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# Changes in sick leave one year before and after starting treatment: a naturalistic study of employed outpatients with common mental health disorders

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## ABSTRACT

**Background:** This study explores sick leave changes 1-year pre- and post-treatment start for common mental health issues and their associations with self-reported symptoms, functioning, and health changes.

**Methods:** Ninety-five employed patients, without previous disability benefits, underwent treatment at a public mental health outpatient clinic. Sick leave data was obtained from the Norwegian Labour and Welfare Administration. Symptoms, work/social functioning, and health quality were self-reported at treatment onset and completion.

**Results:** Twelve months before starting treatment, only 6.3% were on sick leave, contrasting with 69.5% at treatment start. At post-treatment, 25% received work assessment allowance (WAA), 63% were off sick leave, and 12% were on sick leave. Sick leave days exhibited an inverted U-shape for non-WAA recipients. Those on sick leave post-treatment reported less improvement in symptoms and health, while the WAA group showed diminished work functioning enhancement.

**Discussion:** Evaluating the effect mental health treatment has on sick leave is clearly affected by the timing of assessments. Treatment seems associated with improved sick leave outcomes compared with status at treatment start, but less so when compared with status one year before starting treatment. Also, a large group of patients went on to receive WAA, constituting a group in need of further longitudinal evaluations and interventions.

## ARTICLE HISTORY

Received 26 August 2024  
Revised 1 November 2024  
Accepted 22 November 2024

## KEYWORDS

Common mental health disorders; employment; sick leave; treatment

## Introduction

Mental health problems are associated with absenteeism in the workplace, highlighting the need for effective interventions to support individuals in returning to work [1]. A recent systematic review summarized the impact of clinical representative psychotherapy on return-to-work (RTW) outcomes for patients with common mental disorders [2]. Clinically representative treatment was defined as patients with diverse backgrounds and complaints referred to routine clinics and therapists with regular caseloads who use a variety of therapeutic approaches [3]. The review included nine studies and concluded that it was uncertain whether routine mental healthcare is associated with improved RTW. Furthermore, the review uncovered that the studies and samples varied greatly. RTW outcomes were often reported as full or partial RTW, number of days until they returned to work, change in sick leave status, and net days of work absence. Timing of RTW assessment varied from 3 months to 5 years after treatment. The review uttered a need for more and detailed

naturalistic studies investigating the RTW effect of routine mental health treatment. It was also suggested that national registers of sick leave could be combined with clinical data (e.g. self-reported symptoms and functioning) to track patients' changes in symptoms, health, and work status.

Routine treatment, often referred to as treatment-as-usual (TAU) is frequently used as a control condition in randomized controlled trials (RCT), but the effect of TAU is seldom investigated in detail in such studies [4–6]. Quite often TAU in RCTs does not represent a clinically representative treatment [3] and varies greatly with respect to healthcare settings and duration of treatment [2].

It is unclear if TAU for common mental health disorders in routine care reduces sickness absence. Still, some of the studies included in the systematic review by Lundqvist et al. [2] addressed sick leave specifically. A Swedish RCT from a primary healthcare setting included patients with depression of whom 55% were on sick leave at inclusion [7]. The treatment duration for TAU was not specified. The mean number of sick leave days was reduced from 66 days (3-month period after

treatment start) to 62 (3–6 months after treatment start) for routine care and 42% were now on sick leave. TAU had an equal effect on sick leave compared to a 12-week collaborative care intervention. Sick leave days before starting treatment were not reported in the study.

Another relevant Swedish RCT [8] used a common mental health disorder sample (42.5% with 100% sick leave when starting treatment). All patients were employed for a minimum of 20h per week and had experienced sickness absence ranging from 25 to 100% over the past 12 months prior to treatment. For the past two years, the TAU sample had a total of 92 net compensated days of sickness absence (equal to a mean of 11.5 days per quartile). They found that net days with sickness absence for 3-month intervals were 61 at pre-treatment, which was reduced to 48 at post-treatment, 33 at 3-month follow-up, 25 at 6-month follow-up, and 17 at 9-month follow-up. TAU showed no clear difference compared with acceptance and commitment therapy and workplace dialogue. Treatment duration was not specified for TAU, but 51.6% reported meeting a psychologist for a mean of 4.1 ( $SD=3.4$ ) appointments, whilst others met with other health professionals usually for several appointments. Within-group effect sizes for symptoms of depression, anxiety, and stress ranged from  $-0.06$  to  $0.70$ . The effect size for the Work and Social Adjustment Scale (WSAS) [9] was  $0.34$  and  $0.36$  at post-treatment and 9-month follow-up. Patients started with a moderate-severe WSAS score of 23, which was reduced to a moderate score of 17 at a 9-month follow-up.

