Open Access Journal of Clinical Trials

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REVIEW

Variation in effect of intervention studies in research on sickness absence

This article was published in the following Dove Press journal:
Open Access Journal of Clinical Trials
12 April 2012
Number of times this article has been viewed

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Background: Intervention studies in sickness absence research demonstrate a low effect and ambiguous results in reducing sickness absence and improving work status. The aim of this study was to determine if the effect of interventions is related to type of intervention, target population, inclusion criteria used, and impact of the scientific quality of the studies.

Methods: Based on a structured review of 57 studies, short-term, medium-term, and long-term effects were analyzed with regard to the type of intervention, target population, inclusion criteria, and scientific quality of the studies.

Results: The overall result was that the effect rate was low, ie, about 20% for short-term effect (up to 6 months) and medium-term effect (6–12 months), and 40% for long-term effect (≥12 months). Interventions using stress reduction were most effective with regard to short-term and medium-term effects, whereas collaborative care was most effective for long-term effects. The effects were related to the inclusion criteria and, to a minor degree, to the scientific quality of the studies.

Conclusion: In the field of sickness absence research, more attention should be paid to the interrelationship between the types of interventions, target populations, and inclusion criteria for the studies. Larger studies of high methodological quality are needed. Steps should be taken to standardize outcome measures.

Keywords: nonparticipation, sickness absence, return to work, controlled trial, review

Background

Mental disorders impose suffering and reduce quality of life for the individuals living with these conditions. These disorders also impose an economic burden on society, primarily due to indirect costs in the form of sickness absence, early retirement, and early death.[1,2] In addition, mental disorders significantly influence the outcome of comorbid medical illnesses,[3] family dysfunction, and induce a risk of mental and physical illness among family members.[4] With regard to sickness absence, the burden is, in particular, due to common mental disorders, such as depression, anxiety, and somatoform disorders. These disorders primarily cause the burden because they occur rather frequently.[1,5]

The Organization for Economic Cooperation and Development reports that mental health problems now account for one third of all new disability claims on average, and up to 40%–50% in some countries.[6] The frequency of mental disorders among incident individuals on long-term sickness absence (more than eight continuous weeks of sickness absence) is about 50%.[7] The burden imposed by common mental disorders is increasing as documented in a Norwegian study, where evidence was found that

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the cumulative incidence of long-term sickness absence for women with mental disorders increased from 1.7% in 1994 to 4.6% in 2000, and for men from 0.8% to 2.2%.[8]

This burden has motivated clinicians, rehabilitation officers, and researchers to develop interventions aimed at improving mental health and quality of life. The majority of studies in this area have used outcome measures for mental health and quality of life. In addition, an aim has been to reduce sickness absence and improve the fraction of positive work status. However, the studies applying outcome measures with regard to sickness absence and work status measures are much fewer.[9–16]

The intervention studies have been the subject of several reviews. The reviews which have applied sickness absence and work status outcome measures indicate a large ambiguity with regard to effect on these outcome measures. This ambiguity may be caused by a variety of factors, such as the type of intervention, target population, inclusion criteria, and methodological issues. These methodological issues have been addressed by Moncrieff et al,[17] who stated that within the field of psychiatry several important issues are not well covered by the majority of published checklists and rating systems for assessment of the quality of studies. This is due to the fact that, in psychiatry, interventions take many forms. Subsequently, detailed reports of the interventions are necessary. In addition, some interventions, such as psychotherapy, make it impossible to blind the intervention in regards to the patients. Psychiatric diagnoses are complex. In several studies, the diagnoses are compiled into a group of neuroses (common mental disorders). The nature of the interventions makes randomization impossible. Consequently, Moncrieff et al[17] developed an instrument consisting of 23 items, which is applicable to studies of nonpsychotic disorders. Evidence retrieved from studies of low quality should be assessed with caution, as documented by Moher et al,[18] who showed that the overall quality of a study predicts the obtained effect size. The issues mentioned by Moncrieff et al[17] concern studies in psychiatry, but they can certainly be applied within the field of mental disorders and psychological distress in sickness absence as well.

The aim of the study was to assess the results of intervention studies with attention to the outcome measures of sickness absence and work status. By means of a systematic literature review, it was investigated whether or not the effect rates of the examined studies were dependent on the following factors: type of intervention; scientific quality of the study; target population and the population of eligible individuals; inclusion criteria; and fraction of nonparticipation in the target group, the group of eligible participants, and at follow-up.

Methods

Literature review

The literature search aimed to identify intervention studies which met the following criteria:

- Studies must include outcome measures for sickness absence or work status
- Interventions must possess the following characteristics:
  - Be primary, secondary, or tertiary interventions
  - Be aimed at reducing psychological distress and improving quality of life by one or more of the following types of interventions: organizational interventions, stress reducing interventions, feedback interventions, physical interventions, therapeutic interventions, and collaborative care. The studies were included if they involved screening for the purpose of detecting common mental disorders.
  - Participants must be healthy individuals with mental distress or diagnosed as having a common mental disorder such as depression, anxiety, or a somatoform disorder (primary intervention). However, this delimitation created ambiguity with regard to which studies to include. Studies including medically unexplained symptoms were included, whereas studies focusing on somatic conditions and those that exclusively addressed alcohol abuse or drug abuse were excluded. The ambiguity concerning the delimitation of studies was due to the fact that many studies concerning individuals with musculoskeletal symptoms, low back pain, heart diseases, and other somatic conditions examined the effect on psychological distress and quality of life.
- Be controlled studies, including a quasi-experimental design, pre/post design, randomized controlled trials, cluster-randomized trials, and wait-list control studies.

The literature search was carried out in the PubMed (Medline), Embase, PsycINFO, and Cochrane databases using the criteria shown in Figure 1. The search was supplemented with browsing. In total, the 57 studies presented in Table 1 were identified.

Concepts

Effect of a study

The outcome measures for sickness absence and work status were several, often more than one in the same study. The outcome measures were: duration of sickness absence, counted in number of days, hours, or weeks within a given period;

The PubMed search was carried out with the following MeSH words:
- Mental disorders or depression or anxiety or somatoform disorders or stress/psychological or professional burnout or mass screening
- Sick leave or absenteeism or efficiency/organizational
- Limitations: Clinical trial or controlled study or meta-analysis or review

The searches were combined by "and".

In PsycINFO, the search terms were:
- Mental disorder or adjustment disorders or affective disorders or endogenous depression or acute stress disorder or generalized anxiety disorder or obsessive compulsive disorder or panic disorder or phobias or social phobia or post-traumatic stress disorder or somatization disorder or occupational stress
- Employee leave or employee absenteeism
- Limitations: Controlled study or controlled study or cluster randomized study or meta-analysis or review

The searches were combined by "and".

