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Link to publication in VU Research Portal

citation for published version (APA)
Cuijpers, P., Buntrock, C., Ebert, D. D., Beekman, A. T. F., & Reynolds III, C. F. (2015). Indicated Prevention. In
O. I. Okereke (Ed.), *Prevention of Late-Life Depression* (pp. 99-109). Springer. https://doi.org/10.1007/978-3-319-16045-0_7

Indicated Prevention

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Abstract

Although most progress in the field of indicated and other types of prevention of mental disorders has been made in children and adolescents, recent years have also seen a considerable progress of research among older adults. This research has resulted in a growing body of knowledge on how to identify those with the highest risk of developing a mental disorder, several preventive interventions, and some randomized controlled trials showing that (indicated) prevention may be possible and effective in older adults.

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7.1   Introduction

Although most progress in the field of indicated and other types of prevention of mental disorders has been made in children and adolescents, recent years have also seen a considerable progress of research among older adults. This research has resulted in a growing body of knowledge on how to identify those with the highest risk of developing a mental disorder, several preventive interventions, and some randomized controlled trials showing that (indicated) prevention may be possible and effective in older adults [1].

Among the different types of preventive interventions, indicated prevention is the most examined and most evidence-based approach to prevention in all age groups [2, 3]. Indicated prevention is aimed at individuals who have some symptoms of a (depressive) disorder but do not meet diagnostic criteria. Indicated prevention may be aimed at two related but different goals. First, because subclinical depression can be disabling in its own right, with a considerable impact on quality of life, intervention may be necessary. The goal is thus to reduce depressive symptomatology and to improve quality of life. The second goal of indicated prevention is to prevent the onset of major depressive disorders by strengthening protective factors (e.g. social, cognitive, or problem-solving skills) or alleviating prodromal disease stages (e.g. educing severity of depressive symptoms).

The incidence rate of major depression in subjects with subclinical depression in community studies ranges from 1 to 15 new cases per 100 person years, compared with 0–5 in subjects without subthreshold depression [4]. This translates into incidence rates of approximately 20–25 % over 1 year. A recent meta-analysis showed that it is unlikely that antidepressants and benzodiazepines have a clinically important advantage over placebo in individuals with subclinical depression [5]. Therefore, psychosocial treatments are usually preferred as (preventive) treatments in subclinical depression, both for scientific reasons and by virtue of patient preferences.

In the past decades, several indicated interventions, aimed at older adults with subclinical symptoms but no depressive disorder, have been developed. In this chapter we will give an overview of interventions aimed at indicated prevention of depression for older adults, and review the randomized trials that have been conducted in this area. We will begin with a description of the "Coping with Depression" course (CWD), which is the best studied preventive intervention in all age groups [6, 7], including older adults [8–10].

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7.2 The "Coping with Depression" Course as Indicated Prevention in Older Adults

The "Coping with Depression" course (CWD) is a cognitive behavioral intervention for depression that has been examined in many studies as a treatment of depression [7]. However, there are also many studies that have examined the CWD as a preventive intervention.

The CWD is a psychoeducational intervention. In a psychoeducational treatment, the participant works through a standardized psychological treatment protocol more or less independently [7]. The standardized psychological treatment protocol can be written down in book form, but it can also be available through other media, such as a personal computer, Internet, CD-ROM, or television.

Psychoeducational treatments can be delivered in individual, group, or guided self-help format. The group format is often used, but in recent years, the Internet is used more and more in psychoeducational interventions, including the CWD for older adults [9]. The psychoeducational approach implies that the therapist works more in the role of an instructor or coach instead of a therapist, and the patient is more a student than a traditional patient. This is important from the point of view of the "patient," who remains more in control of the "therapy" than in other interventions, because he or she is the one who has to apply it to him- or herself. Because of this, the CWD is often considered to be less stigmatizing than traditional therapy.

