

RESEARCH

Open Access



# A survey of patient–physician communication regarding treatment prospects and goal setting in the management of major depressive disorder in Japan

Takashi Tsuboi<sup>1</sup>, Takeo Nakayama<sup>2</sup>, Junko Horie<sup>3</sup>, Fumie Tokuda<sup>3</sup>, Yoshiya Moriguchi<sup>4</sup> and Tatsuya Hoshino<sup>3\*</sup>

## Abstract

**Background** Major depressive disorder (MDD) is a common and debilitating cause of disability worldwide. Recently, it has been suggested that individualized goal setting may play a role in patient-centered recovery. This study aimed to survey the landscape of patient–physician communication around goal setting for MDD treatment, as well as understand whether goal setting using the SMART (specific, measurable, attainable, realistic, and time-bound) framework is associated with positive treatment indicators in MDD.

**Methods** Patients in Japan ( $\geq 18$  years of age) who self-reported a verified MDD diagnosis were eligible to complete a self-administered survey through the Personal Health Record service, a web-based smartphone app. Patients were asked about whether they communicated with physicians about treatment prospects and/or goals. A ‘SMART-Goal score’ tool was developed to evaluate patient goals against the five SMART criteria. Treatment satisfaction scores and scores on the Wake Forest Physician Trust Scale Short Version (TRUST) were assessed as indicators of outcomes in this study. Descriptive questions were used to explore patients’ perceptions of goal setting.

**Results** In total, 466 patients were eligible for inclusion in the analysis. The majority (70.0%) reported communicating with their physicians about treatment prospects and/or goals. These patients (Com + group) had a median (Q1, Q3) TRUST score of 70.0 (60.0, 80.0), compared with 50.0 (40.0, 70.0) in patients who reported an absence of communication (Com – group). Median (Q1, Q3) treatment satisfaction scores were 5.0 (4.0, 6.0) and 4.0 (3.0, 5.0) for the Com + and Com – groups, respectively. In high SMART-Goal scoring groups, approximately 75% of patients exceeded the overall median scores for TRUST (70.0) or treatment satisfaction (5.0) reported for the Com + group; only 25% of patients in low SMART-Goal scoring groups achieved the same in either measure. Most patients (89.3%) who set goals recommended goal setting.

**Conclusions** This exploratory study suggests that communication between patients and physicians regarding goal setting in MDD treatment may be associated with positive patient perceptions of treatment. High-quality SMART goal setting also appears to have positive aspects for patients with MDD, which may in turn affect treatment outcomes. Further studies are needed to confirm these initial findings.

**Trial registration** Registered on the UMIN Clinical Trials Registry (ID: UMIN000050370) on 17 February 2023.

\*Correspondence:

Tatsuya Hoshino  
tatsuya.hoshino@takeda.com

Full list of author information is available at the end of the article



© Takeda Pharmaceutical Company Limited 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

**Keywords** Major depressive disorder, Goals, Patient-centered care, SMART, Japan

## Background

Major depressive disorder (MDD) is a heterogeneous and debilitating mental disorder that causes emotional, physical, and cognitive dysfunction [1]. In more recent, patient-centered approaches to MDD treatment, importance has been placed not only on clinical recovery, but also on personal recovery [2, 3].

Whereas clinical recovery aims to improve the patient's disease-related symptoms and functional outcomes, personal recovery has been defined as 'a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills and/or roles. It is a way of living a satisfying, hopeful, and contributing life even with the limitations caused by illness' [4, 5]. In some instances, patients with MDD can be dissatisfied with their treatment even though their depressive symptoms have improved, because their personal goals have not been achieved [6]. To achieve personal recovery, the setting of personalized treatment goals is important because each patient has individual priorities and aspirations as well as differences in their social environment and responsibilities, such as work, housework, and schoolwork [7].

Patient-centered approaches have been studied and applied in other disease areas. The 'What Matters Most' study in Alzheimer's disease focused on understanding treatment-related needs, preferences, and priorities among individuals with or at risk for Alzheimer's disease [8]. Additionally, a systematic review on diversity-sensitive care highlighted the importance of patient-centered care, culturally tailored information, and provider care in improving patient satisfaction and outcomes [9]. Studies on patient expectations in healthcare have also shown that understanding and meeting patient expectations can lead to better adherence to treatment plans and improved health outcomes [10]. These findings underscore the importance of considering patient perspectives and expectations in treating various chronic conditions, including MDD.

With the growing focus on the need for personalized treatment, it has been suggested that shared decision-making should be part of personalized treatment planning [11, 12]. Through shared decision-making, treatment decisions and goals are made based on the patient's individual challenges, priorities, and ambitions, as well as the benefits and risks of potential treatment options. Shared decision-making in depression treatment is recommended in the Japanese guidelines for depression and bipolar disorder [13, 14], as well as in US and European guidelines for MDD and chronic

depression [15, 16]. Shared decision-making is not only about considering patients' preferences and priorities; engaging patients in goal setting can also be an effective method of aligning patient and physician expectations regarding treatment [17]. Goal setting is already a crucial component of cognitive behavioral therapy (CBT), an effective approach for the treatment of MDD. In CBT, the roles of goal setting include enhancing patient motivation by establishing specific and achievable objectives, fostering a common understanding between the patient and physician regarding the trajectory of treatment, and objectively assessing the effectiveness of treatment and adjusting the treatment plan as necessary [18, 19]. Accordingly, appropriate goal setting is considered beneficial to the overall therapeutic process of MDD treatment [18].

In order to develop specific and clear personalized treatment goals, quantitative, assessable goal setting that includes SMART (specific, measurable, attainable, realistic, and time-bound) elements is considered useful [20, 21]. SMART goal setting aims to help patients better understand their goals and achievements [22]. In some therapy contexts for which long-term treatment is required, such as rehabilitation [23–25] and treatment of genetic disease [26, 27], the setting of SMART goals has been reported to be a relevant and beneficial component of treatment. Because MDD is also a disorder requiring long-term care over several years to achieve and maintain recovery [28], SMART goal setting may also be beneficial in the management of MDD. However, there is no published evidence on the use of goal setting using SMART elements in MDD treatment.

