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Review

Psychological treatments of subthreshold depression: a meta-analytic review

Cuijpers P, Smit F, van Straten A. Psychological treatments of subthreshold depression: a meta-analytic review.

Objective: Subthreshold depression has a considerable impact on the quality of life and carries a high risk of developing major depressive disorder. Psychological treatments for subthreshold depression may be able to reduce depressive symptomatology and prevent the onset of major depression.
Method: We conducted a meta-analysis of randomized controlled studies examining the effects of psychological treatments for subthreshold depression. We examined the effects on depressive symptoms and the preventive effects on the incidence of major depression.
Results: Seven high-quality studies with a total of 700 subjects were included. The mean effect size at post-test was 0.42 (95% CI: 0.23–0.60), with very low heterogeneity. The relative risk of developing a major depressive disorder in subjects who received the intervention was 0.70 (95% CI: 0.47–1.03; $P = 0.07$).
Conclusion: Psychological treatments have significant effects on subthreshold depression. Furthermore, these interventions may prevent the onset of major depression.

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Key words: depressive disorder; depression; meta-analysis; psychotherapy; primary prevention

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Summations

- Psychological interventions for patients with subthreshold depression have a significant effect on depressive symptomatology.
- On the longer term, these psychological interventions only have small effects on depressive symptomatology.
- On the longer term, psychological interventions for patients with subthreshold depression may have an effect on the incidence of major depressive disorders.

Considerations

- The number of studies examining the effects of psychological interventions for patients with subthreshold depression is relatively small.
- The studies that have examined these effects used different definitions of subthreshold depression.
- Several other basic elements of included studies differ from each other, such as the target groups, measures, and interventions.

Introduction

It is well established that subthreshold forms of depression are not only highly prevalent (1, 2), but also clinically relevant. Community studies that have used DSM-IV criteria for minor depression show prevalence rates ranging from 5% to 10% (2, 3). When subthreshold depression is defined as scoring above a cut-off score in self-rating depression scales, prevalence rates are much higher (4).

Subthreshold depression has been found to have a considerable impact on the quality of life of

patients (2, 5, 6) and results in increased utilization of medical services (7). It is also associated with an increased mortality rate (8, 9), is associated with huge economic costs (10), and carries a high risk of developing major depressive disorder in both the short term (11) and the long term (12).

Subthreshold depression can be defined from at least three different perspectives. In the first perspective, it is assumed that depressive symptomatology exists on a continuum with no symptoms at one end, major depression at the other, and subthreshold depression in between (3, 13–15). There is indeed considerable empirical evidence indicating that depression may best be conceptualized as a continuum (13, 16, 17), although the possibility of a latent qualitative difference between clinical depression and subclinical depressive symptoms cannot be ruled out (14). In the second perspective, subthreshold depression is considered to be a condition with unique characteristics that distinguish it categorically from other depressive symptoms (18). The definition of minor depression in the DSM-IV and other diagnostic classification systems such as the ICD-10 or the Research Diagnostic Criteria, are examples of this approach. In the third perspective, subthreshold depression is regarded as a part of the prodomal phase of major depression, or are residual symptoms in people who have recently recovered from a major depression. All or nearly all subjects who develop major depression can be assumed to have initially passed through a period (however, brief) of subthreshold depression. Although the first two perspectives are mutually exclusive, the third perspective does not rule out the other perspectives.

From a clinical point of view, subthreshold depression is important for two reasons. First, as subthreshold depression is often an invalidating condition with considerable psychological suffering, treatment is frequently necessary. The goal of this treatment is to reduce depressive symptomatology and to improve quality of life.

The second reason why subthreshold depression is important from a clinical viewpoint, is the increased risk of developing major depression. In an earlier systematic review, we found that the incidence rate of major depression in subjects with subthreshold depression in community studies ranges from 1 to 15 new cases per 100 person years, compared with 0 to 5 in subjects without subthreshold depression (11). In studies among medical patients with subthreshold depression the incidence rates range from 6 to 58 per 100 person years, compared with 0 to 23 in subjects without subthreshold depression (11). Virtually all of the many studies that have examined the incidence rates of major depression in subjects with subthreshold depression compared to those without, confirm that the incidence rate is greatly increased in subthreshold depression. Because of this increased risk of getting major depression, interventions in subthreshold depression are often aimed at preventing the onset of major depression.

