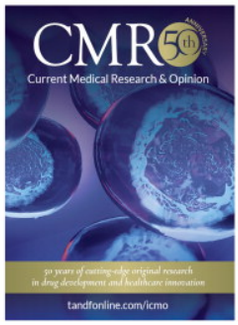

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REVIEW ARTICLE

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Goal setting and goal attainment in patients with major depressive disorder: a narrative review on shared decision making in clinical practice

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ABSTRACT

Objective: Narrative review of the processes of goal setting and goal attainment scaling, as practical approaches to operationalizing and implementing the principles of shared decision making (SDM) in the routine care of people living with major depressive disorder (MDD).

Methods: We searched electronic databases for clinical studies published in English using key terms related to MDD and goal setting or goal attainment scaling. Two clinical studies of goal setting in MDD are considered in detail to exemplify the practicalities of the goal setting approach.

Results: While SDM is widely recommended for people living with mental health problems, there is general agreement that it has thus far been implemented variably. In other areas of medicine, the process of goal setting is an established way to engage the patient, facilitate motivation, and assist the recovery process. For people living with MDD, the concept of goal setting is in its infancy, and only few studies have evaluated its clinical utility. Two clinical studies of vortioxetine for MDD demonstrate the utility of goal attainment scaling as an appropriate outcome for assessing functional improvement in ways that matter to the patient.

Conclusions: Goal setting is a pragmatic approach to turning the principles of SDM into realities of clinical practice and aligns with the principles of recovery that encompasses the notions of self-determination, self-management, personal growth, empowerment, and choice. Accumulating evidence supports the use of goal attainment scaling as an appropriate personalized outcome measure for use in clinical trials.

PLAIN LANGUAGE SUMMARY

Shared decision making is a structured approach in which a doctor assists their patient in making informed choices about treatment that consider the patient's own preferences. However, while acknowledged as the ideal approach, many doctors working in the mental health area say it can be difficult to apply in their daily clinical practice. In other areas of medicine, such as physical rehabilitation, the structured process of patients setting treatment goals in dialogue with their doctor has been recommended as a practical way to put the principles of shared decision making into practice.

In this paper, we reviewed the medical literature to better understand how goal setting can be used to improve the care of people with major depressive disorder. The available evidence supports goal setting as a powerful way to engage patients in healthcare decisions, and ultimately improve health-related outcomes. The goal setting process provides patients the opportunity to verbalize their own, tangible goals for treatment; and following some negotiation, receive endorsement of their goals from their doctor. Patients feel supported and are better motivated to continue with their treatment.

While still in its infancy, the growing evidence base supporting goal setting for people with major depressive disorder is encouraging. For example, the Goal Attainment Scaling (GAS) method of evaluating treatment success has been suitably adapted for use in people living with depression (GAS-D) and provides an easy, structured format for discussing personal treatment goals, as well as a method for tracking success, both in clinical practice and research studies.

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Goal attainment scaling; goal setting; major depressive disorder; shared decision making

Introduction

Major depressive disorder (MDD) is a complex, heterogeneous, and potentially long-term condition affecting over 322 million people worldwide, with an estimated life-time prevalence of 20.6%[1–3]. MDD is one of the leading causes of global disability[4,5] and is associated with significant economic burden[6]. In recent decades, the acknowledgement of depression as a common and serious illness has led to major

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improvements in its diagnosis and treatment, including the development of a large range of effective nonpharmacological therapies[7] and antidepressant medications[8]. The current clinical state-of-the-art is focused on enhancing treatment adherence and success by tailoring therapy to align with each individual presentation, considering core symptoms, current circumstances, and personal preferences[9,10]. When done well, selecting the "right" treatment that aligns with patient preferences can increase treatment satisfaction and adherence and reduce the risks of relapse, recurrence, and persistent impairment, thereby increasing the chances for functional recovery[11–13].