In Japan, the landscape of patient–physician communication around goal setting in MDD treatment is not well-defined. For example, it is not clear how many patients with MDD engage in communication about goal setting, what the characteristics are of patients involved in such communication, or to what extent individualized treatment goals are being established. It is also unclear how quantitative, assessable goal setting using SMART elements might affect patients' attitudes toward MDD treatment in areas such as trust in their physician, agreement with goal setting, and overall treatment satisfaction. In this exploratory study, we conducted a web-based survey of Japanese patients with MDD to clarify the current status of communication around goal setting in MDD treatment, and to explore the relationship between quantitative, assessable goal setting and patients' perceptions of MDD treatment in Japan.

## Methods

### Patients and study design

This web-based survey of patients with MDD (UMIN Clinical Trials Registry ID: UMIN000050370) was conducted between March 7, 2023 and April 30, 2023 via Pep Up, a Personal Health Record (PHR) service. Pep Up is a web-based smartphone app provided by JMDC Inc. ([www.jmdc.co.jp](http://www.jmdc.co.jp)) to users through health insurance societies. It is intended for people aged 18 years of age and above. Pep Up users eligible to give consent were invited to participate in this survey. Patient consent for participation in the study was obtained through the survey website before conducting the survey. Regarding the use of claims data in the analysis, consent was obtained from each health insurance society when the Pep Up service was implemented. Additionally, when registering for the Pep Up service on an individual user basis, patient consent for the utilization of claims data was obtained in accordance with the privacy policy. All survey respondents were paid an honorarium depending on the scope of their responses (either screening only or full survey completed).

For screening, survey respondents were presented with the question ‘Please tell us about any diseases for which you visited a healthcare provider more than once for treatment during the past year (March 2022 – February 2023)’ and only those who selected depression were asked to proceed to the main survey. At this stage, the Japanese version of the Patient Health Questionnaire (J-PHQ-9), was also used to screen survey participants for indication of suicidal ideation, as well as to measure the severity of MDD. Respondents who had reported suicidal ideation were excluded.

Respondents proceeded to the main survey immediately after screening. The survey collected information on employment status, MDD diagnosis, MDD treatment, and patient perceptions of MDD treatment. Patient trust in physicians was measured using the Wake Forest Physician Trust Scale Short Version (TRUST) questionnaire. Patient experiences regarding the objectivity and evaluability of goal setting in MDD were determined using a SMART-Goal score developed for this study (please find details of the score under ‘Questionnaires’).

For patients who completed the full survey, the presence or absence of MDD was verified by cross-referencing with claims data provided by JMDC. Patients with no record of claims relating to MDD (International Classification of Diseases 10th revision [ICD-10] codes F32–33) for the period of March 2022 – September 2022 were excluded from the analysis. The matching of PHR survey data with health insurance claims data was conducted

within JMDC, and the individual conducting the study did not have access to the details of the matching process. There was a time lag of approximately 6 months between the survey and the cross-referencing period, due to claims receipt and processing times. Additional information obtained from claims data included age, gender, MDD diagnosis, and history of pharmacological treatment for MDD.

### Questionnaires

#### *Communication with physician*

To clarify the current status of patient–physician communication regarding goal setting in MDD treatment, respondents were asked the question ‘Have you been proposed a treatment plan, or discussed your prognosis and/or goals with your physician during your depression treatment? This refers to at any time during your treatment period.’ (Options: Yes/No). Furthermore, to confirm the specific details of what was discussed, respondents who answered ‘Yes’ were asked the following additional questions:

1. ‘Have you discussed goals with your physician specifically regarding symptoms of depression (physical or mental)?’ (Options: Yes/No); and
2. ‘Have you discussed personal goals with your physician regarding your lifestyle, behavior, the kind of person you want to be, or the state you want to achieve?’ (Options: Yes/No).

Both additional questions referred to at any time during the treatment period; patients could select ‘Yes’ for both categories of goals.

#### *Patient Health Questionnaire, Japanese translation (J-PHQ-9)*

The Patient Health Questionnaire (PHQ-9) is a self-administered tool for the measurement of depression severity [29]. The Japanese translation, as validated by Muramatsu et al. [30], was used in this study. The PHQ-9 is composed of nine items, with each item scored by the patient as 0 (not at all), 1 (several days), 2 (more than half the days), or 3 (nearly every day). The sum of scores is rated out of a total of 27, with a score of 0 considered as no depression, 1 to 4 as minimal, 5 to 9 as mild, 10 to 14 as moderate, 15 to 19 as moderate-severe, and 20 to 27 as severe [29].

#### *Wake forest physician Trust Scale Short Version (TRUST)*

Trust in physicians was measured using the Japanese translation of the 5-item Wake Forest ‘Interpersonal

Trust in Physicians' scale [31]. The short version of TRUST is composed of five items, each scored on a 5-point Likert scale, ranging from 1 point (strongly disagree) to 5 points (strongly agree). After inverting the score for a negatively worded item (item 1), the sum of the individual scores is converted to a final score ranging from 0 to 100 [32, 33]. Higher TRUST scores indicate greater trust in physicians [32].

#### **SMART-goal score**

A questionnaire was developed to assess the objectivity and evaluability of goals set by patients and their physicians in the treatment of MDD. Participants were asked to score their goals against the SMART criteria (specific, measurable, attainable, realistic, and time-bound) on a 7-point scale, by selecting a response for each criterion, ranging from 1 point for 'not applicable at all,' to 4 points for 'neither applicable or not applicable,' to 7 points for 'very applicable.' The sum of scores across all five categories was taken as the total SMART-Goal score for each goal (minimum score: 5, maximum score: 35). Higher SMART-Goal scores indicate greater adherence of the goal to the SMART criteria. If they had more than one goal, participants were asked to answer based on the goal they considered most important. The full questionnaire is presented in Table S1. Patients were separated into groups based on their total SMART-Goal score, in score increments of 5.

#### **Treatment satisfaction score**

Survey respondents were asked the question 'How satisfied are you with your treatment for depression so far?'. Participants rated their satisfaction on a 7-point numerical scale, ranging from 1 point for 'not satisfied at all' to 7 points for 'very satisfied,' with higher scores indicating greater satisfaction. Results were recorded and aggregated.