It is well established that psychological interventions are effective in the treatment of depressive disorders. In the past three decades, at least 160 controlled and comparative studies and more than 20 meta-analyses have examined the effects of psychological treatments (19) and this research has clearly shown that most psychological treatments studied in a trial have large effects on depression. However, no meta-analysis or systematic review has examined the effects of psychological interventions on subthreshold depression. Therefore, we decided to conduct such a meta-analytic review.

Aims of the study

In this systematic review, we examine the effects of psychological interventions aimed at subjects with subthreshold depression. We focus exclusively on studies in which subjects do have clinically relevant depressive symptoms, but do not meet criteria for major depressive disorder or dysthymia. We will examine whether the interventions used in these studies are capable of reducing depressive symptoms in subjects with subthreshold depression, but we will also investigate whether these interventions result in a reduced incidence of new cases of major depressive disorder. As far as we know, no systematic review in this area has been conducted before now.

Material and methods

Identification and selection of studies

First, we used a large database of studies on the psychological treatment of depression in general. This database was developed through a comprehensive literature search (from 1966 to March 2006) in which we examined 4661 abstracts in Pubmed (1127 abstracts), Psycinfo (1225), Embase (925) and the Cochrane Central Register of Controlled Trials (1384). We identified these abstracts by combining terms indicative of psychological treatment (psychotherapy, psychological treatment, cognitive therapy, behaviour therapy, interpersonal therapy, reminiscence, life review) and depression (both MeSH-terms and textwords). For this database, we also collected the primary studies from 22 meta-analyses of psychological treatment

of depression (19). We retrieved a total of 766 papers for further study. These papers were studied, and we selected the ones which met inclusion criteria (see below).

Second, we conducted additional searches in computerized literature databases in which we combined search terms indicative of subthreshold (subthreshold OR subclinical OR minor OR mild), depression (major depression, depression, depressive), and randomized controlled trial (randomized OR randomised OR clinical OR trial OR experimental). Both key words and text words were used. For these additional searches we examined a total of 1309 abstracts from the Cochrane database (1047), Pubmed (205) and Psychinfo (57). Third, references of reviews of minor depression and other related subjects were examined (20–25). Fourth, the references of retrieved papers were studied.

We included studies in which (1) a psychological intervention (2) was compared to a control condition (3) in subjects with clinically relevant depressive symptoms, (4) but no major depressive disorder or dysthymia, (5) as established with help of a standardized diagnostic interview (such as the DISC, CIDI, or SCAN) to exclude the presence of full-blown mood disorder at pretest. Clinically relevant depressive symptoms are defined as scoring above a cut-off score of a self-rating depression questionnaire; scoring above a cut-off score on a clinician-rated instrument; or meeting criteria for minor depression according to the criteria described in the DSM, ICD, or Research Diagnostic Criteria.

We also included studies in which subjects with a depressive disorder were included, but stratified during randomization and the results specifically reported for subjects with subthreshold depression. No language restrictions or age limits were applied.

Description of included studies

Our literature search resulted in 86 randomized studies in which a psychological intervention was compared to a control condition. Of these 86 trials, seven were aimed at subjects with clinically relevant depressive symptoms, but no major depressive disorder or dysthymia. These seven studies were included in this meta-analysis. Selected characteristics are presented in Table 1 (26–32). The studies examined a total of 700 subjects, with 343 subjects in the experimental conditions, and 357 in the control conditions. The number of subjects per study varied from 24 to 216.

In five of the seven studies, cognitive behaviour therapy was used as a psychological intervention. In all of these studies, an adaptation of the 'Coping with Depression' course was used, which is a psycho-educational intervention in which several mood management techniques are taught to the patient (33), and which has been found to be effective as a treatment for major depression in several studies (34). In the two studies which did not use the 'Coping with Depression' course, problem solving therapy (30), and interpersonal counseling (31) were used. The drop-out from the interventions ranged from 13% to 37%.

