Attitudes of patients with schizophrenia spectrum or bipolar disorders towards medication self-management during hospitalisation

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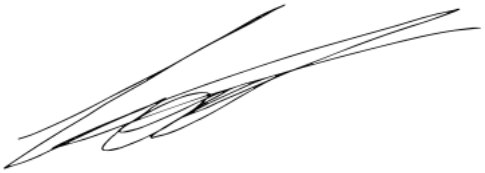
Acknowledgements:
The authors would like to thank all the patients who participated in the study. A special thanks to the participated hospitals and Lisa Bondroit for her help in the data collection.

Conflict of Interest Statement: None

Funding: None



Attitudes of patients with schizophrenia spectrum or bipolar disorders towards medication self-management during hospitalisation.

Abstract

Background: Medication self-management (MSM) is defined as a person's ability to cope with medication treatment for a chronic condition, along with the associated physical and psychosocial effects that the medication causes in their daily lives. For many patients, it is important to be able to self-manage their medication successfully, as they will often be expected to do after discharge.

Aim: The aim of this study was to describe the willingness and attitudes of patients with schizophrenia spectrum or bipolar disorders regarding MSM during hospital admission. A secondary aim was to identify various factors associated with patient willingness to participate in MSM and to describe their assumptions concerning needs and necessary conditions, as well as their attitudes towards their medication.

Methods: A multicentre, quantitative cross-sectional observational design was used to study the willingness and attitudes of psychiatric patients regarding MSM during hospitalisation. The study adhered to guidelines for Strengthening the Reporting of Observational Studies in Epidemiology (**STROBE**).

Results: In this study, 84 patients, of which 43 were patients with schizophrenia spectrum disorders and 41 were patients with bipolar disorders, participated. A majority of the patients (81%) were willing to participate in MSM during their hospitalisation. Analysis revealed patients are more willing to MSM if they are younger ($r=-.417$, $p<.001$) and a decreasing number of medicines ($r=-.373$, $p=.003$). Patients' willingness was positively associated with the extent of support by significant others during and after hospitalisation (Pearson's $r=.298$, $p=.011$). Patients were convinced that they would take their medication more correctly if MSM were to be allowed during hospitalisation (65%).

Conclusion: Most of the patients were willing to self-manage their medication during hospitalisation, however, under specific conditions such as being motivated to take their medication correctly and to understand the benefits of their medication.

Relevance to Clinical Practice

From a policy point of view, our study provided useful insights into how patients look at MSM to enable the development of future strategies. Since patients are willing to self-manage their medication during hospitalisation, this may facilitate its implementation.

Patient contribution

Patients were recruited for this study. Participation was voluntary, and signed informed consent was obtained from all participants prior to the questionnaire.

Impact statement

- Patients were willing to self-manage their medication during hospitalisation, however, under specific conditions.
- Patients needed to be motivated to take their medication correctly and to understand the benefits of their medication.
- The majority of patients stated that they would be likely to take their medication more correctly if MSM were to be allowed and were agreed that their future health status depends on their medication.

Introduction

Patients play a limited role in the administration of their medications while hospitalised, as traditionally, it is primarily the responsibility of nurses. Nevertheless, medication self-management programmes, in which patients manage their own medication, have been reported in the literature since 1959 (Parnell, 1959). Medication self-management (MSM) is defined as a person's ability to cope with medication treatment for a chronic condition, along with the associated physical and psychosocial effects that the medication causes in their daily lives. It is facilitated by social support and information, but hindered by difficulties associated with medication regimens, as well as by physical and psychological symptoms (Jingbo Xiao et al., 2015; Sendt et al., 2015).

For many patients, it is important to be able to self-manage their medications successfully, as they are often expected to do after discharge. Nonetheless, the degree of implementation of MSM during admission of psychiatric patients has not been the subject of extensive study. Research conducted in the general hospitals of Flanders (the Dutch-speaking region of Belgium) indicated that 22% of hospitalised patients self-managed at least one medication during their hospitalisation. According to the opinion of the head nurses in that study, almost twice this number would have been able to self-manage their medication during admission (41%)(Vanwesemael et al., 2017). Most of these units were medical and surgical, with the minority being psychiatric units (Vanwesemael et al., 2017).

