Depression self-management support: A systematic review

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Abstract

Objective: To systematically review empirical evidence regarding the efficacy of depression self-management support (SMS) interventions for improving depression symptomatology and preventing relapse. **Methods**: Pubmed and PsycINFO databases were searched for relevant articles on depression SMS interventions. Scanning of references in the articles and relevant reviews and communications with field experts yielded additional articles. Two independent reviewers analyzed the articles for inclusion and data was extracted from the selected articles. **Results**: 13 papers met the inclusion criteria and reported the results of six separate studies, including three pilot studies. The results were mostly positive. A majority of the trials assessing depression severity changes found SMS to be superior to care as usual. SMS interventions were found to improve self-management behaviours and self-efficacy. Mixed results were found concerning relapse rates. Promising results were found on assessments of functional status. Based on the findings, cost-effectiveness remains unclear. **Conclusion**: SMS has been mostly examined through pilot studies with insufficient power. The results are promising, but larger randomized controlled trials are needed. **Practice implications**: SMS interventions can be administered by non-physician professionals and are well accepted by patients, but more research is needed before we can recommend implementing **specific** depression SMS **approaches** in primary care.

Keywords: Depression; Self-management; Review; Efficacy.

1. Introduction

Given the high recurrence rates for depression, it is increasingly considered a chronic illness. Depression recurrence rates vary considerably across studies, but recurrence seems to be the rule rather than the exception [1]. Mueller et al. [2] report an 85% recurrence rate in a 15-year prospective study, and Roy-Byrne et al. [3] document an 80% recurrence rate over a 5-year period. The DSM IV [4] estimates that "At least 60% of individuals with Major Depressive Disorder, Single Episode, can be expected to have a second episode. Individuals who have had two episodes have a 70% chance of having a third, and individuals who have had three episodes have a 90% chance of having a fourth" (p. 372). For many years, attempts to improve the care offered to persons suffering from depression have been based on the Chronic Care Model (CCM) [5-9]. Its creators argue that usual medical care is designed to address acute conditions with a focus on diagnosis and treatment. Since the needs of patients with chronic illnesses differ [7,9], the result has been deficiencies in the care provided to chronically ill patients. Indeed, living with a chronic condition is associated with specific needs, such as a need for support with managing and coping with the illness on a day-to-day basis. As stated by Lorig et al. [10], "The issue of self-management is especially important for those with chronic disease, where only the patient can be responsible for his or her day-to-day care over the length of the illness." Self-management support (SMS) is a component of the CCM. According to Barlow et al. [11], "Self-management refers to the individual's ability to manage the symptoms, treatment, physical and psychological consequences and life style changes inherent in living with a chronic condition. Efficacious self-management encompasses the ability to monitor one's condition and to affect the cognitive, behavioral and emotional responses necessary to maintain a satisfactory

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quality of life" (p.178). The effectiveness of SMS approaches has been demonstrated empirically for several chronic physical illnesses, including diabetes, asthma and heart disease [12-14]. However, such approaches have only recently been used with patients suffering from depression. Reviews have been published of the current evidence on depression care. General reviews of depression care are available [14-17], as well as reviews focused on multifaceted interventions [18] or case management [19]. However, no systematic review has analyzed the specific contribution of SMS to care for patients with depression.

1.1 Description of depression SMS

Currently there is some confusion over how to conceptualize depression SMS. The terms "self-help," "collaborative care" and "self-management support" are sometimes used interchangeably, or they are combined into a single class of interventions, despite their distinctly different approaches. It therefore appears that the differences between these concepts need to be clarified.

Since there is no gold-standard definition of SMS [11], it is difficult to operationalize it in research. The description of SMS presented here is the result of an attempt to distill the varying definitions and descriptions in the literature [5-11, 13, 20-23] into an integrated and coherent understanding of SMS as it applies to depression.

The goal of SMS is to have patients recognize the signs of deteriorating health status, plan actions to take when they see signs of relapse, and know what resources are available and how to access them. SMS also tries to have the patient develop skills for adhering to the selected plan, regularly monitor changes in symptoms, adopt healthy life

habits, communicate effectively with health professionals and the support network, and avoid situations that can trigger a new episode. Finally, the central components of SMS include solving problems, identifying objectives for each patient, and developing action plans [5,6].