Shared decision making (SDM) is advocated as the preferred model of patient – healthcare professional (HCP) interactions to engage patients in the process of deciding about treatment, or follow-up when more than one medically reasonable option is available. While often considered a relatively new approach to healthcare, the terminology of SDM was first coined in 1972[14] but it gained traction in the late 1990s when Charles et al.[15] outlined four key characteristics:

1. that at least two participants – HCP and patient – be involved
2. that both parties share information
3. that both parties take steps to build a consensus about the preferred treatment
4. that an agreement is reached on the treatment to implement.

These principles have since been refined, for example to include the use of lay-person friendly decision aids[16] and the wider multidisciplinary team[17]. There is now general agreement that SDM can be broadly 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"[18]. In a systematic review of SDM interventions for mood disorders using decision aids and collaborative care, Samalin et al. found that SDM-based interventions significantly improve patient satisfaction and engagement, as well as preliminary evidence of improvements in outcomes and/or medication adherence[19].

Despite considerable interest in SDM, healthcare system implementation has proved difficult and slow, including in psychiatric practice[13,20]. Commonly cited barriers for implementation have included a lack of published evidence of efficacy in mental health conditions as well as beliefs about the health literacy and insight of the patient[21,22]. In addition, there remain several misconceptions about the nature of SDM, the skills it requires, the time it takes, and the degree to which patients wish to participate[23]. Another implementation barrier occurs when clinicians "think" they already involve patients in decision making but the patients do not agree they have been appropriately involved[20,24]. Although several paths to implementing SDM have been suggested[25–27], one pragmatic approach to implementing SDM in routine mental health practice is to involve patients in their own treatment goal setting[28].

Search strategy

For this narrative review, the electronic databases PubMed, PubMed Central, EMBASE and Google Scholar were searched in January 2023 and updated in October 2023 for clinical studies published in English using the broad search terms "goal setting" (PubMed only) and "goal attainment scaling" without date limitation. Next, we also searched these databases using the terms combined MESH terms and keywords related to MDD, mental health, and psychiatry (e.g. depression, major depressive disorder, mental illness, mental health condition, and psychiatric diagnosis) AND goal setting (e.g. goal setting, goal attainment scaling, goal planning, and shared decision making). We also checked the reference lists and citations of retrieved articles. To exemplify the potential utility of goal setting and goal attainment scaling (GAS) as a practical approach to operationalizing SDM in patients with MDD, we describe two clinical studies of goal setting in MDD.

Goal setting

"Goals" are explicit representations of intended endpoints, which fill the perceived gap between the current and desired end state[29], and "goal setting" is the process by which one identifies specific goals and determines how they will be achieved[30]. In other areas of medicine, such as physical rehabilitation[31,32], the collaborative process of goal setting as a means to engage patients in their care and tailor treatments to their own circumstances and personal preferences is already embedded in clinical practice as an essential part of SDM. Goal choices are made in patients' best interests, and, working together, the physician and patient reformulate goals that are potentially unsafe or unrealistic, to safer and more easily achieved goals. Across medicine, there is increasing evidence that patient engagement positively affects health outcomes in patients with long-term conditions[33,34]. Yet, while goal setting for depression is more widely employed in youth settings[35], only few studies have looked at goal setting for adults living with depression. Indeed, most studies have been conducted in mixed populations of patients with mental illness. In a recent systematic review of goal setting in mental healthcare[28], only six of 54 studies incorporating a form of goal setting were conducted in adults living with depression, and only one of these evaluated the impact of goal setting on goal attainment (after cognitive behavioural therapy)[36]. More generally, the authors of the systematic review concluded that while individualized, recovery-oriented and collaborative goal planning was often *recommended* across mental healthcare, it was infrequently used in practice[28].