In Embase, the criteria were the following keywords (exploded):
- Mental disease or depression or anxiety or somatoform disorder or job stress or burnout or mass screening
- Medical leave or absenteeism or work capacity or rehabilitation or work resumption or work disability
- Limitations: Controlled study or controlled study or cluster randomized study or meta-analysis or review

The searches were combined by "and".

The Cochrane database was searched for the following reviews:
- Mental disorder or psychiatric disorder or depression or anxiety or somatoform disorder or stress or burnout or mass screening
- Sickness absence or sick leave or absenteeism or return to work

The search was supplemented with browsing of the studies identified by the search mentioned above.

Figure 1 Search criteria.

rates of individuals who returned to work within a given period; and fractions of individuals having retained work within a given period. The effect was considered positive if at least one parameter indicated effect. The effect rate was defined as the fraction of interventions showing effect among the number of interventions where the effect was examined. This was done separately for short-term effect (up to 6 months after the initiation of the intervention), medium-term effect (from 6 months up to one year), and long-term effect (one year and longer).

Intervention group and control group

Some studies involved more interventions which were compared with the same control group. The control groups depended on the target population; in some studies, no intervention, and, in others, care as usual. Care as usual differs very much depending on the target group. It was not possible to define a control group in five studies. The studies carried out by van Rhenen et al,[19,20] Knekt et al,[21] Krogh et al,[22] Schene et al,[23] and Stenlund et al[24] were included in the review. However, when it came to analyses that compared intervention groups with control groups, these studies were excluded. Furthermore, the studies by Bakker et al[25,26] and Soegaard and Bech[27] showed an effect in subgroups but not in the total group of analyzed participants. These studies were registered as being without effect.

Types of interventions

The interventions were categorized as being organizational, or focused on stress reduction, feedback, physical, therapy, education, or collaborative care.

Organizational interventions were directed towards the organizational structure in workplaces with the aim of reducing stress, but not directed towards each individual employee. However, these interventions involved the employees in identifying the stress-creating factors in the workplaces and in the development of actions to reduce these stress-creating factors.[15,28–37]

Stress reduction interventions were directed towards the individuals participating in a particular study employing this type of intervention. The individuals were informed about stress-creating factors and means to reduce stress in the form of posted information, information given at seminars or meetings, or at an individual level.[27,30,32,33,38–55] The stress-reducing intervention in the study by Saksvik and Nytro[49]

Table 1 Overview of the 57 reviewed studies

Study	Inclusion criteria				
	Target population	Diagnosis	Stress score	Sickness absence/return to work	Quality score
Bakker et al[25] Uegaki et al[26]	Primary care	No	Yes	Plus	37
Blonk et al[38]	Company	CMD/stress	No	Plus	21
Bond and Bunce[28]	Company	No	No	No	16
Bonde et al[56]	OH/stress clinic	No	No	Risk	31
Boumans and Landeweerd[29]	Company	No	No	No	14
Brattberg[39,40]	Population	CMD/stress	No	Plus	19
Brouwers et al[57,58]	Population	No	Yes	Plus	34
de Boer et al[41]	OH/stress clinic	No	No	Risk	29
de Vente et al[42]	OH/stress clinic	CMD/stress	No	Plus	31
Dierendonck et al[72]	Company	No	No	No	18
Duijts et al[59]	Company	No	Yes	No	34
Eriksen et al[43]	Company	No	No	No	33
Fleten and Johnsen[44]	Population	CMD/stress	No	Plus	32
Ginsberg et al[73]	Primary care	CMD/stress	No	No	21
Grossi and Santell[45]	OH/stress clinic	CMD/stress	No	Plus	26
Hollinghurst et al[74] Kessler et al[78]	Primary care	Depression	No	No	30
Huibers et al[75]	OH/stress clinic	CMD/stress	Yes	Plus	36
Kant et al[60]	OH/stress clinic	No	Yes	Risk	35
Karlson et al[30]	Population	CMD/stress	No	Plus	28
Kawakami et al[31]	Company	No	Yes	No	22
Kawakami et al[61]	Company	No	Yes	No	19
Kendrick et al[76,77]	Primary care	CMD/stress	Yes	No	33
Knekt et al[21]	Psychiatric patients	CMD/stress	No	No	30
Kobayashi et al[32]	Company	No	No	No	28

Nonparticipation		Intervention	Follow-up	Effect		
Target group %	Eligible group %	Number in intervention and control group	Nonparticipation %	Short-term <6 months	Medium-term 6–12 months	Long-term 12+ months
–	33.1	E: 227 CAU: 206	E: 13.2 CAU: 16.5	–	–	–
–	64.7	T: 40 S + F + T: 40 CAU: 42	T: 25.0 S + F + T: 25.0 CAU: 33.3	+	–	
–	19.8	O: 48 CAU: 49	O: 43.8 CAU: 46.9			+
0.0	24.3	F: 48 CAU: 49	F: 9.8 CAU: 13.0	–	–	–
–	59.3	O: 23 CAU: 36	O: – CAU: –		–	–
–	0.0	S: 20 CAU: 20	S: 16.7 CAU: 16.7	+		–
–	8.8	F + T + E: 98 CAU: 96	F + T + E: 3.1 CAU: 6.3	–	–	–
27.5	27.5	S + F + C: 61 CAU: 55	S + F + C: 34.4 CAU: 38.2		–	+
–	–	S + T-i: 28 S + T-g: 28 CAU: 26	S + T-i: 21.4 S + T-g: 32.1 CAU: 50.0	– –	– –	
58.0	–	T: 36 CAU: 113			+	+
58.0	31.7	F: 76 CAU: 75	F: 25.0 CAU: 18.7		+	+
32.0	7.9	P: 189 T: 162 S + F + P: 165 CAU: 344	P: 39.7 T: 39.5 S + F + P: 43.0 CAU: 51.7	– – –		– – –
0.0	0.0	S + F: 595 CAU: 595	S + F: 9.6 CAU: 24.0	+	+	+
13.4	20.7	T: 46 CAU: 46	T: 54.2 CAU: 39.1			–
–	14.0	S + F + P: 12 CAU: 12	–	–	–	–
18.6	0.0	T: 149 CAU: 148	T: 50.3 CAU: 55.4		+	
51.4	92.2	T + E: 76 CAU: 75	T + E: 7.9 CAU: 9.3	–	–	–
49.8	0.0	F: 132 CAU: 131	F: 25.0 CAU: 0.0			–
29.2	25.5	O + S + F + C: 108 CAU: 122	O + S + F + C: 31.5 CAU: 39.3	–	+	+
–	–	O: 111 CAU: 186	O: 28.8 CAU: 41.9			–
–	6.8	F: 91 CAU: 88	F: 11.0 CAU: 12.5			–
9.1	11.8	T: 90 E: 79 CAU: 78	T: 10.0 E: 6.3 CAU: 5.1		– –	
–	29.0	T-stt: 101 T-ltt: 128 T-sft: 97	T-stt: 31.7 T-ltt: 28.1 T-sft: 38.1			NC
–	O: 11.5 CAU: 11.8	O + S: 348 CAU: 918	O + S: 7.8 CAU: 18.3			–

