Group cognitive behavioural psychotherapy treatment for sub-clinical depression; appraising the evidence

Authors

Dr Murali Krishna (Corresponding author)

Early Career Research Fellow, Wellcome DBT Alliance and Consultant Psychiatrist, CSI Holdsworth Memorial Hospital, Mysore, India.
muralidoc@gmail.com

Steven Jones, Senior Lecturer, Post Graduate Medical Institute, Edge Hill University, Faculty of Health and Social Care, Aintree Hospital, Longmoor Lane, Fazackerly, Liverpool, L97LN, UK.

jones@edgehill.ac.uk

Key Points

- Group CBT for patients with sub-threshold depression has a significant effect on depressive symptomatology at post treatment in both working age and older adult population.
- Group CBT does not appear to reduce the incidence of major depressive disorders.
- Group CBT has minimal or no effect on depressive symptomatology during follow-up.

The article considers group psychotherapy in sub-threshold depression to investigate if group psychological interventions reduce depressive symptoms post treatment, and whether these interventions result in a reduced incidence of new cases of major depressive disorder.

1. Introduction

1.1 A majority of patients with depressive features do not reach the minimum diagnostic criteria for major depression, and are subsequently assessed as having sub-syndromal or sub-threshold depression [1, 2]. For sub-threshold depression, definitions are based on the number of depressive symptoms, duration of symptoms; exclusion criteria and associated functional impairment have been proposed [3]. Judd et al defined the category *sub-syndromal symptomatic depression* as 'any two or more simultaneous symptoms of depression, present for most or all of the time, at least two weeks in duration, associated with evidence of social dysfunction, occurring in individuals who do not meet criteria for diagnoses of major depression and/or dysthymia [4,5]. Sub-threshold depression is common and clinically important [6], as it often

has detrimental effects on health and disability [7], well-being, quality of life, psychosocial functioning [8,9,10] and job performance[11]. There is an association with the increased use of medical services, increased mortality rate [12, 13], and remains an important risk factor for suicide [14, 15]. Because minor depression is more prevalent than depressive disorders [16] the total economic cost of minor depression is comparable to that of major depression [17].

1.2 People with sub-threshold depression are at an increased risk of incident depressive disorders in the short [1, 17] and long term [18, 6]. Patients with subclinical depressive symptoms are frequently treated with antidepressants [19]. However, within inpatient populations with severe depression, the benefit of antidepressants over placebo is substantial [20]. But, the addition of an antidepressant in the management of patients with minor depression is unlikely to improve clinical outcomes [21].

1.3 Individual psychological interventions for patients with sub-threshold depression can have a significant effect on reducing depressive symptoms in adolescents [22, 23], and adults [24, 25, 26, 27, 28, 29]. However, the number of psychotherapists is often limited in comparison to referral numbers, preventing timely delivery of interventions. One possible solution would be to provide group based rather than individual psychotherapy. There is only a small difference in effects (0.20) between individual interventions and group interventions in the treatment of depression [30]. Group interventions are well suited to meet the needs of patients with depressive symptoms, as it is often accompanied by social isolation, physical disability and bereavement [31]. It is estimated that the costs of group therapy are about half of the costs of individual therapy [32]. In addition, the findings from one meta-analysis indicate that the drop-out rate is significantly higher in individual therapy compared to groups, group therapies are at least as acceptable as individual therapies, and that additional advantages conferred by groups may increase treatment adherence [33].

1.4 Psychotherapy studies aimed at preventing the onset of major depression in those with sub-threshold depression have provided mixed results with some studies [22, 23], but not others [27, 24] favouring psychotherapeutic interventions. A meta-analysis of psychological interventions of sub-threshold depression confirms that psychological treatments for sub-threshold depression is effective mainly in the short-term with a modest effect size [17]. This meta-analysis included adolescent studies and does not report combined effects of group psychotherapies.[No meta-analyses or systematic review since 2006 has examined the effect of group psychotherapies in sub-threshold depression in adults[34, 35, 36, 37]. Therefore the authors have conducted and has accepted a full systematic review that pre dates this work (

2 Methods

2.1 Identification and selection of studies

Data sources: The search strategy was designed to access both published and unpublished materials until October 2013. Medline, Embase, PsychInfo, CINAHL, British Nursing Index and Cochrane central register of controlled trials were searched. Major bodies providing evidence and good practice guidelines like NICE, the Society of Psychotherapy Research and the British Association of Psychotherapy were reviewed. Unpublished studies were searched through dissertation abstracts. Citations for additional trials from reference lists and indexing of key papers were checked to locate relevant articles. The previous two years of the British Journal of Psychiatry, the International Journal of Geriatric Psychiatry and the British Journal of Psychotherapy were manually searched. There was no limit on the age of the studies and no language restrictions were applied. Experts in the field were contacted for any ongoing and unpublished trials. The population search terms (both MeSH terms and text words) included 'depression, dysthymia, adjustment disorder, affective disorder, sub-clinical depression, sub-threshold depression, minor depression' and were combined with intervention terms such as 'group therapy, cognitive therapy, behaviour therapy, psychotherapy'.