From the clinician's perspective, clinical trials (and therefore the clinical literature and ultimately guidelines) have largely been geared to assess the efficacy of treatments in reducing symptom severity, often applying scale-based definitions of symptomatic response and remission[37,38]. The effective management of core depressive symptoms is clearly a treatment priority, especially in the acute stages. However,

patients do not define recovery according to a score on a symptom severity scale[39,40], and the relevance of more functional goals is becoming more apparent[41,42]. To begin to identify the types of goals that patients have for depression treatment, Battle et al. developed a coding system to categorize and qualitatively describe the treatment goals that patients voiced when working with their therapist at the beginning of their outpatient psychotherapy treatment[43]. In the context of a psychotherapy intervention, they found that patients with MDD most often articulated goals related to improving family or other social relationships, increasing positive health behaviours, finding a job, or organizing their home[43]. Similar findings were found when hospitalized depressed patients were asked about their treatment goals. Common responses in these patients with severe illness also included improving relationships, decreasing sadness or anxiety, and finding a job or improving job performance[44]. As such, the findings of these preliminary studies highlight the relevance of elucidating the patient's social and occupational performance-related goals as well as symptom-related goals.

Goal setting has also been evaluated in clinical MDD studies such as a prospective, 6-month, observational study of treatment with the antidepressant medication vortioxetine in the Japanese clinical practice setting; and offers important insights into the types of goals that patients prioritize[45,46]. In this study, a semi-structured interview was conducted with each patient for goal setting at the baseline visit, using a SMART (specific, measurable, attainable, realistic, and time-bound) framework[47] to ensure that they were specific, clear, and personal to the patient. Together with their clinician, patients determined two goals that would be used to define treatment success. The first goal was patient-defined with no specific limitations set for the type or focus of the goal, beyond requiring that it met the basic standards of measurability, equidistance, and difficulty. Of note, the patients' self-defined goals were most often to do with motivation (41.0%), followed by physical/functional goals (20.5%), psychological goals (18.8%), cognitive goals (12.8%), and emotional goals (6.8%)[46]. Figure 1 shows worked examples of how functional goals can be worked into a SMART framework.

The process of goal setting is itself potentially useful in the management of MDD because it is considered a prominent behaviour change technique[48]. It provides the opportunity for patients to verbalize their own goals, and following some negotiation, receive endorsement of their goals from the clinician. When goals are personally meaningful, patients report that they facilitate motivation and assist the recovery process[49]. Goal setting can help to make things seem more manageable, enabling the patient to feel supported and have ownership of their care, and to avoid disengagement from therapy. Goal setting can offer an important element of empowerment since the patients are working together with the physician to identify meaningful outcomes. In addition, it provides a structured environment to develop the therapeutic alliance through open communication, using a shared language and building trust[35]. The extra time taken to define SMART goals helps break down somewhat nebulous statements into smaller steps, for example from "being able to socialize" to "schedule and attend one social event in the past week".

It must be acknowledged that such important work takes considerable upfront engagement, and time, both for the physician to learn the skills needed for collaborative SMART goal setting[50,51] and then during the initial patient consultations. For example, simply asking patients to state their own treatment goals can be problematic because the psychopathology of depression (e.g. impaired executive function) means that individuals living with MDD tend to have reduced specificity of personal goal representations and related cognitions that might support goal-directed behaviour, compared with people who have never experienced clinical depression[52]. They are not less motivated by personal goals but are more pessimistic about their likelihood, controllability, and reasons for successful goal attainment[53]. This means that the clinician needs to spend some time eliciting the potential goals, making initial proposals that make the goals seem more tangible, and listening to the patient feedback[49]. In clinical trials of goal setting, investigators often receive specific training in communication skills and shared decision making[54], and this has been shown to clearly improve the quality of the goal statements[55]. Such training is readily available as part of continuing professional development (CPD). However, a growing consensus in the mental health arena is that the initial time spent helps save time later on[41]. While there is no consensus on the practicalities of setting treatment goals with individuals with MDD, Box 1 summarizes practical steps derived from the two vortioxetine treatment studies.