Most studies ($n = 6$) used care-as-usual as the control condition. Two studies were aimed at adolescents, three at adults, and two at elderly. The diagnostic instruments used to exclude subjects meeting diagnostic criteria for mood disorders included the CIDI (two studies), the K-SADS (two studies), the MINI, the SCID, and the DIS. In four studies, longer term follow-up measures (12 months post-test) were administered (26–28, 32). In these four studies, the incidence of major depressive was assessed using standardized diagnostic interviews (the K-SADS, or the CIDI; Table 1). All studies were conducted in the United States (four studies) or the Netherlands (three studies).

The quality of all studies was high. All used randomized controlled designs, well-validated measurement instruments, well-described and theoretically well-founded interventions, and adequate statistical analyses.

Analyses

We conducted separate analyses for the effects of the interventions on depressive symptomatology and for the effects on the incidence of major depressive disorder.

Effects on depressive symptomatology.

We calculated effect sizes (d) by subtracting (at post-test) the average score of the control group (M_e) from the average score of the experimental group (M_c) and dividing the result by the pooled standard deviations of the experimental and control group (SD_{ec}). An effect size of 0.5 thus indicates that the mean of the experimental group is half a standard deviation larger than the mean of the control group. Effect sizes of 0.56–1.2 can be assumed to be large, while effect sizes of 0.33–0.55 are moderate, and effect sizes of 0–0.32 are small (35). In the calculations of effect sizes, only those instruments were used that explicitly measure depression (Table 1). If more than one depression measure was used, the mean of the effect sizes was calculated, so that each study (or contrast group) had only one effect size. When means and standard

Table 1. Selected characteristics of studies examining the effects of psychological treatments of subthreshold depression on depressive symptomatology

Study	Target population	Procedure	Definition of sD	EXCL	INSTR	Conditions	*n*	Intervention	FU	DO (%)	Country
Allart (26)	Adults (18–65 years)	Recruitment of subjects through local media	BDI ≥ 10	MDD (CIDI); lifetime BP; agoraphobia	BDI	1. 2. CBT 3. TAU	61 41	12 group sessions CBT (2 h)	Pre, post, 6 months, 1 year	25.0	NL
Clarke et al. (27)	Adolescents (13–18 years)	Recruited through HMO	CESD > 24 or one or more DSM-IV criteria and parent treated for MDD in past year	MDD; dysthymia (K-SADS-E in adolescents & FSADS in parents)	CES-D, HRSD CBCL-D	1. CBT 2. TAU	43 47	15 group sessions CBT (of 1 h)	Pre, post, 1 year, 2 years	NR	US
Clarke et al. (28)	Adolescents (15–16 years)	Screening at school	CESD ≥ 24	MDD; dysthymia; BP (K-SADS)	CES-D, HRSD	1. CBT 2. TAU	55 70	15 group sessions CBT (3/4 h)	Pre, post, 6 months, 1 year	17.3	US
Haringsma et al. (29)	Elderly (55+)	Recruitment of subjects through local media	No inclusion criteria	MDD; BP; schizophr, substance-related disorder (MINI)	CES-D	1. CBT 2. WL	31 36	Coping with depression group course, 10 weekly sessions of 2 h	Pre, post	13.0	NL
Lynch et al. (30)	Adults (18+)	Recruitment through primary care clinics (waiting room)	MOS Depression screening Inventory > cutoff	MDD; dysthymia (DIS)	HRSD, BDI	1. PST 2. TAU	11 13	6 weekly sessions of problem-solving therapy by telephone, 20 min	Pre, Post	36.4	US
Mossey et al. (31)	Medically ill elderly (60+)	Recruitment of subjects who were hospitalized	GDS ≥ 11 at two occasions	MDD; dysthymia, other Axis-I disorder (SCID)	GDS	1. IPC 2. TAU	35 41	Interpersonal counseling; 10 individual one hour sessions with variable time intervals	Pre, Post	20.5	US
Willemse et al. (32)	Adults (18–65 years)	Recruitment through primary care clinics (waiting room)	One DSM-IV MDD core symptom + 1 to 3 other symptoms	MDD, dysthymia, BP, social phobia, agoraphobia, panic disorder (CIDI)	CES-D	1. CBT 2. TAU	107 109	Minimal contact CBT; 1 f-t-f contact + self-help book + 6 short consults by telephone	Pre, 1 year	37.0	NL

