about

symptoms of mental and physical exhaustion during the past 2 weeks. Responses are provided on a Likert scale that measures symptom severity from 0 (lowest) to 6 (highest). Total scores range from 0 to 54. A total score higher than 19 indicates SED.^{30 31}

Statistical analyses

Continuous variables were described using mean, median and SD. Categorical variables were described as numbers and percentages. Comparisons between groups were performed using Student's t-tests for continuous variables and χ^2 tests for categorical variables. Statistical analyses of baseline characteristics were conducted prior to combining the data from the RCT in the region of Stockholm and the observational study in the region of Västra Götaland.

Regression analysis was used to determine factors associated with the number of net sick leave days while controlling for associations that could affect the results. The variable 'net sick leave days' was analysed as a count outcome. To account for model overdispersion, that is, greater variability than would be expected from a Poisson distribution, negative binomial regression models,³² were used to estimate sick leave rate ratios (RR) with 95% CIs. All models were adjusted for age, sex, education and treatment (antidepressants, psychotherapy and/or work interventions). Statistical tests were two-tailed, and p values <0.05 were considered statistically significant. Analyses were carried out with SAS V.9.4 (SAS Institute).

RESULTS

A total of 480 participants were included in the study (table 1). There were no statistically significant differences between the regions in type of psychiatric diagnoses

Table 1 The study populations from the regions of Stockholm and Västra Götaland

	n=480
Age—mean (SD)	44.9 (9.3)
Female gender, n (%)	374 (78)
Education, n (%)	
University	259 (54)
High school/upper secondary school	116 (24)
Elementary school	17 (4)
Vocational training	88 (18)
Diagnosis on sick leave certificate, n (%)	
Depression	157 (33)
Anxiety disorder	54 (11)
Stress-related exhaustion disorder	269 (56)
MADRS-S mean (SD)	20.9 (7.9)
KEDS mean (SD)	28.3 (8.2)
KEDS, Karolinska Exhaustion Disorder Scale; MADRS-S, Montgomery-Asberg Depression Rating Scale-self-rating version.	

on sick leave certificates, severity of depression or severity of SED (online supplemental table 2). There were minor differences in age, educational level and treatment with antidepressants (online supplemental table 2).

According to the structured interview, many participants on sick leave for depression, anxiety disorder or SED fulfilled criteria of other mental disorders (table 2). The majority of participants on sick leave for SED (76%) met the diagnostic criteria for depression. Most participants on sick leave for anxiety disorders met not only the criteria for anxiety disorders, but also for depression (67%) and SED (64%). Almost half of the participants with a sick leave certificate diagnosis of depression met the diagnostic criteria for anxiety disorder (42%), and the majority met the criteria for SED (63%). Of all the sick leave certificate diagnoses, anxiety was the one that corresponded best to the diagnosis made in the structured psychiatric interview (p<0.001) (table 2).

There was no significant difference in mean net sick leave days between those with a sick leave certificate diagnosis of SED (120 mean net sick leave days), anxiety disorder (107 days) or depression (137 days) (table 3, model 1). Those who fulfilled the criteria for SED as measured by the s-ED had significantly more net sick leave days than those who did not (144 vs 84 days; p<0.001) (model 2). This finding persisted after excluding participants who also fulfilled criteria for depression or GAD according to M.I.N.I. (169 vs 115 days; p=0.035) (model 3). Those who fulfilled the criteria for ongoing depression according to M.I.N.I. had significantly fewer net sick leave days than those who did not fulfil these criteria (112 vs 156 days; p=0.023) (model 4). There was no significant difference in mean net sick leave days between those who fulfilled the criteria for anxiety disorder and those who did not (Model 5). Adjusting for age, sex, level of education and treatment did not change the results.

The more severe the symptoms of depression or SED, the longer the sick leave (figure 2A,B). For example, during the follow-up period, mean net sick leave days ranged between 65 for those with SED severity scores (KEDS scores) of <20 (RR 0.64; 95% CI 0.46 to 0.89; p=0.007) to a mean of 236 for those with scores between 40 and 54 (RR 2.20; 95% CI 1.48 to 3.27; p<0.001).