A third relevant Swedish RCT found that only 3.4% improved their self-reported sick leave status at follow-up [10]. The number of sick leave days was not accounted for, and TAU consisted mostly of pharmacological therapy in their study. A fourth relevant study from Finland using a common mental health disorder sample was register-based [11]. The mean duration of treatment was three years and all participants had 100% sickness absence at inclusion. They found that mental health-related work disability decreased from 1.34 months per year (about 40 days) in the onset year of rehabilitative psychotherapy to 1.07 months per year (about 32 days) in the subsequent year (equal to a 20% reduction). They also described how sickness absence increased in the period leading up to treatment, and then started to decrease after starting treatment. Still, the rates three years after treatment started were higher than 3 years before starting treatment.

As reviewed above, there is uncertainty as to whether clinically representative mental health treatment is associated with a reduction in sick leave. Furthermore, most studies do not provide detailed descriptions of TAU or sick leave days, including the number of sick leave days before the start of treatment. Therefore, this study aims to address these gaps by investigating changes in sick leave patterns one year before and one year after the start of mental health treatment. Based on the Finnish study [11], it was hypothesized that sick leave days would increase before starting treatment and decrease after treatment. Further, the study explores associations between sick leave status and self-reported changes in symptoms, functioning, and health. By evaluating these associations, we aspire to contribute valuable societal insights into the relationship between Norwegian routine mental health treatment, sick leave, and individual well-being.

## Methods

### *Participants and procedure*

The study had a naturalistic design, which involves observing behaviors and outcomes in routine clinical practice settings without a comparison group. Patients actively sought and received clinically representative mental health treatment at Nidaros District Psychiatric Center, a public mental health clinic in Norway with a patient population representative of the local community. The sample consisted of a consecutive selection of patients from the outpatient clinic.

All patients with an employment starting treatment between 2020 (February 12) and 2021 (May 3) were eligible for inclusion. This period coincided with the COVID-19 pandemic, which was accompanied by an increase in sickness absence. Other inclusion criteria included: written informed consent, completing pre- and post-assessment (self-reported data regarding symptoms, health, and functioning), and being employed. Exclusion criteria included: patients on work assessment allowance (WAA) or disability pension before starting treatment, students with part-time employment, and patients with sick leave because of pregnancy-related matters. Register data on sick leave was collected from the Norwegian Labour and Welfare Administration. Informed consent was obtained electronically from all participants. The study was approved by the regional committee for medical and health ethics (REK 2019/31836) and the Norwegian Centre for Research Data (NSD 2020/605327).

In the Norwegian welfare system, people are entitled to sickness benefits for up to 52 weeks. People can apply for WAA if they are still ill after this year. WAA ensures the patient's further income (about 66% of previous income), and the goal of the WAA period is for patients to find appropriate employment by trying out treatments and work-focused training (labor market programs and occupational rehabilitation). WAA can last for 3-years but can also be extended depending upon certain circumstances.

### *Routine treatment for mental health problems*

Routine treatment for mental health problems in Norway is usually non-manualized (i.e. does not follow a specific treatment manual) [12]. Therapists consist of psychologists, psychiatrists, psychiatric nurses, and social workers. A survey of treatment at Norwegian clinical outpatient clinics (as described by therapists) suggested that treatment consists of a mix of supportive psychotherapy (49%), psychopharmacological (28%), cognitive behavioral therapy (22%), counseling (14%), other (13%), psychodynamic (13%), interpersonal therapy (9%), and crisis management (8%) [13]. Furthermore, register data suggests that adult mental health outpatients receive a mean of 11.3 sessions [14].

### *Measures*

Sick leave data was collected from the Norwegian Labour and Welfare Administration. The data specified the start and

end date for all sick leaves in addition to specifying the percentage of sick leave and diagnosis. Diagnoses were according to the International Classification of Primary Care, 2nd edition. The register data also specified when and why patients were given disability benefits or WAA.

The Work and Social Adjustment Scale (WSAS) [9] was used to assess everyday functioning. WSAS has five items assessing the degree of impairment related to mental health problems in five areas: work or studies ('Because of my [problem] my ability to work is impaired'), home management, social leisure activities, leisure activities done alone, and maintaining close relationships. The five items are scored using a 0–8 scale (higher scores indicate more impairment). Scores below 10 indicate low impairment, 10–20 indicate moderate impairment, and above 20 indicates moderate-severe impairment.

The Patient Health Questionnaire-9 (PHQ-9) [15] was used as a measure of depression severity using nine items scored on a 0–3 scale with higher scores indicating more severe symptoms. Scores from 5 to 9 indicate mild depression, 10–14 moderate, 15–19 moderate-severe, and scores of 20+ suggest severe depression.