Self-management support is distinct from self-help and guided self-help interventions, which are designed to "assist patients in the treatment of their depressive symptoms, using a health technology such as written information, audiotape, videotape or computer presentations" [24]. Essentially, "self-help can be defined as a psychological treatment, where the patient or client takes home a standardized psychological treatment and works through it more or less independently" [25]. Self-help interventions have been mostly designed to be performed independently of professional or paraprofessional contact [26], whereas guided self-help interventions feature minimal contact with a professional supporting the patient in their self-therapy. While self-help is intended as a treatment for depression, SMS is aimed at preventing a relapse and helping patients maintain good mental health on a day-to-day basis. Self-management support is not a form of psychotherapy. In fact, it is an adjunct to conventional depression treatments. Through knowledge transfer and skill development, SMS gives patients suffering from depression more power over the illness, as well as an active role in maintaining good mental health and preventing new episodes of depression. The chronic nature of depression is central to SMS approaches, which do not try to treat an episode in isolation, but rather modify, in a sustainable way, how an individual takes care of their mental health and reacts to signs of relapse.

Depression SMS must also be differentiated from collaborative care interventions, which focus on adapting the organization of the medical care provided for chronic illness by applying a systematic team approach to the treatment of depression [26]. Key components of collaborative care are inspired by evidenced-based models of chronic illness care, such as the CCM [26, 27]. Among other things, it entails identifying depressed patients with a validated screening instrument; multidisciplinary teams of professionals; proactive follow-up; the tracking of symptoms and medication adherence, often by a case manager; and treatment in accordance with evidence-based guidelines [28, 29]. Collaborative care interventions are generally delivered in a stepped-care fashion. Depression SMS is sometimes included in collaborative care interventions, in which case it constitutes only one aspect of a multifaceted program. Table 1 summarizes the features distinguishing self-help and collaborative care interventions from SMS initiatives.

Insert Table 1 here

1.2 Purpose and objectives

In order to be able to improve the primary care services that are offered to this population, it is important to know the potential of depression SMS approaches. The objectives of this systematic review are:

- To describe depression SMS approaches (what they have to offer, their components, the target population, their mode of action); and

- To examine the efficacy of various SMS approaches.

2. Methods

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2.1 Search methods

Most literature reviews on depression are conducted using at least two databases [30-32]. Our study used the PubMed and PsycInfo databases. This combination provides sufficiently broad and complete coverage of the field of treatments for depression, since it covers both the medical and psychological domains [30, 31]. Since SMS has only recently been applied to depression, many depression SMS interventions are not identified as such. We therefore cast a very wide net, using generic key words on our topic without a detailed description comprising specific self-management activities. The search was carried out using the following terms and their possible declensions: depression and self-management, self-care, relapse prevention, self-help, case management and collaborative care. The database search was conducted in August 2011.

2.2 Selection criteria

Abstracts were reviewed one at a time by two separate investigators for inclusion in the study. Articles were included on the basis of: 1) publication in English after 1995 in a peer-reviewed journal; 2) presence of qualitative or quantitative outcome measures; 3) a focus on an adult population; and 4) a description of SMS interventions that basically corresponds to the description provided in Section 1.1. Multifaceted interventions in which an SMS component was nested were excluded, since it is difficult to isolate the contribution of a single element in such interventions [15]. Theoretical articles, papers that do not report outcome measures, reviews, meta-analyses and studies not focused on depression were excluded. Disagreements on inclusion were resolved through discussion until consensus was reached. When the title and abstract provided insufficient

information to reach a decision on inclusion, the paper was retrieved and the full text was read to further assess the pertinence of inclusion for the final review. Hand searches were performed of the reference lists of the papers and relevant reviews, and specialists in the field were contacted for additional, potentially relevant papers.

2.3 Data analysis

The selected trials were assessed for data extraction by one of the authors. Articles reporting data from a corresponding study were grouped together. Data was extracted on: the country where the study was conducted, the inclusion criteria used, the number of participants, the study design, the intervention format and components, the outcome measures used, and the results. The categories used to code intervention components are provided in Table 2. For the purpose of our results, we looked for significant differences between the intervention and control groups in randomized controlled trials and controlled trials, and in time for pre-post trials. The studies differed substantially in terms of their format, design, intervention components and outcome measures. Therefore, we did not conduct a meta-analysis, since this would have required a homogeneous group of trials .

3. Results

3.1 Trial flow

A total of 5,049 notices were obtained and imported into an EndNote database. Removal of all duplications, notices published before 1995, articles without an abstract and literature reviews or meta-analyses produced a sample of 2,905 potentially relevant abstracts. Figure 1 provides a flowchart of the inclusion process. After reviewing the title

and abstract of the remaining papers for inclusion according to our selection criteria, we were left with 99 articles to read in full text. The 2,806 papers excluded at this stage either: 1) included participants who did not correspond with our target population; 2) reported no outcome measure; 3) were reviews or meta-analyses; or 4) did not assess a self-management support intervention. The systematic hand search of the reference lists of relevant papers and reviews, as well as our consultation with field experts, yielded two additional articles. In sum, a total of 101 articles were retrieved for further evaluation, out of which 13 were selected for the final review. The excluded studies were discarded because they: 1) targeted a population ≤18 years-old; 2) assessed patients with depression symptoms but without a formal diagnosis of depression; 3) reported no outcome measures; 4) were published in a language other than English; or 5) did not meet the definition of SMS but consisted rather of a self-help, collaborative care, therapy treatment or some other type of intervention.