#### **Patient perceptions**

To examine patients' perceptions of goal setting, participants were asked to rate the extent to which they recommended goal setting by answering the question 'If someone you knew was depressed, would you recommend that they discuss their depression treatment goals (i.e., symptoms of depression, the patient's own life/behavior, and where they want to be) with their doctor?' (Options: strongly disagree/somewhat disagree/ somewhat agree/strongly agree). Those who did recommend goal setting with 'strongly agree' or 'somewhat agree' were asked to select their reasons for doing so from a list of prespecified multiple-choice options (see Table S2 for details).

#### **Statistical analysis**

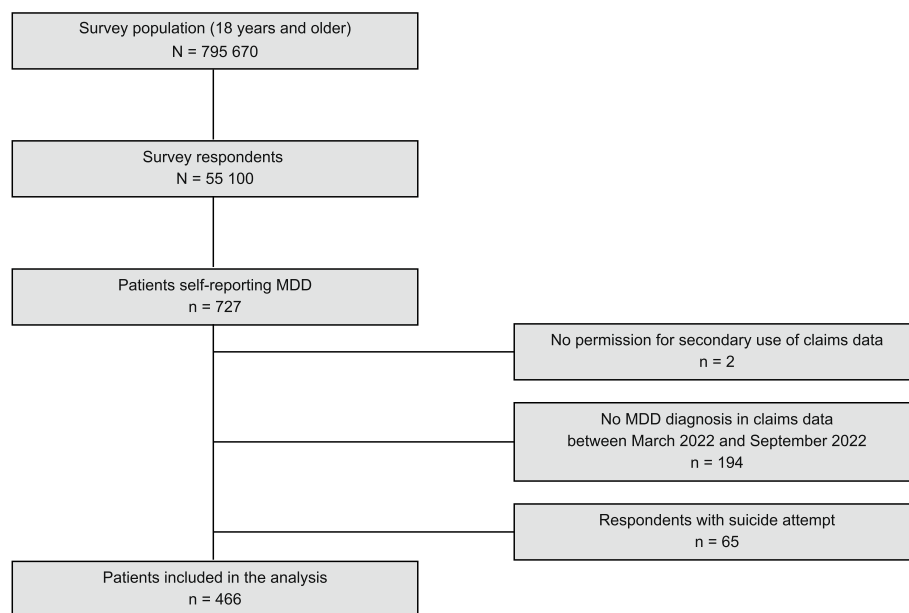
The analysis population in this study consisted of patients who completed the full survey and met all inclusion criteria, including a confirmed MDD diagnosis, permission for secondary use of claims data, and absence of a reported suicide attempt. Two groups were defined according to whether they had communicated with their physician about their MDD treatment goals: those who had communicated (Com+) and those who had not (Com-). The number and percentage of participants in the Com+ group were calculated, alongside descriptive statistics for goal setting and communication with physicians. Summary statistics for patient characteristics, the SMART-Goal score, TRUST score, and treatment satisfaction score are presented for the Com+ and Com- groups. The correlation between SMART-Goal score and each outcome (TRUST score and treatment satisfaction score) was calculated using Spearman's correlation coefficient. A sensitivity analysis was also conducted that included patients who had both an ICD-10 code for MDD and an antidepressant prescription on the health insurance claims data. Statistical analyses were performed using SAS version 9.4 and Python version 3.11.

## **Results**

#### **Patient characteristics**

Of the 795 670 people aged 18 and older registered with the PHR service, 55 100 responded to the survey, of whom 727 self-reported having received treatment for depression in the past year (March 2022 – February 2023). The analysis population included 466 patients, after excluding two patients who could not give consent for the secondary use of their claims data, 194 patients whose MDD medical records could not be obtained from the receipt data, and 65 patients who reported a previous suicide attempt(s) (Fig. 1).

Patients had a mean (standard deviation) age of 47.3 (9.7) years and the majority (69.5%) were male (Table 1). Most (87.1%) were working or studying, either full- or part-time. The median (range) time between diagnosis of MDD and survey participation was 47.0 months (2–334 months [27.8 years]). For 71.7% of patients, this was their first-episode occurrence of MDD, and 98.7% had visited a psychiatrist or psychosomatic medicine clinic. Treatment with antidepressants was reported by 83.0% of patients, of whom 82.4% (319/387) had received monotherapy and 17.6% (68/387) had received combination or multi-drug treatments. Use of nonpharmacological treatment, either stand-alone or in conjunction with antidepressants, was reported by 20.4% of patients. The median (Q1, Q3) PHQ-9 score at the time



**Fig. 1** Participant flow. MDD Major depressive disorder

of questionnaire response was 8.0 (3.0, 12.0), indicating a relatively mild severity of depression.

### Communication with physicians

Overall, 326 patients (70.0%) reported that they had communicated with their physicians regarding treatment prospects, plans, or goals (Com+), while 140 patients (30.0%) reported that they had not (Com−) (Table 1). There were no apparent differences in characteristics between patients in the Com+ and Com− groups, except for a difference in the median (Q1, Q3) time from diagnosis to survey participation, which was 37.0 (15.0, 113.0) months for the Com+ group and 71.0 (24.0, 138.0) months for the Com− group. Median (Q1, Q3) PHQ-9 scores were 7.0 (3.0, 11.0) and 8.0 (4.5, 12.0) in the Com+ and Com− groups, respectively.

In total, 280 patients (60.1%) had discussed goals related to physical or mental symptoms of depression, and 239 (51.3%) had discussed personal goals unrelated to their symptoms, in areas such as lifestyle, behavior, and personal aspirations.