Goal attainment scaling

The value gained from understanding health outcomes from the patient's perspective has been acknowledged increasingly in recent years and are important for showing the value of treatments during commissioning and reimbursement discussions[56–58]. As part of the FDA Patient-Focused Drug Development (PFDD) initiative[59], patients living with depression reviewed the currently approved scales for clinical trials[40,60]. From their personal perspective, the efficacy of treatment should not be solely judged on the basis of clinician-rated symptom scales such as the Hamilton Depression (HAM-D) Rating Scale or the Montgomery Asberg Depression Rating Scale (MADRS), both of which miss important aspects of depression such as impacts on cognition and functionality[61,62]. Even the recently developed Symptoms of Major Depressive Disorder Scale (SMDDS)[63] which was specifically developed to include patient reporting was criticized by patient advocates as lacking the various "statistically messy" outcomes self-reported by patients[40]. In this respect, goal attainment scaling (GAS) has been proposed as a personalized outcome that works to assimilate disparate outcomes across a diverse range of goal areas to provide a standardized endpoint that can be compared. Indeed, the FDA have recently recommended GAS as a personalized endpoint in their latest draft guidance on patient-focused drug development[64].

Originally developed in the context of evaluating comprehensive community mental health programs[65], a version

SMART Functional Goal	Goal attainment level	Scoring
Participated in one exercise class and 1-2 longer outside walks (brisk pace ≥60 minutes) in the past week	Much better than expected	2
Participated in one exercise class and 1 outside walk (brisk pace ≥40 minutes) in the past week	Somewhat better than expected	1
Outside walk (brisk pace ≥40 minutes) twice in the past week	Expected level of attainment	0
Outside walk (brisk pace ≥40 minutes) once in the past week	Somewhat less than expected	-1
Did not participate in exercise in past week	Much less than expected	-2

SMART Functional Goal	Goal attainment level	Scoring
Attended New Mothers Group once in the past week, and met another participant for coffee in town at another time outside of the group, and participated twice in WhatsApp group discussions, and helped to plan subject matter for next Group meeting	Much better than expected	2
Attended New Mothers Group once in the past week and met another participant for coffee in town at another time outside of the group, and participated twice in WhatsApp group discussions.	Somewhat better than expected	1
Attended New Mothers Group once in the past week and met another participant for coffee in town at another time, outside of the group	Expected level of attainment	0
Attended New Mothers Group once in the past week (but did not meet another participant at another time)	Somewhat less than expected	-1
Did not attend New Mothers Group in past week, or meet another group participant at another time	Much less than expected	-2

Figure 1. Examples of goal setting for individuals with MDD.

specifically adapted for use in MDD (the GAS-D) has been developed for use in MDD[66]. Here, it is important to stress the GAS-D was not developed to replace current symptom scales, but rather to provide complementary information from the patient perspective.

The GAS-D necessarily builds on the collaborative process of goal setting. Because the goals are jointly set, GAS-D outcomes should be meaningful and individualized from the patient perspective. In a feasibility assessment, patients reported that they saw value in this approach because it affords patients the opportunity to provide input into the design of their treatment plans, while setting a framework against which progress can be assessed[67]. Of the 200 participants who completed the survey, 42% reported currently having goals for MDD treatment. These goals were typically in the areas of physical health (62.7%), cognitive functioning (60.2%), and social aspects of life (57.8%)[67]. Having predefined goal domains is suggested to be time-efficient and helpful in the SDM process since discussing the different possible categories helps the health professional explain that patients can consider all associated impacts of their illness. Accordingly, the GAS-D is currently accompanied by a list of specified goal domains (motivation, physical/functional, psychological, cognitive, and emotional) that can be used alongside patients' own goals.

According to the GAS-D, attainment for each goal is rated on a 5-point achievement scale where a score of −2 indicates the patient achieved their goal much less than expected (same as the baseline performance), 0 denotes targeted performance achieved, and a score of +2 denotes

Box 1. Practical goal setting

1
- **Preparation is key**

Ensure the patient's relevant medical history and current presentation is documented, including any measures used in routine practice.

2
- **Expand the clinician-patient discussion**
- Capture the patient's symptoms and personal experience of living with MDD. Active listening is a structured way of listening and responding to others. When actively listening, your attention is focused on the other person in an attempt to understand, interpret, and evaluate what they are telling you without judgment.
- Consider whether additional care partner and/or family perspective is needed (if available).