The Generalized Anxiety Disorder-7 (GAD-7) [16] was used to measure the severity of anxiety. Seven items are rated on a 0–3 scale with higher scores indicating more severe symptoms. Scores from 0 to 4 suggest minimal anxiety, 5–9 mild, 10–14 moderate, and 15–21 severe anxiety.

The visual analog scale (EQ-VAS) from EQ-5D-5L [17] was used to assess self-reported health. The EQ-VAS asks the respondents to rate their overall health on a scale ranging from 0 (worst health) to 100 (best health). The Norwegian norms for EQ-VAS in the general population have a mean of 77.9,  $SD=18.3$  [18].

The Client Satisfaction Questionnaire-8 (CSQ-8) [19] is an eight-item questionnaire used to measure the patient's satisfaction with the treatment. The total score ranges from 8 to 32. Higher scores indicate better treatment satisfaction. The CSQ-8 was administered after completing treatment.

### Statistical analyses

Sick leave days were summarized for four time periods lasting six months each: 12–6 months before treatment start, 6–0 months before treatment start, 0–6 months after treatment start, and 6–12 months after treatment start. Part-time sick leaves were accounted for, such that 10 days with 50% sick leave was counted as five net days of sick leave.

Descriptive statistics were used to explore changes in sick leave categories (sick leave, partly sick leave, no sick leave, and WAA) at three times of assessment (1 year before starting treatment, at treatment start, and 1 year after treatment start). Independent *t*-tests analyzed differences in sickness absence before starting treatment for patients who eventually received WAA with the other participants. A repeated measures ANOVA explored changes in sickness absence days across the four 6-month intervals for patients that did not go on to receive WAA. The analysis used changes in symptoms, functioning, and health as covariates.

Within-group effect sizes were calculated for three groups according to their sick leave status 1 year after starting treatment (sick leave [full and partly combined], no sick leave, and WAA). The dependent variables were WSAS, WSAS item 1 (job functioning), PHQ-9, GAD-7, and EQ-VAS. Post hoc tests using Tukey HSD (Games-Howell for the GAD-7 analysis) were used to explore differences between groups.

Missing data were not an issue with the analyses, as participants were included based on completing post-treatment assessment. One patient had a missing PHQ-9 score post-treatment, one patient had a missing GAD-7 score post-treatment, and three patients had missing WSAS scores post-treatment. One patient had missing EQ-VAS scores pre-treatment, and three were missing post-treatment. Missing scores were not imputed.

### Results

A summary of the sample's characteristics is displayed in Table 1. The median age of the sample was 31.00 (IQR = 25, 40) and 58% were female. On an open-ended question concerning economic stability at treatment start, 12% of patients described their financial situation as difficult, 22% reported living on sickness benefits, and 67% said that they had solid finances. The sample was diagnosed at the clinic with common mental health disorders (usually anxiety/depression). The three subgroups (no sick leave, partly sick leave, and full sick leave) differed significantly on two variables. The partial sick leave group had higher rates of mood disorders (71%) compared to the no sick leave group (36%),  $\chi^2=6.68$ ,  $p=.035$ . The second difference related to economy, as fewer patients

Table 1. Sample characteristics when starting treatment ( $N=95$ ).

Variable	<i>M (SD)/% (N)</i>			
	Total	No sick leave ( $n=29$ )	Partial sick leave ( $n=24$ )	Full sick leave ( $n=42$ )
Age	33.68 (10.33)	30.55 (8.85)	33.08 (9.50)	36.19 (11.26)
Female	57.9 (55)	62.1 (18)	66.7 (16)	50.0 (21)
Single	45.2 (42)	42.9 (12)	41.7 (10)	48.9 (20)
Norwegian	90.5 (86)	86.2 (25)	87.5 (21)	95.2 (40)
Economy				
Financially difficult	11.5 (10)	7.7 (2)	5.0 (1)	17.1 (7)
Financially solid	66.7 (58)	88.5 (23)	85.0 (17)	43.9 (18)
Sickness benefits	21.8 (19)	3.8 (1)	10.0 (2)	39.0 (16)
Psychotropics	48.4 (46)	55.2 (16)	58.3 (14)	45.2 (19)
Mental health diagnoses (ICD-10)				
F30 (mood disorders)	54.3 (51)	35.7 (10)	70.8 (17)	57.1 (24)
F40 (anxiety disorders)	45.7 (43)	46.4 (13)	41.7 (10)	47.6 (20)
F60 (personality disorders)	8.5 (8)	0 (0)	12.5 (3)	11.9 (5)
Other	19.1 (18)	32.1 (9)	8.3 (2)	16.7 (7)
First sick leave diagnosis (ICPC-2)				
Mental health	44.2 (42)	37.9 (11)	62.5 (15)	38.1 (16)
Musculoskeletal	20.0 (19)	17.2 (5)	12.5 (3)	26.2 (11)
Respiratory infections	20.0 (19)	24.1 (7)	4.2 (1)	26.2 (11)
Other	15.8 (15)	20.7 (6)	20.8 (5)	9.5 (4)

ICD-10: International Classification of Diseases 10th revision; ICPC-2: International Classification of Primary Care, 2nd edition.