Insert Figure 1 here

3.2 Profile of selected studies

The literature review yielded a total of 13 articles reporting the results from 6 different studies. Study details are provided in Table 2. The trial by Smit et al. [40] is the program developed by Katon et al. [35] adapted for use in the Netherlands. The papers were published between 2001 and 2010 and were from Italy [44], the Netherlands [40], the USA [34, 35, 45] and Australia [33]. In terms of study designs, the sample consisted of four randomized controlled trials, one controlled trial and a pre-post trial; three papers [33, 34, 45] describe pilot studies.

A total of 985 persons participated in one of the depression SMS interventions included in this review, with 19 to 386 subjects per study. The mean age of participants ranged from 43 to 50 years. All studies used samples with both sexes, with higher ratios of females in the samples (from 64% to 74%). The studies feature very heterogeneous participant profiles. Three papers [33, 35, 44] targeted recovered patients, with one of them [35] being specifically interested in patients at high risk of relapse. Two studies [40, 45] selected participants currently suffering from a major depressive disorder (or dysthymia or chronic depression), and one study [34] assessed individuals with a history of recurring depressive disorder or dysthymia, regardless of their current mood state (partial remission, relapse, recurrence, chronic major depression or dysthymia).

Subjects were recruited on the basis of: 1) referral by a primary care physician (PCP) [33, 40] or by clinicians in a psychiatry department [45]; 2) a new antidepressant (AD) prescription from the PCP [35]; 3) a computerized data system that could identify patients with AD medication for major depressive disorder [36]; and 4) inpatients identified as hospitalized for major depressive disorder [37]. Three studies tested interventions developed for primary care settings [33, 35, 40]. Two were designed for specialty settings: the trial by Franchini et al. [38] targeted patients hospitalized for a major depressive episode, while Ludman et al. [33] assessed the differential effect of interventions for patients receiving outpatient psychiatric care. No setting was specified for the intervention by Ryan et al. [45].

The intervention format consisted in group sessions for two studies [34, 44], individual sessions for three trials [33, 35, 40], and a combination of individual and family sessions in Ryan et al. [45]. The interventions were either delivered by a

psychologist [34, 44, 45], a prevention specialist (a psychologist or a psychiatric nurse) [40], a depression specialist (a psychologist, a nurse practitioner or a social worker) [35], or a general practitioner [33]. Three of the interventions provided participants with complementary material such as a patient manual, an educational videotape or a relaxation CD.

3.3 Components of self-management support interventions

Eleven distinct components of depression SMS interventions were found (see Table 3). The SMS programs had from 5 to 8 different intervention elements and systematically included a psycho-education component. Less often, the program descriptions also referred to coping with emotions and a written relapse prevention plan. Some of the key components most often included in the SMS depression intervention programs were: changing life habits; behavioural activation; improving communication with the physician, family and friends; learning new habits to better manage the illness; monitoring symptoms for signs of a relapse; and adherence to treatment.

3.4 Clinical outcomes

3.4.1 Depression symptomatology

All trials except that of Franchini et al. [44] monitored the impact of the SMS intervention on depression symptomatology. Three of them achieved reduced depression symptomatology in the SMS condition at post-intervention [45] or compared to other groups [35, 40], while the other two found no statistically significant difference between the conditions [33, 34].

3.4.2 Depression relapse/recurrence rates

Four [33, 35, 40, 44] of six studies measured depression relapse rates. Franchini et al. [44] found significantly lower relapse rates in the intervention arm compared to care as usual (14% vs. 32%; p<0.05), and adherence to group sessions was linked to lower rates of depression. Howell et al. [40] observed a non-significant trend towards decreased rates of relapse in favour of the intervention arm compared to care as usual (46% vs. 54%). The two other studies found no significant differences between the conditions in relapse and recurrence rates [33, 35].

3.4.3 Functional status and quality of life

Four studies examined the impact of SMS on functional status or quality of life [33, 35, 40, 45]. Ryan et al. [45] found that patients' quality of life, psychosocial well-being, general psychosocial functioning and almost all facets of social functioning improved post-intervention. Katon et al. [35] observed higher social functioning in the intervention arm. Howell et al. [33] and Smit et al. [40] did not find a significant advantage for SMS over care as usual.