We defined the following inclusion criteria:

1. All randomised and cluster-randomised controlled trials from all settings.
2. Studies with adults aged 16 years and above.
3. Subjects with clinically relevant depressive symptoms as indicated by elevated depression scores on a standardised depression inventory
4. The severity of depression was measured using standardised depression inventories.
5. No major depressive disorder or dysthymia as established with help of a standardised diagnostic interview to exclude the presence of a mood disorder at the baseline.
6. At least one form of formalised psychotherapeutic treatment in a group setting. A group was defined as having three or more members.
7. The group psychotherapeutic intervention was not being administered in combination with any other psychotherapy, educational, or psychosocial interventions.
8. There was no limit on the length of treatment or the number of group sessions.
9. Physical or other co-morbidity was allowed as long as the subjects fulfilled the criteria for sub threshold depression. This was irrespective of whether the depressive symptoms were primary or secondary to the physical illness.
10. We also included studies in which subjects with depressive disorder were included but stratified during randomisation and the results specifically reported for subjects with sub threshold depression.

We only excluded the following studies:

1. Studies involving patients with mood disorder, significant cognitive impairment including dementia, other primary mental illness, primary diagnosis of alcohol or drug dependence and those experiencing psychotic symptoms.
2. Reviews and studies that were purely qualitative in nature.

3. Trials where group psychotherapy was administered in combination with other therapies, pharmacotherapy, as a part of a multi-component intervention, as a stepped care management or as a part of care management where the effect specific to group psychotherapy was unable to be estimated.

The studies were assessed for their quality using the Cochrane Collaboration for Depression and Anxiety group Quality Rating Scale developed by Moncrieff and colleagues [38], and the parameters for quality assessment set out by COCHRANE [39]. The quality of reporting of the trials was compared against the CONSORT checklist for non-pharmacological studies: CONSORT-NPT[40].

3 Statistical Methods

The primary outcome measure was change in the severity of depressive symptoms. Changes in outcome measures at post treatment and during follow-up were recorded. We used standardised mean difference as the summary statistic in our meta-analysis. This expresses the size of the treatment effect in each trial relative to the variability observed in the trial, enabling us to pool different scales assessing primary outcome. Summary statistics were based on intention to treat data and when missing on available case analysis. All studies were weighted according to their precision, using the inverse variance method. Chi squared tests were applied to assess the heterogeneity of the studies included. We used a random effects model for meta-analyses. According to our study protocol if at least 10 eligible studies were included in the metanalysis, it was planned to evaluate publication bias, sensitivity and subgroup analysis to evaluate the effects of low quality trials and to explore the effect of severity of depression, modality of intervention, therapy and age on pooled effect size. Initially, the intervention groups were compared with waiting list control/treatment as usual groups and then with active control groups. Odds ratios for loss to follow-up and Relative Risks for developing major depressive disorder during the follow up were calculated. The meta-analysis was conducted using RevMan5.1, Review Manager (RevMan) [Computer program]. Version 5.1. Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2011. The metanalysis was carried out to examine the effect size of the intervention from individual studies in comparison to others (by means of the forest plot) and importantly to derive the pooled effect size of the intervention. However only five studies reported this data allowing for a pooled analysis

4 Results:

4.1 Selection of studies

The study extraction and selection process as recommended by the PRISMA statement [41] is shown in figure 1

Figure 1: Flow diagram of randomised controlled trials (RCTS) included and excluded in meta-analysis.

4.2 Quality Assessment

Based on Quality Rating Scale (QRS) assessments the six studies included in the meta-analysis achieved reasonable QRS scores of between 21 and 35, with an overall mean score of 29.5 (SD 5.1) out of a maximum score of 46. The studies were rated independently by two authors (MK and PL) with mean inter-rater reliability of kappa 0.7.

The following parameters as recommended by Higgins and Green 2005 [39] 39 were applied to evaluate the quality of intervention:

1. Standardisation and monitoring: All trials used structured and manualised psychotherapy. In Allart 2003, Haringsma 2006 and Konnert 2009 the therapists were monitored for adherence to treatment manual by listening to a sample audio recorded sessions. In Allart 2003 treatment adherence was verified independently and by a member of the research team in Haringsma 2006 and Konnert 2009. In addition all therapists received regular supervision in Allart 2003, Konnert 2009 and Haringsma 2006. The study by Allart 2003 involved regular supervision of the therapists but no formal methods of monitoring or verification. Chesney 2003, Spek 2007 and Spek 2008 made no attempt to check the standardisation of the intervention.

2. Randomisation and allocation of concealment: In all studies there was evidence of randomisation but no evidence of blinding of assessors. Randomisation and allocation of sequence was done independently in Spek 2007 and Spek 2008. Only Spek 2008 reported how concealment of allocation was achieved. Randomisation sequence generation was adequately reported in only two trials (Allart 2003 and Haringsma 2006). Only Haringsma 2006 and Spek 2008 reported on the implementation of randomisation, sequence generation and assignment of participants to their groups.