Note. Valid percent is presented in cases of missing data. ICD-10 diagnoses exceed 100% due to the registration of comorbid disorders.

in the full sick leave group had solid finances but instead received sickness benefits,  $\chi^2=18.90$ ,  $p<.001$ .

The duration of treatment for patients was a mean of 204.0 days ( $SD=165.8$ , range = 0–767). They had a total of 14.4 ( $SD=11.8$ ) consultations of which 10.9 ( $SD=9.5$ ) were defined as psychotherapy (81 patients with such sessions). A total of 3.9 ( $SD=2.8$ ) sessions were defined as assessments for 89 patients. For 18 patients there was a mean of 3.3 ( $SD=1.5$ ) sessions defined as management of psychotropics. Patients not on sick leave when starting treatment received a mean of 153 days of treatment (nine consultations) compared to 228 (16 consultations) and 225 (17 consultations) for patients on partial and full sick leave.

### Changes in sick leave

Most patients (93.7%) were not on sick leave one year before starting treatment, while 3.2% were on full sick leave and 3.2% were on partly sick leave. When starting treatment, 44.2% were on full sick leave, 25.3% were on partly sick leave, and 30.5% had no sick leave. One year after starting treatment, 25.3% received WAA, 7.4% were on full sick leave, 4.2% had partly sick leave, and 63.2% had no sick leave. A summary of the categorical changes in sick leave status is displayed in Figure 1.

Of patients who were on full sick leave when starting treatment, 42.9% went on to receive WAA, 4.8% were still on full sick leave, 2.4% had partly sick leave, while 50% were not on sick leave one year later.

Of patients who were on partly sick leave when starting treatment, 16.7% went on to receive WAA, 4.2% were on full sick leave, and 4.2% had partly sick leave, while 75% were not on sick leave one year later.

Of patients who were not on sick leave at treatment start, 6.9% went on to receive WAA, 13.8% had full sick leave, 6.9% were partly on sick leave, while 72.4% were not on sick leave a year later.

### Characteristics of patients given work assessment allowance

The group that went on to receive WAA ( $n=24$ ) had a mean of 28.5 ( $SD=46.2$ ) days of sickness absence 12–6 months before starting treatment. At 6–0 months before starting treatment this increased to 99.2 ( $SD=55.1$ ). For the group that did not get WAA, the number of sickness absence days were 21.82 ( $SD=35.5$ ) and 53.42 ( $SD=46.1$ ) before starting treatment. There was no significant difference between the WAA group and the others 12–6 months before treatment ( $p=.465$ ), but the WAA group had significantly higher sickness absence 6–0 months before treatment ( $p<.001$ ).

Diagnoses for patients eventually receiving WAA were mostly mental health problems (78.6%), while 21.4% received WAA for other diagnoses. Patients given WAA had a mean of 264 days of treatment (22 consultations) while the no sick leave group and the sick leave group received 182 (12 consultations) and 192 (13 consultations). Six of the eight patients diagnosed with a personality disorder were in the WAA group.

### Characteristics of patients not given work assessment allowance

Among patients who did not get WAA ( $n=71$ ), 60 patients were not on sick leave 1-year after treatment started and 11 were on sick leave. These two groups (sick leave vs. no sick leave) had a similar number of sick leave days at 12–6 months pre-treatment ( $p=.993$ ) and 6–0 months pre-treatment ( $p=.254$ ). However, after treatment start the sick leave group actually showed lower sickness absence at 0–6 months after treatment start ( $p=.030$ ), but the opposite pattern was found 6–12 months after start ( $p=.017$ ). Figure 2 summarizes changes in sickness absence for these two groups.

For the 71 patients who did not go on to receive WAA, changes in sickness absence days across the two years were