3.4.4 Self-management behaviours and self-efficacy

Three studies measured AD adherence [34, 35, 40]. Only Katon et al. [35] found that patients' adherence to their medication improved in the SMS condition compared to the control group. Participants in the SMS group also had more confidence in their ability to manage theside effects of their medication and more favourable attitudes towards medication compared to participants in the control group. Ludman et al. [38] also examined the effect of the Depression Recurrence Prevention (DRP) program on other

self-management behaviours, such as keeping track of depressive symptoms, monitoring early warning signs, and planning how to cope with a high-risk situation. The results show that program participants demonstrated better depression self-management behaviours and greater self-efficacy in how they managed their depression. Furthermore, these changes in self-management behaviour and this sense of self-efficacy were positively associated with improved depressive symptomatology. Smit et al. [40] did not, however, observe benefits from SMS as compared to care as usual in terms of an improved sense of self-efficacy.

3.5 Process outcomes

3.5.1 Participation in SMS

In the DRP program, 93% of the subjects attended both visits to the depression prevention specialist and 80% completed all three follow-up phone calls [38]. Similarly high participation rates are reported by Smit et al. [40]: 92% of the patients attended to all three individual face-to-face sessions with a prevention specialist. Ludman et al. [34] observed that a majority of participants assigned to SMS group sessions attended at least one session, but only 37% completed the core sessions.

3.5.2 Satisfaction with SMS

Three studies examined the acceptability of intervention programs from the patient's perspective. The Howell et al. [33] intervention was well accepted by patients and general practitioners. Smit et al. [40] found higher satisfaction with care and information transmission in the SMS group compared to care as usual, and patient

evaluations of SMS were generally positive. Ludman and al. [34] reported high patient satisfaction in the professionally-led SMS group.

3.5.3 Care utilization

Two trials [35, 40] evaluated the impact of SMS interventions on care utilization. Katon et al. [35] found that patients in the control condition made more primary care visits for reasons other than depression but fewer visits for depression compared to the SMS group. Smit et al. [40] reported no significant difference in care utilization between the two groups.

3.6 Cost-effectiveness

Two studies [35, 40] assessed the cost-effectiveness of SMS. Smit et al. [40] concluded that their SMS intervention was not cost-effective. In Katon et al. [35], SMS was associated with a modest increase in treatment costs due to additional AD prescriptions and intervention visits, and with a modest increase in days free of depression. These results were said to be consistent with other depression care interventions. The authors concluded that improving care with SMS is a prudent investment of health care resources.

Insert Table 2 and Table 3 here

Discussion and Conclusion

4.1 Discussion

SMS appears to be a promising intervention for persons suffering from a major depression. It is associated with reduced depressive symptomatology, improved

functioning, a greater sense of self-efficacy and better self-management behaviours. The results are more mixed with respect to reducing relapse and recurrence rates, but a lack of statistical power in several of the studies in our corpus suggests that great care should be exercised when interpreting these results. Among the six different studies we found, three were pilot studies and one, a controlled trial, was not randomized.

Only the Smit et al. study [40] concluded that SMS is ineffective, but the context of this pragmatic RCT may help explain why differences were not found between intervention participants and usual-care participants. Shortly before the participants were recruited for the Smit et al. study, the investigators trained all the recruiting physicians in the PCP practices on optimal treatment of depression and compliance with guidelines. This training may have contributed to the exceptionally high rates of AD adherence and referral to specialized mental health resources observed in the control group. No differences were found between the SMS participants and the control group, but the training received by physicians before patient recruitment may have masked the beneficial effects of SMS. This bias affects the generalizability of the study's results to other contexts.

The study by Katon, which was conducted in the U.S., has the best methodological qualities. The SMS intervention it evaluated was not better at reducing the relapse rate than the intervention in the control group (a rate of 35% was found in both groups in the first year). This may have been due to the very high number of patients in the control group (between 50% and 65%) who maintained their AD treatment throughout the study and the fact that the population consisted of persons at a high risk of relapse. However, the program improved AD adherence, depressive symptomatology and

self-management behaviours (monitoring symptoms, remaining vigilant for early signs of a relapse, planning how to cope with high-risk situations). Over time, improved self-management behaviours were associated with improved symptomatology.

Randomized controlled studies with a sufficient number of participants will be needed in order to determine the real potential of SMS. Individual and group approaches should be assessed and eventually compared in order to verify whether the self-help and mutual support found in groups improves the efficacy of SMS interventions.