3. Characteristics of therapists: Trained psychologist and social workers administered group interventions in Chesney 2003, Spek 2008 and Spek 2007. Psychologists and student psychologist administered intervention in Allart 2003. Professional background of therapists was unclear in Haringsma 2006 and Konnert 2009. In both these studies it was reported that health care professionals and research assistants delivered group therapies. None of the studies state explicitly if the therapists were comparable.

4.3 Quality of reporting of psychotherapy trials

Of the 27 recommended items to report on CONSORT: NPT the included studies reported between 18 and 20 items. The mean number of items reported was 18.8 (0.7), which is indicative of sub-optimal reporting. The major shortcoming on reporting items was in the methods section of the CONSORT-NPT. All the studies failed to report at least 6 of the 13 essential

methodological items.

4.4 Study characteristics

All trials were randomized controlled trials with parallel design. All studies evaluated the effect of group therapies with practice principles of cognitive behavioral therapy. Selected characteristics are presented in table 1.

Control groups were either waiting list subjects [28,36,42], treatment as usual [35,24] or controls, receiving any other form of active intervention [37,42,36]. Participants in three studies were older adults [28,37,35]. All participants in Chesney 2003 [42] were men. Participants in Konnert 2009 [35] were elderly nursing home residents who were screened for depression. Otherwise, participants in the studies were community dwellers who volunteered to participate in the study by responding to advertising and media announcements. Cut-off score on a recognised standardised depression inventory was used to identify participants with sub-threshold depression. All studies used a standardised diagnostic instrument to exclude subjects meeting diagnostic criteria for a mood disorders.

5.0. Effects on depressive symptomatology

a. Group psychotherapy versus waiting list/treatment as usual control

Five trials compared experimental intervention i.e. group psychotherapies with waiting list or treatment as usual [25,28, 35,36,42]. Figure 2 shows the results of five trials using different outcome measures that compare intervention versus waiting list controls. There were a total of 257 subjects in the treatment groups, 238 in the control groups. There was a statistically significant difference in favour of the intervention (MD = -3.48, 95%CI: -5.02,-1.93 $z = 4.41$, $p < 0.0001$). Even though the pooled estimate favours the experimental intervention this advantage was predominantly derived from two studies (Spek 2007, Allart 2003). Comparators from the remaining three studies (Chesney 2003, Haringsma 2006 and Konnert 2009) cross the line of no effect. Therefore, the result has to be viewed with caution especially as the total number of studies included in this meta-analysis is relatively small.

b. Group psychotherapy versus other therapeutic interventions (active controls)

Three trials generated data on depression scores between group psychotherapeutic intervention and other forms of therapeutic controls [36,37,42]. Figure 3 shows all combinations of group therapies and active control treatments. There were a total of 208 subjects in the treatment groups and 213 in the active control groups. The active control group in studies done by and colleagues [36,37] was computerised cognitive behavioural therapy; in Chesney 2003 [42] it was group education. There were no significant

differences between the groups in individual and combined measures. (MD = 0.37 95%CI: -1.29-2.04 $z = 0.44$, $p = 0.66$).

6.0 Effect of group psychotherapy on depression at follow up

1. Group psychotherapy versus waiting list controls at Six months follow up.

Two trials [25,35] compared intervention and waiting list controls at six months follow-up with the Geriatric Depression Scale (GDS) and the Becks Depressive Inventory (BDI), respectively. There were two comparisons between group intervention and treatment as usual/waiting list. There were a total of 77 subjects in the group interventions and 58 in the control groups. There were no significant difference between the groups in individual and combined measures (MD=1.54, 95%CI: -1.36-4.45, $z=1.04$, $p=0.30$). Confidence interval of both comparisons crossed the line of no effect.

2. Group psychotherapy versus waiting list controls at 12 months follow up

Two trials [25,37] compared intervention against waiting list controls at 12 months follow-up on Centre for epidemiological studies depression scale (CESD) and Becks Depressive Inventory (BDI) measures respectively. There were two comparisons between group intervention and waiting list/treatment as usual groups. There were a total of 125 in the group intervention and 103 in the control group for this comparison. There is an overall significant effect in favour of the control (MD =2.79, 95%CI: 0.56-5.02, $z =2.45$, $p=0.01$). However, most of this effect comes from just one study [37], and both the comparisons crossed the line of no effect.

7.0. Effects of group intervention on incidence of major depression.

Three trials [25,35,37] reported the proportion of cases that developed depression during follow up in both experimental and control conditions. (Figure 4). There were no overall significant differences between groups (RR=1.15, 95%CI: 0.85, 1.54 $z =0.90$, $p=0.37$) or statistical heterogeneity (chi squared = 0.66 $p=0.72$).

8.0. Additional analyses

After excluding the studies that failed to report intention-to-treat analysis, a significant pooled mean difference favouring experimental intervention against waiting list controls of MD= 4.59 95% (CI:-6.74—2.4 $z=4.18$ $p<0.0001$) was found. After excluding studies that had drop-out rates of twenty percent or more, experimental interventions were compared with active controls. The pooled mean difference was no longer significant (MD =0.003 95%CI=-2.28,2.34 $z=0.03$ $p=0.98$). There was no evidence of statistical heterogeneity in either analysis. From studies that included older adult participants (50yrs and above) only, a significant pooled mean difference favouring the experimental intervention against waiting list control was found, albeit with an increase in statistical heterogeneity (MD=-3.40 95%CI= -5.43,-1.37 $z=3.29$ $P=0.001$). Interested readers can refer to the supplementary data provided.

