Original article

Exploring the use of Routine Outcome Monitoring in the treatment of patients with a psychotic disorder

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A B S T R A C T

Background: Routine Outcome Monitoring (ROM) has become part of the treatment process in mental health care. However, studies have indicated that few clinicians in psychiatry use the outcome of ROM in their daily work. The aim of this study was to explore the degree of ROM use in clinical practice as well as the explanatory factors of this use.

Methods: In the Northern Netherlands, a ROM-protocol (ROM-Phamous) for patients with a psychotic disorder has been implemented. To establish the degree of ROM-Phamous use in clinical practice, the ROM results of patients (n = 204) were compared to the treatment goals formulated in their treatment plans. To investigate factors that might influence ROM use, clinicians (n = 32) were asked to fill out a questionnaire about ROM-Phamous.

Results: Care domains that were problematic according to the ROM-Phamous results were mentioned in the treatment plan in 28% of cases on average (range 5–45%). The use of ROM-Phamous in the treatment process varies considerably among clinicians. Most of the clinicians find ROM-Phamous both useful and important for good clinical practice. In contrast, the perceived ease-of-use is low and most clinicians report insufficient time to use ROM-Phamous.

Conclusions: More frequent ROM use should be facilitated in clinicians. This could be achieved by improving the fit with clinical routines and the ease-of-use of ROM systems. It is important for all stakeholders to invest in integrating ROM in clinical practice. Eventually, this might improve the diagnostics and treatment of patients in mental health care.

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1. Introduction

During the last decade, Routine Outcome Monitoring (ROM) has become part of the treatment process in mental health care [1–3]. ROM can be described as the use of standard assessments to systematically and continuously monitor the health of patients, for the purpose of improving their care [4]. ROM may improve the diagnostics and treatment of psychiatric problems [5–7]. Feedback concerning treatment outcome seems beneficial in improving the quality of mental health care [8]. A study by Slade et al. (2006) revealed that the routine use of outcome measures did not improve patient-rated unmet needs and quality of life, but did reduce psychiatric inpatient admissions [9].

Psychotic disorders usually involve problems in multiple domains and for a prolonged period of time. This makes treatment complex. Also, somatic problems often go undetected and untreated in patients with severe mental illness [10,11]. De Hert et al. (2009) stress the need for awareness of the potential metabolic side effects of antipsychotic medication, implementation of screening assessments, and referrals for the treatment of somatic conditions [12]. ROM might be helpful to achieve these goals. However, several studies have indicated that few clinicians in psychiatry use the outcome of ROM in their day-to-day work.
[13,14]. A previous study conducted by our research group also revealed a discrepancy between care needs identified with ROM and treatment goals mentioned in the treatment plans of patients with a psychotic disorder [15]. Thus, in general, the use of ROM in the treatment process appears to be suboptimal.

The way clinicians experience ROM systems might be a barrier in the use of ROM. In general, both perceived usefulness and ease-of-use are significantly correlated with the acceptance of a system [16]. Clinicians describing their experience with ROM indicated that ROM could help reflect upon and evaluate progress of service-users and that service-user input is of great importance [17]. Practical issues such as time consumption and effort, fear that ROM might create competition between services, teams and practitioners and fear and mistrust about use of ROM-data by third parties were described as disadvantages of ROM [17]. In line with this, clinicians may perceive ROM as external control and management, which may lead to resistance [18,19]. Therefore, from the clinicians’ perspective, the disadvantages of working with ROM should be balanced by the utility of the data [20].

In the current study, a ROM protocol for patients with a psychotic disorder (the Pharmacotherapy Monitoring and Outcome Survey – ROM-Phamous) was used. This comprehensive system has been in use in the Northern Netherlands since 2007. ROM-Phamous yearly assesses mental and physical health and social well-being of patients with standardized instruments. The aim of this study was to explore the degree of ROM use in clinical practice and explanatory factors of this use. To explore the degree of ROM use in clinical practice, we compared the presence of care needs according to ROM-Phamous results to treatment goals described in patients’ treatment plans. To examine which factors may influence ROM use, we explored clinicians’ experiences with ROM-Phamous. This included self-reported usage behaviour, perceived usefulness, ease-of-use, facilitating conditions (such as time), and emotions of clinicians concerning ROM-Phamous. This may give insight into the areas in which interventions are needed to achieve a more optimal use of ROM-Phamous and ROM in general.