This systematic review has revealed that SMS is often confused with self-help [46], even though these two types of intervention differ in both their nature and objectives. Self-help is a form of self-administered psychotherapy that is often used in stepped-care approaches for persons suffering from mild to moderate depression, while SMS grew out of care for persons suffering from chronic physical illnesses like diabetes and arthritis. In contrast to the self-help approach, SMS is not a treatment; rather, it is a complementary intervention aimed mainly at clients who are at risk of a relapse or who have experienced one or more episodes of depression. The goal is to have patients actively monitor their mood in order to quickly detect the early warning signs of a relapse, and act promptly if their mental condition starts to deteriorate. The core of SMS is adherence to treatment, whether pharmacological or psychotherapeutic. In the future it will be important to avoid any confusion between SMS and self-help.

Even though Lorig et al. created an SMS program for anyone suffering from a chronic illness, postulating that the same basic abilities are needed to efficiently manage one's diabetes, arthritis or depression [10], we see more and more SMS interventions

being developed for specific illnesses [47-51]. Depression is no exception, since virtually all the studies reviewed herein use programs developed specifically for depression. The exception is the Ludman study, which administered the Chronic Disease Self-Management Program (CDSMP) to a group of people suffering from depression [34]. However, Ludman found that some of the participants who received the CDSMP would have preferred an intervention more suitable for depression. It may be that depression is different from other chronic illnesses due to the related social stigma [52] and how it affects self-esteem and identity [4], such that depression should be addressed through interventions that are specifically designed for it. This issue cannot be resolved with our current level of knowledge. We do not know whether general interventions like CDSMP are as effective with persons suffering from depression as they are with persons suffering from chronic physical illnesses, since too few people suffering from depression have participated in these studies [53-55]. More research needs to be conducted on the effectiveness of SMS depression interventions, since they are often recommended for inclusion in programs to improve care [56-60]. Such knowledge would help determine which SMS programs should be included in these multifaceted interventions, instead of adding an ineffective SMS component.

This is the first review to have thoroughly and systematically examined SMS programs for persons suffering from depression. It has clarified the nature of SMS and its main components, and has drawn a distinction between SMS and self-help, with which it is often confused [46]. Our review has improved our knowledge of existing SMS programs. However, our review also entails some limitations. First, it is subject to the risk of publication bias. Studies are less likely to be published when they report negative or

non-significant findings, are from researchers with limited publishing experience, or report results from programs with insufficient funding for a manuscript to be submitted for publication, among other things [32]. Therefore, we cannot exclude the risk that the mostly positive results that emerged from this review on depression SMS were artificially boosted by a general tendency on the part of researchers, reviewers and editors to prefer publishing positive findings as compared to negative or non-significant findings [61]. Also, the quality of our analysis is dependent on our definition of the depression SMS concept. As mentioned previously, there is no gold-standard definition of depression SMS. Even though our operationalization is intended to be as accurate as possible and is based on the existing literature on the subject, there is no single way to define depression SMS, since it is a current domain of investigation.

4.2 Conclusion

Considering the recurring nature of depression, we need specific interventions that can transfer the necessary knowledge and skills to persons suffering from depression in order to prevent relapses. SMS shows promise as an intervention for individuals suffering from major depression. However, given the inconsistent results between and within studies, as well as the numerous pilot studies with insufficient explanatory power, we suggest that caution be exercised with our conclusions. Furthermore, rigorous research with sufficient explanatory power is required.

4.3 Practice Implications

SMS interventions can be administered by non-physician professionals, such as nurses, social workers and psychologists, and are well accepted by patients. Under no circumstances should they be used in the place of the usual treatments for depression (such as psychotherapy and pharmacotherapy), but may be offered in conjunction with such treatments. These patient-centered approaches emphasize relapse prevention rather than short-term symptom reduction and are aimed at empowering people with depression in the day-to-day management of their illness. This emphasis on empowerment is even more important, given the fact that it is the everyday decisions and actions taken by the patients themselves that have the greatest impact on well-being and health [62]. In addition to supporting patients as they identify and practice skills to help maintain good mental health (for example, stress management strategies or the scheduling of pleasant activities), the professional must also prepare patients so that they can recognize warning signs of a relapse and respond quickly. Integrating SMS into the monitoring of patients suffering from depression will require investments in training for the health professionals who will need to assume this new role [63]. Large-scale studies are needed before more specific recommendations can be formulated on the SMS approaches that should be widely introduced into primary care.

Conflict of interest

All the authors declare they have no conflict of interest with regard to this paper.

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References

[1] Richards D. Prevalence and clinical course of depression: a review. Clin Psychol Rev 2011; 31: 1117-25.