(*Continued*)

Table 1 (*Continued*)

Study	Inclusion criteria				
	Target population	Diagnosis	Stress score	Sickness absence/return to work	Quality score
Krogh et al[22]	OH/stress clinic	Depression	Yes	No	38
Lexis et al[79]	Company	No	Yes	Risk	38
Maes et al[33]	Company	No	No	No	20
Munz et al[34]	Company	No	No	No	7
Netterstrom and Bech[47]	OH/stress clinic	CMD/stress	No	No	23
Nystuen and Hagen[80]	Population	CMD/stress	No	Plus	36
Proper et al[62,63]	Company	No	No	No	27
Rebergen et al[64,65]	Company	CMD/stress	No	Plus	36
Reynolds[35]	Company	No	No	No	10
Rollman et al[48]	Primary care	Anxiety	Yes	No	37
Rost et al[86] Lo Sasso et al[85]	Primary care	Depression	Yes	No	33
Rutz et al[87,88]	Primary care	No	No	No	19
Saksvik and Nytro[49]	Company	No	No	No	13
Schene et al[23]	Psychiatric patients	Depression	Yes	Plus	31
Schilte et al[81]	Primary care	Somatization	Yes	No	35
Schoenbaum et al[82,83]	Primary care	Depression	Yes	No	33
Schrijnemaekers et al[36]	Company	No	No	No	29
Simon et al[93] Katon et al[91,92]	Primary care	Depression	Yes	No	29
Smith et al[50] Luo et al[46]	Primary care	Somatization	No	No	37
Soegaard and Bech[27]	Population	No	Yes	Plus	33
Stenlund et al[24]	OH/stress clinic	CMD/stress	Yes	Plus	35
Svensson et al[51,52]	Company	No	No	No	34
Taimela et al[66,67]	Company	Depression	Yes	Risk	37

Nonparticipation		Intervention	Follow-up	Effect		
Target group %	Eligible group %	Number in intervention and control group	Nonparticipation %	Short-term <6 months	Medium-term 6–12 months	Long-term 12+ months
24.9	7.8	P-st: 55 P-at: 55 P-rt: 55	P-st: 16.4 P-at: 16.4 P-rt: 32.7	NC		NC
61.8	28.9	T: 69 CAU: 70	T: 37.7 CAU: 32.9			–
–	37.3	O + S + P: 175 CAU: 171	O + S + P: 23.4 CAU: 24.0			+
–		O + F: 26.7 CAU: 68.0	O + F: 55 CAU: 24	–		
–	3.1	S + F + P + C: 63 CAU: 34	S + F + P + C: 0.0 CAU: 17.7	+		+
0.0	85.3	T: 53 CAU: 50	T: 9.6 CAU: 24.0		–	–
50.1	–	F + P: 131 CAU: 168	F + P: 26.0 CAU: 0.6		–	
–	50.9	F + T + E: 125 CAU: 115	F + T + E: 10.4 CAU: 12.2			–
–	–	O: 37 F: 76 CAU: 43	–			–
17.2	46.5	S + F + E + C: 116 CAU: 75	S + F + E + C: 13.8 CAU: 6.7			+
–	34.8	Consistently employed: E: 96 CAU: 102	Consistently employed: E: 39.6 CAU: 23.5	–	–	–
		Inconsistently employed: E: 62 CAU: 66	Inconsistently employed: E: 21.0 CAU: 19.7	–	+	–
–	–	E	–			+
57.8	26.0	S: 30 CAU: 135	–			–
–	16.9	F + T: 30 T: 32	F: 20.0 CAU: 25.0			NC
32.9	43.1	T: 81 CAU: 80	T: 13.6 CAU: 16.3	–	–	–
15.0	37.7	E: 424 T: 489 CAU: 443	E: 12.5 T: 18.0 CAU: 12.9	– –	– –	+ +
2.6	0.7	O: 154 CAU: 139	O: 18.2 CAU: 16.5	–	–	–
23.2	29.4	C: 77 CAU: 76	C: 22.1 CAU: 30.3	–	–	
0.0	43.7	S + F + E + C: 101 CAU: 105	S + F + E + C: 3.0 CAU: 2.9			–
53.6	–	S + F + C: 420 CAU: 416	S + F + C: 0.0 CAU: 0.0			–
–	13.9	S + T: 67 T: 69	T: 19.4 CAU: 43.4		NC	NC
–	12.8	S + P: 389 CAU: 279	S + P: 54.5 CAU: 53.8			+
51.6	7.7	High risk: F + C: 209 CAU: 209 Medium risk: S: 268 CAU: 269	High risk: F + C: 8.1 CAU: 8.1 Medium risk: S: 6.3 CAU: 5.6			+ –

(*Continued*)

Table 1 (*Continued*)

Study	Inclusion criteria				
	Target population	Diagnosis	Stress score	Sickness absence/return to work	Quality score
Tveito and Eriksen[53]	Company	No	No	No	20
van der Feltz-Cornelis et al[89]	OH/stress clinic	CMD/stress	Yes	Plus	31
van der Klink et al[54]	Company	CMD/stress	No	Plus	30
van Oostrom et al[15,37]	OH/stress clinic	No	Yes	Plus	35
van Rhenen et al[19,20]	OH/stress clinic	No	Yes	No	29
von Vultée et al[68,69]	Company	No	No	No	22
Wang et al[55]	OH/stress clinic	Depression	Yes	No	33
Wells et al[84]	Primary care	Depression	Yes	No	33
Willert et al[70,71]	OH/stress clinic	CMD/stress	Yes	No	35
Yelin et al[90]	Primary care	Anxiety	Yes	Risk	22

was somewhat different from that in other studies using stress-reducing intervention because it allowed employees in the Norwegian health care sector of a municipality to take up to five days of self-approved sick leave with full financial compensation up to four times a year.