DISCUSSION

There was little correspondence between diagnoses on sick leave certificates and diagnoses made in structured psychiatric interviews. According to the structured psychiatric interviews, many participants on sick leave for SED, depression or anxiety disorder met the diagnostic criteria for other mental disorders. Most participants on sick leave for SED met the diagnostic criteria for depression, and most participants on sick leave for depression met the diagnostic criteria for SED. Sick leave certificate diagnoses of anxiety corresponded best to the diagnoses made in the structured psychiatric interviews. There was no significant difference in mean net sick leave days between

Table 2 Psychiatric sick leave diagnoses by M.I.N.I. structured psychiatric diagnoses and responses to the s-ED instrument by participants' main sick leave diagnosis

	Fulfils M.I.N.I. criteria						Fulfils s-ED criteria												
	Ongoing depression			Recurrent depression			Any anxiety disorder			Obsessive-compulsive disorder			Generalised anxiety disorder			Stress-related exhaustion disorder			
	Yes	No	M	Yes	No	M	Ongoing	No	Ongoing	Yes	No	M	Ongoing	No	M	Yes	No	M	
Main psychiatric diagnosis on sick leave certificate																			
Stress-induced exhaustion disorder n=269 n (%)	199 (76)	64 (24)	6	184 (70)	77 (30)	8	76 (28)	193 (72)	3 (1)	266 (99)	-	39 (15)	229 (85)	1	181 (68)	87 (32)			
Anxiety n=54 n (%)	34 (67)	17 (33)	3	33 (65)	18 (35)	3	36 (67)	18 (33)	1 (2)	52 (98)	1	12 (23)	41 (77)	1	34 (64)	19 (36)			
Depression n=157 n (%)	100 (65)	55 (35)	2	101 (66)	52 (34)	4	66 (42)	91 (58)	3 (2)	154 (98)	-	33 (21)	124 (79)	-	97 (63)	58 (37)			
P value	0.041			0.544			<0.001		-			0.138			0.573				

M, missing response; M.I.N.I., Mini International Neuropsychiatric Interview; s-ED, Self-rated Stress-induced Exhaustion Disorder Instrument.

those with a sick leave certificate diagnosis of SED, depression or anxiety disorder. Those who fulfilled the criteria for SED according to the s-ED had longer sick leave than those who did not fulfil those criteria. Symptom severity was the factor most strongly associated with length of sick leave.

The finding that many people fulfilled the criteria for disorders other than the disorder listed as the main diagnosis on their sick leave certificate may reflect the comorbidity of common mental disorders, a pattern previously described in several studies.^{33–38} But the findings may also reflect the descriptive and therefore sometimes overlapping nature of psychiatric diagnostic criteria. These criteria consist of clusters of mental symptoms that affect functioning; such descriptive criteria are needed in the absence of objective biological markers that can be used to diagnose mental disorders.³⁹ There is also incomplete correspondence between DSM and ICD criteria. Moreover, it is not clear that criteria developed for patients in psychiatric care are entirely appropriate for use in a primary care population.³⁹ In particular, there is overlap between the criteria for depression and the criteria developed for SED in Sweden. The criteria for depression, GAD and SED all include sleeping disorders, concentration and memory problems, and anxiety and worry. One major difference between the diagnostic criteria for depression or GAD and those for SED is that the symptoms of SED are supposed to be caused by identifiable severe stress, an environmental factor that many people with depression and GAD also report. Sick leave certificate diagnoses of anxiety disorders (such as panic disorder and phobias) may correspond comparatively well to diagnoses made in the structured interviews because the diagnostic criteria for anxiety disorders are more clearly defined than the criteria for other common mental disorders. On the other hand, the relatively small group of participants on sick leave for anxiety may have fulfilled the criteria for depression and/or SED because the symptoms of depression and SED are crucial for loss of function, and hence, for sick leave caused by common mental disorders, which was the main inclusion criteria in this study.