A second important characteristic of the CWD is the "toolbox" idea. This means that in the course participants learn a series of many different skills that may help them in coping with their depression and that more or less fit the theoretical model of the CWD (see below). The skills which are trained in the original CWD focus on social skills, skills in restructuring negative cognitions and behavioral activation to increase pleasant events ("activity scheduling"). The cognitive skills include training in increasing thoughts associated with positive mood and decreasing thoughts associated with negative mood, as well as elements from rational emotive therapy [11] and cognitive therapy [12]. The behavioral activation approach has been developed by Lewinsohn and his colleagues [13]. Apart from these three approaches in the original CWD, the contents of the course can easily be adapted to the needs of the population and the goals of the intervention. For example, in the CWD for adolescents conflict solving skills have been added and the materials are rewritten in a more popular way. In the CWD for the elderly [14], the materials have been simplified. The basic approach is similar for each part of the skills training. First, during 1 or 2 weeks the participant collects information on the subject matter (negative thought, pleasant/unpleasant events, stressful events, social events). Then, he or she sets a goal for what he or she wants to change. He or she develops a systematic plan to reach this goal. And finally he or she starts working with the plan, improves it and examines if this plan alleviates the depression.

Another characteristic of the CWD is that it may in some cases be conducted by health care professionals, other than psychologists or psychotherapists. In an early study among older depressed adults participating in the CWD, no indications were found that the groups led by 16 trained paraprofessional therapists in the study (individuals not working in mental health, but in senior centers and retirement hotels)

resulted in worse outcomes than the groups led by another 16 professional therapists [15]. This does not imply that each version of the CWD can be applied by other health care professionals. In fact, whether it can be applied by other professionals is an empirical question which should be examined in each of the specific versions of the CWD. However, the research that has been conducted is encouraging. And using paraprofessionals in delivering interventions to (subclinically) depressed individuals is potentially a cost saving. There is a serious shortage of funds for the public mental health delivery system in many countries and using paraprofessionals may increase the number of people who receive evidence-based interventions.

Theoretically, the CWD is based on social learning theory [16] according to which treatment for depression involves increasing self-efficacy related to mood management, using such skills as increasing pleasant and decreasing unpleasant person–environment interactions. The theoretical model of the CWD has been described in detail elsewhere [17]. According to this model depression starts when environmental changes, such as life events, disrupt the functioning of an individual in important areas of behavior. The environmental changes can create vulnerability for depression when they increase negative experience or decrease positive, reinforcing events. These changes are expected to have a particularly negative impact among individuals who have personal vulnerabilities to depression or lack factors that protect against depression, such as a supporting social network or effective coping skills. When life events occur in the presence of personal vulnerabilities, a mediating step toward depression is increased self-awareness: the tendency to focus on one's internal experience and to self-monitor and self-analyze. Then the development of depressive symptoms becomes a downward spiral in which the depression deteriorates, which in turn serves as a feedback element that sustains the cycle and potentially alters predisposing characteristics. The CWD is aimed at changing this downward spiral into an upward spiral. By focusing on positive interactions with the environment and changing negative cognitions, the depression improves somewhat, which in turn stimulates the depressed individual to have more positive interactions with the environment and think more positively.

The CWD has been shown to be a very flexible intervention which can be easily adapted and modified for specific goals and target populations, without changing the basic structure and ideas of the CWD. The CWD can and has been used in the prevention of depression, in the treatment of depressed "cases," and as maintenance after successful treatment (for review see [7]). As we will see later on in this paper, the CWD has also been adapted for the use in many different target groups, including adolescents, older adults, minority groups, mothers of children with ADHD, and primary care patients.

7.3   Other Interventions for Indicated Prevention in Older Adults

In the past decades, several other indicated prevention interventions aimed at older adults with subclinical symptoms but no mental disorder, have been developed. In the following paragraphs, we will describe the interventions that have been examined in a randomized controlled trial.