2. Methods

2.1. ROM use in clinical practice

To establish the degree of ROM use in clinical practice, ROM-Phamous results of patients were compared with treatment goals mentioned in their treatment plans. This is a replication of our previous study. A detailed description of the methodology can be found in the previous article [15].

2.1.1. Participants (patients)

The current study used ROM assessments of patients with a psychotic disorder that were available at the start of the study. In total, 300 patients receiving care at Lentis Psychiatric Institute were randomly selected from the 2014 ROM-Phamous database (n = 1567). Patients with diagnoses other than a psychotic disorder were excluded from the sample (n = 96). The Medical Ethical Committee of the University Medical Centre Groningen (UMCG) confirmed that this study did not require additional ethical approval. Approval of the department head at Lentis Psychiatric Institute was obtained for the use of anonymised data from the Electronic Patient Record (EPR). The study was executed in line with national legislation and the Declaration of Helsinki.

2.1.2. Procedure

The prevalence of positive and negative symptoms, psychosocial problems (with social functioning and daily activities) and modifiable cardiovascular risk factors (overweight, diabetes mellitus, hypertension, and dyslipidaemia) were calculated with the available ROM-data according to predefined cut-off points (for more details, see Tasma et al. (2016) [15]). Next, the first treatment plan after the ROM-screening was obtained from the EPR. Two independent researchers (MT and LvdH) scored whether the aforementioned care needs were reported in the treatment plans. Only patients with available ROM data and psychiatric treatment plan were included in the analysis.

2.1.3. Data analysis

Descriptive statistics were used in IBM SPSS Statistics 20 [21]. Demographic information of patients (age, gender, and duration of illness) in the sample was compared to all patients in the ROM-database, using Chi-Square and t-tests, to investigate the representativeness of the sample. For each investigated care domain, patients were divided into four categories: 1) the care domain was not problematic according to the ROM results and was not mentioned in the treatment plan, 2) the care domain was not problematic according to the ROM results, but was mentioned in the treatment plan, 3) the care domain was problematic according to the ROM results, but was not mentioned in the treatment plan and 4) the care domain was problematic according to the ROM results and was mentioned in the treatment plan. Thus, categories 1 and 4 indicate a match between the ROM results and the treatment plan, while categories 2 and 3 indicate a mismatch.

2.2. Clinicians’ experiences with ROM

2.2.1. Participants (clinicians)

Clinicians employed at four psychiatric institutes in the Northern Netherlands, all of which use the ROM-Phamous protocol, participated in the second part of this study. Clinicians were psychiatrists, psychologists, and nurse practitioners in both in- and outpatient settings. No exclusion criteria were formulated for the clinicians.

2.2.2. Procedure

A questionnaire about ROM-Phamous was digitally distributed to all clinicians (n = 80), with a request to share their opinion to help improve ROM-Phamous. Individual responses would not be communicated to their organisation or manager and data were stored anonymously. After one week, a reminder was sent to the non-responders, which was repeated two weeks later.

2.2.3. Measures

We used the self-developed theory-based ‘ROM-Phamous State-of-Mind’ questionnaire consisting of 31 items (in Dutch) (based on Van Offenbeek et al. (2003) [22]). The first 22 items consisted of statements about ROM-Phamous. These had to be rated on a Likert scale from 1 (completely disagree) to 5 (completely agree). The items constituted seven subscales, measuring usage behaviour, support, power, emotion, ease-of-use, usefulness, and facilitating conditions. The internal consistency of the usage behaviour, emotion, ease-of-use, usefulness, and facilitating conditions scales was high in the current study (Cronbach’s Alpha ≥ .7), while the internal consistency of the support and power scales was low (Cronbach’s Alpha < .4). Therefore, the latter two subscales were not included in the analysis, except for the item of the power scale ‘I experience ROM-Phamous as a form of behavioural control’ (item 13), as previous studies revealed that ROM was experienced as external control and management [18,19]. Example items of the scales included in the analysis are:

- ‘I use the outcome of ROM-Phamous in the treatment of my patients’ (usage behaviour, item 2);
• ‘I am proud of the fact that ROM-Phamous is used in my institute’ (emotion, item 7);
• ‘The outcome of ROM-Phamous is easy to interpret’ (ease-of-use, item 3);
• ‘ROM-Phamous has additional value for the treatment of my patients’ (usefulness, item 4);
• ‘I have sufficient time to use ROM-Phamous in my daily work’ (facilitating conditions, item 14).

Item 23 assessed the appreciation of ROM-Phamous in general and had to be rated on a scale from 1 (very poorly) to 10 (excellent). Item 24 was an open question where clinicians could share any idea, comment or suggestion about ROM-Phamous. The remaining items (25–31) assessed the clinicians’ characteristics: profession, psychiatric institute, gender, age, and the years of experience in mental health care and psychosis care.

2.2.4. Data analysis

Descriptive statistics were used to analyse the clinicians’ demographic information and the scores on the subscales. Correlations between the subscales were calculated with Kendall’s Tau, as the scores on some subscales were not normally distributed and the sample was small (n = 32). Topics mentioned in the open question were divided into multiple categories by two researchers independently (MT and EL). The outcome was compared and discussed until consensus on final categories was reached.

3. Results

3.1. ROM use in clinical practice

The investigated sample (n = 204) did not differ significantly from the other patients in the database, with regard to gender distribution, age and duration of illness. Thus, the sample seems to be representative for all patients in the ROM-Phamous database. The average time between the ROM-screening and the draft of the treatment plan was 4.7 ± 4.3 months. Care domains that were problematic according to the ROM results (depicted in black and dark grey, Fig. 1) were mentioned in the treatment plan (depicted in black) in 28% of cases on average (range 5–45%). In many cases, care domains that were problematic according to the ROM results were not mentioned in the treatment plan (depicted in dark grey), most prominently in negative symptoms, overweight and dyslipidaemia (respectively 83, 75, 95%). The opposite occurred as well, where care domains that were not problematic according to the ROM results, were mentioned in the treatment plans (depicted in light grey), mostly in social functioning and daily activities. In the remaining cases, care domains were not problematic according to the ROM results and also not mentioned in the treatment plan (depicted in white). These patients therefore did not need treatment in these care domains.

3.2. Clinicians’ experiences with ROM

In total, 32 clinicians filled out the questionnaire between January and April 2016 (response rate 40%), with a mean age of 47.4 ± 1.0 years and of which 38% was male (n = 12). Of all clinicians, 59% were psychiatrists (n = 19), 25% were psychologists (n = 8) and 16% were nurse practitioners (n = 5). On average, the clinicians had 17.0 ± 9.8 years of experience in mental health care and 13.3 ± 9.9 years of experience in psychosis care. The average score on the subscale ‘usage behaviour’ (2 items) was neutral to high (median = 3.75, Q1–Q3 = 3.0–4.5). The score on the item ‘I use the outcome of ROM-Phamous in the treatment of my patients’ was high (median = 4; Q1–Q3 = 4–5). However, the score on the item ‘I use the information I gather with ROM-Phamous extensively’ was neutral (median = 3; Q1–Q3 = 2–4). The scores on the other scales were as follows: ‘emotion’ (4 items) high (positive) (median = 3.75, Q1–Q3 = 3.5–4.2), ‘ease-of-use’ (3 items) low to neutral (median = 2.83, Q1–Q3 = 2.1–3.6), ‘usefulness’ (6 items) neutral to high (median = 3.5, Q1–Q3 = 2.7–4) and ‘facilitating conditions’ (3 items) low to neutral (median = 2.33, Q1–Q3 = 2–3.3). The score on the item ‘I perceive ROM as a form of behavioural control’ was low (median = 2, Q1–Q3 = 2–2.5). Overall, most clinicians are moderately satisfied with ROM-Phamous (median of the grade = 7 (sufficient), Q1–Q3 = 5.3–7). Self-reported usage behaviour correlated positively with emotion (r = .49; p < .001), ease-of-use (r = .48; p < .001), usefulness (r = .57; p < .001), and facilitating conditions (r = .51; p < .001) (Fig. 2).