### Correlation between SMART-ness of treatment goals and outcomes

Physician trust and treatment satisfaction indicators in the Com+ and Com− groups are shown in Table 2. Median scores on the TRUST questionnaire (Q1, Q3) were 70.0 (60.0, 80.0) for the Com+ group and 50.0 (40.0, 70.0) for the Com− group. Median treatment

satisfaction scores (Q1, Q3) were 5.0 (4.0, 6.0) and 4.0 (3.0, 5.0) for the Com+ and Com− groups, respectively. For the Com+ group, the Spearman's correlation coefficients between the SMART-Goal score and the TRUST scores and treatment satisfaction scores were 0.28 ( $P < 0.0001$ ) and 0.37 ( $P < 0.0001$ ), respectively, indicating a weak correlation between the SMART-Goal score and both the TRUST and treatment satisfaction scores. Although these correlations were not strong, approximately 75% of patients in the high SMART-Goal scoring groups (26–30 and 31–35) exceeded the overall median TRUST score of the Com+ group (70.0), while in the low SMART-Goal scores groups (5–10 and 11–15), only 25% of patients exceeded the median. Similarly, approximately 75% of patients in the high SMART-Goal scoring groups exceeded the overall median treatment satisfaction score of the overall Com+ group (5.0), while in the low SMART-Goal scores groups, only 25% exceeded the median (Fig. 2).

### Patients' perceptions regarding goal setting

When asked if they would recommend discussing goal setting with a physician to someone they knew who was depressed, 291 (89.3%) of the patients in the Com+ group responded "Somewhat agree" or "Strongly agree" (Table S2). The most common reason given in favor of discussing goal setting was "It made me feel like my depression was getting better" (138 patients), followed by "It helped me to be more positive about my treatment" (113 patients).

**Table 1** Demographic and clinical characteristics ( $n = 466$ )

	Total	Communication with physician	
		Yes (Com +)	No (Com −)
	<i>n</i> = 466	<i>n</i> = 326	<i>n</i> = 140
<b>Age at survey (years)</b>			
Mean ± SD	47.3 ± 9.7	46.9 ± 9.9	48.4 ± 9.1
Median (range)	49.0 (23–71)	49.0 (23–66)	49.0 (28–71)
Q1, Q3	41.0, 55.0	40.0, 54.0	42.0, 55.0
<b>Gender, n (%)</b>			
Male	324 (69.5)	232 (71.2)	92 (65.7)
Female	142 (30.5)	94 (28.8)	48 (34.3)
<b>Employment status, n (%)</b>			
Currently working or studying (including part-time)	406 (87.1)	285 (87.4)	121 (86.4)
On leave of absence from work or study	41 (8.8)	27 (8.3)	14 (10.0)
Unemployed	18 (3.9)	14 (4.3)	4 (2.9)
Other	1 (0.2)	0 (0.0)	1 (0.7)
<b>Time from MDD diagnosis to investigation (months)</b>			
Mean ± SD	76.6 ± 75.2	71.2 ± 74.7	89.9 ± 75.2
Median (range)	47.0 (2–334)	37.0 (2–334)	71.0 (5–284)
Q1, Q3	16.0, 119.0	15.0, 113.0	24.0, 138.0
Unknown, n (%)	147 (31.5)	98 (30.1)	49 (35.0)
<b>Onset/recurrence of MDD, n (%)</b>			
Onset/first occurrence	334 (71.7)	230 (70.6)	104 (74.3)
Recurrence	132 (28.3)	96 (29.4)	36 (25.7)
<b>PHQ-9 total score</b>			
Mean ± SD	8.1 ± 5.7	7.8 ± 5.7	8.8 ± 5.4
Median (range)	8.0 (0–24)	7.0 (0–24)	8.0 (0–24)
Q1, Q3	3.0, 12.0	3.0, 11.0	4.5, 12.0
<b>Prescription of antidepressants and drug category, n (%)</b>			
No	79 (17.0)	57 (17.5)	22 (15.7)
Yes	387 (83.0)	269 (82.5)	118 (84.3)
SSRI	172 (44.4)	114 (42.4)	58 (49.2)
SNRI	128 (33.1)	87 (32.3)	41 (34.7)
NaSSA	85 (22.0)	67 (24.9)	18 (15.3)
Tricyclic	31 (8.0)	23 (8.6)	8 (6.8)
Other	75 (19.4)	52 (19.3)	23 (19.5)
Monotherapy	319 (82.4)	223 (82.9)	96 (81.4)
Multiple-drug therapy/combination	68 (17.6)	46 (17.1)	22 (18.6)
<b>Nonpharmacological treatment in the past year, n (%)</b>			
Yes	95 (20.4)	81 (24.8)	14 (10.0)
No	371 (79.6)	245 (75.2)	126 (90.0)
<b>Clinical department, n (%)</b>			
Psychiatry/psychosomatic	460 (98.7)	325 (99.7)	135 (96.4)
Other	6 (1.3)	1 (0.3)	5 (3.6)

MDD major depressive disorder, NaSSA Noradrenaline and specific serotonergic antidepressant, PHQ-9 Patient Health Questionnaire-Depressive Symptoms, Q1 first quartile, Q3 third quartile, SD standard deviation, SNRI serotonin and norepinephrine reuptake inhibitor, SSRI selective serotonin reuptake inhibitor



**Table 2** SMART-Goal score, TRUST score, and treatment satisfaction score ( $n = 466$ )

	Communication with physician	
	Yes (Com +) $n = 326$	No (Com -) $n = 140$
<b>SMART-Goal score<sup>a</sup></b>		
Mean $\pm$ SD	21.3 $\pm$ 5.5	–
Median (range)	21.0 (5–35)	–
Q1, Q3	18.0, 25.0	–
<b>TRUST score<sup>b</sup></b>		
Mean $\pm$ SD	67.4 $\pm$ 18.0	52.6 $\pm$ 20.7
Median (range)	70.0 (10–100)	50.0 (0–95)
Q1, Q3	60.0, 80.0	40.0, 70.0
<b>Treatment satisfaction score<sup>c</sup></b>		
Median (Q1, Q3)	5.0 (4.0, 6.0)	4.0 (3.0, 5.0)
$n$ (%)		
1	4 (1.2)	10 (7.1)
2	3 (0.9)	16 (11.4)
3	12 (3.7)	17 (12.1)
4	65 (19.9)	53 (37.9)
5	98 (30.1)	26 (18.6)
6	89 (27.3)	12 (8.6)
7	55 (16.9)	6 (4.3)

Q1 first quartile, Q3 third quartile, SD standard deviation, SMART specific, measurable, attainable, realistic, time-bound, TRUST Wake Forest Physician Trust Scale Short Version

<sup>a</sup> Higher SMART-Goal scores indicate greater adherence of goals to the SMART criteria

<sup>b</sup> Higher TRUST scores indicate greater trust in physicians

<sup>c</sup> Higher Treatment satisfaction scores indicate greater satisfaction

### Sensitivity analysis

In a sensitivity analysis performed in only patients who had been prescribed antidepressants ( $n = 387$ ), results regarding patient–physician communication were comparable to that of the main analysis.