7.3.1   Problem-Solving Therapy

Problem-solving therapy (PST) is a brief and focused psychological intervention that has been used with a variety of client groups including people with depression, chronic illness, and suicidal thoughts and behaviors. It is a psychological treatment in which patients systematically learn how to make an overview of the problems they have and how to solve them. It usually contains several steps that have to be taken to solve problems. First, the patient makes an overview of the problems he or she has, then he picks one of the important problems and generates as many solutions of this problem as possible. Then he selects the best solution with the highest chance of success, and works out of a systematic plan for this solution. After this has been done, the patient evaluates whether the solution has resolved the problem. If not he goes back to the list of solutions and selects the next possible solution. If the problem is solved, the patient can go back to the list of problems and select the next problem that has to be solved, etc.

There are several subtypes of PST, such as PST according to Nezu [18] and Mynors-Wallis et al. [19]. PST according to the method of Mynors-Wallis is the briefest one (six sessions by a primary care nurse or a general practitioner) and has been examined as a treatment for minor depression in one trial [20].

7.3.2   Interpersonal Counseling

Interpersonal counseling (IPC) is a brief version of Interpersonal psychotherapy (IPT). IPT is a 16-session, highly structured manual-based psychotherapy that addresses interpersonal issues in depression to the exclusion of all other foci of clinical attention (http://www.interpersonalpsychotherapy.org). IPT has no specific theoretical origin, although its theoretical basis can be seen as coming from the work of Sullivan, Meyer, and Bowlby. The current form of the treatment was developed by the late Gerald Klerman and Myrna Weissman in the 1980s [21]. IPC has been studied in one older study as a treatment of medically ill older adults with subclinical depression [22].

7.3.3   Life Review and Reminiscence

Another preventive intervention for depression in older adults is life review and reminiscence. In life review interventions, older adults discuss their life and the evaluation of each important period in their life with a trained professional. Several randomized controlled studies and meta-analyses have shown that these interventions are effective in reducing existing depressive symptoms [23], as well as on enhancing life-satisfaction and emotional well-being [24]. Although the effects have not yet been examined in target groups in which subthreshold depression was established with a diagnostic interview, life review seems to be an excellent intervention for indicated prevention, because of its low threshold for participation, because the stigmatizing word "depression" is not needed, and because no understanding of

negative thoughts or other complex psychological issues are necessary for participating successfully in this intervention. In a recent randomized trial the effects of life review in older adults with subthreshold were examined [25], and it was found that life review resulted in a significantly lower level of depressive symptoms when compared to the inactive control group, who only viewed a general movie.

7.3.4 Internet-Based CBT as Preventive Intervention in Older Adults

More recently, the Internet has been found to offer promising new opportunities for the prevention of mental disorders in all age groups, including older adults. A considerable number of studies have found that internet-based cognitive behavior therapy is effective in the treatment of depressive disorders [9, 26, 27]. In one study, internet-based CBT has been found to be effective in the treatment of subthreshold depression in older adults [9]. This study showed that Internet-based CBT had large effects on depressive symptomatology in older adults, and was as effective as a preventive group intervention.

Using the Internet to provide (guided) self-help indicated prevention interventions may help to overcome some of the limitations of traditional preventive services. Web-based guided self-help strategies have several advantages over face-to-face approaches. These include: (a) interventions are more easily accessible at any time and place while anonymity is assured when patients want to avoid stigmatization, (b) a greater potential for the integration of acquired skills in daily life due to an emphasis on the participants' active role in (guided) self-help interventions, (c) participants can work at their own pace and go through materials as often as they want, (d) elimination of travel time and costs for both participants and clinicians, and (f) web-based interventions may attract people who do not make use of traditional mental health services. Finally (g), web-based interventions are easily scalable. Scalability means here that web-based interventions shown to be effective under controlled conditions (i.e. randomized controlled trial) can be easily expanded with only a small increase of therapeutic resources to reach a greater proportion of the eligible population.

However, while a considerable number of studies have found that Internet-based cognitive behavior therapy is effective in the treatment of depressive disorders [27], yet evidence is scarce for their potential regarding the prevention of depression in older adults. In one study, Internet-based CBT has been found to be effective in the treatment of subthreshold depression in older adults [9]. This study showed that Internet-based CBT had large effects on depressive symptomatology in older adults, and was as effective as a preventive group intervention.