3
- **Introduce the goal setting process**
- Explain how it can help the team (including the patient) personalise their treatment plan to reach goals that are personally meaningful.
- Explain that some negotiation of goals may be required to ensure that all goals set are SMART. At this point, it may be helpful to explain how depression can affect a person in many ways. For example, some patients may not realise it can impact cognition.

4
- **During goal negotiation**
- Repeat any spontaneously volunteered goals for confirmation to reduce the chance of misperceptions and confusion. The patient may take the chance to correct any misunderstanding of what you think you heard. If the patient struggles with verbalizing their own goals, it may be helpful to share ideas of suitable goals or use the goal setting template as a visual aid to prompt discussion.

5
- **Prioritize treatment goals**
- If the patient has too many goals (most experts recommend setting less than 3 goals at any one time) there is likely to be 'goal competition' which may limit the effectiveness of the program.

6
- **Work with the patient to set out the treatment goal(s) in a goal setting template**
- The first step is to agree their starting point (where they are now). It's important that they are honest with themselves, by examining where things currently stand. This is normally included in the scale as worse than expected (-1 or -2, dependent on individualised goal).
- Work with the patient to break down the goal into smaller steps. As you discuss this you can also talk about possible obstacles that may arise. Lay these steps out in the template, ensuring you have a way to measure (and document) progress.
- Check back with the patient that the goal is SMART. Ensure that the patient understands how progress is measured and that timeframes are included.

7
- **Re-evaluate at regular intervals**
- Goal setting is most successful when implemented as a continual process with time for reflection and re-evaluation.

outstanding (~100% better) goal achievement (Figure 2(a)). Goals can be weighted according to importance and difficulty to achieve. As a SMART goal, the goal should already be time-bound thereby indicating a realistic time for measurement. At this point, the individual's progress toward goal attainment can be converted into a standardized *T* score using the following formula:

$$Overall\ \ GAS = 50 + \frac{10\ \sum_{i=1}^{k} w_i x_i}{\sqrt{0.7\sum_{i=1}^{k} w_i^2 + 0.3\left(\sum_{i}^{k} w_i\right)^2}}$$

Where: w_i = the weight assigned to the *i*th goal (if equal weights, $w_i = 1$), x_i = the numerical value achieved (between –2 and + 2). The mathematical formula used to derive the *T* score is such that, if goals are set in an unbiased fashion, the mean GAS *T* score will be 50 with a standard deviation of 10[68].

Electronic versions of the GAS are also being developed to facilitate SDM and progress assessment[66]. Importantly, achieving a GAS *T* score of <50 does not mean that the goal was not clinically relevant, just that the original goal set was not achieved as expected. Several factors influence this final

