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Shared Decision-Making: a Systematic Review Focusing on Mood Disorders

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Abstract

Purpose of Review This study aims to provide a review of the randomized controlled studies evaluating the effects of shared decision-making (SDM) intervention in comparison to care as usual in patients with mood disorders.

Recent Findings Of the 14 randomized controlled studies identified, only three 6-month studies evaluated the interest of SDM interventions using decision aids in depressed patients. All of them showed that the intervention effectively improved patient satisfaction and engagement in the decision-making process. Only one study in patients with bipolar disorder (BD) showed improvement of depressive symptoms, functioning, and quality of life. Other included studies were collaborative care interventions using a SDM approach in patients with depression in specific populations depending on age, gender, income, and physical comorbidities. All of them showed significant improvement in depression outcomes or medication adherence.

Summary SDM interventions using decision aids and collaborative care showed evidence of improvements in the management of depression. Stronger evidence of SDM interest in BD is needed.

Keywords Shared decision-making · Collaborative care · Major depressive disorder · Bipolar disorder · Mood disorder

Introduction

Mood disorders are severe and chronic diseases with an estimated prevalence of 9.5% during the last 12 months and are associated with disability [1], functional impairment, and negative impact on quality of life [2, 3].

Medication treatment represents the first-line therapy for the acute phase and the long-term prophylactic management of mood disorders [4, 5]. In spite of significant evidence on effective medications for the treatment of mood disorders, patient outcomes continue to be impacted by treatment adherence. In both bipolar disorder (BD) and major depressive disorder (MDD), treatment efficacy can be reduced by partial or complete non-adherence to treatment and premature discontinuation [6, 7], contributing to increase the risk of relapse and the use of healthcare services [8, 9].

Adherence to medication appears to be of prime importance and an integral part of the decision-making process. Effective physician-patient communication produces more favorable health outcomes, and treatment success can be increased when patients take an active role in their health care [10]. Thereby, during the last decade health care policies advocated a greater involvement of patients in clinical decisions, especially since the development of the concept of shared decision-making (SDM).

SDM can be defined as "an approach where clinicians and patients share the best available evidence when faced with the task of making decisions, and where patients are supported to consider options, to achieve informed preferences" [11]. This concept can be considered as a "meeting of experts": the physician as a medical expert and the patient as expert in his or her

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own life, values, and circumstances [12]. SDM is a promising way for patient-centered medicine.

In 2010, a Cochrane systematic review showed positive significant associations between SDM intervention and improved knowledge, patient participation, and satisfaction with care in patients with mental health conditions [13]. Since its publication, new studies evaluating the effects of SDM intervention in patients with mood disorders have been performed and published [14, 15••].

To provide the existing body of evidence in mood disorders, the main aim of this article was to review the available randomized controlled published studies evaluating the effects of SDM intervention in comparison to care as usual in patients with dysthymia, MDD, and BD.

Methods

Search Process

We conducted a comprehensive systematic search of the literature using multiple scientific literature databases (MEDLINE, EMBASE, SCOPUS, and Google Scholar) employing the Boolean logic algorithm ("bipolar" OR "mood disorder*" OR "affective disorder" OR "depress*" OR "psychiatric*" OR "severe mental") AND ("collaborative*" OR "shared decision-making" OR "decision aid*"). We restricted our search parameters to the abstracts or articles published in English between January 2000 and October 2017. Search results were last updated on November 1, 2017. Inclusion criteria contained articles with SDM intervention or collaborative care, which contained at least one module using a SDM process. Additionally, our search was only focused on randomized controlled trials or clustered randomized controlled trials comparing interventions and care as usual groups. The sample population studied had mood disorders: dysthymia, MDD, or BD type I and type II. The selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria.