Feedback interventions involved screening of individuals with regard to signs of distress or mental disorder, and, subsequently, individuals showing signs of distress were given individual feedback with regard to how to change their lifestyle and react to stressors in their individual lives and in workplaces.[15,23 27,30,34,35,37,38,41,43–48,50,54–71]

Physical interventions involved physical training, aerobics, strength training, and other physical activities with the aim of reducing psychological distress.[19,20,22,33,43,45,47,51–53,62,63] Therapeutic interventions involved conventional therapies, such as cognitive/behavioral therapy, solution-focused therapy, psychodynamic therapy, and disclosure therapy.[19–21,24,38,42,43,54,55,57,58,64,65,70–84]

Educational interventions refer to interventions where caregivers such as general practitioners, nurses, and social workers were educated with regard to the identification of individuals with psychological distress and psychiatric diagnoses. The caregivers were educated in guideline-based treatment and often in means to improve the individuals' adherence to treatment.[25,26,46,48,50,54,57,58,64,65,75–77,82–90]

Collaborative care refers to interventions which involved collaboration between different caregivers. The interventions ensured that information regarding treatment and rehabilitation was provided to different caregivers. In some studies, the effect of the intervention was monitored for each individual. If it was considered necessary, appropriate actions were taken.[15,27,30,37,41,46–48,50,55,66,67,89,91–93]

Quality of a study

The scientific quality of the studies was assessed by the instrument previously mentioned by Moncrieff et al.[17] The items of this instrument are found in Table 2. The quality in each item was rated on a three-point Likert scale, except for some measures which were rated on a two-point Likert scale, whereby 0 indicated low quality, 1 medium quality, and 2 high quality. Two of the items in this instrument were handled differently in comparison with Moncrieff et al, ie, blinding of assessor where assessments in all cases were independent of the researcher, being based on self-report

Nonparticipation		Intervention	Follow-up	Effect		
Target group %	Eligible group %	Number in intervention and control group	Nonparticipation %	Short-term <6 months	Medium-term 6–12 months	Long-term 12+ months
–	29.8	S + P: 19 CAU: 21	S + P: 36.8 CAU: 19.0			–
33.6	0.0	E + C: 29 CAU: 31	E + C: 13.8 CAU: 22.6	+	–	
–	19.3	S + F + T + E: 109 CAU: 83	S + F + T + E: 39.5 CAU: 38.9	+		+
55.7	58.9	O + F + C: 73 CAU: 72	O + F + C: 0.0 CAU: 2.3	–	–	
48.8	Stressed: P: 64.4 T: 71.2 Nonstressed P: 34.8 T: 45.4	Stressed: P: 70 T: 57 Nonstressed: P: 129 T: 108	Stressed: P: 37.1 T: 21.1 Nonstressed: P: 44.2 T: 25.0	NC NC	NC NC	
–	–	F: 52 CAU: 52	F: 19.2 CAU: 19.2			+
19.3	–	S + F + T + C: 304 CAU: 300	S + F + T + C: 14.5 CAU: 10.0		+	+
15.0	30.2	T + E: 913 CAU: 443	T + E: 17.6 CAU: 15.6	–	–	+
9.8	12.4	F + T: 51 CAU: 51	F + T: 11.8 CAU: 25.5	+	–	–
22.3	27.0	E		–		

Abbreviations: O, Organizational intervention; OH, occupational health; S, stress reduction; F, feedback; P, physical; T, therapy; E, education; C, collaborative intervention; CAU, care as usual; i, individual therapy; g, group therapy; sft, solution-focused psychotherapy; stt, short-term psychodynamic psychotherapy; ltt, long-term; at, aerobic training; st, strength training; rt, relaxation training; CMD, common mental disorders; NC, no control group.

(scored as 0) or register-based data (scored as 2), with side effects being omitted because the interventions were not of an intrusive nature and were not expected to impose side effects on the individuals. The studies were assessed by the author three times. In the first two reviews, each study was reviewed with regard to all items, and, in the third review, each item was assessed transversely for the studies.

Target population and eligible group

The target population was defined as the population from which the participants were recruited. The following groups of target populations were defined: the population was defined as the target population if the studies recruited individuals from the entire population;[27,30,39,40,44,80] company included studies where the individuals were recruited from companies/corporations;[28,29,31–36,38,43,49,51–53,57–59,61–69,72,79] primary care;[25,26,46,48,50,73,74,76–78,81–88,90–93] and occupational health clinics or stress clinics refer to studies that recruited individuals who attended an occupational health clinic or stress clinic.[15,19,20,22,24,37,41,42,45,47,54–56,60,70,71,75,89] Some of the occupational health/stress clinic studies recruited participants by invitation to employees in companies; however, the intervention was carried out in the context of an occupational health/stress clinic. Psychiatric refers to participants that were recruited among individuals referred to psychiatric facilities.[21,23]

Eligible groups of participants were defined by three criteria, ie, diagnostic criteria, criteria for level of distress measured by psychopathological rating scales, and criteria for sickness absence/return to work/retention of work. The diagnostic criteria differentiated between no diagnostic criteria,[15,19,20,25–29,31–37,41,43,49,51–53,56–63,68,69,72,79,87,88] depression,[22,23,55,66,67,74,78,82–86,91–93] anxiety,[48,90] somatoform disorder,[46,50,81] and common mental disorders.[21,24,30,38–40,42,44,45,47,54,64,65,70,71,73,75–77,80,89] Common mental disorders included single diagnostic groups, such as adjustment disorders or a mixture of common mental disorders. With regard to psychological distress criteria, a differentiation was made between plus criteria for psychological distress[15,19,20,22–27,31,37,48,55,57–61,66,67,70,71,75–77,79,81–86,89–93] and no criteria for psychological distress.[21,28–30,32–36,38–47,49–54,56,62–65,68,69,72–74,78,80,87,88] Criteria regarding sickness absence/return to work/retention of work were divided into no criteria for sickness absence/work status,[19–22,28,29,31–36,43,46–53,55,59,61–63,68–74,76–78,81–88,90–93] sickness

Table 2 Effect rates for short-term, medium-term, and long-term effects divided into quality parameters