[2] Mueller TI, Leon AC, Keller MB, Solomon DA, Endicott J, Coryell W, Warshaw M, Maser JD. Recurrence after recovery from major depressive disorder during 15 years of observational follow-up. Amer J Psychiatry 1999; 156:1000–6.

[3] Roy-Byrne P, Post RM, Uhde TW, Porcu T, Davis D. The longitudinal course of recurrent affective illness: life chart data from research patients at the NIMH. Acta Psychiatr Scand Suppl 1985; 317: 1-33.

[4] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th rev. ed. Washington, DC: American Psychiatric Association, 2000.

[5] Wagner EH, Austin BT, von Korff M. Organizing care for patients with chronic illness. Milbank Q 1996; 74:511-44.

[6] Wagner EH, Austin, BT, Davis C, Hindmarsh M, Schaefer J. Improving chronic illness care: translating evidence into action. Health Aff (Millwood) 2001; 20: 64-78.

[7] Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness. J Amer Med Assoc 2002; 288:1775-9.

[8] Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the Chronic Care Model, Part 2. J Amer Med Assoc 2002; 288: 1909-14.

[9] Wagner EH, Managed Care and Chronic Illness: Health Services Research Needs. Health Serv Res 1997; 32: 702-14.

[10] Lorig KR, Sobel DS, Stewart AL, Brown BW Jr, Bandura A, Ritter P, Gonzalez VM, Laurent DD, Holman HR. Evidence suggesting that a chronic disease self-

management program can improve health status while reducing hospitalization. Med Care 1999; 37: 5-14.

[11] Barlow J, Wright C, Janice S, Turner A, Hainsworth J. Self-management approaches for people with chronic conditions: A Review. Patient Educ Couns 2002; 48: 177-87.

[12] Ofman JJ, Badamgarav E, Henning JM, Knight K, Gano AD, Levan RK, Gur-Arie S, Richards MS, Hasselblad V, Weingarten SR. Does disease management improve clinical and economic outcomes in patients with chronic

diseases? A systematic review. Am J Med 2004; 117: 172-82.

[13] Lorig K, Ritter P, Stewart AL, David SS, Brown BW, Bandura A, Gonzalez VM, Laurent DD, Holman HR. Chronic disease self-management program: 2-year health status and health care utilization outcomes. Med Care 2001; 39: 1217-23.

 [14] Kates N, Mach M. Chronic disease management for depression in primary care: a summary of the current literature and implications for practice. Can J Psychiatry 2007; 52: 77-85.

[15] Gilbody S, Whitty P, Grimshaw J, Thomas R. Educational and organizational interventions to improve the management of depression in primary care: a systematic review. J Amer Med Assoc 2003; 289: 3145-51.

[16] Craven MA, Roger B. Better practices in collaborative mental health care: an analysis of the evidence base. Can J Psychiatry, suppl. 2006; 51: 7S-72S.

[17] Christensen H, Griffiths KM, Gulliver A, Clack D, Kljakovic M, Wells L. Models in the delivery of depression care: A systematic review of randomised and controlled intervention trials. BMC Fam Pract 2008; 9: 25.

[18] Williams JW Jr, Gerrity M, Holsinger T, Dobscha S, Gaynes B, Dietrich A. Systematic review of multifaceted interventions to improve depression care. Gen Hosp Psychiatry 2007; 29: 91-116.

[19] Gensichen J, Beyer M, Muth C, Gerlach FM, Von Korff M, Ormel J. Case management to improve major depression in primary health care: a systematic review. Psychol Med 2006; 36: 7-14.

[20] Lorig KR, Holman HR. Self-management education: history, definition, outcomes, and mechanisms. Ann Behav Med 2003; 26: 1-7.

[21] Cockle-Hearne J, Faithfull S. Self-management for men surviving prostate cancer: a review of behavioural and psychosocial interventions to understand what strategies can work, for whom and in what circumstances. Psychooncology 2010; 19: 909-22.

[22] Du S, Yuan C. Evaluation of patient self-management outcomes in health care: a systematic review. Int Nurs Rev 2010; 57: 159-67.

[23] Steed L, Cooke D, Stanton N. A systematic review of psychological outcomes following education, self-management and psychological interventions in diabetes mellitus. Patient Educ Couns 2003; 51:5-15.

 [24] Gellatly J, Bower P, Hennessy S, Richards D, Gilbody S, Lovell K. What makes self-help interventions effective in the management of depressive symptoms? Meta-analysis and meta-regression. Psychol Med 2007; 37: 1218.

[25] Cuijpers P, Donker T, van Straten A, Anderson G. Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. Psychol Med 2010; 40: 1943–57.