The decision-making process concerning participation in MSM is largely shared between the treating physician, the nurse and the patient. This is in contrast with the recommended practice in healthcare communication, shared decision-making (SDM), in which the emphasis is on the patient as a person, taking into account the patient's preferences, needs, beliefs and concerns about treatment in general. SDM has potential to improve treatment decisions and health outcomes (Gafni et al., 1999; Zisman-Ilani et al., 2017). At the same time, however, patients often report a lack of sufficient involvement in decision-making concerning antipsychotics (Moncrieff et al., 2016; Zisman-Ilani et al., 2018).

About 25% of patients with severe mental illness, such as schizophrenia or bipolar disorder, do not retain their ability to make decisions about their treatment (e.g., MSM during their hospitalisation)(Calcedo-Barba et al., 2020; Okai et al., 2007; Spencer et al., 2017).

A greater severity of positive and negative symptoms, experiencing a stressful life event (e.g., hospitalisation), a deficient communication between patient and healthcare provider, a poor disease insight, an increased age, and often receiving higher doses of medication adversely impact the ability to make decisions about their treatment (Lepping et al., 2015; Ruissen et al, 2015; Carpenter et al., 2000; Harmell et al., 2012; Jeste et al., 2009).
The literature indicates patients with SSD or BD may achieve a level of ability for making value-based decisions equal to non-psychiatric patients. Brief repeated interventions aimed at disease insight and medication training can improve patients to make adequate decisions about their treatment (Calcedo-Barba et al., 2020).
Psychiatric healthcare providers often encounter challenges in applying SDM to psychiatric medication choices, as SDM is often perceived as posing risks for clinicians (e.g. liability or making medication errors) and raises concerns about patients' medication under- and misuse (Zisman-Ilani et al., 2021). Nonetheless, scientific evidence actually supporting this perception is currently lacking. However, there is limited supporting evidence that an inpatient MSM program carried out by nurses exhibits promise as an effective intervention to enhance medication adherence in patients with SSD after hospital discharge (Schirmer et al., 2015 & Zhou & Gu, 2014).

In a recent study (Loots et al.,2022) conducted in psychiatric hospitals in Flanders, patients and psychiatric healthcare providers tend to be of the opinion that the patient, the nurse and the psychiatrist should all be involved in the process of MSM. They further state that MSM would be likely to enhance their medication knowledge and improve their health literacy (Loots et al.,2022). To date, there appears to be a lack of studies on the attitudes of patients with schizophrenia spectrum or bipolar disorders to participate in MSM during hospitalisation.

To address this gap in the literature, the primary objective of this study was to describe the attitudes of patients with Schizophrenia Spectrum Disorder or a Bipolar Disorder, Type I or Type II regarding MSM during hospital admission. A secondary aim was to identify various factors associated with patient willingness to participate in MSM and to describe their assumptions concerning needs and necessary conditions, as well as their attitudes towards their medication. Such insights are necessary to develop and implement MSM interventions.

Methods

Design

A multicentre, quantitative cross-sectional observational design was used to study the willingness and attitudes of psychiatric patients regarding MSM during hospitalisation. Between December 2020 and April 2022, patients were surveyed using a structured questionnaire to assess their attitudes towards MSM, their assumptions regarding needs and necessary conditions, and their attitudes towards their medication. The study adhered to guidelines the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE Statement - Supplementary File 1) (Vandenbroucke et al., 2007).

Participants and setting

In order to obtain sufficient data variation, convenience sampling was used to select patients. We recruited patients in three inpatient psychiatric hospitals in Flanders, Belgium. Units accommodating hospitalised patients with schizophrenia spectrum or bipolar disorders were invited. Eleven units were contacted, and five units ultimately participated. Patients were included after consultation with the head nurse, and had to meet all the following inclusion criteria: 18 years of age or older, hospitalisation and a diagnosis of Schizophrenia Spectrum Disorder or a Bipolar Disorder, Type I or Type II. Exclusion criteria for patients were as follows: staying in either an acute or an outpatient unit or inability to speak Dutch.

Data collection

The survey was conducted according to a self-developed structured questionnaire and based on results from a previous study on MSM in a non-psychiatric setting (Vanwesemael et al., 2018), as well as on the results of a recent qualitative descriptive study of MSM in patients with schizophrenia or bipolar disorders (Loots et al.,2022). The survey was developed by two researchers and was validated (face validity) with the involvement of several healthcare providers and a multidisciplinary expert meeting. The survey was developed and conducted in collaboration with a research assistant for participants' possible ambiguities. The definition of MSM was explained in detail at the beginning of the survey.