To the best of our knowledge, no previous studies of sick leave for common mental disorders have investigated associations between sick-leave certificate diagnoses and diagnoses made in structured psychiatric interviews, perhaps because structured psychiatric interviews are rarely used to diagnose common mental disorders in primary care.^{13 14 21} A previous review found that clinical assessment alone detects approximately half of all cases of depression and that this number rises to 90% when a structured psychiatric interview (M.I.N.I.) is added to the diagnostic procedure.¹³ Another study in primary healthcare has found that in the absence of a structured psychiatric interview, some mental disorders can go undetected or be mistaken for other disorders with similar clinical presentations.⁴⁰ However, structured interviews such as M.I.N.I. are intended as a complement to clinical examination. Other factors, such as somatic diseases (eg,

Table 3 Association between psychiatric diagnoses and mean net sick leave days

	Crude RR (95% CI)	P value	Adjusted* RR (95% CI)	P value	N	Mean net sick leave days (SD)
Model 1: Main psychiatric diagnosis on the sick leave certificate						
SED	0.87 (0.69 to 1.11)	0.276	0.96 (0.74 to 1.24)	0.748	269	120 (109)
Anxiety disorder	0.78 (0.54 to 1.14)	0.204	0.79 (0.54 to 1.15)	0.223	54	107 (104)
Depression	Ref		Ref		157	137 (126)
Model 2: Fulfils criteria for SED as measured by s-ED						
Yes	1.71 (1.36 to 2.15)	<0.001	1.72 (1.37 to 2.16)	<0.001	312	144 (120)
No	Ref		Ref		164	84 (92)
Model 3: Fulfils criteria for main diagnosis SED as measured by s-ED and excluding those who fulfil the M.I.N.I. criteria for depression or GAD						
Yes	1.46 (1.08 to 1.98)	0.013	1.39 (1.02 to 1.89)	0.035	75	169
No	Ref		Ref		401	115
Model 4: Fulfils criteria for ongoing depression as measured by M.I.N.I.						
Yes	0.72 (0.57 to 0.92)	0.008	0.75 (0.58 to 0.96)	0.023	333	112 (112)
No	Ref		Ref		136	156 (117)
Model 5: Fulfils criteria for anxiety disorder as measured by M.I.N.I.						
Yes	1.05 (0.84 to 1.32)	0.659	1.07 (0.86 to 1.35)	0.540	182	128 (115)
No	Ref		Ref		298	122 (114)

*Adjusted for age, sex, level of education and treatment (antidepressants, acceptance and commitment therapy and/or work interventions). GAD, Generalised Anxiety Disorder; M.I.N.I., MINI International Neuropsychiatric Interview; RR, rate ratio; SED, stress-induced exhaustion disorder; s-ED, Self-rated Stress-induced Exhaustion Disorder Instrument.