sD, subthreshold depression; MDD, major depressive disorder; BP, bipolar disorder; EXCL, exclusion criteria; INSTR, used instruments; DO, drop-out rate; CBT, cognitive behaviour therapy; TAU, treatment as usual; WL, waiting list; PST, problem solving therapy; IPC, interpersonal counseling; FU, follow-up; NL, the Netherlands; US, United States.

deviations were not reported, we used other statistics (t-value, P-value) to calculate effect sizes.

To calculate pooled mean effect sizes, we used the computer program Comprehensive Meta-analysis (version 2.2.021), developed for support in meta-analysis. We conducted all analyses using both the fixed effects model and the random effects model (36). Because the resulting effect sizes were comparable, and heterogeneity was low, we report all results of the fixed effects model. As an indicator of homogeneity, we calculated the Q-statistic. We also calculated the I^2-statistic which is also an indicator of heterogeneity in percentages. A value of 0% indicates no observed heterogeneity, and larger values show increasing heterogeneity, with 25% as low, 50% as moderate, and 75% as high heterogeneity.

Effects on incidence of major depression.

Because the follow-up period of the studies differed considerably, we based the calculation of the incidence rates on person-years. That is, we divided the number of new cases of mental disorder that occurred in the time period (the numerator) by the total amount of person-time units (person-years) of the group at risk (the denominator). Technically, this is known as the person-time incidence rate, or the incidence density rate. The person-time incidence rate is an appropriate measure of incidence when follow-up times are unequal (37). For each study, we calculated the incident rate ratio (IRR) of getting a major depressive disorder in experimental subjects compared to the risk in control subjects.

In the meta-analyses, we first calculated overall relative risks with the DerSimonian and Laird method (38). Again, we conducted all meta-analyses both with the fixed effects model and with the random effects model (36). And again, the resulting relative risks were comparable for the two models. As heterogeneity was low, we report the results of the fixed effects model. For the analyses, we also used the computer program Comprehensive Meta-analysis (version 2.2.021). In addition, we calculated the Q-statistic and the I^2-statistic to estimate heterogeneity between study outcomes.

Publication bias was addressed by inspection of the funnel plot on the primary outcome measures (effects on depressive symptomatology at post-test, and effects on the incidence of major depression), and by Duval and Tweedie's trim and fill procedure, which provides an estimate of the effect size after the publication bias has been taken into account (as implemented in Comprehensive Meta-analysis, version 2.2.021).

Results

Effects on depressive symptomatology

We could compare the effects of the psychological treatments to a control group at post-test in six studies (Table 2). The mean effect size was 0.42 (95% CI: 0.23–0.60), and was exactly the same in the random effects model and the fixed effects model. We have plotted the effect sizes and 95% confidence intervals of the individual contrast groups in Fig. 1. The Q-statistic was 14.7 (df = 5; $P = 0.92$), and the I^2-statistic indicated a heterogeneity of 0%.

Over time the effects became smaller. The effects of psychological treatments at 6-month follow-up could be compared to care-as-usual in two studies. The mean effect size was 0.17 (95% CI: −0.11–0.45), which was not significant, while heterogeneity was moderate ($I^2 = 48.2\%$). At 1-year follow-up, four comparisons were available, resulting in a mean effect size of 0.16 (95% CI: −0.02–0.35). This was not significant at the $P < 0.05$ level, but there was a trend ($P = 0.08$) indicating that psychological treatment resulted in a reduction in depressive symptomatology. Again heterogeneity was very low ($I^2 = 0\%$).