Quality measures	Score	Short-term effect		Medium-term effect		Long-term effect	
		Number of tests	Number with effect (%)	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)
Objectives	0	0	0 (–)	0	0 (–)	0	0 (–)
	1	4	1 (25.0)	5	1 (20.0)	11	4 (36.4)
	2	20	6 (30.0)	22	5 (22.7)	31	13 (41.9)
Sample size	0	7	4 (57.1)	7	1 (14.3)	12	5 (41.7)
	1	6	1 (16.7)	9	2 (22.2)	8	3 (37.5)
	2	11	2 (18.2)	11	3 (27.3)	22	9 (40.9)
Follow-up	0	2	0 (0.0)	0	0 (–)	0	0 (–)
	1	4	2 (50.0)	7	1 (14.3)	0	0 (–)
	2	18	5 (27.8)	20	5 (25.0)	42	17 (40.5)
Power calculation	0	17	5 (29.4)	18	5 (27.8)	26	13 (50.0)
	1	0	0 (–)	0	0 (–)	0	0 (–)
	2	7	2 (28.6)	9	1 (11.1)	16	4 (25.0)
Allocation	0	0	0 (–)	0	0 (–)	0	0 (–)
	1	4	1 (25.0)	4	2 (50.0)	12	7 (58.3)
	2	20	6 (30.0)	23	4 (17.4)	30	10 (33.3)
Concealment	0	10	3 (30.0)	10	3 (30.0)	19	8 (42.1)
	2	14	4 (28.6)	17	3 (17.6)	23	9 (39.1)
Treatment description	0	0	0 (–)	0	0 (–)	0	0 (–)
	1	6	2 (33.3)	5	1 (20.0)	14	5 (35.7)
	2	18	5 (27.8)	22	5 (22.7)	28	12 (42.9)
Blinding subjects	0	21	7 (33.3)	22	5 (22.7)	38	16 (42.1)
	1	3	0 (0.0)	5	1 (20.0)	4	1 (25.0)
	2	0	0 (–)	0	0 (–)	0	0 (–)
Sample source	0	1	1 (100.0)	0	0 (–)	1	0 (0.0)
	1	20	5 (25.0)	23	4 (17.4)	35	14 (40.0)
	2	3	1 (33.3)	4	2 (50.0)	6	3 (50.0)
Diagnostic criteria	0	0	0 (–)	1	1 (100.0)	1	1 (100.0)
	1	4	0 (0.0)	4	0 (0.0)	13	5 (38.5)
	2	20	7 (35.0)	22	5 (22.7)	28	11 (39.3)
Exclusions	0	1	1 (100.0)	2	2 (100.0)	6	3 (50.0)
	1	7	2 (28.6)	8	1 (12.5)	17	6 (35.3)
	2	16	4 (25.0)	17	3 (17.6)	19	8 (42.1)
Demographics	0	7	2 (28.6)	7	2 (28.6)	17	8 (47.1)
	1	0	0 (–)	1	1 (–)	0	0 (–)
	2	17	5 (29.4)	19	3 (15.8)	25	9 (36.0)
Blinding assessor	Self	18	4 (22.2)	18	3 (16.7)	24	9 (37.5)
	Reg	6	3 (50.0)	9	3 (33.3)	18	8 (44.4)
Compliance	0	11	6 (54.5)	9	3 (33.3)	22	9 (40.9)
	1	0	0 (–)	0	0 (–)	0	0 (–)
	2	13	1 (7.7)	18	3 (16.7)	20	8 (40.0)
Withdrawals	0	2	0 (0.0)	2	1 (50.0)	5	2 (40.0)
	1	10	3 (30.0)	11	1 (9.1)	21	10 (47.6)
	2	12	4 (33.3)	14	4 (28.6)	16	5 (31.3)
Outcome	0	2	0 (0.0)	0	0 (–)	1	0 (0.0)
	1	5	2 (40.0)	6	0 (0.0)	9	4 (44.4)
	2	17	5 (29.4)	21	6 (28.6)	32	13 (40.6)
Comparability	0	2	1 (50.0)	1	0 (0.0)	6	2 (33.3)
	1	2	1 (50.0)	3	1 (33.3)	5	1 (20.0)
	2	20	5 (25.0)	23	5 (21.7)	31	14 (45.2)
Analysis of withdrawals	0	8	5 (62.5)	5	1 (20.0)	16	6 (37.5)
	2	16	2 (12.5)	22	5 (22.7)	26	11 (42.3)
Results	0	4	0 (0.0)	4	2 (50.0)	11	5 (45.5)
	1	17	7 (41.2)	20	4 (20.0)	23	8 (34.8)
	2	3	0 (0.0)	3	0 (0.0)	8	4 (50.0)

(*Continued*)

Table 2 (*Continued*)

Quality measures	Score	Short-term effect		Medium-term effect		Long-term effect	
		Number of tests	Number with effect (%)	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)
Analysis	0	2	0 (0.0)	0	0 (–)	4	0 (0.0)
	1	18	5 (27.8)	22	6 (27.3)	33	14 (42.4)
	2	4	0 (0.0)	5	0 (0.0)	5	3 (60.0)
Conclusions	0	0	0 (–)	0	0 (–)	0	0 (–)
	1	1	0 (–)	1	0 (0.0)	4	1 (25.0)
	2	23	7 (30.4)	26	6 (23.1)	38	16 (42.1)
Interests	0	3	1 (33.3)	5	1 (20.0)	9	4 (44.4)
	2	21	6 (28.6)	22	5 (22.7)	33	13 (39.4)
Quality score	<20	2	1 (50.0)	2	1 (50.0)	8	3 (37.5)
	20–29	7	2 (28.6)	7	1 (14.3)	11	5 (45.5)
	30+	15	4 (26.7)	18	4 (22.2)	23	9 (39.1)

Quality parameters with reference to Moncrieff et al.[17]

absence before entry,[15,23–27,30,37–40,42,44,45,54,57,58,64,65,75,80,89] and risk of sickness absence or losing contact with the labor market.[41,56,60,66,67,79]

Nonparticipation

Nonparticipation was examined in the target population, the eligible group, and at follow-up. A special case of nonparticipation from the target population is incomplete coverage which covers the situation where individuals, who were intended to be reached by the study, were not reached at all, and where it was impossible to decide which individuals were not reached.[94,95]

The registration of nonparticipation from the target population and from the eligible group was restricted to individuals who refused to participate. Nonresponse from individuals who moved out of the area, died, or did not participate for other incapacitating reasons was not registered as nonparticipation.

With regard to nonparticipation at follow-up, some studies had more follow-ups, in which case the nonparticipation rate at the latest follow-up was chosen. The follow-up times varied from 3 to 36 months. The fraction of nonparticipation was registered, as well as the level of differential nonparticipation between the intervention group and the control group, and whether the differential nonparticipation was significant or not, as measured by the Chi-squared test. Some studies stated that there was no significant difference between the fraction of nonparticipation in the intervention group and in the control group. However, this could be due to the small number of participants in each group. For this reason, the 80% power limit for the intervention group was calculated as follows. The fraction of nonparticipation in the control group was kept constant, and, under this assumption, the limit of a hypothetical fraction of nonparticipation in the intervention group was calculated at 80% test power, accepting the null hypothesis that there was no significant difference between nonparticipation in the intervention group and the control group. The power tests were carried out in STATA 10.0 using the command "sampsi onesample".[96] The limits shown indicate the lowest and highest integer percentage of nonparticipation nearest to but below a power of 80% at the 5% significance level. However, in one case, a power of 82% was accepted because the nearest integer nonparticipation rate with a power below 80% was as low as 66%. The study data were entered into a data sheet and analyzed in STATA 10.0[96] and Excel. Comparisons between groups were carried out using the Chi-squared test.

Results

Table 1 shows the 57 identified studies and illustrates the inclusion criteria, quality score, fraction of nonparticipation in the target population, the eligible group, and follow-up along with intervention type, numbers in the intervention and control groups, and effect.

Effect of interventions

Table 3 shows the figures for each intervention according to short-term, medium-term, and long-term effect rates. Overall, 30 interventions were tested for short-term effect, with an effect rate of 23.3%. Stress reduction (50.0%) showed the highest effect rate and organizational intervention (0.0%) the lowest. Physical (25.0%) and educational interventions (22.2%) showed low effect rates.