Procedure and Data Extraction

Articles were independently title-screened by two authors (JG, LS) for duplicates or irrelevant papers. In case of ambiguity, abstracts were consulted. Secondarily, all abstracts and full texts were independently screened by the same two authors and were considered for inclusion only if they provided sufficient information. After conciliation, papers meeting underlying conditions were carefully reviewed and relevant data extracted for the review. Actually, there is no consensual definition of SDM but some concepts, such as patient values/preferences, therapeutic options, patient engagement and participation, and patient education, seem to be essential to

determine a SDM intervention [16]. Consequently, selected articles had to contain interventions, which integrated actively the patient in the medical process through these concepts. For instance, several studies with collaborative care programs have been included in this review, because they contained at least one module that met the definition of SDM intervention.

Results

More than 600 potential entries matching the search criteria were identified, and 152 articles were available after the removal of duplicates and papers excluded by titles. Ninety-six more were excluded after reading the abstract, and we assessed the full text in 56 studies. Subsequently and after careful manual review, we excluded 39 of the retrieved articles: 34 did not meet SDM criteria, 6 did not meet population inclusion criteria, and 2 for other reasons. A total of 14 original studies met our inclusion criteria (Fig. 1). Therefore, we divided the studies into two categories: (1) Interventions in patients with mood disorder and (2) Interventions in patients with depressive disorder in specific populations.

SDM Interventions in Patients With Mood Disorder

Four randomized controlled trials evaluated the effects of SDM intervention in patients with mood disorders (Table 1).

Among them, only three assessed specifically the impact of SDM in a population of patients with dysthymia and/or MDD. First, Loh et al. (2007) conducted a multi-faceted program based on SDM. It included physician training, a decision board for use during the consultation and printed patient information that combined evidence-based knowledge about depression care and specific encouragement for patients to be active in the decision-making process [10]. This cluster randomized controlled intervention study enrolled 405 patients with newly diagnosed depression and found significant improvement of physician facilitation of patient participation ($p = .005$) in the intervention group compared to the control group. Patient satisfaction at post-intervention was also higher in the intervention group ($p = .014$), but no intervention effect for depression severity reduction was found. The consultation duration did not differ between groups.