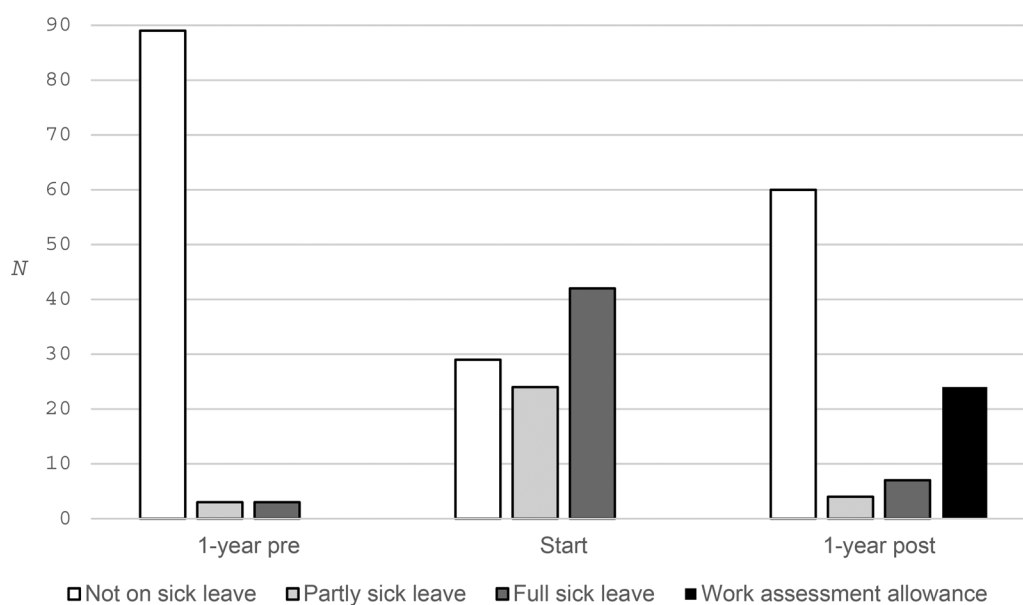


Figure 1. Changes in categorical sick leave status across the study period.

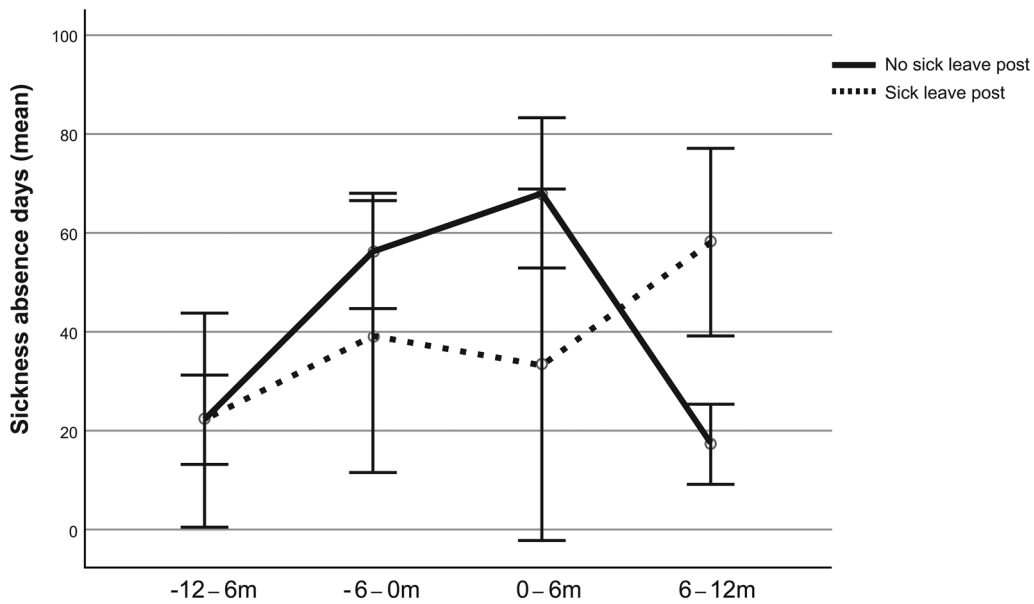


Figure 2. Changes in sickness absence for patients classified as on or off sick leave at post-treatment. Note.  $n=71$ . Error bars display 95% confidence intervals.

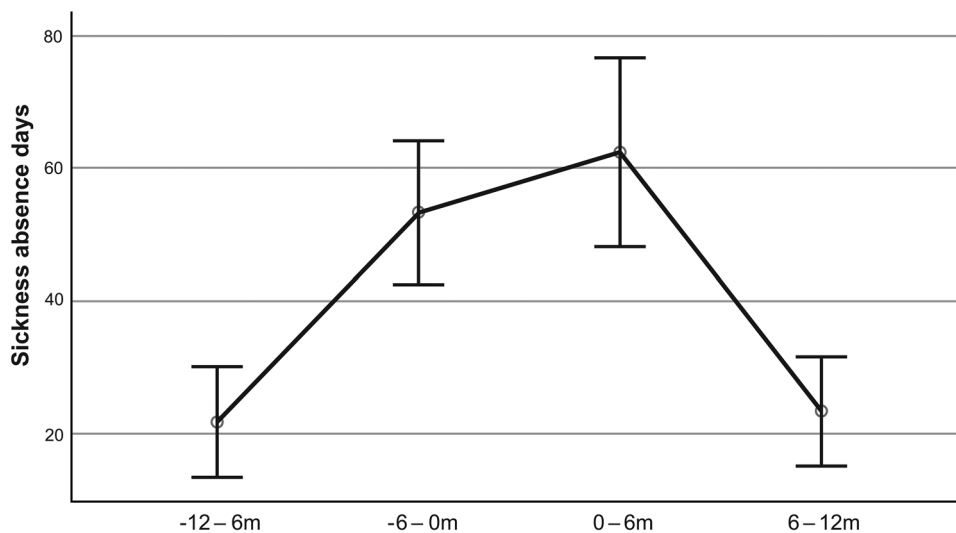


Figure 3. Changes in mean sickness absence days before and after treatment (not including patients eventually given WAA). Note.  $n=71$ . Error bars display 95% confidence intervals.