Overall, there were no significant important differences in drop-out rates when group interventions were compared with treatment as usual in any of the individual studies. However there were fewer drop-outs in the group intervention as opposed to computerised cognitive behavioural therapy group. The difference was statistically significant (OR 13.61, $p < 0.001$).

9.0 Discussion

This systematic review gives a clear indication that group cognitive behavioural treatment for sub-threshold depression has an effect on depressive symptoms at post-treatment in comparison to waiting list controls. The group psychotherapeutic intervention provided similar benefit to both working age and older adult participants with sub-clinical depression. The reported benefits of group intervention in comparison to other active interventions did not reach statistical significance. Group psychotherapy was no better than computerised cognitive behavioural therapy or group education in reducing depressive symptoms at post-treatment. Though the meta-analyses confirm that group psychotherapy is an effective intervention in adults with sub-threshold depression in comparison to waiting list controls, the overall effect size is at best modest. However, larger effect sizes are difficult to achieve in this population, because the level of depressive symptomatology is relatively low at baseline compared to subjects with major depression. The possibilities for improvement are therefore limited due to the *ceiling effect*. Such an effect has been observed in antidepressant trials in those with less severe depressive symptoms.[43,44,20,45]. Importantly, the observed superiority of group psychotherapy over waiting list control at post treatment was not maintained during follow-up.

There is insufficient evidence from both, meta-analyses and individual studies to support the use of group psychotherapies in sub-clinical depression to prevent the emergence of major depression. There were no significant differences between experimental intervention and controls in relation to the relative risk of incident depression during the follow-up period. This finding is not dissimilar to the findings by Cuijpers et al 2007 [17] in their meta-analysis of psychological treatments in sub-clinical depression. They observed a trend favouring psychological intervention and report a non-significant relative risk of 0.70 (95% CI 0.47-1.03) for developing a major depressive disorder in those subjects who received the intervention.

The majority of the evidence favouring the effectiveness of group psychotherapies comes from the Netherlands using the practice principles of Coping with Depression (CWD) Therapy [46]. The question is whether this particular way of applying group therapy is generally superior to other forms of group psychotherapy, or whether there is a bias in the reporting of the data from the Netherlands that explains these differences. More studies are needed to clarify this important point. None of the studies so far have carried out component analyses, which would have helped delineate the active components in group therapy for sub-threshold depression. For therapists it is

of practical importance to learn what components of the therapy are for symptom reduction and what promotes prophylaxis for the onset of major depression. This may also help to explain the difference we found between Dutch and other studies.

The attrition rate in this review is similar to those reported in previous reviews of group psychotherapies [47,48,49]. Overall, there were no significant differences in drop-outs between group interventions at post treatment and during follow-up when compared to waiting list or treatment controls. Another important observation is that group treatment had fewer drop-outs when compared to any other active treatment comparator. This is an encouraging finding and an indication that group therapies are an acceptable intervention for those with sub-clinical depression. However, the lower drop-out rate may also have other reasons: the majority of the study participants were volunteers recruited by media advertisements that preferred and were willing to receive psychological interventions for their depressive symptoms.

Trials that included older adults failed to report adequately how therapy or the control intervention was delivered or modified to suit the needs of this population. This is of clinical relevance particularly for the older adults who are at increased risk sensory impairment, bereavement, disability and physical ill health [50] necessitating certain modification in the model and delivery of interventions [51,52]. Furthermore, the study population was a non-clinical sample of community dwellers who volunteered to participate. In other words, the participants were not chosen from an identified group of ill patients. They received intervention in the community, either at their own residence or in outpatient clinics. Setting of group interventions is related to treatment, with greater gains found in those who are treated outside hospitals [47]. The Dutch studies had larger sample size and were better in design and delivery of the intervention compared to non-Dutch studies. This may partly explain the positive results for group treatment that are found in Netherlands. The severity of depression symptoms across the studies is similar, as they all had subsyndromal depression. Hence, it is unlikely that the observed differences in effect size can be explained by the ceiling effect.

The studies involving patients concurrently taking antidepressant therapy fail to measure the effect of antidepressants on the outcomes [53]. Hence, it is not possible from this review to comment on the relative efficacy of group therapies to antidepressant medication or combined interventions in those with sub-clinical depression.

Both self report measures and clinician rated instruments for depression were used to report outcomes in this study. In a recent meta-analysis [54], clinician rated instruments resulted in a significant higher effect size than self report instruments from the same studies with a differential effect size of 0.20 (0.1-0.3). A similar trend was reported in a previous systematic review of group psychotherapy in geriatric depression by our research group [49]. A recent meta-analytic comparison of continuous and dichotomous outcomes in studies of psychotherapy for depression has shown that effect sizes are somewhat smaller when continuous outcomes are compared with dichotomous

outcomes [55]. Therefore, there is a need for more research to investigate the effect of different outcome measures on effect sizes in sub-clinical depression, as the baseline scores in this population are relatively small and the expected level of change from intervention is minimal.