Fig. 1. Care needs according to ROM and the treatment plan. This graph depicts whether care domains were problematic according to the ROM results and whether they were mentioned in the treatment plans of patients. The investigated care domains are depicted on the x-axis and the number of patients is depicted on the y-axis. Patients with incomplete information (missing ROM-data and/or missing treatment plans) are not shown in the graph. The white part of the bars indicates the number of patients for whom a care domain was not problematic according to the ROM results, and not mentioned in the treatment plan. The light grey part of the bars indicates the number of patients for whom a care domain was not problematic according to the ROM results, but was mentioned in the treatment plan. The dark grey part of the bars indicates the number of patients for whom a care domain was problematic according to the ROM results, but was not mentioned in the treatment plan. The black part of the bars indicates the number of patients for whom a care domain was problematic according to the ROM results and mentioned in the treatment plan. (ROM: Routine Outcome Monitoring, TP: Treatment plan, +: care domain is problematic/mentioned, -: care domain is not problematic/mentioned).
The open question was filled out by 19 clinicians. The following topics were mentioned:

- **ROM-Phamous provides structure and support** ($n = 3$);
- **the outcome of ROM-Phamous is difficult to interpret** ($n = 7$);
- **differences exist among teams and screeners** ($n = 5$);
- **ROM-Phamous is not useful and poorly adjusted for clinical practice** ($n = 4$);
- **ROM-Phamous is both difficult and a burden for the patient** ($n = 3$);
- **improving treatment is not the primary goal of ROM-Phamous, as it is mostly being used for research and health insurance purposes** ($n = 3$);
- **ROM-Phamous is a burden for the treatment team** ($n = 3$);
- **other topics, not specifically about ROM-Phamous** ($n = 4$).

4. Discussion

The aim of this study was to explore the use of ROM in clinical practice and possible explanatory factors of this use. We found that ROM-Phamous use may be suboptimal and varies considerably among clinicians. Most clinicians are proud of ROM-Phamous, find it useful and important for good clinical practice. On the other hand, ROM use may be limited for some clinicians due to low ease-of-use, time pressure and a suboptimal fit with clinical practice.

4.1. **ROM use in the treatment process**

A discrepancy was found between care domains that were problematic according to the ROM-Phamous results and treatment goals described in the treatment plans of patients. Although indirectly measured, it does suggest that ROM-Phamous might not be optimally used in the treatment of patients. Moreover, when comparing the present study with the results of our previous study [15], it becomes apparent that the fact that ROM-Phamous has been in use for a longer time has not automatically led to a considerable change in the use of ROM results. Possibly, not enough effort has been made to actively involve clinicians in using ROM-Phamous. Previous studies have shown that merely introducing a ROM-system in mental health care will not necessarily ensure active use of the system [23,24]. It is important to pay...
specific attention to the user [19]. Interestingly, most clinicians claim to use ROM-Phamous in the treatment of patients, but the degree of use varies considerably. This could explain why not all care domains that were problematic according to the ROM-Phamous results were reported in the treatment plans. Some clinicians might use only parts of ROM-Phamous, use it briefly or do not report all their ROM-based considerations in the treatment plan. Also, a substantial time gap was found between the ROM screening and the draft of the treatment plan, which could be another explanation for the discrepancy between the ROM results and the treatment plan. As the presence of problems could have changed during this period, our data may be an under- or overestimation of actual ROM use.