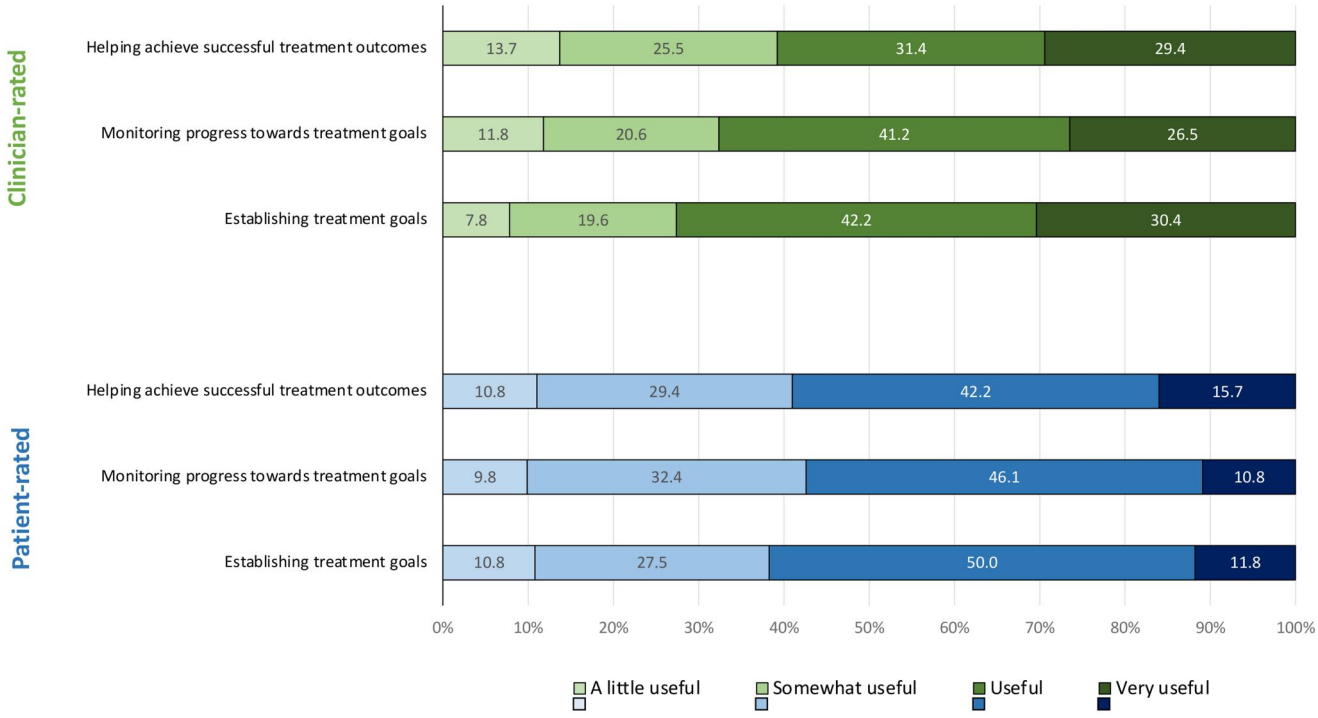

Figure 2. Patient and clinician satisfaction with the GAS-D approach in the Japanese treatment setting.

score, including the effectiveness of the intervention, the skill of the treating team in helping the patient setting realistic goals, and external factors. An added value of this scale is that it allows for assignment of a single score for a patient with diverse multiple goals and permits comparisons between patients and between treatment modalities[65]. In other words, the methodology is not only suited to routine clinical care to measure goal attainment, but the results may also be analyzed at a group level.

Attainment of goal setting in clinical studies

The GAS-D has been used in two studies of vortioxetine in the management of MDD, which exemplify how clinical efficacy can be assessed based on goal attainment. In the first, McCue et al. used the GAS-D as the primary endpoint to assess the effectiveness of vortioxetine (10–20mg), in patients who were switching to it because they did not tolerate, or had an inadequate response with previous antidepressant therapy[69]. In this 12-week, single-arm study, patients set three goals, the first determined by the patient's own objectives and the other two were chosen from the predefined domain categories. Most patients (57.8%) switching to vortioxetine achieved their treatment goals at Week 12. Mean ± SD GAS-D *T* scores significantly increased (i.e. improved) from 23.57 ± 0.07 at baseline to 41.78 ± 11.46 at Week 6 and 50.51 ± 13.58 at Week 12. Improvement in the primary outcome was supported by improvements in several secondary endpoints including depression severity (PHQ-9), cognitive function (Perceived Deficits Questionnaire-Depression [PDQ-D]), cognitive performance (Digit Symbol Substitution Test), and emotional well-being (WHO-5) [69].

When evaluated for convergent validity in this study, changes in goal scores on the GAS-D were statistically significantly correlated with several secondary endpoints. At Weeks 6 and 12, goal scores correlated significantly with the PHQ-9 and clinical global impressions of illness severity and improvement (CGI-S, CGI-I) ($p < 0.05$)[69]. Quality of Life (QoL) measures (as assessed by the Quality-of-Life Enjoyment and Satisfaction Scale [Q-LES-Q]) also demonstrated strong relationships to GAS-D, particularly in the Work domain and self-defined goal ($r = 0.382$, $p < 0.001$). Cognitive symptoms evaluated by PDQ-D and PDQ-D5 subset were significant at weeks 6 ($r = -0.225$, $p < 0.001$ and $r = -0.201$, $p < 0.05$, respectively) and 12 ($r = -0.249$, $p < 0.05$ and $r = -0.251$, $p < 0.05$, respectively). Cognitive performance evaluated by the DSST was related to self-defined goals at week 12 ($r = 0.332$, $p < 0.01$) and demonstrated statistically significant correlations with change from baseline in DSST scores over time ($r = 0.201$, $p < 0.05$). Using latent factor analysis and structural equation modelling, self-defined goals were consistently related to functionality, regardless of level of improvement in depressive symptoms[69]. This suggests that the GAS-D may be a valid indicator of overall functioning when assessing treatment response. However, while 57.8% achieved a GAS-D score ≥50, approximately 40% of patients in this study achieved remission on standard outcome measures (PHQ-9 and CGI-S)[69], highlighting the disparity between definitions of success based on standardized clinical scales and functional outcomes considered to be meaningful for individual patients. Using both types of scales will provide a more comprehensive picture of treatment response.