Secondly, Aljumah et al. (2015) evaluated the effectiveness of SDM-based pharmacist intervention for improving adherence and outcomes in MDD patients [18]. This 6-month randomized controlled trial included 239 patients (intervention group, $n = 119$; control group, $n = 120$). The intervention enhanced patients' involvement in decision-making by assessing their beliefs and knowledge about antidepressants and using a decision aid specifically designed for depressed patients. After 6 months, patients in the intervention group had significantly more favorable medication adherence ($p < .001$), treatment
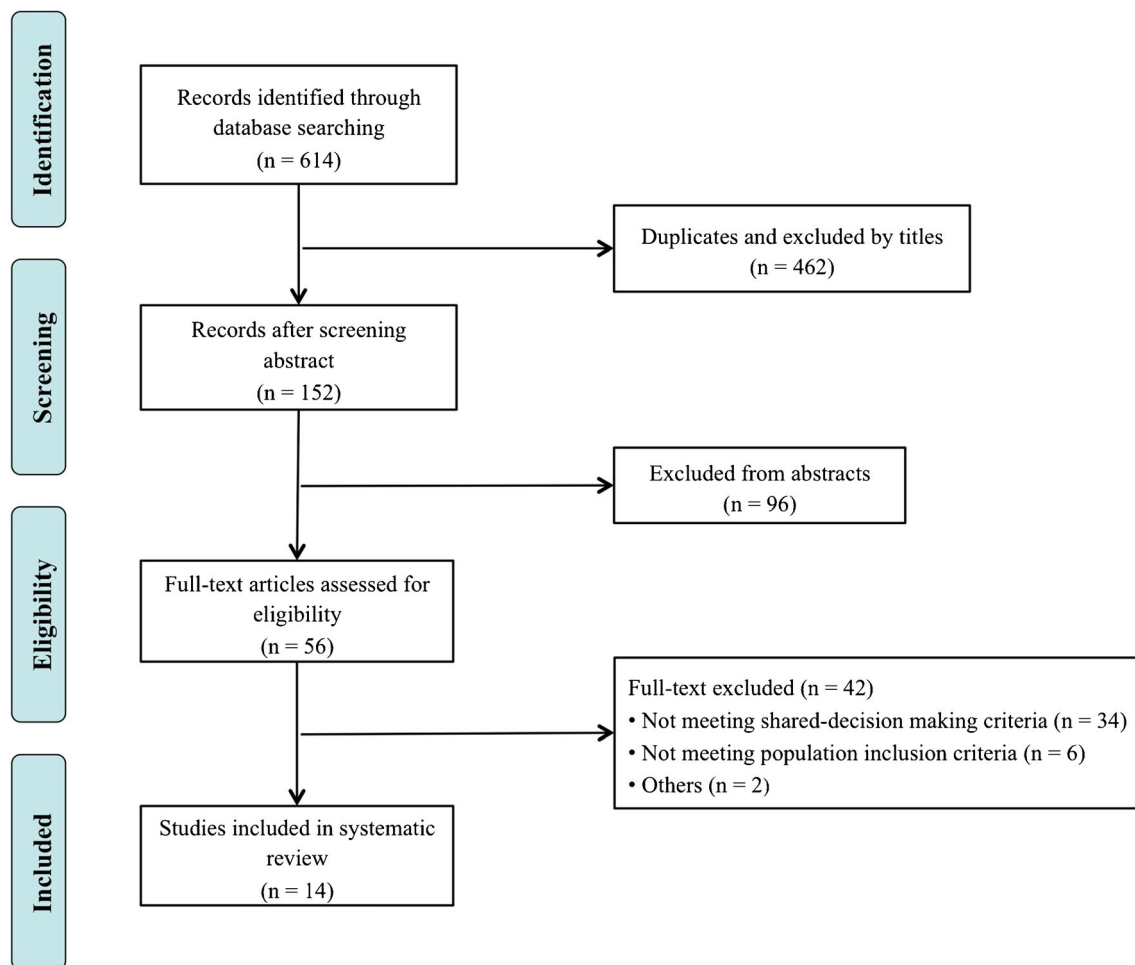
Fig. 1 PRISMA flowchart of study selection

satisfaction ($p < .001$), general overuse ($p = .029$), and specific concern beliefs ($p = .024$). The authors did not find significant differences in severity of depression or health-related quality of life between groups.

Thirdly, LeBlanc et al. (2015) conducted a cluster randomized controlled trial in which they allocated primary care practices to treat depression with or without a depression decision aid (Depression Medication Choice) [17••]. This decision aid used a series of laminated cards that presented general considerations about antidepressant efficacy and side effects in terms that matter to patients (i.e., weight change, sleep, sexual issues, stopping approach, and cost). Clinicians in the intervention group were to use the decision aid during their consultations. A total of 297 patients were enrolled and compared to care as usual. Use of a specific decision aid significantly improved patients' decisional comfort ($p = .02$), knowledge ($p = .03$), satisfaction (RR = 1.25, $p = .81$ to RR = 2.4, $p = .002$), and involvement ($p < .001$) in the decision-making process. It also improved clinicians' decisional comfort ($p < .0001$) and satisfaction (RR = 1.64, $p = .02$). On the other hand, there were no differences in encounter duration,

medication adherence, or improvement of depression control between groups.

van der Voort et al. (2015) performed a collaborative care multi-component intervention including a SDM approach for BD patients [19, 20••]. Patients in severe depressive or manic episode at the time of inclusion and patients with a stable course of illness over the past year were excluded. All decisions concerning treatment were made by a collaborative care team including the patient, considering his preferences and involving him in decision-making process. The collaborative care group ($n = 56$) showed more improvement in overall functioning compared to the care as usual group ($n = 82$), with a small effect size (ES = .3, $p = .01$). In certain domains of functioning (autonomy and leisure time), a medium effect was found in favor of collaborative care (autonomy: ES = .5, $p = .004$; leisure time: ES = .4, $p = .02$). Concerning quality of life, patients in the intervention group were only improved more in the physical health domain (ES = .4, $p = .01$) compared to the care as usual group [19]. Collaborative care had a significant and clinically relevant effect on number of months with depressive symptoms, both at 6 months