4.2. Explanatory factors of ROM use

We found that most clinicians are proud of ROM-Phamous. They find it useful and important for good clinical practice. While it has been suggested that clinicians may perceive ROM as external control [18,19], our study did not confirm this. On the other hand, clinicians reported that ROM-Phamous is not easy to use, that outcomes are difficult to interpret and that they have limited time to incorporate the results in the treatment of patients. Some clinicians perceive ROM-Phamous to be poorly adjusted for clinical practice and mostly used for research and health insurance purposes. Indeed, ROM has a wide applicability and is also used for research and by health insurers to determine the quality of treatment [25]. Furthermore, some clinicians reported that major differences exist in the way ROM-Phamous is used by clinicians and the staff members who carry out the ROM-Phamous assessments. Some also suggested that it may be a burden for both the treatment team and the patient. Thus, the limited ease-of-use, the time pressure and the suboptimal fit with clinical practice are factors, which may limit the use of ROM-Phamous for some clinicians. This is in line with previous studies, in which clinicians have shown ambivalence and resistance towards ROM, because of lack of time and support, low perceived relevance of the measures and fear of how the information is used [17,26]. When these issues are not balanced by advantages of ROM, it may decrease the motivation to use ROM.

4.3. Clinical implications

It is important to address the aforementioned issues and facilitate clinicians’ use of ROM. In particular, attention should be paid to the perceived usefulness of ROM by clinicians [16]. Improving the quality of care should be the primary purpose of ROM. ROM may reveal conditions or symptoms relevant for treatment planning that may have remained unnoticed without ROM. Policy makers need to communicate this to clinicians and also educate them on how to use ROM information when devising a treatment plan. This has also been suggested by Stincken et al. (2012), who reported that it is important to help clinicians adjust to this new evaluation and feedback culture, and not only focus on developing the practical skills for ROM use [24]. This also means that health organisations should critically evaluate which aspects of patients’ well being should be measured with ROM to ensure it fits with clinical practice. Further, the ease-of-use of ROM should be improved to reduce the experienced time pressure of its users. These actions may motivate clinicians to increase their use of ROM in the treatment process. Equally important, patients should be facilitated in using their own ROM information in their treatment. Providing patients with good quality information may improve the process of Shared Decision Making (SDM) between patients and clinicians. The effectiveness of ROM within a SDM framework is currently being investigated [27]. In the end, both patients and clinicians need to be actively involved to achieve any significant improvement in the integration of ROM in daily clinical practice.

4.4. Strengths and limitations

The strength of this study is that ROM assessments and treatment plans of patients were investigated, as well as the perceptions and experiences of clinicians from all institutes using ROM-Phamous. A limitation of the study is that different clinicians than the clinicians who filled out the ROM-Phamous questionnaire likely wrote the investigated treatment plans in this study. Also, selection bias may have played a role, as not all clinicians responded to the questionnaire (response rate 40%). Finally, much heterogeneity exists between ROM systems, which implicates that our findings may only partly generalise to other ROM systems.

4.5. Future research

This study underlines the importance of examining the current state of affairs regarding the use of ROM in mental health care. It seems worthwhile to develop interventions that make ROM more user-friendly, for instance in the form of facilitating software applications as suggested by Boswell et al. (2015) [18]. At Lents Psychiatric Institute, such an intervention is currently being developed and its effectiveness is investigated. It is also important to examine how and to what extent ROM can improve the quality of care.

5. Conclusions

The use of ROM-Phamous in the treatment of patients with a psychotic disorder may be suboptimal and varies considerably among clinicians. However, in general, our findings reveal a positive attitude towards ROM, as most clinicians are proud of ROM-Phamous and find it useful and important for good clinical practice. They do not experience it as a form of behavioural control. On the other hand, most clinicians report insufficient time to use it, find it difficult to use, and some clinicians are not convinced of the usefulness. ROM could be optimised, for instance by improving the fit with clinical routines and the ease-of-use of ROM systems. Also, both patients and clinicians need to be actively involved to achieve any significant improvement in the integration of ROM in daily clinical practice. Eventually, this could improve the diagnostics and treatment of patients in mental health care.

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Disclosure of interest

The authors declare that they have no competing interest.

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