[26] Unützer J, Katon W, Callahan CM, Williams JW, Hunkeler E, Harpole L, Hoffing M, Della Penna RD, Hitchcock Noël P, Lin EHB, Areán A, Hegel MT, Tang L, Belin TR, Oishi S, Langston C. Collaborative care management of late-life depression in primary care setting: a randomized controlled trial. J Amer Med Assoc 2002; 288: 2836-45.

[27] Von Korff M, Glasgow RE, Sharpe M. Abc of psychological medicine: Organizing care for chronic illness. Brit Med J 2002; 325: 92-4.

[28] Steinman LE, Frederick JT, Prohaska T, Satariano WA, Dornberg-Lee S, Fisher R, Graub PB, Leith K, Presby K, Sharkey J, Snyder S, Turner D, Wilson N, Yagoda L, Unutzer J, Snowden M. Recommendations for treating depression in community-based older adults. Am J Prev Med 2007; 33: 175-81.

[29] Servili C. An international perspective on youth mental health: the role of primary health care and collaborative care models. J Can Acad Child Adolesc Psychiatry 2012; 21: 127-9.

[30] Lohonen J, Isohanni M, Nieminen P, Miettunen J. Coverage of the bibliographic databases in mental health research. Nord J Psychiatry. 2010; 64:181-8.

[31] Watson RJD, Richardson PH. Identifying randomized controlled trials of cognitive therapy for depression: Comparing the efficiency of Embase, Medline and PsycINFO bibliographic databases. Br J Med Psychol. 1999; 72:535-42.

[32] Badamgarav E, Weingarten SR, Henning JM, Knight K, Hasselblad V, Gano A, Ofman JJ. Effectiveness of disease management programs in depression: A systematic review. Am J Psychiatry 2003; 160: 2080-90.

[33] Howell CA, Turnbull DA, Beilby JJ, Marshall CA, Briggs N, Newbury WL. Prevention relapse of depression in primary care: a pilot study of the "Keeping the blues away" program. Med J Aust 2008; 188: 138-41.

[34] Ludman EJ, Simon GE, Grothaus LC, Luce C, Markley DK, Schaefer J. A pilot study of telephone care management and structured disease self-management groups for chronic depression. Psychiatr Serv 2007; 58: 1065-72.

[35] Katon W, Rutter C, Ludman EJ, Von Korff M, Lin E, Simon G, Bush T, Walker E, Unützer J. A randomized trial of relapse prevention of depression in primary care. Arch Gen Psychiatry 2001; 58: 241-7.

[36] Simon GE, Von Korff M, Ludman EJ, Katon WJ, Rutter C, Unützer J, Lin EHB, Bush T, Walker E. Cost-effectiveness of a program to prevent depression relapse in primary care. Med Care 2002; 40: 941-50.

[37] Lin E, Von Korff M, Ludman EJ, Rutter C, Bush TM, Simon GE, Unützer J, Walker E, Katon WJ. Enhancing adherence to prevent depression relapse in primary care. Gen Hosp Psychiatry 2003; 25: 303-10.

[38] Ludman E, Katon W, Bush T, Rutter C, Lin E, Simon G, Von Korff M, Walker E. Behavioural factors associated with symptom outcomes in a primary care-based depression prevention intervention trial. Psychol Med 2003; 33: 1061-70.

[39] Von Korff M, Katon W, Rutter C, Ludman E, Simon G, Lin E, Bush T. Effect on disability outcomes of a depression relapse prevention program. Psychosom Med 2003; 65: 938-43.

[40] Smit A, Tiemens BG, Ormel J, Kluiter H, Jenner JA, Meer K van de, Os TWDP van, Conradi HJ. Enhanced treatment for depression in primary care: First year results on

compliance, self-efficacy, the use of antidepressants and contacts with the primary care physician. Prim Care Community Psychiatry 2005; 10: 39-49.

[41] Smit A, Kluiter H, Conradi HJ, van der Meer K, Tiemens BG, Jenner JA, Os TWDP van, Ormel J. Short-term effects of enfanced treatment for depression in primary care: results from a randomized controlled trial. Psychol Med 2006; 36: 15-26.

[42] Conradi HJ, de Jonge P, Kluiter H, Smit A, van der Meer K, Jenner JA. Enhanced treatment for depression in primary care: long-term outcomes of a psycho-educational prevention program alone and enriched with psychiatric consultation or cognitive behavioral therapy. Psychol Med 2007; 37: 849-62.

[43] Stant AD, Ten Vergert EM, Kluiter H, Conradi HJ, Smit A, Ormel J. Cost-effectiveness of a psychoeducational relapse prevention program for depression in primary care. J Ment Health Policy Econ 2009; 12: 195-204.