To describe the population, the following data were collected: age, gender, educational level, work and hospital characteristics, disease, reason for hospitalisation and medication characteristics.

Firstly, the willingness of patients to participate in MSM during hospitalisation was assessed with one question (6-point Likert scale; absolutely unwilling, somewhat unwilling, unwilling, willing, somewhat willing, absolutely willing).

Secondly, the attitudes of patients towards MSM during hospitalisation were assessed according to a set of 10 questions (5-point Likert scale: strongly disagree, disagree, neutral, somewhat agree, strongly agree) of which were combined into a scale to describe the overall attitude towards MSM (Table 4). This scale was constructed by summing the scores for these 10 questions, resulting in a total score between 0 and 50, reflecting the overall attitude of patients towards MSM in hospital (Cronbach's alpha=.734). Higher scores indicate more positive patient attitudes.

The next section of the questionnaire included 11 different statements (5-point Likert scale: strongly disagree, disagree, neutral, somewhat agree, strongly agree) regarding attitudes towards medication of which were combined into a scale to describe the overall medication attitude (Figure 1).

The overall attitude towards medication was calculated by summing the scores for 11 statements (Questions 1–11), which were integrated into a scale defining the overall medication attitude of patients towards their medication (α=.713).

Logistic regression analysis was used to identify factors influencing the willingness of patients to participate in MSM.

Finally, possible prerequisites for MSM, relating to the patient, organisation and medication knowledge were questioned. Perceived impact was evaluated by six statements concerning possible benefits and five statements on possible disadvantages of MSM relating to the patient and organisation. The statements were rated along a 6-point Likert scale (strongly disagree, somewhat disagree, disagree, agree, somewhat agree, strongly agree) (Appendix 1).

Data analysis

Data were analysed using IBM SPSS Statistics V.24.0 (SPSS Inc, Chicago, IL, USA). The

normality of the data was tested using the absolute z-value (Kim, 2013). Discontinuous and categorical data were described using frequency distributions, while mean and standard deviations were used for interval data. A two-sided level of significance of .05 was applied. Nonparametric statistics were used to analyse the data. To evaluate the statistical significance of the differences between the two patient groups, the $\chi 2$ test for dichotomous data and the Mann-Whitney U test for ordinal data was used. Little's missing completely at random (MCAR) test was performed for variables with missing values and did not show any systematic patterns in missing data.

To control for multiple testing, the Benjamini-Hochberg procedure was used to adjust for the false discovery rate (FDR) (Thissen et al., 2002).

Ethical considerations

The local ethics committees and the Ethics Committee of the University Hospital of Antwerp formally granted ethical approval (reference B3002020000245). All participants received information on the purpose, design and execution of the study. Participation was voluntary, and signed informed consent was obtained from all participants prior to the questionnaire. Participants had the right to withdraw consent at any time. All data collected were coded.

Results

The research population

A total of 84 patients participated in this study, including 43 patients with schizophrenia spectrum and 41 patients with bipolar disorders (Table 1). The average age of participants was 41 years [SD 12.9], and the majority were male (57.1%). More than half of the participants were unemployed (65.6%), and 7.1% were working in healthcare. Each participant had an average of four hospitalisations [SD 3.8], the average duration of illness for the entire sample was nine years [SD 10.6] and most participants were hospitalised for relapse (86%). Duration of illness was related to relapse. Patients who were hospitalised for relapse had a significantly longer duration of illness than did other patients (10.2 years and 3.5 years, respectively; Mann-Whitney U, p=.034). The majority of the participants received support from significant others both during (91%) and after hospitalisation (92%).

PLEASE INSERT TABLE 1 ABOUT HERE

Medication management

Most of the participants (86%) took medications at home, with an average of 4 [range 0-13] medications before hospitalisation (Table 2). The majority of patients (70%) had completely self-managed these medications at home. Analysis revealed a positive correlation between age and the number of medicines taken at home (Spearman's rho, $r=.423$, $p<.001$). Moreover, they reported having sufficient support to take their medication correctly during their hospitalisation (89%) and to follow up on their treatment plans after hospitalisation (71.3%).