7.3.5 Stepped-Care Models of Prevention

Another recent development is the use of stepped-care models for the prevention of depressive disorders in older adults with subthreshold depression or anxiety [28]. In a large randomized controlled trial, older adults with subthreshold depression or

anxiety were recruited from primary care and assigned to a preventive stepped-care program or usual care. Stepped-care participants sequentially received watchful waiting, CBT-based bibliotherapy, CBT-based Problem Solving Treatment, and finally referral to primary care for medication, if required. It was found that cumulative incidence of DSM-IV major depressive disorder or anxiety disorder after 12 months was reduced from 0.24 (20/84) in the usual care group to 0.12 (10/86) in the stepped-care group, which indicates a relative risk of 0.49 (95 % CI: 0.24–0.98). These results are better than what was found in meta-analyses of preventive interventions for depression [2, 3, 6], and may indicate that stepped-care is an excellent method for the prevention of mental disorders in older adults.

7.4   Research on Indicated Prevention of Depression in Older Adults: Way

We recently conducted a meta-analysis of studies examining psychological treatments of subclinical depression [41]. In seven studies, the effects of preventive interventions on older adults with subclinical depression were examined. In this paragraph, we will summarize the results.

For the identification of relevant studies, we used a database of 1,476 papers on the psychological treatment of depression that has been described in detail elsewhere [2, 3], and that has been used in a series of earlier published meta-analyses (www. evidencebasedpsychotherapies.org). This database is continuously updated through comprehensive literature searches (from 1966 to January 2013). In these searches we examined 14,164 abstracts in Pubmed (3,638 abstracts), PsycInfo (2,824), Embase (4,682), and the Cochrane Central Register of Controlled Trials (3,020). These abstracts were identified by combining terms indicative of psychological treatment and depression (both MeSH terms and text words). For this database, we also checked the primary studies from 42 meta-analyses of psychological treatment for depression to ensure that no published studies were missed (www.evidencebasedpsychotherapies. org). From the 14,164 abstracts (10,474 after removal of duplicates) 1,476 full-text papers were retrieved for possible inclusion in the database.

We included (a) randomized controlled trials in which (b) a psychological intervention (c) was compared to a control condition (d) in older adults (e) with clinically relevant depressive symptoms, (f) but no major depressive disorder or dysthymia, (g) 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 on 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 diagnosed depressive disorder were included, but only when the results specifically reported for subjects with subclinical depression. Studies examining stepped-care models for the treatment of depression were also included, as these usually have a strong focus on psychological treatments.

We assessed the validity of included studies using four criteria of the "Risk of bias" assessment tool, developed by the Cochrane Collaboration [29]. This tool assesses possible sources of bias in randomized trials, including the adequate generation of allocation sequence; the concealment of allocation to conditions; the prevention of knowledge of the allocated intervention (masking of assessors); and dealing with incomplete outcome data (this was assessed as positive when intention-to-treat analyses were conducted, meaning that all randomized patients were included in the analyses).

In addition to indicators of study quality, we coded several aspects of the included studies, including participant characteristics (recruitment method: community, from clinical samples, or other; target group: adults in general, or more specific target groups such as older adults), intervention characteristics (format: individual, group, or guided self-help; number of sessions; and type of psychotherapy: cognitive behavior therapy, or other type); and study characteristics (type of control group: care-as-usual or other).

For each comparison between a psychotherapy and a control group, the effect size indicating the difference between the two groups at post-test was calculated (Hedges's g). Effect sizes were calculated by subtracting (at post-test) the average score of the psychotherapy group from the average score of the control group, and dividing the result by the pooled standard deviation. Because several studies had relatively small sample sizes, we corrected the effect size for small sample bias according to the procedures suggested by Hedges and Olkin [30].