[44] Franchini L, Bongiorno F, Spagnolo C, Florita M, Santoro A, Dotoli D, Barbini B, Smeraldi E. Psychoeducational group intervention in addition to antidepressant therapy as relapse preventive strategy in unipolar patients. Clinical Neuropsychiatry 2006; 3: 282-5.

[45] Ryan CE, Keitner GI, Bishop S. An adjunctive management of depression program for difficult-to-treat depressed patients and their families. Depress Anxiety 2010; 27: 27-34.

[46] Bilsker D, Goldner EM, Anderson E. Supported self-management: A simple, effective way to improve depression care. Can J Psychiatry 2012; 57: 203-9.

[47] Coleman S, Briffa NK, Carroll G, Inderjeeth C, Cook N, McQuade J. A randomised controlled trial of a self-management education program for osteoarthritis of the knee delivered by health care professionals. Arthritis Res Ther 2012; 14: R21.

[48] Kiser K, Jonas D, Warner Z, Scanlon K, Shilliday BB, DeWalt DA. A randomized controlled trial of a literacy-sensitive self-management intervention for chronic obstructive pulmonary disease patients. J Gen Intern Med 2012; 27: 190-5.

[49] Ersser SJ, Cowdell FC, Nicholls PG, Latter SM, Healy E. A pilot randomized controlled trial to examine the feasibility and efficacy of an educational nursing intervention to improve self-management practices in patients with mild-moderate psoriasis. J Eur Acad Dermatol Venereol 2012; 26: 738-45.

[50] Heinen M, Borm G, van der Vleuten C, Evers A, Oostendorp R, van Achterberg T. The Lively Legs self-management programme increased physical activity and reduced wound days in leg ulcer patients: Results from a randomized controlled trial. Int J Nurs Stud 2012; 49: 151-61.

[51] Choi SE, Rush EB. Effect of a short-duration, culturally tailored, community-based diabetes self-management intervention for Korean immigrants: a pilot study. Diabetes Educ 2012; 38: 377-85.

[52] Roeloffs C, Sherbourne C, Unützer J, Fink A,Tang L, Wells KB. Stigma and depression among primary care patients. Gen Hosp Psychiatry 2003; 25: 311-5.

[53] Farrell K, Wicks MN, Martin JC. Chronic Disease Self-Management Improved with Enhanced Self-Efficacy. Clin Nurs Res 2004; 13: 289-308.

[54] Wright CC, Barlow JH, Turner AP, Bancroft GV. Self-management training for people with chronic disease: An exploratory study. Br J Health Psychol 2003; 8: 465-76.

[55] Barlow JH, Wright CC, Turner AP, Bancroft GV. A 12-month follow-up study of self-management training for people with chronic disease: Are changes maintained over time? Br J Health Psychol 2005; 10: 589-99.

[56] Tutty S, Simon G, Ludman E. Telephone counseling as an adjunct to antidepressant treatment in the primary care system: A pilot study. Eff Clin Pract 2000; 3: 170-8.

[57] Kroenke K, Shen J, Oxman TE, Williams JW Jr., Dietrich AJ. Impact of pain on outcomes of depression treatment: Results from the RESPECT trial. J Pain 2008; 134: 209-15.

[58] Sedgwick W, Washburn C, Newton C, Mirwaldt P. Shared care depression collaborative model: From project inception to outcome data. Can J Commun Ment Health 2008; 27: 219-32.

[59] Katon WJ, Lin EHB, von Korff M, Ciechanowski P, Ludman EJ, Young B, Peterson D, Rutter CM, McGregor M, McCulloch D. Collaborative care for patients with depression and chronic illnesses. N Engl J Med 2010; 363: 2611-20

[60] Patel V, Weiss HA, Chowdhary N, Naik S, Pednekar S, Chatterjee S, De Silva MJ, Bhat B, Araya R, King M, Simon G, Verdeli H, Kirkwood BR. Effectiveness of an intervention led by lay health counsellors for depressive and anxiety disorders in primary care in Goa, India (MANAS): a cluster randomised controlled trial. Lancet 2010; 376: 2086-95.

[61] Dickersin K. The existence of publication bias and risk factors to its occurrence. J Amer Med Assoc 1990; 263: 1385-9.

[62] Anderson RM, Funnell MM. Patient empowerment: myths and misconceptions. Patient Educ Couns 2010;79:277-82.

[63] Kirby SE, Dennis SM, Bazeley P, Harris MF. What distinguishes clinicians who better support patients for chronic disease self-management? Aust J Prim Health 2012;18:220-7.