Table 1 Characteristics of randomized controlled trials including SDM process in adult patients with mood disorder

Study (year)	Diagnosis	Trial duration (months)	Setting	Main eligibility criteria	Interventions	Control	Results
LeBlanc et al. (2015) [17••]	MDD	6	Primary care clinics	> 18 years PHQ-9 ≥ 10	Shared decision-making with support for treatment decision (N = 158)	CAU (N = 139)	Significant improvement in patients' decisional comfort (p = .02), knowledge (p = .03), satisfaction (p = .002), and involvement (p < .001) in the decision-making process in the intervention group. Improvement in clinicians' decisional comfort (p < .0001) and satisfaction (p = .02). No significant differences in encounter duration, medication adherence, or improvement of depression control between intervention and control groups
Aljumah et al. (2015) [18]	MDD	6	Pharmacy routine practice	18–60 years DSM-IV criteria for MDD	Shared decision-making based on pharmacist intervention (N = 119)	CAU (N = 120)	Significantly more favorable medication adherence (p < .001), treatment satisfaction (p < .001), general overuse (p = .029), and specific concern beliefs (p = .024) in the intervention group. No significant differences in severity of depression or health-related quality of life
van der Voort et al. (2015) [19]	BD	12	Mental health outpatient clinics	18–65 years DSM-IV-TR criteria for BD	Collaborative care with: - Care management - Patient treatment preference (N = 56)	CAU (N = 82)	Significant improvement in number of months with depressive symptoms (p = .002) and in depression severity (p = .004) in the intervention group. Significant improvement in overall functioning (p = .01) and in quality of life in term of physical health (p = .01) in the intervention group. No significant differences in work functioning, financial issues, social life, overall quality of life, and on symptoms of mania or treatment adherence between intervention and control groups
Loh et al. (2007) [10]	MDD	Pre/post intervention (6–8 weeks)	Primary care clinics	≥ 18 years GPs' diagnosis of depression	Shared decision-making with a decision board support (N = 263)	CAU (N = 142)	Significant improvement of physician facilitation of patient participation (p = .005) and in patient satisfaction (p = .014) in the intervention group. No significant differences in severity of depression and in the duration of consultation between intervention and control groups

BD bipolar disorder, CAU care as usual, GP general practitioner, MDD major depressive disorder, PHQ-9 Patient Health Questionnaire

($p = .01$) and at 12 months ($p = .002$), as well as on the severity of depressive symptoms at 12 months ($p = .004$) [20••].

SDM Interventions in Patients With Depressive Disorder in Specific Populations

The 10 remaining studies evaluated SDM interventions in patients with dysthymia or MDD in specific populations depending on age, gender, income, and physical comorbidities. No results were found for BD patients (Table 2).

SDM Interventions in Adolescent and Elderly Populations

Unützer et al. (2002) performed a 12-month randomized controlled trial to determine the effectiveness of the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) collaborative care program versus care as usual in 1801 patients with late-life depression [23]. The IMPACT intervention [33] consisted of a care management where a depression clinical specialist supports the patient's regular primary care provider to treat depression. Each participant received an initial education and an engagement session (20-min educational videotape and a booklet about late-life depression). The SDM approach facilitated patient decision-making between antidepressant medications. The authors reported improvement in depressive symptoms (50% or greater reduction from baseline) at 12 months in the intervention group ($p < .001$) and also greater rates of antidepressant use ($p < .001$), more satisfaction with depression care ($p < .001$), lower depression severity ($p < .001$), less functional impairment ($p < .001$), and greater quality of life ($p < .001$).