Medium-term effect

In 31 interventions, the medium-term effect was tested with an overall effect rate of 19.4%. Stress reduction (42.9%) and

Table 3 Effect rates for short-term, medium-term, and long-term effects divided into type of intervention

Intervention	Short-term effect		Medium-term effect		Long-term effect	
	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)
Overall	30	7 (23.3)	31	6 (19.4)	48	19 (39.6)
Organizational	4	0 (0.0)	4	1 (25.0)	8	3 (37.5)
Stress reduction	10	5 (50.0)	7	3 (42.9)	18	9 (50.0)
Feedback	12	5 (41.7)	12	5 (41.7)	22	10 (45.5)
Physical	4	1 (25.0)	2	0 (0.0)	6	3 (50.0)
Therapy	13	4 (30.8)	15	3 (20.0)	14	5 (35.7)
Education	9	2 (22.2)	9	0 (0.0)	12	5 (41.7)
Collaborative care	5	2 (40.0)	6	2 (33.3)	8	6 (75.0)

feedback interventions (41.7%) showed the highest effect rates, whereas physical (0.0%) and educational interventions (0.0%) showed the lowest.

Long-term effect

The long-term effect was tested for 48 interventions, with an overall effect rate of 39.6%. The highest effect rate occurred for collaborative care interventions (75.0%) and the lowest effect rate occurred for therapeutic interventions (35.7%).

Studies without control group

Knekt et al[21] found psychodynamic therapy superior to solution-focused therapy in the long-term effect category. Krogh et al[22] found no differences in sickness absence between strength, aerobic, and relaxation training, nor for short-term, medium-term, or long-term effect. Schene et al[23] found that the addition of occupational therapy to cognitive behavioral therapy significantly reduced sickness absence in the long-term effect category. Stenlund et al[24] compared the effect of cognitive therapy including Qigong (stress reduction) with cognitive therapy alone and found no differences in medium-term and long-term effects. van Rhenen et al[19,20] found no difference between cognitive behavioral therapy compared with physical exercise with regard to short-term and medium-term effect.

Effect related to scientific quality of studies

Table 2 shows the number of studies and quality measures divided by short-term, medium-term, and long-term effect. In the interpretation of this table, it must be borne in mind that the number of tests in several cells is low. With regard to the quality of the studies, most of the studies showed a similar pattern, whether it concerned short-term, medium-term, or long-term effect. The studies showed good quality in the majority of the quality items. The exceptions were sample source, results, and analysis, in which the majority of studies were of medium quality, and for power calculation, blinding of subjects, and blinding of subjects (self-report), the studies were of low quality. With regard to quality score, a large part of the studies had a score of ≥30.

Short-term effect

Two quality parameters, ie, compliance (54.5%, $P = 0.012$) and analysis of withdrawals (62.5%, $P = 0.011$), showed significantly higher effect rates for studies of low quality compared with studies of medium or high quality. Sample size (57.1%) and blinding of subjects (33.3%) also showed relatively high effect rates, but nonsignificantly for studies of low quality. With regard to medium quality, follow-up (50.0%), outcome (40.0%), comparability (50.0%), results (41.2%), and analysis (27.8%) showed the highest effect rates, and for high-quality studies, the highest effect rates occurred for diagnostic criteria (35.0%) and blinding of assessor (50.0%). With regard to the quality score, the studies with the lowest quality (score <20) had the highest effect rate (50.0%).

Medium-term effect

One test, exclusions (100.0%, $P = 0.022$), showed a significantly higher effect rate for low quality than for medium and high quality studies. Power calculation (27.8%), concealment (30.0%), exclusions (100.0%), demographics (28.6%), compliance (33.3%), withdrawals (50.0%), and results (50.0%) also showed relatively high effect rates with regard to low quality, but nonsignificantly. For medium quality, the highest effect rates (nonsignificantly) occurred for allocation (50.0%), comparability (33.3%), and analysis (27.3%). For high quality, the highest success rates (nonsignificantly) occurred for sample source (50.0%), blinding of assessor (33.3%), outcome (28.6%), and conclusions (23.1%). With regard to quality score, studies with the lowest quality (score <20) had the highest effect rate (50.0%).

Long-term effect

There were no significant differences for the long-term effect category. Power calculation (50.0%) and blinding of subjects (42.1%) showed, nonsignificantly, higher effect rates for low quality compared with medium and high quality. For allocation (58.3%) and withdrawals (47.6%), the highest success rates were seen for medium quality and for high quality of sample source (50.0%), analysis (60.0%), and conclusions (42.1%). There were no differences with regard to the quality score.

Effect related to inclusion criteria

Table 4 shows the number of studies and inclusion criteria divided by short-term, medium-term, and long-term effect.

Short-term effect

An inclusion diagnosis of common mental disorders (63.6%, $P = 0.001$) had a significantly higher effect rate than no diagnosis or other inclusion diagnoses. Population (66.7%) plus criteria for psychological distress (41.7%) and sickness absence before entry (41.7%) showed relatively high effect rates, but not significantly so.

Medium-term effect

There were no significant differences for medium-term effect. Population (66.7%), depression (33.3%), no criteria for psychological distress (30.8%), and no criteria for sickness absence/work status (28.6%) showed relatively high but nonsignificant effect rates.

Long-term effect

There were no significant differences. The highest, but nonsignificant, effect rates occurred for primary care (44.4%), occupational health/stress clinic (44.4%), depression (80.0%), no criteria for psychological distress (44.0%), and no criteria for sickness absence/work status (46.2%).

Effect related to nonparticipation

Table 5 shows the number of studies and nonparticipation parameters divided by short-term, medium-term, and long-term effect. It was possible that incomplete coverage occurred in 25 (44%) of the studies, because the size of the target population could not be estimated. The total nonparticipation rate for the target population was more than 30% in 15 (26%) studies. The nonparticipation rate for eligible participants was unknown in eight (14%) of the studies, and the nonparticipation rate was more than 30% in 17 (30%) of the studies. At follow-up, it was possible to estimate the nonparticipation rate in 63 intervention groups, in which the nonparticipation rate was higher than 30% in 14 (22%) studies and in 47 control groups. Of the 47 control groups, the nonparticipation rate was higher than 30% in 10 (21%) studies. Measures for differential nonparticipation at follow-up could be tested in 59 tests. Differential nonparticipation was below 10% in 40 (68%) tests, 10%–20% in 16 (27%) tests, and 20% or higher in three (5%) tests. The hypothetical level of nonparticipation at 80% power limit

Table 4 Effect rates for short-term, medium-term, and long-term effects divided by inclusion criteria