further explored. The analysis showed a significant increase in sickness absence in the second half year before starting treatment ( $p<.001$ ). Sickness absence was reduced from the first half to the second half year after starting treatment ( $p<.001$ ), returning to a level comparable to 12–6 months before starting treatment. The mean number of sickness absence days went from 22 to 53 in the two half-year periods before treatment to 63 and 23 after treatment started. Figure 3 summarizes the changes in sickness absence days.

The analysis was repeated by adding changes in symptoms and functioning as covariates. Changes in PHQ-9 were a significant covariate ( $p=.008$ ), while changes in EQ-VAS, GAD-7, and WSAS were not. Patients with reliable improvement on the PHQ-9 had higher sickness absence 0–6 months after starting treatment ( $p=.039$ ), but there were no differences 6–12 months after starting ( $p=.874$ ).

Changes in sickness absence were also explored for the three subgroups (no sick leave, partly sick leave, or full sick leave when starting treatment), see Figure 4. People on full sick leave had significantly more sickness absence six months before and after starting treatment, but not 12–6 months before or after treatment started.

#### **Changes in functioning, symptoms, and health according to sick leave status at post-treatment**

The last analysis explored treatment effects on symptoms, functioning, health, and client satisfaction according to sick leave status one year after starting treatment (see Table 2). Regarding WSAS there were no differences between the three groups (sick leave, no sick leave, and WAA). The no sick leave group had a large improvement on WSAS, the WAA

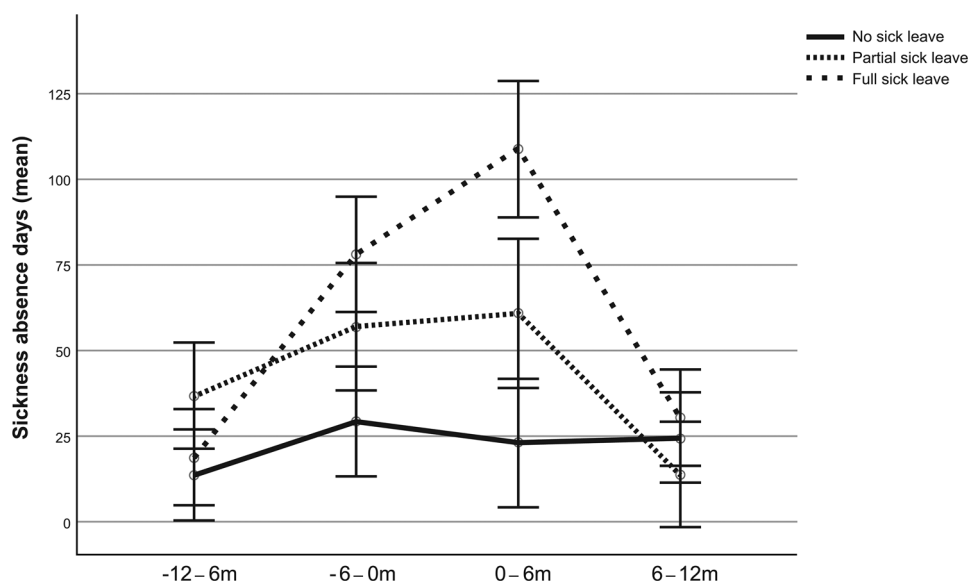


Figure 4. Changes in sickness absence before and after treatment for subgroups (not including patients eventually given WAA). Note.  $n=71$ . Error bars display 95% confidence intervals.

Table 2. Treatment effects categorized according to sick leave status one year after treatment start.