Similarly, Richardson et al. (2014) investigated the IMPACT intervention in adolescents with MDD [22]. They conducted a 12-month randomized controlled trial enrolling 101 adolescents aged 13 to 17 years who met criteria for MDD. The adapted collaborative care intervention was based on the IMPACT model and included SDM concepts, such as an initial education and engagement session, and an active discussion for the choice of treatment depending on patient and parents preferences or values. Intervention youth ($n = 50$), compared with those randomized to care as usual ($n = 51$), showed greater improvement in depressive symptoms according to the Children Depression Rating Scale at 12 months ($p < .001$). This intervention also appeared to be cost-effective [21].

SDM Interventions in Women Population During Pregnancy or Gynecological Care

Grote et al. designed an 18-month multi-site randomized controlled trial in pregnant women who met criteria for dysthymia and/or MDD to evaluate the efficacy of MOMCare, a collaborative care intervention for perinatal depression, in comparison to care as usual (intensive maternity support services) [24]. MOMCare included patient education, a pre-treatment engagement session to help resolve practical, psychological, and cultural barriers to care and the choice of treatment between brief interpersonal psychotherapy and/or antidepressant. Depression specialist encouraged women requesting antidepressants as an initial treatment to engage in a risk-benefit decision-making process with their obstetrician. From before birth to 18 months post baseline, MOMCare ($n = 83$) compared to care as usual participants ($n = 85$) showed significantly higher rates of depression remission ($p = .05$), lower levels of depression severity ($p = .01$), and greater adherence to antidepressants ($p < .01$).

In 2014, Melville et al. evaluated another evidence-based collaborative depression care intervention adapted to women follow-up in obstetrics and gynecology clinics compared to care as usual [26]. This multi-site randomized controlled trial enrolled women (pregnant or not) who met criteria for MDD, dysthymia, or both. The three-part intervention included the following: enhanced education, engagement of patients and patient choice of initial antidepressant medication or problem solving treatment, and behavioral activation. Intervention ($n = 102$) compared to care as usual ($n = 103$) patients had greater improvement in depressive symptoms at 12 months ($p < .001$) and 18 months ($p = .004$) and improved functioning over 18 months ($p < .05$).

SDM Interventions in Low-Income Population

In 2008, Ell et al. conducted a randomized controlled trial using collaborative care management of depression (MDD and/or dysthymia) among 472 low-income patients with cancer. This collaborative care program, as well as study recruitment and intervention protocols, was specifically adapted for low-income patients [27]. The Alleviating Depression Among Patients With Cancer (ADAPt-C) intervention adapted the IMPACT stepped care model, including the following SDM components: initial patient engagement and patient education about depression, antidepressant treatment and psychotherapy, and consideration of initial patient treatment choice. At 12 months, 63% of patients in the intervention group had a 50% or greater reduction in depressive symptoms from baseline compared with 50% of patients in the care as usual group ($p = .01$). Patients in the intervention group also experienced greater rates of depression treatment (72.3 vs. 10.4%, $p < .0001$) and significantly better quality of life outcomes, including social/family ($p < .001$), emotional ($p = .01$), functional ($p = .04$), and physical well-being ($p = .02$).

A couple of years later, Ell et al. also investigated a sociocultural adapted collaborative care among 387 low-income, predominantly Hispanic diabetes patients with MDD [28]. The intervention took into account patient initial choice of treatment for depression according to different options. At

Table 2 Characteristics of randomized-controlled trials including SDM process in patients with depressive disorder in specific populations