Inclusion criteria	Short-term effect		Medium-term effect		Long-term effect	
	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)
Target population						
Population	3	2 (66.7)	3	2 (66.7)	5	2 (40.0)
Company	5	1 (20.0)	7	2 (28.6)	19	7 (36.8)
Primary care	7	0 (0.0)	8	1 (12.5)	9	4 (44.4)
Occupation health/stress clinic	9	4 (44.4)	9	1 (11.1)	8	4 (44.4)
Inclusion diagnosis						
No diagnosis	7	0 (0.0)	10	2 (20.0)	23	8 (34.8)
Depression	4	0 (0.0)	6	2 (33.3)	5	4 (80.0)
Anxiety	1	0 (0.0)	0	0 (–)	1	1 (100.0)
Somatoform disorder	1	0 (0.0)	1	0 (0.0)	2	0 (0.0)
Common mental disorders	11	7 (63.6)	10	2 (20.0)	11	4 (36.4)
Psychopathological score						
No	12	5 (41.7)	13	4 (30.8)	25	11 (44.0)
Yes	12	2 (16.7)	14	2 (14.3)	17	6 (35.3)
Sickness absence/work status						
No criteria	11	2 (18.2)	14	4 (28.6)	26	12 (46.2)
Plus sickness absence	12	5 (41.7)	11	2 (18.2)	11	3 (27.3)
Risk of sickness absence/return to/retention of work	1	0 (0.0)	2	0 (0.0)	5	2 (40.0)

Table 5 Effect rates for short-term, medium-term, and long-term effects divided by nonparticipation parameters

Intervention	Short-term effect		Medium-term effect		Long-term effect	
	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)	Number of tests	Number with effect (%)
Nonparticipation in target group %						
Missing	10	4 (10.0)	7	0 (0.0)	19	7 (36.8)
<25	8	2 (25.0)	11	3 (27.3)	11	5 (45.5)
25–50	4	1 (25.0)	4	1 (25.0)	5	2 (40.0)
50+	2	0 (0.0)	5	2 (40.0)	7	3 (42.9)
Nonparticipation in eligible group %						
Missing	0	0 (–)	3	2 (66.7)	6	4 (66.7)
<25	12	6 (50.0)	10	2 (20.0)	19	6 (31.6)
25–50	8	0 (0.0)	9	2 (22.2)	13	7 (53.8)
50+	4	1 (25.0)	5	0 (0.0)	4	0 (0.0)
Number in inclusion group						
Missing	1	0 (0.0)	0	0 (–)	1	1 (100.0)
<50	7	4 (57.1)	8	1 (12.5)	9	2 (22.2)
50 < 100	12	2 (16.7)	15	2 (13.3)	16	5 (31.3)
100+	10	2 (20.0)	9	3(33.3)	22	11(50.0)
Follow-up: nonparticipation in inclusion group (%)						
Missing	3	0 (0.0)	3	1 (33.3)	6	2 (33.3)
<10	6	2 (33.3)	7	1 (14.3)	13	5 (38.5)
10–20	10	3 (30.0)	11	2 (18.2)	14	7 (50.0)
20+	11	3 (27.3)	11	1 (9.1)	14	5 (35.7)
Number in control group (%)						
Missing	1	0 (0.0)	1	0 (0.0)	1	1 (100.0)
<50	7	4 (57.1)	5	0 (0.0)	8	2 (25.0)
50–100	9	2 (22.2)	12	1 (8.3)	14	5 (35.7)
100+	8	1 (12.5)	11	5 (45.5)	21	10 (47.6)
Follow-up: nonparticipation in control group (%)						
Missing	3	0 (0.0)	3	1 (33.3)	6	2 (33.3)
<10	4	1 (25.0)	6	1 (16.7)	10	3 (30.0)
10–20	9	2 (22.2)	9	2 (22.2)	17	7 (41.2)
20+	9	4 (44.4)	10	2 (20.0)	11	5 (45.5)
Difference in nonparticipation between inclusion and control group (%)						
Missing	3	0 (0.0)	3	1 (33.3)	6	2 (33.3)
<10	19	6 (31.6)	22	4 (18.2)	29	15 (51.7)
10–20	7	2 (28.6)	5	1 (20.0)	11	2 (18.2)
20+	1	0 (0.0)	2	0 (0.0)	1	0 (0.0)
80% power limits in difference in nonparticipation between inclusion and control group (%)						
Missing	3	0 (0.0)	3	1 (33.3)	6	2 (33.3)
<10	10	1 (10.0)	13	2 (15.4)	21	10 (47.6)
10–20	11	3 (27.3)	11	3 (27.2)	18	7 (38.9)
20+	6	4 (66.7)	5	0 (0.0)	2	0 (0.0)
Significance in differential nonparticipation between intervention and control group (%)						
Missing	3	0 (0.0)	3	1 (33.3)	6	2 (33.3)
Yes	6	1 (16.7)	4	1 (25.0)	8	3 (37.5)
No	21	7 (33.3)	25	4 (16.0)	33	14 (42.4)

was below 10% in 25 (42%) tests, 10%–20% in 26 (44%) tests, and 20% or more in eight (14%) tests. Differential nonparticipation was significant in 10 (17%) tests.

Short-term effect

The highest, nonsignificant, effect rates occurred for nonparticipation in the target population of 0%–50% (25.0%), for nonparticipation in the eligible group of 0%–25% (50.0%), number in inclusion group of 0–50 participants (57.1%), number in control group of 0–50 participants (57.1%), nonparticipation in control group at follow-up 20% or higher of 44.4%, 80% power limit, 20% or more of 66.7%, and no significance in differential nonparticipation (33.3%).

Medium-term effect

For medium effect, the highest, nonsignificant, effect rates occurred for nonparticipation in the target population of 50% or higher (40.0%), missing information regarding nonparticipation in the eligible group of 66.7%, number of participants in the inclusion group of 100 or more (33.3%), number of participants in the control group of 100 or more (45.5%), missing information regarding nonparticipation in control group at follow-up of 33.3%, missing information regarding differential nonparticipation of 33.3%, missing information regarding 80% power limit of 33.3%, and missing information regarding significance in differential nonparticipation of 33.3%.

Long-term effect

For long-term effect, there was a tendency toward smaller differences with regard to differential nonparticipation. However, there were tendencies toward nonsignificant higher effect rates for missing information regarding nonparticipation in the eligible group (66.7%), number of participants in the intervention group – 100 or more (50.0%), non-participation in the intervention group – 10% to 20% (50.0%), and Differential non-participation – 0% to 10% (51.7%).