Little is reported about the characteristics, expertise and effect of the therapists on the outcomes. This reduces the relevance and generalizability of the research findings in clinical practice. The overall modest result may be attributed to the non-specific curative factors observed in group setting [56,57] or due to structural inequalities between the experimental and control groups [58]. None of the studies included have reviewed these factors from an empirical standpoint. However, we were able to confirm a modest effect size of group therapy versus waiting list controls, indicating that it is at least marginally better than doing nothing.

Group psychotherapy theoretically allows treatment to be offered to a far greater number of individuals than is currently possible and offers considerable savings in terms of therapist time. However, this is offset by the at best modest effect size of group therapy that we found compared with waiting list controls and no advantage over other active treatment controls. Though treatment of the patients in groups costs less than individual therapy in the short term [32], there is simply no data at this point on long term cost effectiveness of group psychotherapy. From a treatment cost effectiveness perspective the drive to increase utilization of group therapy is thus premature in the absence of evidence showing the therapeutic equivalence of group and individual psychotherapies.

10.0 Strengths of the study

The search strategy was comprehensive and designed to identify both published and unpublished materials with no restriction on language or age of the study. Both methodological quality and quality of reporting of the trials has been examined systematically in a scientific manner. Two authors independently verified the accuracy of the data extracted and rated the methodological quality to the trials. We used validated quality measurements to rate the quality of the included studies.

Most of the studies included in the meta-analyses were small and insufficiently powered. Studies with small sample size tend to overestimate the effect size when compared to large and well-powered trials [59]. Though there were variations in study participants, study design and interventions, there was no evidence of statistical heterogeneity. Therefore, the studies included in the meta-analyses can be seen as fairly homogenous, adding to the strength of this review.

11.0 Limitations

The relatively small number of eligible studies, diversity of the target populations and care received by control groups are major limitations of this

study. The bulk of the study population comes from Netherlands. The very elderly, those with co-morbid psychiatric symptoms, those expressing suicidal thoughts or with primary substance misuse problems were typically excluded from these trials. The small number of eligible studies for a meta-analysis may reduce the generalisability of our findings beyond similar populations despite low heterogeneity.

All studies included in this review compared group CBT with waiting list controls or another active comparators like group education or computerised cognitive behavioural therapy. None of the trials evaluated the benefit of group psychotherapy against individual therapy. There were no trials comparing the benefits of psychotherapy in formal groups with other effective interventions for depression like guided self-help groups [60] and bibliotherapy [61]. None of the trials included pharmacotherapy as a parallel control.

The quality rating scores indicative of methodological quality of the six studies included in the meta-analysis was less than desirable. Major shortcoming on reporting items was in the methods section of the CONSORT-NPT. Whilst some of these items are more difficult to achieve in psychotherapy research [62] because of the difficulties with blinding participants and therapists, others could be improved in future studies to increase the overall quality of such research.

12.0 Clinical implications

Sub-clinical depression is not recognised as a diagnostic entity in any of the current clinical and diagnostic classifications. There is a risk that in the absence of accurate medical coding provision such patients may be wrongly classified [63]. Our meta-analysis clearly indicates that the group interventions produce statistically significant reductions in depressive symptoms post treatment. The clinical relevance of such a reduction in depressive inventories is, however, as yet unclear [64].

There is extensive use of antidepressants for emotional complaints in the absence of a diagnosis of major depression [65]. It is unlikely that those with sub-clinical depression will be deemed eligible or a priority for psychological therapies. The evidence from this study and from previous meta-analysis [17] indicates that psychological treatments for sub-syndromal depression have a significant effect on depressive symptoms, at least in the short term. The results from a recent systematic review in this journal by Barbui and colleagues suggest antidepressants should not be considered for initial treatment of individuals with sub-clinical depression [45]. Shifting from drugs to psychological interventions would require investment in human resources, training and supervision, as well as additional time for health care providers to deliver the interventions. Even in systems with few resources a shift away from drug to psychological interventions may be more cost effective [66]. However, caution is needed in light of the lack of evidence for group psychotherapy with regard to long term outcomes. Unless future research shows a long term benefit of group psychotherapy, one needs to question the

utility of any treatment (psychological or pharmacological) that merely provides modest short term benefits.

13.0 Implications for future research

More research in this area is clearly needed, as the definitions of sub-threshold depression still vary considerably. Minor depression, as defined in the appendix of The Diagnostic and Statistical Manual of Mental Disorders (DSM IV) is an important step forward in this respect [67], although not all subjects with clinically relevant depressive symptoms will meet the criteria for minor depression [5]. None of the studies in the meta-analysis evaluated the curative factors that groups offer above individual therapy from an empirical standpoint. Component analysis and dismantling studies offer the opportunity to tease apart active from inert aspects of group therapy. Cost effectiveness measures need to be included in future depression prevention trials in those with sub-threshold depression. Replications of successful randomised trials need to be carried out by teams other than those who carried out the original trials to avoid bias. Depression prevention trials should include individuals across large geographical areas including participants from more than one country.