### Discussion

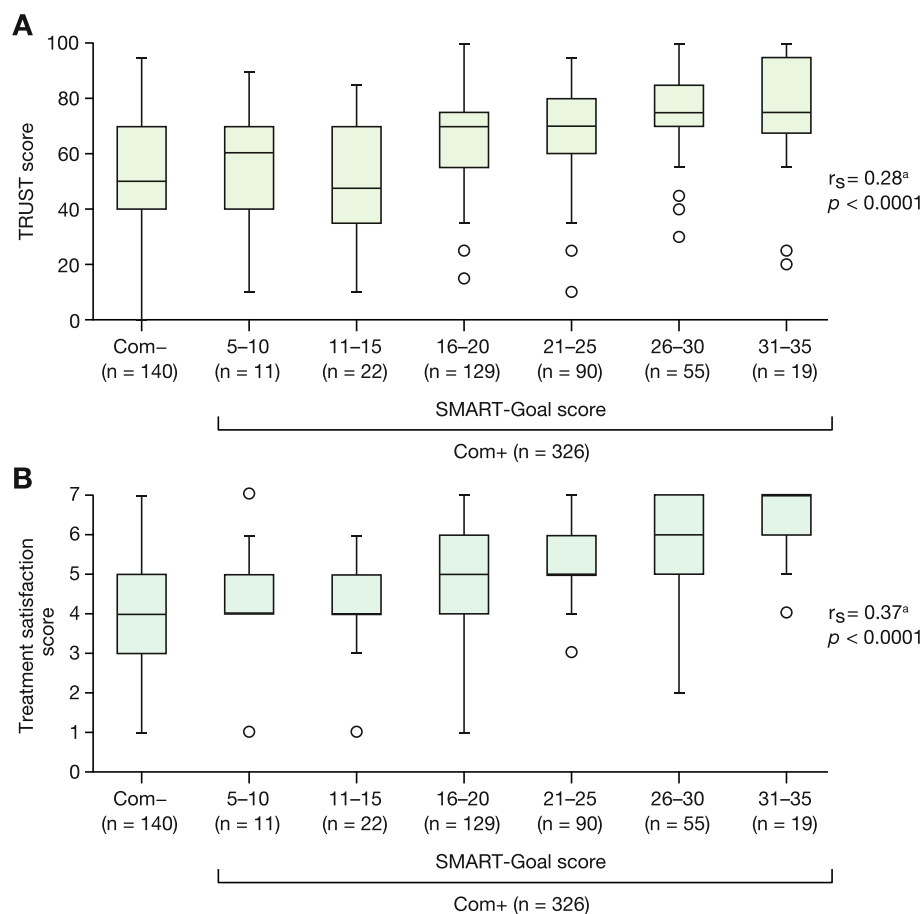
This study aimed to evaluate the current state of communication between patients with MDD and their physicians regarding goal setting in Japan. The majority (70.0%) of patients reported they had communicated about treatment prospects and/or goals and 51.3% reported setting personal goals. Results indicated that communication around goal setting could be associated with positive patient perceptions of their treatment, specifically trust in their treating physician and treatment satisfaction. Generally, for patients whose goals scored more highly against the SMART criteria, median treatment satisfaction and trust in physicians were higher than for patients in lower SMART-Goal

scoring groups. Most patients recommended goal setting.

Patients in this study generally had milder symptoms and a longer time since MDD diagnosis than what is typical for patients with MDD in clinical trials. The milder symptoms are likely due to the study selection criteria and the nature of the web-based survey, which excluded patients with suicidal ideation. Symptom control is prioritized over goal setting in patients with suicidal ideation, making them unsuitable for inclusion in this study. Consequently, the patient group aligns well with the study's objectives of investigating goal setting. The time from diagnosis was based on self-reports, which, unlike clinical data, may have led to variations and memory issues. Accurate clinical data are therefore needed to assess the impact of the time from diagnosis on goal setting in MDD.

In a previous US survey on goals and attitudes toward treatment, 83 of 200 patients (42%) with MDD reported having specific treatment goals. Of these 83 patients, 58% had goals for social/interpersonal aspects of life and 27% had goals for occupational aspects of life [17]. In our survey in Japanese patients with MDD, a larger proportion engaged in communication regarding treatment and goals compared with the US study. Additionally, participants in our study also set personal goals related to daily life, behavior, and plans for the future, beyond goals related solely to symptoms. It is possible that differences in survey methods and medical environments influenced this difference. From the perspective of enhancing personal recovery, the results of our study suggest that it would be desirable to increase communication about goal setting and the extent to which patients set their own goals in MDD treatment.

A previous UK study in patients with depression reported that treatment groups receiving a self-help intervention focused on positive goals had better treatment outcomes (decrease in depressive symptoms, increased treatment satisfaction) than those who received no intervention [34]. In our study, patient satisfaction and TRUST scores were selected as outcomes. The former has been suggested to be related to treatment outcomes in antidepressant treatment, based on a post hoc analysis of four clinical trials [35]. The latter has been reported to be associated with patients' adherence to treatment and treatment outcomes in other diseases such as diabetes and systemic lupus erythematosus, which, like depression, are chronic and distressing conditions [36–38]. We observed similar results in an MDD-specific patient cohort, with the Com+ group scoring higher median scores in positive treatment satisfaction and TRUST metrics than the Com– group. In contrast,



**Fig. 2** Relationship between SMART-Goal score and outcomes.<sup>a</sup>The correlation coefficients apply only to data from patients in the Com + group. Each SMART-Goal score group was compared with either: A Wake Forest Physician Trust Scale Short Version (TRUST) score, or B Treatment satisfaction score. Com – patients who did not communicate with physicians regarding goals, Com + patients who communicated with physicians regarding goals, SMART specific, measurable, attainable, realistic, time-bound

severity of depression (as evaluated by PHQ-9 score) did not differ between the two groups. Adherence was not measured and no statistical tests between the two groups were performed on outcomes. Therefore, the results of this study are exploratory and cannot address the direct impact of communication on treatment outcomes. Overall, the results of our study suggest that communication regarding treatment prospects and/or goals might have some positive aspects in the treatment of MDD.