Study (year)	Diagnosis	Trial duration (months)	Setting	Main eligibility criteria	Interventions	Control	Results
Adolescent and elderly populations							
Wright et al. (2016) [21] Richardson et al. (2014) [22]	MDD	12	Primary care clinics	Adolescents 13–17 years\PHQ-9 ≥ 10 or K-SADS + CDRS-R ≥ 42	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference (N = 50)	CAU (N = 51)	Significant improvement in depressive symptoms (p < .001) in the intervention group. No significant differences in health plan costs between interventions and control group: cost-effective
Unützer et al. (2002) [23]	MDD/dysthymia	12	Primary care	≥ 60 years MDD/dysthymia to the SCID	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference (N = 906)	CAU (N = 895)	Significant improvement in depressive symptoms (p < .001), satisfaction with depression care (p < .001), and depression severity (p = .004) in the intervention group. Significant improvement in quality of life (p < .001) and greater rates of antidepressant use (p < .001) in the intervention group
Women population during pregnancy or gynecologic care							
Grote et al. (2015) [24]	MDD/dysthymia	18	Public health centers	Pregnant women ≥ 18 years MDD on the PHQ-9 (at least 5 symptoms ≥ 2 with one cardinal symptoms) Dysthymia based on the MINI 5.0	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference - Patient education (N = 83)	CAU (N = 85)	Significant improvement in depression remission (p = .05) and depression severity (p = .01) in the intervention group
Katon et al. (2015) [25] Melvil et al. (2014) [26]	MDD/dysthymia	18	Obstetrics-Gynecology clinics	Women ≥ 18 years MDD based on PHQ-9 ≥ 10 Dysthymia based on the MINI 5.0	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference - Patient education (N = 102)	CAU (N = 103)	Significant improvement in depressive symptoms (p = .004) and functioning (p < .05) in the intervention group
Low-income population							
Ell et al. (2008) [27]	MDD/dysthymia	12	Oncology clinics	≥ 18 years Cancer diagnosis PHQ-9 ≥ 10 or SCID indicating dysthymia	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference - Patient education (N = 242)	CAU (N = 230)	Significant improvement in depressive symptoms (p = .01), quality of life including social/family (p < .001), emotional (p = .01), functional (p = .04), and physical well-being (p = .02) and greater rates of depression treatment (p < .0001) in the intervention group
Ell et al. (2011) [28]	MDD	24	Primary care clinics	≥ 18 years PHQ-9 ≥ 10	Collaborative care with: - Care management	CAU (N = 194)	Significant increase of patients receiving ongoing antidepressant

Table 2 (continued)

Study (year)	Diagnosis	Trial duration (months)	Setting	Main eligibility criteria	Interventions	Control	Results
							treatment ($p = .02$) and improvement of sustained depression symptoms ($p = .03$) in the intervention group
Dwight-Johnson et al. (2010) [29]	MDD/dysthymia	4	Primary care clinics	≥ 18 years PHQ-9 / PRIME-MD	Collaborative care with: - Care management - Patient treatment preference - Patient education ($N = 173$)	CAU ($N = 166$)	Preference of counseling or combined counseling and medication over antidepressant medication alone
Population with physical comorbidities							
Katon et al. (2010) [30]	MDD	12	Primary care clinics	Diabetes or coronary heart disease or both PHQ-9 ≥ 10	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference ($N = 106$)	CAU ($N = 108$)	Significant improvement of control of medical disease in depressive symptoms ($p < .001$), quality of life ($p < .001$) in the intervention group Greater satisfaction with care for diabetes, coronary heart disease, or both ($p < .001$) and with care for depression ($p < .001$)
Huffman et al. (2011) [31]	MDD	6	Inpatient cardiac units	Acute cardiac disease PHQ-9 ≥ 10	Collaborative care with: - Care management - Patient treatment preference - Patient education ($N = 90$)	CAU ($N = 85$)	Significant increase in rates of appropriate depression treatment ($p < .001$) in the intervention group
Stewart et al. (2014) [32]	MDD/dysthymia	96	Primary care clinics	≥ 60 years With or without baseline CVD	Collaborative care with: - Care management - Patient engagement and participation - Patient treatment preference ($N = 85$ without + 35 with baseline CVD)	CAU ($N = 83$ without + 32 with baseline CVD)	Significant improvement in depressive symptoms ($p < .001$) and decrease in CVD events in patients without baseline CVD in the intervention group Reduction by half the excess risk of hard CVD before CVD onset in the intervention group

CAU Care as usual, CDRS-R Children's Depression Rating Scale-Revised, CVD cardiovascular disease, K-SADS Kiddle Schedule for Affective Disorders and Schizophrenia, MDD major depressive disorder, MINI Mini International Neuropsychiatric Interview, PHQ-9 Patient Health Questionnaire, PRIME-MD Primary Care Evaluation of Mental Disorders, SCID Structured Clinical Interview for DSM-IV

24 months, patients in the intervention group were significantly more likely to be receiving antidepressant medication (38 vs. 25%, $p = .02$) and experienced significantly more sustained depression symptom improvement (adjusted OR = 2.06, $p = .03$).