Effects on the incidence of major depressive disorder

We were able to examine the effects of psychological treatments on the incidence of new cases of depressive disorders in four studies. The IRR of developing a major depressive disorder in subjects who received the intervention was 0.70 (95% CI: 0.47–1.03), compared with subjects in the control condition. This was not significant at the $P < 0.05$ level, but there was a trend ($P = 0.07$) indicating that the risk of getting major depression was lower in the intervention condition. Again, the resulting IRR was exactly the same when we used the random effects model and the fixed effects model. We have plotted the IRRs and 95% confidence intervals of the individual contrast groups in

Table 2. Meta-analyses of studies examining the effects of psychological treatments of subthreshold depression on depressive symptomatology, compared with control conditions

	n_{comp}	n	d	95% CI	Q	I^2 (%)
post-test	6	469	0.42**	0.23∼0.60	1.44 n.s.	0
6-month follow-up	2[†]	227	0.17 n.s.	−0.11∼0.45	1.93 n.s.	48.2
1-year follow-up	4[‡]	533	0.16 o	−0.02∼0.35	0.105 n.s.	0

[†]Allart (26); Clarke et al. (28).

[‡]Allart (26); Clarke et al. (27); Clarke et al. (28); Willemse et al. (32).

o: $P < 0.1$; **$P < 0.01$.

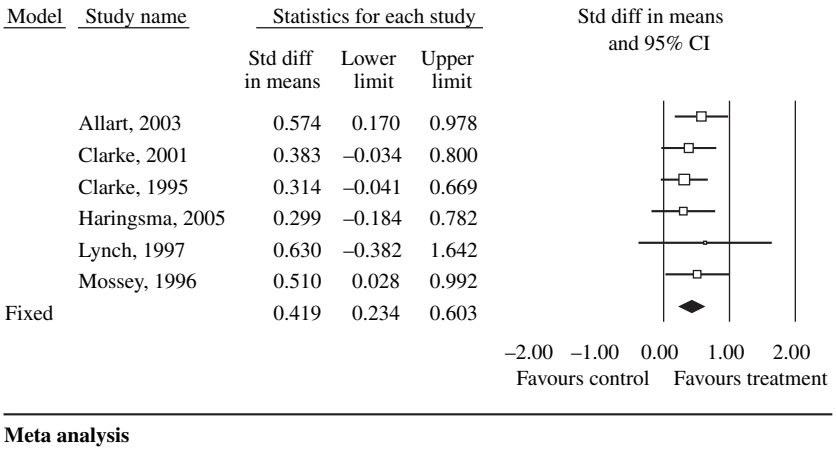

Fig. 1. Results of the post-test meta-analysis of studies examining the effects of psychological treatments for subthreshold depression on depressive symptomatology, compared to control conditions.

Fig. 2. Again, heterogeneity was very low. The Q-statistic was 2.69 (df = 3; $P = 0.44$), and the I^2-statistic indicated a percentage of 0.

Publication bias

The funnel plots nor Duval and Tweedie's trim and fill procedure pointed at a significant publication bias. The effect size indicating the difference in depressive symptomatology between experimental and control conditions did not change significantly after adjustment for possible publication bias (observed $d = 0.42$; 95% CI: 0.23–0.60; adjusted $d = 0.41$ 95% CI: 0.23–0.59; both with the fixed effects model).

The observed IRR indicating the difference in incidence of major depression between experimental and control condition (IRR = 0.70; 95% CI: 0.47–1.03) did not differ significantly from the adjusted IRR (0.62; 95% CI: 0.43–0.88) either.

Discussion

Our review gives clear indications that psychological treatments for subthreshold depression have a significant effect on depression in the short term. The effect size we found ($d = 0.42$) is in the moderate range. However, larger effect sizes cannot be expected in this population, because the level of depressive symptomatology is already relatively low in these subjects compared to subjects with major depression, and therefore the possibilities for improvement are limited.

With regard to the longer term, we did find indications that psychological interventions have some effects. Although the effect size at 1-year follow-up was small ($d = 0.16$), there was a trend indicating superiority of psychological treatment compared with care-as-usual.