The second study assessed the effectiveness of vortioxetine in a population of employed Japanese patients over 6 months[45,46]. Patients set two customized treatment goals and the first primary endpoint was change in composite

GAS-D at Week 12. The second primary endpoint was change in work productivity over 24 weeks, as measured by the Work Productivity and Activity Impairment questionnaire (WPAI). Secondary assessments included the MADRS, CGI-S, CGI-C, Sheehan Disability Scale (SDS), Oxford Depression Questionnaire (ODQ), PDQ-D-5 and DSST. In addition, patient and clinician perceptions of the GAS-D approach were captured at the end of the study[46]. In this study, the percentage of patients who achieved their goal increased from 42.6% at Week 12 to 62.4% at Week 24, highlighting the time needed to achieve functional goals. Of note, most patients and clinicians reported the GAS approach to be "useful" or "very useful" for establishing treatment goals, monitoring progress toward treatment goals, and helping achieve successful treatment outcomes (Figure 2).

Conclusions

SDM is a strategy to involve patients into the decision-making process for their treatment. Goal setting is a pragmatic approach to turning the principles of SDM into realities of clinical practice and aligns with the principles of recovery that encompasses the notions of self-determination, self-management, personal growth, empowerment, and choice. Moreover, the supported achievement of smaller, more immediate goals (such as getting up each day to take a shower) may help the person develop "self-efficacy", remain hopeful and feel motivated to achieve their own long-term recovery goals (such as rebuilding relationships).

Understanding the patient's own treatment aspirations and goals is essential in guiding shared treatment decisions. For example, if they have an occupational-related goal it would be beneficial to choose a treatment modality that at least does not worsen, and preferentially helps, with any existing cognitive or performance-related symptoms. The patient's own goals for MDD treatment should be considered when discussing the relative benefits and risks of the various management approaches as part of the overall SDM process. Progress towards these agreed goals may then be tracked over time (using methods such as goal attainment scaling), and the effectiveness of current treatment can be monitored serially and adjusted as necessary. As exemplified in by the two studies of vortioxetine, the GAS-D is also appropriate for use as a patient-reported personalized outcome when assessing the effectiveness of an intervention, especially in terms of improving patient function in a way that is meaningful to the patient. Using both standardized scales and personalized goals to capture outcomes provides a more comprehensive picture of treatment response. While the GAS-D has been specifically designed for use in MDD, the principles of goal setting and goal attainment scaling are likely to be useful when working with people living with many other psychiatric conditions.

It is also important to recognize that an individual's goals may evolve over time[68]. For example, while a patient's goals in the acute stage of an episode may be more symptom-led, once their core symptoms have ameliorated, they may feel that more functional goals are more realistic in the long-term. Regular review of the patient's goals may also aid in coordinating the multidisciplinary approach, bringing in the right team members as the patient considers reaching their next defined goal.

Transparency

Declaration of funding

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Declaration of financial/other relationships

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Author contributions

David Baldwin, Michael Adair, and Arun Micheelsen contributed to the first draft of the paper equally, and Daniel Oudin Åstrøm and Elin H. Reines revised it critically for intellectual content. All authors gave final approval of the version to be published and agree to be accountable for all aspects of the work.

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