Discussion

The burden imposed by mental disorders has motivated clinicians, rehabilitation officers, and researchers to identify risk factors for sickness absence and factors affecting people's ability to work. In a review by Beauregard et al,[97] it is stated that several key factors with regard to the psychosocial work environment (eg, decision latitude, psychological demands, social support, and rewards) have been identified with regard to causing deterioration of workers' mental health. Much less attention has been paid to the significance of other pivotal life environments than to the psychosocial work environment. Overall, there was insufficient evidence of any effect on workers' mental health by family or community/society level factors, except that an effect of moderate significance was found for social support at the work level. Other studies have identified other predictors such as those presented in a review by Blank et al,[98] who found that successful return to work was predicted by factors related to work as well as factors related to family history, health risk behaviors, social status, and medical condition. Cornelius et al[99] found strong evidence that older age (>50 years) is associated with longer time taken to return to work. In addition, limited evidence was found for other personal, sociodemographic, and health-related and external work-related factors. It is also well documented that comorbidity is significantly associated with role impairment,[5,100–114] and Franche and Krause[115] have documented that return to work is influenced by the complex concept of motivation.

Several interventions aiming to reduce sickness absence and to improve work status have been the subjects of trials and reviews. The multifactorial reasons mentioned above for long-term sickness absence and restraints for improving work status have been a challenge for reviewers. The plenitude of factors involved imposes an abundance of interventions, differences in target groups, and inclusion criteria. In reviews, specific criteria are applied to these factors, thereby delimiting the number of included studies. In addition, criteria for the scientific quality of the studies reduce the number of studies further. The final result often demonstrates limited evidence.

Some reviews have focused particularly on screening for mental disorders, primarily in primary care and nonspecialist settings.[9,10,12] Gilbody et al[9] found a minimal impact of screening on the detection of mental disorders. Hickie et al[10] concluded that screening increases the detection and diagnosis of depression and, when integrated with a commitment to provide a coordinated, prompt follow-up on diagnosis and treatment, clinical outcomes are improved. Pignone et al[12] concluded that screening combined with feedback to caregivers increased detection of depressive illness, and, furthermore, reduced the risk of persistent depression. Programs which integrated interventions with quality improvements in clinical systems showed a more significant effect than programs consisting of feedback alone. The reviews did not address the effect on sickness absence.

Other reviews have addressed the effects of therapeutic interventions. These reviews showed promising effects for cognitive behavioral therapy and multimodal and collaborative care.[11,13,14,16,116] A meta-analyses by van der Klink et al,[14] in which 48 studies were included, provided significant effect sizes of 0.68 for cognitive behavioral therapy, 0.51 for multimodal programs, and 0.35 for relaxation techniques, whereas the effect size for organization-focused interventions was nonsignificant at 0.08. The effects were mostly noticeable in terms of complaints, psychological measures, and perceived quality of life.

The reviews hardly provide information about sickness absence and return to work/retention of work.[11,13,14,16,116] In the meta-analysis by van der Klink et al,[14] outcome measures for sickness absence or return to work were only provided for seven out of 48 studies. Seven studies did not show any effect on the outcome parameters.

The overall conclusion of this study is that the effect rate was low, about 20% for short-term (up to 6 months) effect and medium-term (6–12 months), and 40% for long-term (12 months and longer) effect. It is promising that the effect rate was higher for long-term effect than for the shorter-term effects. Interventions applying stress reduction were most effective with regard to short-term and medium-term effects, whereas collaborative care was most effective for long-term effect. Organizational, therapeutic, and physical interventions had the lowest short-term effect, where physical and therapeutic interventions had the lowest medium-term effect and therapeutic interventions the lowest long-term effect. With regard to inclusion criteria, the most noticeable result was that inclusion criteria for common mental disorders had a significantly higher short-term effect rate. With regard to quality measures of the studies, the results ought to be analyzed cautiously because many cells in the analysis contained few studies and plenty of comparisons were carried out. Consequently, the results may have occurred by chance. There seems to be a tendency for the highest effect rates to have occurred in studies with the lowest quality for power calculation, compliance, analysis of withdrawals, blinding of subjects, and low quality score. High effect rates were seen for studies of medium quality for allocation, and studies of high quality with regard to blinding of assessor (register-based outcome data), and conclusions. With regard to the nonparticipation parameters, no definite trends could be identified.

Stress reduction was effective in the short-term effect category, which was also seen for no criteria for psychological distress in the inclusion criteria. The two measures were closely related to each other. Furthermore, stress reduction interventions were primarily offered in population samples. The effect on stress reduction is in accordance with a review by Saunders et al[117] documenting the effect of stress inoculation training for individuals with anxiety, and consistent with a review by Martin et al[118] showing the effect of health-promoting and stress-reducing interventions in workplaces. However, the effect sizes were minor.

In accordance with the previously mentioned reviews, collaborative care was the most effective intervention measure with regard to long-term effect.[11,13,14,16,116] However, in contrast with the same reviews, which showed a positive effect for cognitive behavioral therapy, low effect was seen for therapy in this study. An explanation may be that there is a gap between improvement of the psychological distress and return to work. Factors other than mental health may be linked with the return to work process. In this process factors are addressed in the collaborative care interventions but not in the therapeutic therapies. The study indicated that in studies of low scientific quality, higher effect rates were likely with regard to the quality factors of compliance, analysis of withdrawals, and exclusions. Consequently, this study partly supports the study by Moher et al[18] which demonstrated that the overall quality of a study predicted the obtained effect size.

Study limitations

One limitation may be that the literature search was restricted to PubMed (Medline), Embase, and PsycINFO. The inclusion of more databases may have yielded additional studies. However, most of the studies were identified by PubMed. The search criteria in the field of sickness absence are not very specific, which is reflected in the fact that several studies were identified by browsing.

Another limitation is the fact that the studies were only evaluated by the author. Reviews by additional reviewers would have been preferable; however, this was not possible. The fact that the studies were reviewed three times; in the first two reviews, each study with regard to all items, and in the third review, each item transversely, secures the consistency of the evaluation, although not a biased evaluation by the reviewer.

The study involved plenty of comparisons between groups, yielding a few significant results for which reason the results may have evolved by chance. In addition, the many variables may interact with each other, which could have been overcome by multivariate analyses. However, the low number of studies made this impossible, and also made it impossible to compare the effects of combined interventions with those of single interventions.

Conclusion

The overall conclusion is that the effect rate was low, ie, about 20% for short-term (up to 6 months) effect and medium-term (6–12 months) effect, and 40% for long-term (≥12 months) effect. It is promising that long-term effects were the highest. Interventions applying stress reduction were most effective with regard to short-term and medium-term effects, whereas collaborative care was more effective than others for long-term effect. It was remarkable that therapies do not have an effect on sickness absence and return to work, which is in contrast with the effect of psychological and quality of life parameters found in other studies. This indicates a gap between a subjective positive effect on mental health and being active in the labor market, which is a matter for

future studies. There is a need for future large-scale studies of high methodological quality, such as the Danish national return-to-work program.[119] The outcome parameters ought to be standardized, as proposed by Hensing.[120]

Disclosure

The author reports no conflicts of interest in this work.

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