List of Abbreviations used

CBT= Cognitive Behavioural Therapy

cCBT= Computerised Cognitive Behavioural Therapy

Competing Interests

None of the authors have any competing interests to declare

Author contribution

MK: conception, design, data extraction and drafting the article.

SL: analysis and interpretation of data.

PL: design, quality rating and helped in drafting the article and revising it critically for important intellectual content.

Acknowledgements.

We sincerely thank Nia Morris, Librarian at John Spalding Library for her support in help in retrieving the articles as necessary for this study. We also thank Nicola Sparks, Medical Secretary, BCUHB for administrative support during the study.

References

1. 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.
2. Anonymous; **Mild depression in general practice; time for rethink?** *Drug Ther Bull* 2003;**41**:60-64.
3. 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**:288-96.
5. Ayuso-Mateos JL, Nuevo R, Verdes E, Naidoo N, Chatterji S: **From depressive symptoms to depressive disorders: the relevance of thresholds.** *Br J Psychiatry*. 2010; 196(**5**):365-71.
4. Judd LL, Rapaport MH, Paulus MP, Brown JL: **Subsyndromal symptomatic depression: a new mood disorder?** *J Clin Psychiatry* 1994; **55** : 18–28.
6. Lyness JM, Kim J, Tang W, Tu X, Conwell Y, King DA, Caine ED: **The clinical significance of subsyndromal depression in older primary care patients.** *Am J Geriatr Psychiatry*. 2007 ;**15**(3):214-23.
7. Wagner Hr, Burns BJ, Broadhead WE, Yarnall KSH: **Minor depression in family practice :functional morbidity, co morbidity, service utilisation, and outcomes.** *Psychol Med*. 2000;**30**; 1377-1390.
8. Rapaport MH, Judd LL: **Minor depressive disorder and subsyndromal depressive symptoms: functional impairment and response to treatment.** *J Affect Disorder* 1998;**48**:227-232.
9. 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**(1-3):71-9.
10. Preisig M, Merikangas KR. **Clinical significance and comorbidity of subthreshold depression and anxiety in the community.** *Acta Psychiatr Scand*. 2001; **104**: 96–103.
11. Martin JK , Blum TC, Beach SR, Roman PM :**Subclinical depression and performance at work.** *Soc Psychiatry Psychiatr Epidemiol*. 1996; **31**(1):3-9.
12. Cuijpers P, Smit F: **Excess mortality in depression: a Meta analysis of community studies.** *J Affect Disorder* 2002; **72**:227-236.
13. Cuijpers P, Schoevers RA. **Increased mortality in depressive disorders**

: a review *Curr Pscyhsiatry Rep.*2004;**6**:430-437.

14 Draper, B. **Attempted suicide in old age.** *International Journal of Geriatric Psychiatry* 1996, 11, 577–588.

15. Rubinowitz W, Runeson BI: **Burden of illness and suicide in elderly people: case-control study.** *British Medical Journal* 2002;**324**:1355–1357.

16. Rucci P, Gherardi S, Tansella M, Piccinelli M, Berardi D, Bisoffi G, Corsino MA, Pini S. **Subthreshold psychiatric disorders in primary care: prevalence and associated characteristics.** *J Affect Disord.* 2003 ;**76**(1-3):171-81

17. Cuijpers P, Smit F, Van Straten A: **Psychological treatments of subthreshold depression: a meta-analytic review.** *Acta Psychiatr Scan* 2007;**115**:434-441.

18. Fergusson DM, Horwood LJ, Ridder EM, Beautrais AL: **Subthreshold depression in adolescence and mental health outcomes in adulthood.** *Arch Gen Psychiatry.* 2005; ;**62**(1):66-72.

19. Esposito E, Wang JL, Adair CE, Williams JV, Dobson K, Schopflocher D, Mitton C, Newman S, Beck C, Barbui C, Patten SB: **Frequency and adequacy of depression treatment in a Canadian population sample.** *Can J Psychiatry.* 2007;**52**(12):780-9

20. Fournier JC, DeRubeis RJ, Hollon SD, Dimidjian S, Amsterdam JD, Shelton RC, Fawcett J. **Antidepressant drug effects and depression severity: a patient-level meta-analysis.** *JAMA.* 2010; **303**(1):47-53.

21. Hermens ML, van Hout HP, Terluin B, Adèr HJ, Penninx BW, van Marwijk HW, Bosmans JE, van Dyck R, de Haan M. **Clinical effectiveness of usual care with or without antidepressant medication for primary care patients with minor or mild-major depression: a randomized equivalence trial.** *BMC Med.* 2007; **7**:5-36.

22. Clarke GN, Hawkins W, Murphy M, Sheber LB, Lewinshon Pm, Seeley JR. **Targeted prevention of unipolar depressive disorder in an at risk sample of high school adolescents: a randomised trial of group cognitive intervention.** *J Am Acad Child Adolesc Psychaitr.y* 1995;**34**:312-321.

23. Clarke GN, Hornbrook M , Lynch F, Polen M , Gale J, Beardslee . **A randomised trial of group cognitive intervention for preventing depression adolescent offspring of depressed parents.** *Arch Gen Psychiatry.* 2001;**58**:1127-1134.