In the calculations of effect sizes, we only used those instruments that explicitly measured symptoms of depression, such as the Beck Depression Inventory [31], or the HAM-D [32]. If more than one depression measure was used, the mean of the effect sizes was calculated, so that each comparison yielded only one effect. If dichotomous outcomes were reported without means and standard deviations, we used the procedures of the Comprehensive Meta-Analysis software (version 2.2.021) (see below) to calculate the standardized mean difference. To calculate pooled mean effect sizes, we used the computer program Comprehensive Meta-Analysis. As we expected considerable heterogeneity among the studies, we employed a random effects pooling model. Because the standardized mean difference (Hedges' g) is not easy to interpret from a clinical perspective, we transformed these values into the number-needed-to-treated (NNT), using the formulae provided by Kraemer and Kupfer [33]. The NNT indicates the number of patients that have to be treated in order to generate one additional positive outcome [34].

As a test of homogeneity of effect sizes, we calculated the I^2-statistic which is an indicator of heterogeneity in percentages. A value of 0 % indicates no observed heterogeneity, and larger values indicate increasing heterogeneity, with 25 % as low, 50 % as moderate, and 75 % as high heterogeneity [35]. We calculated 95 % confidence intervals around I^2 [36], using the non-central chi-squared-based approach within the heterogi module for Stata [37]. We also calculated the Q-statistic, but only report whether this was significant.

7.5 Research on Indicated Prevention of Depression in Older Adults: Results

We included seven studies with a total of 928 participants, 502 in the indicated prevention groups and 426 in the control groups (see also [41]). Selected characteristics of the included studies are presented in Table 7.1.

Four studies were conducted among older adults in general, one in nursing home residents, one in medically ill older adults, and one among older primary care patients. There were eight comparisons between an indicated intervention and a control group (one study compared two treatments with a control group; [9]). The interventions in the six studies included the Coping with Depression course (3 studies), life review, problem-solving therapy, interpersonal counseling, and stepped-care (1 study each). In four interventions a group format was used, three used an individual format and one used an Internet-based intervention. The number of sessions ranged from 6 to 13. Four studies were conducted in the Netherlands, two in the United States, and one in Canada. The quality of the studies varied. Four studies met all four quality criteria, while the other three only met one of the four criteria. In three studies a care-as-usual control group was used, in two studies a waiting-list control group, in one study a pill placebo and in the final study a non-active intervention (a movie) control group.

The overall effect of the interventions on the level of depressive symptoms was $g = 0.29$ (95 % CI: 0.15–0.43), with almost no heterogeneity ($I^2 = 7$; 95 % CI: 0–73). This effect size can be interpreted as small to moderate, and it corresponds to an NNT of 6.17.

There were some indications for publication bias. Duval and Tweedie's trim and fill procedure indicated that the mean effect would drop from $g = 0.29$ to $g = 0.22$ (95 % CI: 0.07–0.38; number of imputed studies = 2) after adjustment for publication bias.

Only two studies examined the effects of indicated prevention on the incidence of major depressive episodes [10, 28]. However, the relative risk (RR) of developing a depressive episode at follow-up was RR = 0.37 (95 % CI: 0.15–0.91; $p = 0.03$), indicating that people who received the preventive intervention had 63 % less chance of developing a depressive episode than people in the control group. Heterogeneity (I^2) was zero. We also calculated the NNT (as the inverse of the risk difference). The NNT of indicated prevention compared with the control groups was 10.53 (95 % CI: 5.78–57.80; $p = 0.02$).

Because of the small number of studies we did not conduct any additional analyses.

7.6 Discussion

Although much research has focused on prevention of depressive disorders in children and adolescents, a growing number of studies have examined the possibilities to prevent depression in older adults. Furthermore, several manuals for

Table 7.1 Selected characteristics of studies examining the effects of interventions for indicated prevention in older adults