Although the effects on depressive symptomatology in the longer term were limited, we did find some signs that psychological interventions in subthreshold depression may reduce the incidence of major depression. We did not find a significant effect, but we did find a trend indicating reduced incidence. In these analyses, we used a two-sided test. Because care-as-usual was used as control condition in these studies, it could be argued that a one-sided test should have been used (32) in which case our results would have been significant. And because the number of included studies is small, we consider this to be a promising result.

Another important finding of this study is that virtually no heterogeneity between studies could be found. Although this finding has to be considered with caution because the number of studies is small, it can be seen as an indication that our results are robust. The psychological treatments in

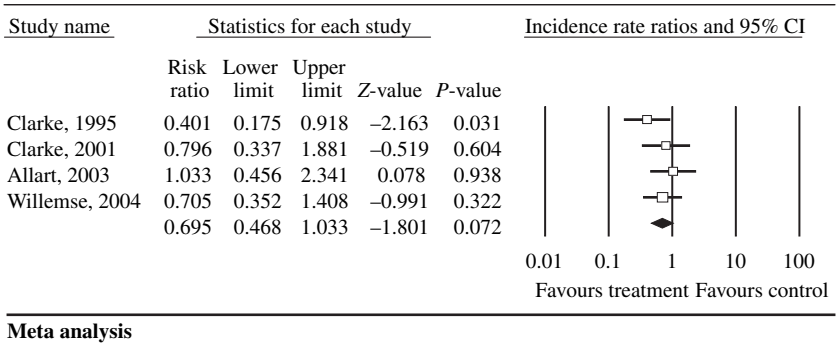

Fig. 2. Incidence rate ratios and 95% confidence intervals of studies examining the effects of psychological treatments of subthreshold depression on the incidence of new cases of major depression.

these studies seem to have comparable effects, and the differences between the studies and the target population do not seem to result in differential effects.

This study has several limitations. First, the number of studies which satisfied all our inclusion criteria, is small. Second, several basic elements of included studies differ from each other, including different target groups, different measures, and different interventions. On the other hand, the low heterogeneity can be seen as an indication that the studies are comparable.

The studies also used different definitions of subthreshold depression. Most of them used a self-rating scale to assess the presence of clinically relevant depressive symptoms. It is not clear what the clinical status is of subjects that score highly on a self-rating scale but do not meet the criteria for a depressive disorder. However, because the subjects were willing to participate in the intervention, it may be assumed that the symptoms were severe enough to motivate participation.

For future research, it is important that clear criteria are developed for subthreshold depressive symptoms which are clinically relevant. Minor depression, as defined in the Appendix of the DSM-IV, is an important step forward in this respect, although not all subjects with clinically relevant depressive symptoms will meet the criteria for minor depression.

The studies also differed in the type of treatment that was used. However, most of them used a brief version of the 'Coping with Depression' course (33). This intervention is attractive for this population, because it is an evidence-based psycho-educational intervention, which can be easily adapted to the needs of specific populations. An earlier meta-analysis of the 'Coping with Depression' course showed that this intervention is an effective psychological treatment for established depressive disorders (34), with effect sizes which are comparable with those of other psychological and pharmacological treatments.

It has been suggested that antidepressant medication should be used to treat subthreshold depression (39). However, the evidence supporting antidepressants as a treatment in this population is limited, and it is questionable whether patients will consider medication to be an acceptable solution (40). Brief psycho-educational interventions based on cognitive behaviour therapy, however, seem to be a more appropriate option for these problems.

This study does not allow to draw any conclusions about the concept of subthreshold depression. However, it is reasonable to conclude that the lower incidence of post-intervention major depressive disorders found is compatible with perspectives that view subthreshold depression as on a continuum from no symptoms to major depression, or as a prodromal or residual phase of major depression with the potential to increase risk of new onset or recurrent episodes.