Dwight-Johnson et al. (2010) investigated equally a low-income population predominantly Latino with MDD and examined whether a collaborative care intervention that included SDM approaches, as patient education and patient treatment preferences, would increase the likelihood that patients received preferred treatment [29]. The results showed that patients preferred counseling or counseling plus medication over antidepressant medication alone and they were 21 times (OR = 20.7, $p < .001$) as likely to receive preferred care.

SDM Interventions in Populations With Physical Comorbidities

Two studies presented in the previous section (i.e., low-income population) included depressed patients with physical comorbidities (i.e., cancer and diabetes) and showed that the interventions were significantly associated with greater improvement in depression outcomes.

However, other studies assessing the impact of interventions including a SDM approach in depressed patients with physical comorbidities, especially cardiovascular diseases, have been identified. These studies make it possible to determine if the effect of the intervention is similar without the low-income variable.

One of them, a single-blind randomized controlled trial in 14 primary care clinics, involved 214 participants with poorly controlled diabetes, coronary heart disease, or both and coexisting depression [30]. Patients were randomized to the collaborative care group or the care as usual group. Patients in the intervention group received self-care materials, including a depression "Helpbook," a video compact disk on depression care, a booklet, and other materials on chronic disease management. Patients worked collaboratively with nurses and primary care physicians to establish individualized clinical and self-care goals and best treatment options. As compared with controls, patients in the intervention group significantly improved control of medical disease and had greater 12-month improvement in depressive symptoms ($p < .001$). They reported better quality of life ($p < .001$) and greater satisfaction with care for diabetes, coronary heart disease, or both ($p < .001$) and with care for depression ($p < .001$).

In 2011, Huffman et al. conducted another randomized controlled trial comparing collaborative care and care as usual in depressed cardiac patients who were admitted to cardiac units [31]. In this collaborative care program, the SDM approach included respect of patient treatment preferences and a part of patient education. Patients in the intervention group were significantly more likely to be receiving antidepressant medication at discharge (71.9% collaborative care vs. 9.5% usual care, $p < .001$).

Stewart et al. (2014) compared the IMPACT collaborative care program and care as usual, in 235 patients aged greater than 60 years with MDD or dysthymia and with or without baseline cardiovascular disease (CVD) during an 8-year follow-up study [32]. The results showed that among patients without baseline CVD, the intervention group had a greater reduction in depressive symptoms than the care as usual group ($p < .001$) and were more likely to have taken antidepressants during the trial. Inversely, there was no difference in depression score between groups of patients with baseline CVD. IMPACT patients without baseline CVD had a 48% lower risk of a CVD event than patients in the care as usual group (28 vs. 47%, HR = .52, 95% CI .31–.86). Collaborative care in MDD patients before CVD onset reduced by half the occurrence risk of new CVD events during follow-up.

Discussion

This systematic review found 14 randomized controlled studies evaluating the effects of SDM intervention in patients with mood disorders. Table 3 presents a summary of the main results from these included studies.

Only three 6-month studies evaluated the interest of specific SDM intervention using decision aids in patients with MDD and/or dysthymia [10, 17,18]. All of them showed that the intervention effectively improved patient satisfaction, knowledge, and engagement in the decision-making process. There were no differences in the duration of medical consultations and also no differences in terms of improvement of depressive symptoms between groups. However, none of these studies were designed to assess the efficacy of SDM intervention on depressive symptoms as a primary outcome. Inconsistent results in medication adherence were found. These results were consistent with a systematic review of 115 randomized controlled studies in patients facing treatment in which decision aids compared to care as usual improved patients' knowledge and engagement with treatment [34•]. They also expressed comfort with the decision-making process. Interestingly, implementation of SDM by pharmacist appeared feasible and was associated with positive outcomes [18], highlighting their potential role in providing regular care to patients with mood disorders.