This study also investigated whether the quality of goals set affected trust in physicians or treatment satisfaction. We focused on the SMART framework for goal setting, given the literature supporting its effectiveness in a healthcare context [20, 22, 23, 25]. Our study was the first to construct and obtain data from a goal evaluation scale based on the SMART framework. However, because the tool is self-administered and the appropriateness of the 7-choice scoring range for each SMART element has not yet been verified, the use of the score is currently only a

pilot project. Further validation will be required to fully establish the SMART-Goal score as a rating scale.

Using the SMART-Goal scoring system, it was observed that patients who set goals scoring highly in the SMART elements had higher median treatment satisfaction scores and median TRUST scores than patients in the Com – group, or patients who reported low-scoring goals. Although it must be recognized that these correlations were weak and that the results of the non-validated scale are exploratory, this report is the first to suggest that the quality of goals set may be one of the factors to consider in treating patients with MDD. It is possible that including SMART elements in goal setting may not only help deepen patient understanding of the goal but also potentially allow patients to develop a more positive approach to treatment through objectively realizing the extent of their own recovery. Additionally, because applying the SMART framework requires careful exchange of opinions and



coordination between patients and physicians, it could also be inferred that this more detailed consultation process has the potential to lead to improved outcomes. Overall, our initial findings suggest that incorporating SMART elements in the goals set might help in MDD treatment, although further confirmatory studies are needed.

As well as measuring the functional outcomes of SMART goal setting in MDD treatment, the significance of goal setting itself was examined from a patient perspective. Most (89.3%) of the patients in the Com + group recommended setting goals, with the top reasons given being “It helped me to be more positive about my treatment” and “It made me feel like my depression was getting better”, suggesting that the practice of goal setting is inherently positive for patients themselves. It has been reported that a positive patient attitude toward treatment and the feeling of treatment effectiveness leads to better treatment outcomes for depression [39]. Therefore, by helping patients develop a positive attitude and way of thinking, goal setting may have positive effects on the overall treatment of MDD.

### Limitations

The population analyzed in this study diverged from the general population of patients with MDD in gender, employment status, and severity of depression (as measured by PHQ-9 score) [40]. A possible cause may be selection bias due to the target audience of the survey. The study participants were limited to members of the Pep Up service, therefore they may not be representative of the general population of patients with MDD. As this study was performed as a retrospective self-administered survey, the results may also be affected by recall bias. Particularly memorable events and emotional experiences can substantially influence patients’ recollections. Consequently, whether the patient had an impactful experience or whether the treatment was successful can greatly affect their responses, potentially leading to inaccurate reflections on trust in physicians and treatment satisfaction. In addition, the disease name recorded in the claim data is based on the diagnosis code recorded after the patient visited a medical institution. The disease names recorded in the claims data may therefore differ from the actual diagnosis, owing to any alternative use of claim codes for the purposes of drug prescription. Finally, the SMART-Goal score was specifically developed for this study, and the questionnaire and its scoring have not been fully validated. Therefore, this exploratory study focused on generating hypotheses and identifying trends rather than statistical analysis for hypothesis testing. Future confirmatory studies will be necessary to verify the importance of patient–physician communication about goal setting in

the treatment of MDD, as well as the significance of the quality of the goals set.

### Conclusions

This initial study demonstrates the potential positive aspects of high-quality goal setting in MDD treatment. Our findings suggest that effective patient–physician communication and SMART goal setting could contribute to better perceptions of treatment, such as potentially greater physician trust and treatment satisfaction, and that goal setting may be associated with improved patient attitudes toward MDD treatment. These results are exploratory and derived from a limited MDD patient population, therefore further research is warranted to confirm a link between setting treatment goals according to the SMART framework and better treatment outcomes in patients with MDD.

### Abbreviations

Com –	Patients who did not communicate with physicians regarding goals
Com +	Patients who communicated with physicians regarding goals
ICD-10	International Classification of Diseases 10th revision
J-PHQ-9	Patient Health Questionnaire, Japanese translation
MDD	Major depressive disorder
NaSSA	Noradrenaline and specific serotonergic antidepressant
PHQ-9	Patient Health Questionnaire-Depressive Symptoms
PHR	Personal Health Record
Q1	First quartile
Q3	Third quartile
SAS	Statistical analysis system
SD	Standard deviation
SMART	Specific, measurable, attainable, realistic, time-bound
SNRI	Serotonin and norepinephrine reuptake inhibitor
SSRI	Selective serotonin reuptake inhibitor
TRUST	Wake Forest Physician Trust Scale Short Version
UMIN	University Hospital Medical Information Network

### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12888-025-06606-9>.

Supplementary Material 1.

### Acknowledgements

The authors would like to thank all study participants and contributors at Takeda for their cooperation in conducting the study and preparing the manuscript; Hiromi Mizutani (Medical Affairs, Lundbeck Japan K.K.) for her contributions to planning, analysis of results, and advice regarding this study; and JMDC Inc. for providing support with statistical analyses and access to the JMDC health insurance claims database. Medical writing support was provided by Jennifer Hung PhD and Sarah Graham PhD of Oxford PharmaGenesis, Melbourne, Australia, which has been funded by Takeda Pharmaceutical Company Limited in accordance with Good Publication Practice (GPP 2022) guidelines ([www.ismpp.org/gpp-2022](http://www.ismpp.org/gpp-2022)).