PLEASE INSERT TABLE 2 ABOUT HERE

Willingness to participate in medication self-management during hospitalisation

A majority of the patients (81%) were willing to participate in MSM during their hospitalisation. Patients with a Bipolar Disorder were more willing compared to patients with Schizophrenia Spectrum Disorders (83% vs 79%; W=834, p=.627). A smaller share (52.6%) were only willing to self-manage their home medication during hospitalisation (p=.484). Analysis revealed patients are more willing to MSM if they are younger (Pearson's r, r=-.417, p<.001) and a decreasing number of medicines (Pearson's r, r=-.373, p=.003). In addition, willingness was positively associated with the extent of support by significant others during and after hospitalisation (Pearson's r, r=.298, p=.011).

PLEASE INSERT TABLE 3 ABOUT HERE

Attitudes towards medication self-management during hospitalisation

The attitudes of patients (n=64) towards MSM during hospitalisation was assessed along a 6-point Likert scale based on 10 statements (Table 4). Most patients (88%) were of the opinion that MSM during hospitalisation had a positive impact on their sense of confidence. However, patients with schizophrenia spectrum disorders were less convinced of this premise than were patients with bipolar disorders (80% vs 97%; W=527, p=.023).

Patients were convinced that they would take their medication more correctly if MSM was allowed (65%). The willingness of patients was positively correlated with their overall attitudes towards MSM (Pearson's r, r = .297, p=.019).

PLEASE INSERT TABLE 4 ABOUT HERE

Attitudes towards medication

The attitudes of patients (n=82) towards their medication was assessed along a 6-point Likert scale based on 11 statements (Figure 1). Most patients agreed that their future health status would depend on their medicines (71%), and they reported being concerned about the long-term effects of their medicines (70%). Patients with bipolar disorders were slightly less in agreement with the statement that medicines have unpleasant side-effects, as compared to other patients (28% vs 42%; X^2=5, p=.270). In addition, patients with bipolar disorders stated that they were not sufficiently informed about the effects of their medicines, as compared to patients with schizophrenia spectrum disorders (62% vs 37%; X^2=7, p=.168).

PLEASE INSERT FIGURE 1 ABOUT HERE

Factors influencing the willingness of patients to participate in medication self-management during hospitalisation

We applied univariate logistic regression analysis to examine the association between willingness and age, overall attitude towards MSM during hospitalisation and extent of support by significant others (Table 5). Patients who were willing to self-manage their medication during hospitalisation were younger than those who were unwilling to do so (mean 37.6 [SD 12.1] vs mean 49.7 [SD 11.1]; W=10.81; p=.001). The overall attitude towards MSM was less positive amongst patients who were unwilling to self-manage their medication during hospitalisation than amongst those who were willing to do so (mean 35.8 [SD 5.8] vs mean 31.3 [SD 10.3]; W=3.88; p=.049). Furthermore, patients who reported receiving more support from significant others during and after hospitalisation were more likely to be willing to participate in MSM during hospitalisation (OR = 1.24; 95% CI [1.04, 1.08]).

PLEASE INSERT TABLE 5 ABOUT HERE

Prerequisites for medication self-management

The majority of participants (96%) indicated that they needed to be motivated to take their medication correctly and understand the benefits of their medication. They further acknowledged the importance of regular evaluations of their ability to continue MSM during hospitalisation (96%). Opinions were divided concerning locking up self-managed medication during hospitalisation. Some patients considered this precaution necessary, while others did not. The analysis did not reveal any statistically significant differences.

Discussion

Most of the patients in our study indicated that they were willing to self-manage their medication during hospitalisation. Furthermore, willingness to participate in MSM was positively associated with the extent of support provided by significant others during and after hospitalisation. Patients who were willing to self-manage their medication during hospitalisation were younger than those who were unwilling to do so. The overall attitude towards MSM was less positive amongst patients who were unwilling to self-manage their medication during hospitalisation than amongst those who were willing to do so.