Variable	Status	Start (SD)	Post-treatment	<i>d</i>	Post-hoc
WSAS	Total	22.2 (8.7)	15.4 (9.8)	0.73	ns
	No SL	22.0 (9.1)	13.9 (9.7)	0.86	
	SL	19.5 (6.5)	16.3 (9.3)	0.40	
	WAA	24.0 (8.2)	18.4 (10.0)	0.61	
WSAS Q1	Total	5.2 (2.2)	3.4 (2.4)	0.78	WAA <sub>post</sub> > No SL <sub>post</sub>
	No SL	4.9 (2.2)	2.8 (2.2)	0.95	
	SL	5.0 (1.9)	3.5 (2.0)	0.77	
	WAA	5.9 (1.9)	4.7 (2.4)	0.55	
PHQ-9	Total	16.3 (5.8)	10.8 (6.9)	0.86	ns
	No SL	16.2 (6.0)	9.6 (6.5)	1.06	
	SL	14.8 (5.7)	12.7 (7.7)	0.31	
	WAA	17.2 (5.3)	12.7 (7.1)	0.72	
GAD-7	Total	13.1 (4.6)	8.6 (4.9)	0.95	ns
	No SL	12.8 (5.0)	7.8 (4.6)	1.04	
	SL	11.9 (4.1)	8.6 (4.7)	0.75	
	WAA	14.3 (3.6)	10.3 (5.5)	0.86	
EQ-VAS	Total	48.7 (18.7)	59.3 (18.7)	-0.57	WAA <sub>post</sub> < No SL <sub>post</sub>
	No SL	50.5 (19.9)	63.5 (19.2)	-0.66	
	SL	51.9 (13.7)	53.4 (8.9)	-0.13	
	WAA	42.5 (16.6)	51.3 (17.7)	-0.51	
CSQ-8	Total		24.5 (6.3)	-	ns
	No SL		25.3 (6.3)	-	
	SL		20.1 (6.4)	-	
	WAA		24.3 (6.0)	-	

No SL: no sick leave; SL: sick leave; WAA: work assessment allowance; WSAS: the Work and Social Adjustment Scale; WSAS Q1: the Work and Social Adjustment Scale question 1 (work ability); PHQ-9: the Patient Health Questionnaire-9; GAD-7: the Generalized Anxiety Disorder-7; EQ-VAS: the visual analogue scale (VAS) from EQ-5D-5L; CSQ-8: the Client Satisfaction Questionnaire-8. Note. Total sample size,  $N=95$  (No sick leave = 60, sick leave [both full and partly]=11, WAA = 24). Effect sizes were calculated using pooled standard deviations.

group showed medium improvement, and the sick leave group showed small improvements. The question specifically addressing work functioning on the WSAS (item 1) was also explored. The no sick leave group and the sick leave group both had large improvements, while the WAA group reported a medium improvement. Scores on the WSAS were in the moderate-severe category at the treatment start and were reduced to moderate post-treatment.

For changes in depression, the no sick leave group had a large improvement, while the sick leave group had a small improvement. The WAA group had medium-to-large improvement. The depression scores were in the moderate-severe category when starting treatment and were reduced to moderate post-treatment. For changes in anxiety symptoms, all three groups had large reductions. Scores on the GAD-7 were in the moderate range pre-treatment and were reduced to mild post-treatment.

Regarding changes in health, the sick leave group reported small changes, while the no sick leave group and WAA group had moderate improvements. The WAA group reported worse health than the no-sick leave group post-treatment, but there were no significant differences when starting treatment. The EQ-VAS scores were still low, approximately one standard deviation lower than the general Norwegian population.

There were no differences in satisfaction with treatment between the three groups and scores ranged from 20 to 25 (possible range = 8–32).

## Discussion

There is great uncertainty as to whether clinically representative mental health treatment reduces sick leave [2]. Therefore, this study set out to explore changes in sick leave 1-year before and 1-year after starting treatment for mental health problems and examined associations between sick leave status and self-reported changes in symptoms, functioning, and health. The results showed that one-fourth of the sample, regardless of whether they were on sick leave or working, went on to receive WAA, whilst for the other participants an inverted-U-shape in sickness absence was observed. Reduction in sickness absence was associated with improvement in self-reported depressive symptoms, but not with changes in anxiety, functioning, or health.

Most patients (94%) were not on sick leave one year before starting treatment, but when starting treatment 70% were on full or partly sick leave. One year after starting

treatment, 25% received WAA, 12% had full/partial sick leave, while 63% had no sick leave. This suggests that there is an improvement in sick leave from treatment start to 1-year after, but not compared with sick leave status one year before starting treatment. This highlights an important issue in research on evaluating the effects of mental health treatment on sick leave as timing of assessments (sickness absence) will clearly affect the results. The effect of psychotherapy will seem greater if studies explore changes in sickness absence from treatment start to post-treatment in comparison with studies using data from 1-year before starting treatment.

Of patients who were on full sick leave when starting treatment, 43% went on to receive WAA, while 50% were not on sick leave one year later. This suggests that patients on full sick leave represent an at-risk group regarding work participation. In comparison, 75% of patients who were on partly sick leave when starting treatment were not on sick leave one year later. There were no indications that full sick leave was an indication of higher severity as there were no significant differences in self-reported symptoms, functioning, and health between the two groups. However, given the naturalistic design, it is difficult to conclude whether partly sick leave is a better solution, but related research from Finland suggests that partial sick leave may be associated with better results than full sick leave [20].