24. Allart-van Dam E, Hosman CMH, Hoogduin CAL, Schaap CPDR: **The Coping with Depression course: Short-term outcomes and mediating**

effects of a randomized controlled trial in the treatment of subclinical depression. *Behav Thera* .2003;**34**:381-96.

25. Allart-van Dam E, Hosman CM, Hoogduin CA, Schaap CP. **Prevention of depression in sub clinically depressed adults: follow-up effects on the 'Coping with Depression' course.** *Journal of Affective Disorders*.2007; 97:219-28.

26. Lynch DJ, Tamburrino MH, Nagel R. **Telephone counselling for patients with minor depression: preliminary findings in a family practice setting.** *J Fam Pract* 1997;**44**:293-298.

27. Willemese GRWM, Smit F, Cuijpers P, Tiemens BG. **Minimal contact psychotherapy for subthreshold depression in primary care: a randomised trial.** *Br J Psychiatry*. 2004;**185**:416-421.

28. Haringsma R, Engels GI . **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.** *International Psychogeriatrics* 2006a;**18**(2):307-25

Haringsma R, Engels GI, van der Leeden R, Spinhoven P. Predictors of response to the 'Coping with Depression' course for older adults. A field study. *Aging Ment Health*. 2006b ;10(4):424-34.

29. Mossey JM, Knott KA, Higgins M, Talerico K. **Effectiveness of a psychosocial intervention, interpersonal counseling, for subdysthymic depression in medically ill elderly.** *The journals of gerontology Series A, Biological sciences and medical sciences*, 1996;**51**: M172-8.

30. Cuijpers P, van Straten A, Warmerdam L. **Behavioral activation treatments of depression: a meta-analysis.** *Clin Psychol Rev*. 2007 ;**27**(3):318-26.

31. Haight B, Gibson F (Ed). 2005. **Group Psychotherapy.** In: **Burnside's working with older adults: group process and technique.** Chapter 18, *4th edition*, page 234. Boston, Massachusetts: Jones and Bartlett Publishers. ISBN: 076374770X

32. Vos T, Corry J, Haby MM, Carter R , Andrews G. **Cost effectiveness of CBT and drug interventions for major depression** *Aust Nw Zeal J Psychiatry*. 2005;**39**:683-692.

33. Cuijpers P, van Straten A, Warmerdam L , **Are individual and group treatments equally effective in the treatment of depression in adults? A meta analysis.** *Eur J Psychiatry*. 2007 ; **22**(1); 38-51.

34. MacPherson L. Tull MT. Matusiewicz AK. Rodman S. Strong DR. Kahler CW. Hopko DR. Zvolensky MJ. Brown RA. Lejuez CW.

Randomized controlled trial of behavioral activation smoking cessation treatment for smokers with elevated depressive symptoms.*Journal of Consulting & Clinical Psychology*. 2010; **78(1)**:55-61.

35. Konnert C. Dobson K. Stelmach L. **The prevention of depression in nursing home residents: a randomized clinical trial of cognitive-behavioral therapy.** *Aging & Mental Health*. 2009; **13(2)**:288-99.

36. Spek V., Nyklicek I., Smits N., Cuijpers P., Riper H., Keyzer J., Pop V. **Internet-based cognitive behavioural therapy for subthreshold depression in people over 50 years old: A randomized controlled clinical trial.** *Psychological Medicine* .2007; **37:12** :179 7-1806.

37. Spek V. Nyklicek I. Cuijpers P. Pop V. **Predictors of outcome of group and internet-based cognitive behavior therapy.** *Journal of Affective Disorders*. 2008; **105(1-3)**:137-45.

38. Moncrieff J, Churchill R, Drummon C, McGuire H: **Development of a quality assessment instrument for trials of treatments for depression and neurosis.** *Int J Methods Psychiatr Res* 2001, **10**:126-133

39. Higgins JPT, Green S. 2005. **Cochrane Reviewers' Handbook 4.2.5. Assessment of study quality.** In: The Cochrane Library. Vol 3. John Wiley and Sons Ltd., Chichester

40. Schulz KF, Altman DG, Moher D, for the CONSORT Group. **CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials.** *Ann Int Med* 2010;152.

41. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). **Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement.** *PLoS Med*. **6(6)**: e1000097.

42. Chesney MA, Chambers DB, Taylor JM, Johnson LM, Folkman S. **Coping effectiveness training for men living with HIV: results from a randomized clinical trial testing a group-based intervention.** *Psychosom Med*. 2003 ;**65(6)**:1038-46.

43. Khan A, Leventhal RM, Khan SR, WA. **Severity of depression and response to antidepressants and placebo: an analysis of the Food and Drug Administration database.** *J Clin Psychopharmacol*. 2002 ;**22(1)**:40-5.

44. Khan A, Schwartz K, Kolts RL, Ridgway D, Lineberry C. **Relationship between depression severity entry criteria and antidepressant clinical trial outcomes.** *Biol Psychiatry*. 2007.**62(1)**:65-71.