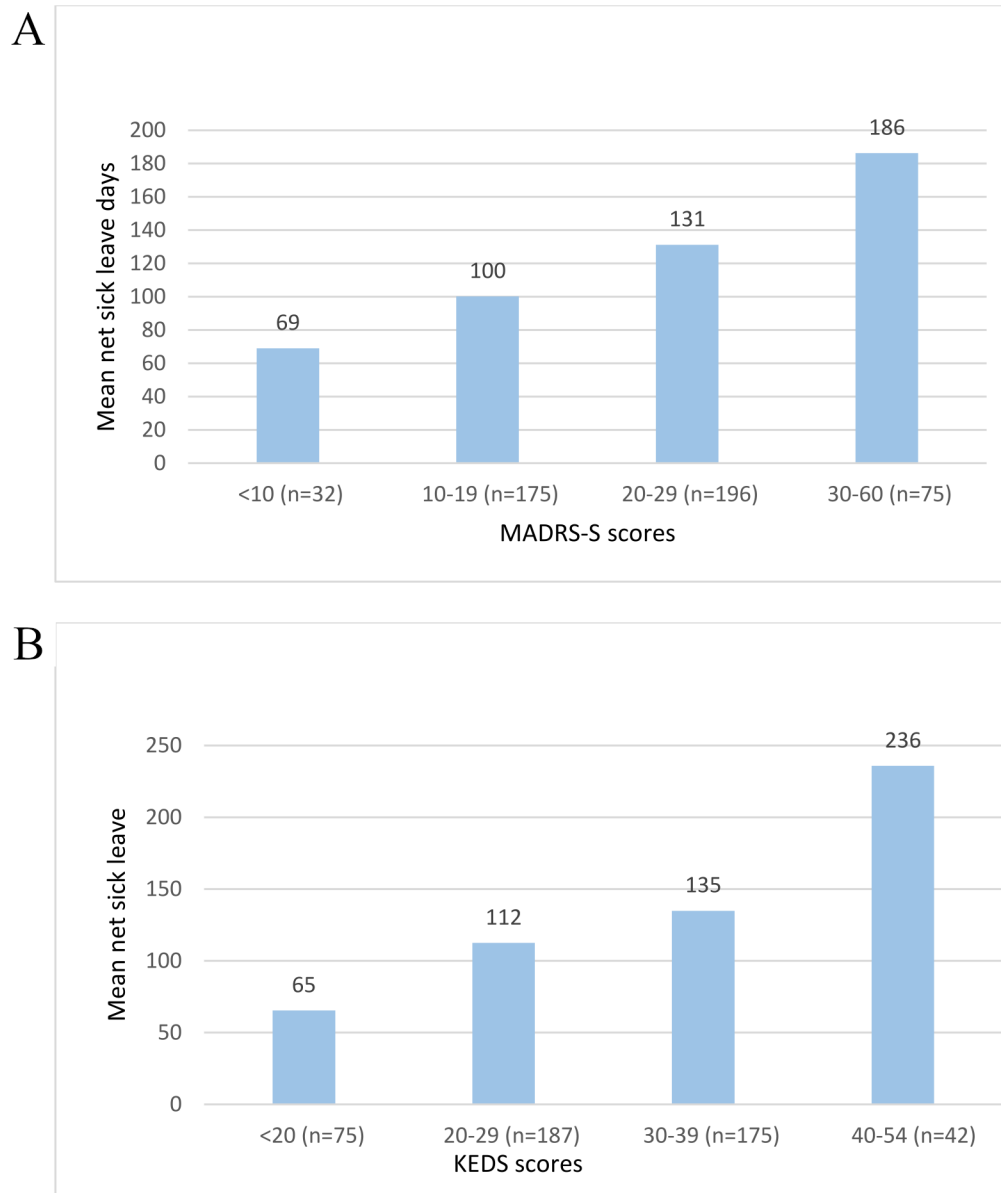


Figure 2 (A) Mean net sick leave days by self-rated severity of depression (MADRS-S scores) and (B) self-rated severity of SED (KEDS scores). KEDS, Karolinska Exhaustion Disorder Scale, MADRS-S, Montgomery Asberg Depression Rating Scale-self-rating version; SED, stress-induced exhaustion disorder.

hypothyroidism, anaemia and neurological disease) and socioeconomic factors can also confuse clinical presentation and make differential diagnosis more difficult.

Correct diagnosis is crucial to providing the most appropriate treatment for people with common mental disorders. The recommended first-line treatment for depression and anxiety disorders is cognitive-behavioural therapy and/or antidepressant medication.^{41 42} With such treatment, many people with depression and anxiety disorders recover within months.⁹ On the other hand, research suggests that workplace interventions have the best effect on recovery and return to work for people with SED.⁴³

Like other kinds of treatment, sick leave can be necessary and support the recovery of some people, such as those with severe symptoms of depression⁴⁴ or SED.²⁷

However, it is not effective for everyone.^{3 45-47} Sick leave itself is a risk factor for depression,^{3 45} especially in people with anxiety disorders.^{3 45 46 48} Moreover, long-term sick leave is associated with negative consequences, such as raised risk of financial stress, social isolation and increased severity of phobic symptoms, as well as high costs for societies and social welfare systems.^{3 5 9 46}

The lack of correspondence between sick leave certificate diagnoses and diagnoses made in structured psychiatric interviews has potential implications for the interpretation of other studies, such as those that link sick leave certificate diagnosis with health register data to examine a variety of outcomes.⁴⁹⁻⁵¹ It is important to confirm the findings of the current study in larger studies and other countries. Nevertheless, the study already adds valuable knowledge about how the large body of

epidemiological research on sick leave caused by common mental disorders should be interpreted.

The finding of no significant difference in mean net sick leave days between those with a sick leave certificate diagnosis of SED, depression or anxiety disorder differs from the findings of previous studies. In those studies, sick leave certificate diagnoses of depression were related to longer sick leave (>12 weeks).^{45 49 51} One potential reason may be that SED diagnoses in Sweden are subsumed under depression diagnoses elsewhere.

Furthermore, in the current study, fulfilling the criteria for SED was associated with an increased risk of long-term sick leave, which may reflect the complexity of this condition. The symptoms caused by prolonged stress in people with SED may differ from the symptoms of depression and anxiety.⁵² Stress-related physiological changes in people with SED,^{52–55} as well as work-related factors (eg, conflicts at work or experiences of high demands combined with a low ability to influence the situation),^{33 46 52} could help explain why these people have long-term sick leave.