Attitudes towards medication self-management during hospitalisation

The majority of patients in our study perceived that MSM during hospitalisation had positively affected their sense of confidence, although patients with schizophrenia spectrum disorders were less convinced of this premise than were those with bipolar disorders (80% vs 97%). Our results confirm previous research indicating that MSM during hospitalisation increased the autonomy, confidence, self-reliance, appreciation and satisfaction of patients (Loots et al., 2018). According to previous studies, most patients who have experienced MSM during hospitalisation are satisfied with their experiences and would choose to do so again, but those who have never experienced MSM are more likely to choose nurse administration (Loots et al., 2022; Wright et al., 2006).

Many of the patients in our study stated that they would be likely to take their medication more correctly if MSM was allowed. These findings were in line with those of previous research indicating that training in MSM was beneficial for to adherence in patients with severe psychiatric disorders (Valenstein et al., 2011; Zhou & Gu, 2014). Habit-based interventions that examined the daily routines of patients and then linked medication management to these have also been particularly effective.

Some patients in our study also perceived MSM as an opportunity to learn how to take medication correctly. This might affect medication-related problems after discharge (Conn et al., 2016).

There is a huge contrast between inpatient and outpatient treatment. During the inpatient treatment, all medication is administrated and prepared, while at home the patient is often on his own. Patients suddenly must be able to read their medication schedule, pick up the

prescribed drugs at the pharmacy, and prepare and take them at the right time (Davis et al., 2002; Richard et al., 2011).

Patients reported receiving sufficient support to take their medication correctly during their hospital admission and during their follow-up treatment plans after hospitalisation. The majority of patients (82%) had followed complete MSM at home, in contrast to during hospitalisation (20%). These findings are in line with previous research (Vanwesemael et al., 2017) indicating that 21% of hospitalised patients self-managed their medication. Most of these units involved in that study were medical and surgical units, with a minority being psychiatric units (Vanwesemael et al., 2017). The literature reveals a sharp contrast between the prevalence of MSM amongst inpatients and outpatients. It is important for patients to be able to self-manage their medications successfully during hospitalisation, as they will often be expected to do after their admission. To this end, healthcare providers should help patients to take responsibility for their medicines and to self-manage their conditions. Most of the patients in our study had already taken responsibility for their own medication prior to admission and had shared this responsibility with family members or significant others. The literature reveals a sharp contrast between the willingness towards MSM during hospitalisation in psychiatric units. Most patients believed MSM during hospitalisation increased their autonomy, confidence, self- reliance, appreciation, and satisfaction (Loots et al., 2022).

Although the literature clearly demonstrates that patients tend to be positive towards MSM, not all patients would be willing to participate in MSM during a future hospitalisation. This may reflect the current culture in hospitals, in which patients expect to assume a more passive role and healthcare providers expect to assume responsibility for the medical care of their patients, regardless of their level of involvement in their own care prior to admission (Richardson et al., 2014).

Allowing patients to begin MSM during their hospitalisation would provide a several days during which to observe the way in which they manage their medication. This could enable healthcare providers to detect, respond to and intervene in case of errors in the medication routines of patients.

Willingness to participate in medication self-management during hospitalisation

Willingness to participate in MSM was positively associated with the extent of support provided by significant others during and after hospitalisation. These findings are in line with those of previous research. External support from relatives or significant others is desirable, given the positive impact that a familiar carer may have on a patient's willingness to participate in MSM (Loots et al., 2021; Manias, 2013; Richardson, 2014). In addition, significant others can communicate with healthcare providers in case of ambiguities concerning treatment or possible problems. Some family members had too little insight into medications initiated in hospital (Manias, 2013). Inviting patients' significant others to unit rounds can be a possible means by which healthcare providers can inform them about medication changes and providing opportunities for more proactive care.

Shared decision-making

At the same time, however, patients often report a lack of sufficient involvement in decision-making concerning antipsychotics (Moncrieff et al., 2016; Zisman-Ilani et al., 2018). Shared decision-making has the potential to alleviate problematic aspects of current medication management. It may enhance the customisation of medication to the needs, preferences and lifestyle of patients, as well as their stage of disease, with knock-on effects for health and social functioning. In general, patients are more likely to adhere to treatment plans with which they are satisfied or for which they feel that they have been involved in the decision-making process. In the clinical practice of mental healthcare, however, shared decision-making remains an exception rather than the norm (Morant et al., 2016).