Despite the limitations of this meta-analysis, we did find clear indications that psychological therapies are effective in the treatment of subthreshold depression. However, more research in this area is clearly needed, as the definitions of subthreshold depression still vary considerably, the target populations have not been defined consistently, and the number of randomized trials examining the interventions is still very limited.

References

1. Horwarth E, Johnson J, Klerman GL, Weissman MM. Depressive symptoms as relative and attributable risk factors for first-onset major depression. Arch Gen Psychiatry 1992;**49**:817–823.
2. Cuijpers P, De Graaf R, Van Dorsselaer S. Minor depression: risk profiles, functional disability, health care use and risk of developing major depression. J Affect Disord 2004;**79**:71–79.
3. Kessler RC, Zhao S, Blazer DG, Swartz M. Prevalence, correlates, and course of minor depression and major depression in the National Comorbidity Survey. J Affect Disord 1997;**45**:19–30.
4. Beekman AT, Copeland JR, Prince MJ. Review of community prevalence of depression in later life. Br J Psychiatry 1999;**174**:307–311.
5. Preisig M, Merikangas KR, Angst J. Clinical significance and comorbidity of subthreshold depression and anxiety in the community. Acta Psychiatr Scand 2001;**104**:96–103.
6. Rapaport MH, Judd LL. Minor depressive disorder and subsyndromal depressive symptoms: functional impairment and response to treatment. J Affect Disord 1998;**48**:227–232.
7. Wagner HR, Burns BJ, Broadhead WE, Yarnall KSH, Sigmon A, Gaynes BN. Minor depression in family practice: functional morbidity, co-morbidity, service utilization and outcomes. Psychol Med 2000;**30**:1377–1390.
8. Cuijpers P, Smit F. Excess mortality in depression: a meta-analysis of community studies. J Affect Disord 2002;**72**:227–236.
9. Cuijpers P, Schoevers RA. Increased mortality in depressive disorders: a review. Curr Psychiatry Rep 2004;**6**:430–437.
10. Cuijpers P, Smit F, Oostenbrink J, De Graaf R, Ten Have M, Beekman A. Economic costs of minor depression: a population-based study. Acta Psychiatr Scand 2007;**115**:229–236.
11. Cuijpers P, Smit F. Subthreshold depression as a risk indicator for major depressive disorder: a systematic review of prospective studies. Acta Psychiatr Scand 2004;**109**:325–331.
12. Fergusson DM, Horwood LJ, Ridder EM, Beautrais AL. Subthreshold depression in adolescence and mental health outcomes in adulthood. Arch Gen Psychiatry 2005;**62**:66–72.
13. Goldberg DP. Plato versus aristotle: categorical and dimensional models for common mental disorders. Compr Psychiatry 2000;**41**(suppl. 1):8–13.