### Authors’ contributions

T.T. designed the study, interpreted the results, and contributed clinical medical expertise. T.N. designed the study and questionnaire, reviewed the analysis plan, performed statistical interpretation of the results, and contributed to the survey and data analysis. J.H. prepared the study concept, designed the questionnaire, and interpreted the results. F.T. contributed to analytical planning and execution, design of the questionnaire, and interpretation of the

results. Y. M. performed a comprehensive review of the protocol, analysis plan, and results. T. H. developed the study concept, study design, protocol, and survey questionnaires; reviewed the analysis plan and interpreted the results. All authors read and approved the final manuscript.

### Funding

This study was sponsored by Lundbeck Japan K.K. and Takeda Pharmaceutical Company Limited, the manufacturer/licensee of the antidepressant vortioxetine.

### Data availability

The data obtained via web-survey and analyzed during the current study are available from the corresponding author on reasonable request. Health insurance data to support parts of this study are available from JMDC Inc.; access to these data is limited and not publicly available as they were used under a license for this study.

### Declarations

#### Ethics approval and consent to participate

This survey was approved by the Kyoyukai RiverSide Clinic Institutional Review Board (Sapporo, Japan) before initiation (protocol approval number: RSC-2301RB01) and was conducted in compliance with Ethical Guidelines for Medical and Health Research Involving Human Subjects [41]. Informed participant consent was obtained both at the time of registration for Pep Up, and at the time of survey administration. Analyses were carried out by JMDC, Inc., and stored for 5 years. Analysis of survey respondent data was performed on information provided after processing for anonymity, and therefore did not contain personal information or require personal consent.

#### Competing interests

T.T. has received consultant fees or speaker honoraria from Eli Lilly, Meiji Seika Pharma, MSD, Janssen Pharmaceutical, Sumitomo Pharma, Mitsubishi Tanabe Pharma, Yoshitomi Yakuhin, Mochida Pharmaceutical, Otsuka, Kyowa Kirin, Tsumura, Viatrix, Lundbeck Japan K.K., and Takeda Pharmaceutical Company Limited.

T.N. has received research grants from I&H Co., Ltd., Cocokarfine Group Co., Ltd., and Konica Minolta Inc., NTT Data Japan Co.; consulting fees from Lundbeck Japan K.K., Otsuka Pharmaceutical, and Takeda Pharmaceutical Company Limited; honoraria from Pfizer Japan Inc., MSD K.K., Chugai Pharmaceutical Co., Takeda Pharmaceutical, Janssen Pharmaceutical K.K., Boehringer Ingelheim, Eli Lilly Japan K.K., Maruho Co., Ltd., Mitsubishi Tanabe Pharma Corporation, Novartis Pharma K.K., Allergan Japan K.K., Novo Nordisk Pharma Ltd., TOA Eiyō Ltd., Dentsu Group Inc., ONO PHARMACEUTICAL CO., LTD., GSK plc, Alexion Pharmaceuticals, Inc., Amicus Therapeutics, AbbVie GK, Eisai Co., Ltd., and Canon Medical Systems Co.; stock options from BonBon Inc.; and donations from CancerSCAN and YUYAMA Co.

J.H., F.T., and T.H. are employees of Takeda Pharmaceutical Company Limited. Y.M. is an employee of Lundbeck Japan K.K.

#### Author details

<sup>1</sup>Department of Neuropsychiatry, Kyorin University School of Medicine, Tokyo, Japan. <sup>2</sup>Department of Health Informatics, Kyoto University School of Public Health, Kyoto, Japan. <sup>3</sup>Japan Medical Office, Takeda Pharmaceutical Company Limited, Tokyo, Japan. <sup>4</sup>Medical Affairs, Lundbeck Japan K.K., Tokyo, Japan.