Only one study in BD patients was found and showed improvement of depressive symptoms, functioning, and quality of life [19, 20••]. For now, the level of evidence is too weak to conclude that SDM is beneficial in BD. As BD treatment addresses two distinct and sometimes co-occurring symptoms (depression and (hypo)mania) one may wonder if BD patients are not expected to differ from other mental health users,

Table 3 Summary of the main results from the included RCT evaluating the effects of SDM interventions in patients with mood disorders

	MDD and/or dysthymia	Bipolar disorder
SDM interventions in mood disorders	Specific SDM intervention using decision aids improved patient satisfaction, knowledge, and engagement in the decision-making process	CC intervention improved depressive symptoms, functioning, and quality of life
SDM interventions in specific populations	Adolescents CC intervention improved depressive symptoms and adherence to antidepressant Elderly CC intervention improved depressive symptoms, satisfaction with care, and quality of life Pregnant women CC intervention improved depression remission and depression severity Low-income population CC improved depressive symptoms, quality of life, and adherence to antidepressant Population with physical comorbidities CC intervention improved depressive symptoms, quality of life, rates of appropriate depression treatment, and control of medical disease	No study was available

CC collaborative care including a SDM approach, *MDD* major depressive disorder, *RCT* randomized-controlled trials, *SDM* shared decision-making

especially in mood disorders, in terms of preferences and engagement in treatment decision-making.

Other included studies investigated collaborative care intervention in patients with dysthymia/MDD in specific populations depending on age, gender, income, and physical comorbidities. Collaborative care could be considered as an extended model of SDM, in which other physical and mental health professionals and patients' families will be involved too. This model aims to improve the physical and mental health of people with mental illness in primary care [35]. If the key features of this model have been described [36], the available collaborative care studies varied significantly in the exact nature of their intervention. As a consequence, numerous collaborative care studies have been excluded from this review, because they did not contain SDM principles such as patient values/preferences, therapeutic options, patient engagement or participation, and patient education. However, all the collaborative care studies included in our review, whatever the specific populations (i.e., adolescents, elderly patients, pregnant women, patients with low-income, and patients with physical comorbidities), showed that the interventions were significantly associated with greater improvement in depression outcomes or medication adherence. These results are consistent with a recent Cochrane systematic review including 79 randomized controlled studies assessing the effectiveness of collaborative care for patients with depression and anxiety, which found significantly greater improvement of depression in the short term, medium term, and long term [37].

As previously highlighted by authors, collaborative care seems to be particularly useful in the management of patients with comorbidity and multi-morbidity, especially depression and long-term conditions [35]. This model of care could also facilitate accessibility to health care for patients with low income.

In comparison with studies evaluating specific SDM interventions using decision aids in MDD patients, collaborative care interventions including a SDM approach showed stronger evidence of their interest and effectiveness in the management of depression.

Limitations

SDM is positioned midway between informed choice and paternalistic model explaining in part the important overlap between definitions surrounding the concept of SDM, which vary substantially from one author to another [16]. The lack of a consensual definition leads to different bias, including an inconsistent measurement of SDM impact. Moreover, due to the significant variation in severity of mood disorders, contexts, comparators, and design of the included studies, their results have to be interpreted carefully.

Conclusions

SDM interventions using decision aids appear to improve patient satisfaction and engagement in the decision-making

process. Extended models of SDM as collaborative care also demonstrated interest in the management of depression in primary care.

SDM represents a useful patient-centered approach easily feasible and applicable for clinical practice.

Stronger evidence about the use of SDM in mood disorders, especially in BD, is needed. Future studies should be designed to assess more clinical primary outcomes such as medication adherence, symptomatology, functioning, or quality of life.

Compliance with Ethical Standards

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Papers of particular interest, published recently, have been highlighted as:
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