45. Barbui C, Cipriani A, Patel V, Jose L . **Efficacy of antidepressants and benzodiazepenes in minor depression. Systematic review and meta-analysis.** 2011; *Br J Psychiatry*. 2011;**198**:11-16.

46. Lewinsohn PM, Antonuccio DO, Steinmetz-Breckenridge JL, Teri, L. (1984). **The Coping with Depression course: A psycho educational intervention for unipolar depression.** Eugene, OR: Castalia Publishing.
47. Burlingame, G. M., Fuhrman, A., & Mosier, J. **The differential effectiveness of group psychotherapy: A meta-analytic perspective.** *GroupDynamics: Theory, Research, and Practice*, 2003. **7**, 3-12.
48. McDermut W, Miller IW, Brown RA. **The efficacy of group psychotherapy for depression: a meta-analysis and review of the empirical research.** *Clinical Psychology: Science and Practice* 2001; **8**: 98–116.
49. Krishna M, Jauhari A, Lepping P, Turner J, Crossley D, Krishnamoorthy A. **Is group psychotherapy effective in older adults with depression? A systematic review.** *International Journal of Geriatric Psychiatry*. 2011; **26**: 331–340
50. Choi NG, Wyllie RJ, Ransom S. **Risk factors and intervention programs for depression in nursing home residents: nursing home staff interview findings.** *J Gerontol Soc Work*. 2009; **52(7)**:668-85.
51. Laidlaw, K., & Baikie, E. **Psychotherapy and demographic change: Why psychotherapists working with older adults need to be aware of changing demographics now.** *Nordic Psychology*.2007. **59(1)**:45-58.
52. Laidlaw, K. & Pachana, N.A. **Demographics in older adults.** *Professional Psychology: Research and Practice*.2009; **40(6)**: 601-608.
53. Sotsky S, DR. Glass, Shea MT, Pilkonis PA, Collins F, Elkin I, John T. Watkins, Stanley D. Imber, William R. Leber, J Moyer, and M E Oliveri. **Patient Predictors of Response to Psychotherapy and Pharmacotherapy: Findings in the NIMH Treatment of Depression Collaborative Research Program** *Focus*.2006; **4**: 278 - 290.
54. Cuijpers P, Li J, Hofmann SG, Andersson G .**Self-reported versus clinician-rated symptoms of depression as outcome measures in psychotherapy research on depression: A meta-analysis.** *Clinical Psychology Review*, 2010b;**30**:768-778.
55. Cuijpers P, Li J, Hofmann SG, Andersson G. **Continuous and dichotomous outcomes in studies of psychotherapy for adult depression: A meta-analytic comparison.** *J Affect Disord*. 2010 ;**126(3)**:349-57.
56. Yalom, I. & Leszcz, M. (2005). **The Theory and Practice of Group Psychotherapy** (5th ed.) New York: Basic Books
57. Wampold, B. (2001). **The Great Psychotherapy Debate: Models, Methods, and Findings.** New Jersey: Lawrence Erlbaum Associates,

Publishers.

58. Baskin TW, Tierney SC, Minami T, Wampold BE. 2003. **Establishing specificity in psychotherapy: A meta-analysis of structural equivalence of placebo controls.** *J Consult Clin Psychol* 2003;**71(6)**: 973–979.

59. Nüesch E, Trelle S, Reichenbach S, Rutjes AW, Bürgi E, Scherer M, Altman DG, Jüni P. **Small study effects in meta-analyses of osteoarthritis trials: meta-epidemiological study** *BMJ*. 2010;**341**:doi:10.1136/bmj.c3515

60. Van't Hof E, Cuijpers P, Stein DJ. **Self-help and Internet-guided interventions in depression and anxiety disorders: a systematic review of meta-analyses.** *CNS Spectr*. 2009 ;**14(2 Suppl 3)**:34-40.

61. Cuijpers P. **Bibliotherapy in unipolar depression: a meta-analysis.** *J Behav Ther Exp Psychiatry*. 1997;**28(2)**:139-147.

62. Durlak JA, Wells AM, Kelly Cotten J, Johnson S. **Analysis of selected methodological issues in child psychotherapy research.** *Journal of Clinical Child Psychology*.1995; **24(2)**: 141-148.

63. Hegerl U , Schonknecht P .**Subdiagnostic depression.Are there treatments with clinically relevant effects?** *Nervenarzt*.2009;**80(5)**:536-9.

64. Moncrieff J, Kirsch I. **Efficacy of antidepressants in adults.** *BMJ*. 2005; **331**:155–7.

65. Demyttenaere K, Bonnewyn A, Bruffaerts R, De Girolamo G, Gasquet I, Kovess V, Haro JM,. **Clinical factors influencing the prescription of antidepressants and benzodiazepines: results from the European study of the epidemiology of mental disorders (ESEMeD).** *J Affect Disord* 2008; **110**:84–93.

66 World Health Organization (2006) **Scaling up Care for Mental, Neurological, and Substance Use Disorders.** (http://www.who.int/mental_health/mhgap_final_english.pdf).

67.American Psychiatric Association. (2000). **Diagnostic and statistical manual of mental disorders (4th ed., text revision).** Washington, DC: Author