Attitudes towards medication

Most of the patients in our study were positive concerning their medication. They agreed that their future health status depends on their medication, and they were concerned about the long-term effects of their medicines. These results are partially in line with the literature, which reports that outpatients and long-term care in patients had more positive attitudes about medication than did patients with acute illness (Balestrieri et al., 2009; Medina et al., 2012; Rej et al., 2016). In contrast to literature, however, we did not find any statistically significant correlations between medication attitude scores and any of the socio-demographic and clinical variables. Most previous studies have identified previous psychiatric hospitalisations and polypharmacy as factors that do not promote a positive

attitude towards medication treatment (Di Lorenzo et al., 2016; García S, Martínez-Cengotitabengoa et al., 2016; Haddad et al., 2014; Hong et al., 2011). In addition to a positive attitude towards medication, patients should be enabled to recognise their medication and to organise its' intake autonomously in full self-responsibility. The literature indicates patients' medication knowledge and disease insight increase with MSM, nevertheless it is not clear which aspects significantly improve (e.g. medication knowledge on name, dosage, side effects...) (Richardson, 2014). Medication schedules tailored to the patient's needs and cleary as possible is highly recommended.

Prerequisites for medication self-management

The results of our study indicate that patients are likely to be willing to participate in MSM under specific conditions. The majority of patients indicated that they needed to be motivated to take their medication correctly and to understand the benefits of their medication. Furthermore, they acknowledged the importance of regularly evaluating their ability to continue MSM during hospitalisation. These findings are in line with previous research indicating that evaluation is necessary to the objective assessment of a patient's actual competences. Such assessment should consider several aspects, including the specific conditions of patients, their mental and physical condition, and any possible side-effects of their current medication (Vanwesemael, 2018). In addition, patients should be hospitalised or be followed at home for a sufficient period to allow for the assessment of their competences.

Several existing programs for MSM incorporate a tool for evaluating the competences of patients. One such tool, the Self-Administration of Medication (SAM) instrument, has been validate in two studies and takes an average of eight minutes per patient to administer (Richardson, 2014). This tool is intended to provide an objective means of determining the extent to which patients are able to self-manage their own medication (Anderson, 2014; Manias et al., 2006). Taken together, the findings of our study confirm the need for further research on the validation of tools for use in psychiatry, as this topic currently represents a gap in the literature.

Strengths and limitations

One strength of this study was the random inclusion of several units in one university psychiatric hospital and two general psychiatric hospitals, which ensured the inclusion of a diversity of patients in the study sample. The sample size was adequate, as indicated by a test of statistical power, and it included almost equal proportions of participants with schizophrenia spectrum and bipolar disorders (52% vs 48%). This enhances the generalisability of our study results. Unfortunately, the response rate could not be calculated exactly.

We cannot rule out the possibility of selection and participation bias. It is possible, however, that patients with a more outspoken opinion on MSM were more likely to complete the survey. Therefore, the results of this study are therefore likely to reflect the willingness and attitudes of patients receiving long-term treatment in an inpatient setting with good clinical compensation, as opposed to outpatients or severely ill hospitalised patients. Further investigation is needed to explore the willingness and attitudes of severely ill inpatients and outpatients concerning MSM. We are convinced that the insights provided by our study provide concerning how patients look at MSM could be used as input in the development and implementation of future strategies.

Future prospects

Future research should focus on the development of a feasible MSM procedure that begins with the assessment of a patient's willingness to participate in shared decision-making. Processes of shared decision-making emphasise patients as people, taking into consideration their preferences, needs, beliefs and concerns about treatment, while incorporating their experiential knowledge. Ongoing medication counselling and regular consultations help build confidence and understanding that could help patients adhere to their treatment plans.

We also strongly recommend the development of a patient assessment tool for determining whether patients are capable of MSM and for regularly evaluating their ability to participate in MSM during and after hospitalisation. In addition, regular screening for the needs of individual patients with regard to treatment and their attitudes towards medication in inpatient and outpatient settings is needed in order to anticipate possible relapses. Furthermore, it is important to involve the significant others of patient both during and after

hospitalisation. They could assist nurses in screening patients and following up on them after hospitalisation. Future research should therefore focus on what significant others need in order to assist and support patients in their treatment.

Conclusion

Most of the patients were willing to self-manage their medication during hospitalisation, however, under specific conditions. Patients needed to be motivated to take their medication correctly and to understand the benefits of their medication. Furthermore, they acknowledged the importance of regularly evaluating their ability to continue MSM during hospitalisation. The majority of patients stated that they would be likely to take their medication more correctly if MSM were to be allowed. Additionally, patients agreed that their future health status depends on their medication, and they were concerned about the long-term effects of their medicines.