	Recruitment	Target group	Definition of minD	Conditions	N	Intervention	For	Nse	FU	TR	PR	Qual[a]	Country
[8]	Community	Older adults (55+)	Self-reported depressive symptoms; no MDD	1. CBT 2. WL	31 36	Coping with depression course (CWD)	Grp	10	–	+	–	– – – +	NL
[10]	Screening	Nursing home residents	GDS E 9; no MDD	1. CBT 2. CAU	20 23	Coping with stress course (CWD)	Grp	13	3, 6	+	+	– – + –	CA
[22]	Through medical centers	Medically ill older adults (60+)	GDS ≥ 11 at two occasions	1. IPC 2. CAU	31 38	Interpersonal counseling	Ind	10	–	+	–	– – + –	US
[25]	Community	Older adults (≥50 years)	CES-D ≥ 5; no MDD	1. Life review 2. Control	83 88	Life review therapy	Grp	12	–	+	–	+ + + +	NL
[9]	Community	Older adults (50–75 years)	EDS ≥ 12, no MDD	1. internet CBT 2. Group CBT 3. Waiting list	102 99 100	Coping with depression course (CWD)	Grp	10	–	+	–	+ + + +	NL
[28]	Screening in primary care	Older primary care patients	CES-D ≥ 16; no MDD	1. Stepped-care 2. CAU	86 84	Stepped-care protocol	Ind	–	6, 12, 24	–	+	+ + + +	NL
[20]	Through primary care	Older adults	Minor depression (≥3 of 9 MDD symptoms, 4 weeks); no MDD	1. PST 2. Placebo	50 57	Problem-solving therapy	Ind	6	–	+	–	+ + + +	US

[a]In this column a positive (+), or negative (–) sign is given for four quality criteria, respectively: allocation sequence; concealment of allocation to conditions; blinding of assessors; and intention-to-treat analyses.

evidence-based preventive interventions are now available, and prevention of depression has been established quite well. Seven randomized controlled trials have shown positive effects of these interventions on the level of depressive symptoms in older adults with subclinical depression, and there is some preliminary evidence that these interventions may also reduce the incidence of depressive disorders at 1–2 years follow-up.

There are several challenges for preventive interventions in older adults [38]. One important issue is to identify the optimal target groups for preventive interventions. Both indicated and selective preventive have been found to be effective in the prevention of depressive disorders. However, both types of prevention are aimed at high-risk groups and all known risk indicators of depressive disorders have the problem that their specificity is low. This low specificity implies that most subjects who are exposed to the risk factor do not develop the disorder and that one such risk factor by itself is not sufficient to produce the disorder. Recently, more sophisticated methods have been developed to identify ultra high-risk groups. These groups typically do not have only one high-risk indicators, but a combination of these factors. Furthermore, they are as small as possible (for efficiency reasons), but are responsible for the largest possible proportion of new incident cases [39, 40]. Although these epidemiological methods have been well-developed, they have not yet been translated into preventive intervention research. It may be possible that the use of biosignature data (e.g., inflammatory cytokines; [42]) may improve the identification of which persons with subsyndromal symptoms and may benefit from indicated preventive interventions.

Another challenge is to improve access to preventive services. Although prevention of depression is effective, the interest to participate in these interventions is not very high. In the Netherlands, about 80 % of the Dutch adult population has direct access to free (or almost free) preventive services for depression (the CWD). However, on a national level each year only a few thousand people with subthreshold depression participate in these courses. Although these interventions are valuable for these participants, about 750,000 people are estimated to have subclinical depression and the few thousand participants are less than 1 % of this group. A challenge for the future is to increase the number of people who participate in these services. Several experiments are currently being conducted to increase the number of participants, including prevention through the internet, and other organizational models in which preventive services are better integrated into routine primary care.

The final challenge we want to mention is to improve the effectiveness of our interventions. Although preventive interventions have been found to be effective, their efficiency should be improved. In this chapter, we found an NNT of 10.53. This means that 11 older people with subclinical depression have to participate in a preventive intervention to prevent the onset of one new case. This is definitely a clinically relevant effect, considering the impact depression has on the quality of life of the patient and his or her relatives. But it would be even better if we could further improve the effects of the interventions. In a recent trial, we found that a stepped-care intervention was considerably more effective in older adults with subthreshold depression, with a reduction of the incidence of 50 % [28].

We can conclude that several indicated preventive interventions are available for older adults, and that the research on these interventions has found positive effects both on decreasing depressive symptomatology and on reducing the incidence of depressive disorders.

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