Received: 28 March 2024 Accepted: 13 February 2025

Published online: 19 March 2025

### References

- Otte C, Gold SM, Penninx BW, Pariante CM, Etkin A, Fava M, et al. Major depressive disorder. *Nat Rev Dis Primers*. 2016;2:16065.
- Rush AJ, Thase ME. Improving depression outcome by patient-centered medical management. *Focus*. 2020;18:244–54.
- Oluboka OJ, Katzman MA, Habert J, McIntosh D, MacQueen GM, Milev RV, et al. Functional recovery in major depressive disorder: Providing early optimal treatment for the individual patient. *Int J Neuropsychopharmacol*. 2018;21:128–44.
- Anthony WA. Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosoc Rehabilitation Journal*. 1993;16:11–23.
- Slade M, Longden E. Empirical evidence about recovery and mental health. *BMC Psychiatry*. 2015;15:285.
- Zimmerman M. Discordance between researchers and patients in defining remission from depression. *J Clin Psychiatry*. 2012;73:1262–3.
- Stuart SR, Tansey L, Quayle E. What we talk about when we talk about recovery: A systematic review and best-fit framework synthesis of qualitative literature. *J Ment Health*. 2017;26:291–304.
- DiBenedetti DB, Slota C, Wronski SL, Vradenburg G, Comer M, Callahan LF, et al. Assessing what matters most to patients with or at risk for Alzheimer's and care partners: a qualitative study evaluating symptoms, impacts, and outcomes. *Alzheimers Res Ther*. 2020;12:90.
- Lauwers EDL, Vandecasteele R, McMahon M, De Maesschalck S, Willems S. The patient perspective on diversity-sensitive care: a systematic review. *Int J Equity Health*. 2024;23:117.
- El-Haddad C, Hegazi I, Hu W. Understanding Patient Expectations of Health Care: A Qualitative Study. *J Patient Exp*. 2020;7:1724–31.
- Bainbridge LA, Harris SR. Informed shared decision-making: A model for physical therapy education and practice? *Physiother Can*. 2006;58:74–81.
- Pollard S, Bansback N, Bryan S. Physician attitudes toward shared decision making: A systematic review. *Patient Educ Couns*. 2015;98:1046–57.
- A committee for treatment guidelines of bipolar disorder of the Japanese Society of Mood Disorders. Guidelines for treatment of depression: bipolar disorder. 2023. [https://www.secretariat.ne.jp/jsmd/linkai/katsudou/data/guideline\\_sokyoku2023.pdf](https://www.secretariat.ne.jp/jsmd/linkai/katsudou/data/guideline_sokyoku2023.pdf) (in Japanese). Accessed 22 Feb 2024.
- A committee for treatment guidelines of mood disorders of the Japanese Society of Mood Disorders. Guidelines for treatment of depression: depression/major depressive disorder. 2016. <https://www.secretariat.ne.jp/jsmd/linkai/katsudou/data/20190724-02.pdf> (in Japanese). Accessed 22 Feb 2024.
- The American Psychiatry Association. Practice guidelines for the treatment of patients with major depressive disorder. 2010. <https://psychiatryonline.org/guidelines>. Accessed 22 Feb 2024.
- Jobst A, Brakemeier EL, Buchheim A, Caspar F, Cuijpers P, Ebmeier KP, et al. European Psychiatric Association guidance on psychotherapy in chronic depression across Europe. *Eur Psychiatry*. 2016;33:18–36.
- McNaughton EC, Curran C, Granskie J, Opler M, Sarkey S, Mucha L, et al. Patient attitudes toward and goals for MDD treatment: A survey study. *Patient Prefer Adherence*. 2019;13:959–67.
- Ramnerö J, Jansson B. Treatment goals and their attainment: a structured approach to assessment and evaluation. *Cogn Behav Ther*. 2016;9:e2.
- Williams C, Garland A. A cognitive-behavioural therapy assessment model for use in everyday clinical practice. *Adv Psychiatr Treat*. 2002;8:172–9.
- McCue M, Parikh SV, Mucha L, Sarkey S, Cao C, Eramo A, et al. Adapting the Goal Attainment Approach for major depressive disorder. *Neurol Ther*. 2019;8:167–76.
- McCue M, Sarkey S, Eramo A, François C, Parikh SV. Using the Goal Attainment Scale adapted for depression to better understand treatment outcomes in patients with major depressive disorder switching to vortioxetine: A phase 4, single-arm, open-label, multicenter study. *BMC Psychiatry*. 2021;21:622.
- Elzubeir K, Dye S. Can amount and duration of seclusion be reduced in psychiatric intensive care units by agreeing SMART goals with patients? *J Psychiatr Intensive Care*. 2017;13:109.
- Ashford S, Turner-Stokes L, Rose H, Singer B. Patient engagement and satisfaction with goal planning: Impact on outcome from rehabilitation. *Int J Ther Rehabil*. 2015;22:210–6.
- Bamonti PM, Moye J, Harris R, Kallmi S, Kelly CA, Middleton A, et al. Development of a coaching protocol to enhance self-efficacy within outpatient physical therapy. *Arch Rehabil Res Clin Transl*. 2022;4:100198.
- Bexelius A, Carlberg EB, Löwing K. Quality of goal setting in pediatric rehabilitation—a SMART approach. *Child Care Health Dev*. 2018;44:850–6.
- Walburn J, Foster L, Araújo-Soares V, Sarkany R, Weinman J, Sainsbury K, et al. Acceptability and influence of a complex personalized intervention on changes in photoprotection behaviours among people with xeroderma pigmentosum. *Br J Health Psychol*. 2023;28:1113–31.

27. Walburn J, Sainsbury K, Foster L, Weinman J, Morgan M, Norton S, et al. Why? What? How? Using an intervention mapping approach to develop a personalised intervention to improve adherence to photoprotection in patients with xeroderma pigmentosum. *Health Psychol Behav Med*. 2020;8:475–500.
28. Kupfer DJ. Long-term treatment of depression. *J Clin Psychiatry*. 1991;52(Suppl):28–34.
29. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16:606–13.
30. Muramatsu K, Miyaoka H, Kamijima K, Muramatsu Y, Tanaka Y, Hosaka M, et al. Performance of the Japanese version of the Patient Health Questionnaire-9 (J-PHQ-9) for depression in primary care. *Gen Hosp Psychiatry*. 2018;52:64–9.
31. Oguro N, Suzuki R, Yajima N, Sakurai K, Wakita T, Hall MA, et al. The impact that family members' health care experiences have on patients' trust in physicians. *BMC Health Serv Res*. 2021;21:1122.
32. Dugan E, Trachtenberg F, Hall MA. Development of abbreviated measures to assess patient trust in a physician, a health insurer, and the medical profession. *BMC Health Serv Res*. 2005;5:64.
33. Kurita N, Oguro N, Miyawaki Y, Hidekawa C, Sakurai N, Ichikawa T, et al. Trust in the attending rheumatologist, health-related hope and medication adherence among Japanese systemic lupus erythematosus patients. *Rheumatology*. 2023;62:2147–53.
34. Coote HM, MacLeod AK. A self-help, positive goal-focused intervention to increase well-being in people with depression. *Clin Psychol Psychother*. 2012;19:305–15.
35. Demyttenaere K, Reines EH, Lönn SL, Lader M. Satisfaction with medication is correlated with outcome but not persistence in patients treated with placebo, escitalopram, or serotonin-norepinephrine reuptake inhibitors: A post hoc analysis. *Prim Care Companion CNS Disord*. 2011;13:PCC.10m01080.
36. Flecia K, Mohd FA. Trust in physician among patients with type 2 diabetes mellitus in Luyang health clinic, sabah and its association with treatment adherence and glycaemic control. *Med J Malaysia*. 2023;78:329–35.
37. Kurita N, Oguro N, Miyawaki Y, Hidekawa C, Sakurai N, Ichikawa T, et al. Trust in the attending rheumatologist, health-related hope and medication adherence among Japanese systemic lupus erythematosus patients. *Rheumatology*. 2022;62:2147–53.
38. Lee YY, Lin JL. The effects of trust in physician on self-efficacy, adherence and diabetes outcomes. *Soc Sci Med*. 2009;68:1060–8.
39. Mavroeides G, Koutra K. Illness representations in depression and their association with clinical and treatment outcomes: A systematic review of the literature. *J Affect Disord Rep*. 2021;4:100099.
40. Ministry Of Health, Labour And Welfare. <https://www.mhlw.go.jp/toukei/list/10-20.html> (in Japanese). Accessed 22 Feb 2024.
41. Ministry Of Health, Labour And Welfare. Ethical guidelines for medical and health research involving human subjects. 2023. <https://www.mhlw.go.jp/content/001077424.pdf> (in Japanese). Accessed 22 Feb 2024.

## Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.