Symptom severity was the factor most strongly associated with length of sick leave. High scores on either MADRS-S (depressive symptoms) or KEDS (SED symptoms) were the factors most strongly associated with long-term sick leave. This is consistent with previous studies, which also found that symptom severity was related to length of sick leave.^{45 48 56}

Strengths and limitations

This study had several strengths. One was the large number of participants examined in the study (n=480). Another was that these participants came from two regions of Sweden, including rural and urban areas and areas of varying socioeconomic status. Furthermore, the structured psychiatric interviews and symptom severity assessments were performed by people other than the clinicians who performed the sick leave certification, which may have diminished assessment bias. However, as mentioned above, structured interviews are not intended to be the only component of a diagnostic assessment. Thus, independent assessors without deeper knowledge of the interviewed participants could be a limitation of the study.

Another limitation of the study was the lack of international validation of the diagnostic criteria and instruments for SED. The overlapping diagnoses and symptom scores point to the need for more research to determine whether SED is a separate mental disorder rather than a description of depressive symptoms in the contextual narrative of stress. The delay between sick leave certification and the structured psychiatric interviews was another limitation that may have influenced the results. Some participants may have recovered from depression during the time between the sick leave certification and the interview, and participants with SED or anxiety disorders may have developed depression. As noted in several previous studies, common mental disorders and their symptoms overlap and affect one another over time.^{34–36}

It is possible that our results would have differed if all the structured psychiatric interviews had been conducted as part of or immediately after the sick leave certificate diagnosis rather than 2–12 weeks later.

One major limitation was the risk of selection bias due to the recruitment procedures. In Stockholm, participants were recruited via invitations from the Swedish Social Insurance Agency and advertisements in the press. Therefore, the responding participants constituted a highly self-selected group that may have differed from other people on sick leave for common mental disorders. In the region of Västra Götaland, rehabilitation coordinators at primary healthcare centres asked patients who were on sick leave to participate in the study. A total of 21% agreed to participate, and these people may also have differed from those who declined to participate.

The high proportion of participants who had a university education also raises the question of selection bias. Internationally, studies show that a low level of education is a risk factor for long-term sick leave, including for common mental disorders.^{4 5 45 57} However, our results were consistent with those of a Danish study that found high levels of education and female sex were associated with a greater frequency of seeking primary care for psychological stress.⁵⁸

Finally, our study did not measure self-rated anxiety symptoms, which means that we were not able to compare anxiety symptoms in our study population with length of sick leave. In at least one other study, symptoms of anxiety were the most important predictor of sick leave length.⁴⁸

CONCLUSION

The diagnoses on sick leave certificates did not reflect the complex and overlapping nature of the diagnoses found in the structured psychiatric interviews. This finding is relevant to the interpretation of information from health data registers, including studies and guidelines based on these data. Additionally, the finding that many participants with SED fulfilled the criteria for other common mental disorders, including depression, suggests a need for more research to determine whether SED is a separate mental disorder rather than a description of depressive symptoms in the contextual narrative of stress.

Of clinical concern was the finding that more severe symptoms predicted long-term sick leave. Future studies could investigate whether targeted interventions for primary care patients with more severe symptoms can support recovery and reduce potentially harmful long-term sick leave.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by Regional Ethical Review Board in Stockholm, (Dnr: 201/2109-31/5) Regional Ethical Review Board in Gothenburg (Dnr: 577-13, 2013-11-18). Participants gave informed consent to participate in the study before taking part. Ethical approval for this study was obtained from the Regional Ethical Review Board in Stockholm (Dnr: 201/2109-31/5) and the Regional Ethical Review Board in Gothenburg (Dnr: 577-13, 2013-11-18). The research was conducted in accordance with the World Medical Association Declaration of Helsinki, and all participants provided written informed consent.

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Data availability statement Data are available on reasonable request. All data relevant to the study are included in the article or uploaded as online supplemental information. The data from the two studies used in these analyses were gathered as part of the larger 'Return to Work: Promoting Health and Productivity in Workers With Common Mental Disorders (SAFARI)' study, ClinicalTrials.gov Identifier: NCT01805583. For information about data availability and to contact the party responsible for the study in the region of Stockholm, see ClinicalTrials.gov, and for Västra Götaland, see <https://www.researchweb.org/info/index.php/vgr/project/207801>.

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