Reports from the OECD and the Norwegian Labour and Welfare Administration have suggested that, as a welfare provision, WAA struggled with helping people back to work, and WAA was labeled as a 'waiting list for disability pension' [21,22]. The results from our study could indicate a potential for preventive efforts, as helping people earlier could be beneficial. There was no significant difference between the WAA group and the others 12–6 months before starting treatment, but at 6–0 months the WAA group had significantly higher sickness absence. This could suggest that the WAA group would benefit from being referred to mental health treatment at an earlier stage in their course of illness. The WAA group reported worse health and worse job functioning than the no-sick leave group post-treatment, but there were no significant differences when starting treatment.

Patients who did not go on to receive WAA showed an inverted-U-shape change in sickness absence. This finding corresponded with a register-based study from Finland [11], where sick leave days increased toward the treatment start and decreased after treatment. The mean number of sickness absence days went from 22 to 53 in the two-half years before treatment to 63 and 23 after treatment started. Change in depression symptoms was a significant covariate suggesting that patients with more improvement in depression also had a larger reduction in sick leave days. Changes in anxiety, health, and functioning were not significant covariates. This corresponded with previous research showing that improvement in work functioning may not parallel improvement in self-reported symptoms [23].

The change in sick leave days was larger than in the Björkelund et al. [7] study, but their study had a shorter follow-up period, and treatment was not specified. Compared

with the Finnes et al. [8] study, we found lower sickness absence in our study, which is likely explained by the fact that they only included patients on sick leave when starting treatment, but the reduction in sick leave resembled rates found in our study. Their study also reported effect sizes for self-reported symptoms of depression, anxiety, and stress, which ranged from  $-0.06$  to  $0.70$ . Our study had somewhat higher effect sizes, which could be due to the patients receiving more treatment. Their effect size on the WSAS was  $0.34$  and  $0.36$  at post-treatment and 9-month follow-up [8]. In comparison, the WSAS effect sizes in our study were  $0.86$  for the no sick leave group,  $0.40$  for the sick leave group, and  $0.61$  for the WAA group. The number of days with sickness absence was still quite large one year after starting treatment (23 days across 6 months) which is more than three times as much as in the general population.

In 2013, the OECD recommended Norway attempt to solve problems at the workplace rather than use sick leave benefits. This included introducing early intervention measures (including school dropout), reducing long waiting times for mental health treatment, and avoiding fragmentation of services in mental health care and rehabilitation by fostering integrated systems involving GPs, the Norwegian Labour and Welfare Administration, and mental health clinics. Central to this recommendation was the incorporation of work-focused interventions as a core competence in mental health clinics [22]. Research indicates that interventions solely targeting work-related aspects among individuals with anxiety and depression may lead to longer absenteeism, highlighting the importance of integrating job-related considerations into psychological treatment [24].

Moreover, the OECD proposed incorporating work status as a quality indicator of treatment effectiveness [22]. This study serves to establish a baseline for assessing the impact of mental health treatment on sick leave, thereby facilitating the evaluation of future efforts in this direction. However, addressing work-related concerns may sometimes be viewed as problematic within routine mental health treatment, with perceptions of being 'service-driven' or 'not collaborative' prevailing [25]. Nonetheless, this perception is not inherent, and routine mental health treatment should aim to address presenting issues while facilitating RTW, rather than resorting to separate occupational therapy [26].

This study addressed knowledge gaps noted by a recent review regarding the effect clinical representative psychotherapy has on sick leave [2]. However, some limitations should be considered. The register-based data on sick leaves only included sick leave certificates from GPs and not self-reported sick leave. Thus, the total number of sick leave days is likely higher, as Norwegian employees may have 24 self-certified sick leave days each year. A limitation of the study is the small sample size from a single clinic, which may pose some challenges to the broader generalizability of the findings. The study also lacks information about patients changing employment status during the 2-year period (i.e. becoming a student or change in total amount of working hours). The naturalistic design also prevents us from concluding causality, and RTW outcomes for TAU compared to other active treatments are unknown.

In conclusion, this study suggests that clinically representative mental health treatment could be associated with a reduction in sick leave, but not when compared with sick leave status one year before starting treatment. The study also identifies that a fourth of patients, regardless of their working status, went on to receive WAA, representing an at-risk group for labor market exclusion. The WAA group and patients still on sick leave after treatment should be of interest for further observational and interventional studies.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

This work was funded by the Norwegian University of Science and Technology and the Norwegian Labour and Welfare Administration (NAV) [www.nav.no](http://www.nav.no). The funding resulted in a PhD candidate position for JL. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

## Data availability statement

Data are available on reasonable request.

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