14. Solomon A, Haaga DAF, Arnow BA. Is clinical depression distinct from subthreshold depressive symptoms? A review of the continuity issue in depression research. J Nerv Ment Dis 2001;**189**:498–506.
15. Gotlib IH, Lewinsohn PM, Seeley JR. Symptoms versus a diagnosis of depression: differences in psychosocial functioning. J Consult Clin Psychol 1995;**63**:90–100.
16. Geiselmann B, Bauer M. Subthreshold depression in the elderly: qualitative or quantitative distinction? Compr Psychiatry 2000;**41** (suppl. 1):32–38.
17. Angst J, Sellaro R, Merikangas KR. Depressive spectrum diagnoses. Compr Psychiatry 2000;**41**:39–47.
18. Fechner-Bates S, Coyne JC, Schwenk TL. The relationship of self-reported distress to depressive disorders and other psychopathology. J Consult Clin Psychol 1994;**62**:550–559.
19. Cuijpers P, Dekker J. Psychologische behandeling van depressie: een systematisch overzicht van meta-analyses Nederlands. Tijdschrift voor Geneeskunde 2005;**149**:1892–1897. [Psychological treatment of depression: A systematic review of meta-analysis. Paper in Dutch, published in the Dutch Journal of Medicine].
20. Judd LL, Schettler PJ, Akiskal HS. The prevalence, clinical relevance, and public health significance of subthreshold depressions. Psychiatr Clin North Am 2002;**25**:685–698.
21. Oxman TE, Sengupta A. Treatment of minor depression. Am J Geriatr Psychiatry 2002;**10**:256–264.
22. Ackermann RT, Williams JW Jr . Rational treatment choices for non-major depressions in primary care: an evidence-based review. J Gen Intern Med 2002;**17**:293–301.
23. Banazak DA. Minor depression in primary care. J Am Osteopath Assoc 2000;**100**:783–787.
24. Pincus HA, Davis WW, Mcqueen LE. 'Subthreshold' mental disorders A review and synthesis of studies on minor depression and other 'brand names'. Br J Psychiatry 1999;**174**:288–296.
25. Beck DA, Koenig HG. Minor depression: a review of the literature. Int J Psychiatry Med 1996;**26**:177–209.
26. Allart-Van Dam E. Prevention of depression in subclinically depressed adults: follow-up effects on the "Coping with Depression course". University of Nijmegen, Nijmegen, Doctoral Dissertation, 2003.
27. Clarke GN, Hornbrook M, Lynch F, Polen M, Gale J, Beardslee W et al. A randomized trial of a group cognitive intervention for preventing depression in adolescent offspring of depressed parents. Arch Gen Psychiatry 2001;**58**:1127–1134.
28. Clarke GN, Hawkins W, Murphy M, Sheeber LB, Lewinsohn PM, Seeley JR. Targeted prevention of unipolar depressive disorder in an at-risk sample of high school adolescents: a randomized trial of a group cognitive intervention. J Am Acad Child Adolesc Psychiatry 1995;**34**:312–321.
29. Haringsma R, Engels GI, Cuijpers P, Spinhoven P. Effectiveness of the coping with depression (CWD) course for older adults provided by the community-based mental health care system in the Netherlands: a randomized controlled field trial. Int Psychogeriatr 2006;**18**:307–325.
30. Lynch DJ, Tamburrino MH, Nagel R. Telephone counseling for patients with minor depression: preliminary findings in a family practice setting. J Fam Pract 1997;**44**:293–298.
31. Mossey JM, Knott KA, Higgins M, Talerico K. Effectiveness of a psychosocial intervention, interpersonal counseling, for subdysthymic depression in medically ill elderly. J Gerontol Med Sci 1996;**51A**:M172–M178.
32. Willemse GRWM, Smit F, Cuijpers P, Tiemens BG. Minimal contact psychotherapy for sub-threshold depression in primary care: a randomised trial. Br J Psychiatry 2004;**185**:416–421.
33. Lewinsohn PM, Antonucci DO, Breckenridge JS, Munoz RF. The coping with depression course. Eugene, OR: Castalia, 1984.
34. Cuijpers P. A psycho-educational approach to the treatment of depression; a meta-analysis of Lewinsohn's 'Coping with Depression' course. Behav Ther 1998;**29**:521–533.
35. Lipsey MW, Wilson DB. The efficacy of psychological, educational and behavioral treatment. Am Psychol 1993;**48**:1181–1209.
36. Clarke M, Oxman AD. Cochrane Reviewers' Handbook 40 [updated July 1999] In: Review Manager (RevMan) [Computer program] Version 4.0. Oxford, UK: The Cochrane Collaboration, 1999.
37. Rothman KJ. Causal inference epidemiology resources. Boston: Chestnut Hill, 1988.
38. Dersimonian R, Laird N. Meta-analysis in clinical trials. Control Clin Trials 1986;**7**:177–188.
39. Judd LL, Rapaport MH, Yonkers KA, Rush AJ, Frank E, Thase ME et al. Randomized, placebo-controlled trial of fluoxetine for acute treatment of minor depressive disorder. Am J Psychiatry 2004;**161**:1864–1871.
40. Van Schaik DJF, Klijn AFJ, Van Hout HPJ, Van Marwijk HWJ, Beekman ATF, De Haan M et al. Patients' preferences in the treatment of depressive disorder in primary care. Gen Hosp Psychiatry 2004;**26**:184–189.