Relevance to Clinical Practice: There is a huge contrast between in- and outpatient treatment. During the inpatient treatment, all medication is administrated and prepared, while at home the patient is often on his own. Patients suddenly must be able to read their medication schedule, pick up the prescribed medication at the pharmacy, and prepare and take them at the right time.

Therefore, MSM is becoming an increasingly important element in rehabilitation programs. As patients are not capable of self-managing their medication, aid is often required. The aims of our study was to describe the attitudes of patients with SSD or BD regarding MSM during hospital admission, to identify various factors associated with patient willingness to participate in MSM, their assumptions concerning needs and necessary conditions, as well as their attitudes towards their medication. Such insights are necessary to develop and implement MSM interventions.

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Table 1: Demographic and work characteristics

Demographic data	SSD (n=43)	BD (n=41)	Total (n=84)	p-value
Gender, n (%)				
Male	25 (58.1)	23 (56.1)	48 (57.1)	
Female	18 (41.9)	18 (43.9)	36 (42.9)	.850[1]
Age (years) mean [SD]	39 [13.7]	42 [12]	41 [12.9]	.278[2]
Level of education, n (%)				
None	2 (4.8)	0 (0)	2 (2.4)	
Primary education	6 (14.3)	2 (4.9)	8 (9.6)	
Secondary education	21 (50.0)	21 (51.2)	42 (50.6)	
Higher education	6 (14.3)	4 (9.8)	10 (12.0)	.053[2]
Bachelor	3 (7.1)	8 (19.5)	11 (13.3)	
Master	4 (9.5)	6 (14.6)	10 (12.0)	
Occupation, n (%)				
Unemployed	31 (72.0)	24 (58.5)	55 (65.5)	
Employed	8 (18.6)	14 (34.1)	22 (26.2)	.323[1]
Working in healthcare	3 (7.0)	3 (7.3)	6 (7.1)	
Retired	1 (2.3)	0 (0)	1 (1.1)	
Duration of illness (years) mean [SD]	10 (11.3)	9 (10.0)	9 (10.6)	.695[2]
Number of psychiatric hospitalisations mean [SD]	3 (3.4)	4 (4.1)	4 (3.8)	.146[2]

SSD: Schizophrenia spectrum disorders, BD: Bipolar disorders

[1] χ^2 test

[2] Mann-Whitney U test

Table 2: Medication management

	SSD (n=43)	BD (n=41)	Total (n=84)	Test value	p-value
Number of medicines taken before hospitalisation mean [range]	2 [0-13]	3 [1-11]	4 [0-13]	507.5	.005[1]
Medication management at home, n (%)					
MSM	32 (74)	37 (90)	69 (83)	4.8	.039[2]
Fully MSM	22 (54)	32 (89)	54 (70)	11.4	<.001[2]
MSM during hospitalisation, n (%)	10 (23)	7 (17)	17 (20)	.5	.590[2]

SSD: Schizophrenia spectrum disorders, BD: Bipolar disorders
[1] Mann-Whitney U test
[2] χ^2 test

Table 3: Willingness to participate in MSM during hospitalisation

	Total (n=84)	**SSD** (n=43)	**BD** (n=41)	**Test value**	**p-value[1]**
Willingness to participate in MSM, n (%)					
Absolutely willing	51 (60.7)	28 (65.1)	23 (56.1)		
Somewhat willing	15 (17.9)	5 (11.6)	10 (24.4)		
Willing	2 (2.4)	1 (2.3)	1 (2.4)	834	.627
Somewhat unwilling	2 (2.4)	1 (2.3)	1 (2.4)		
Absolutely unwilling	14 (16.7)	8 (18.6)	6 (14.6)		

SSD: Schizophrenia spectrum disorders, BD: Bipolar disorders

[1] Difference between the willingness of the two disciplines, Mann-Whitney U test

Table 4: Attitudes towards medication self-management

Attitudes towards medication self-management (n=64)		Agree*	p-value[1]
1. I currently feel that I have enough support to take my medication correctly during hospitalisation. N (%)			
	Total	**73 (89)**	
	SSD	38 (90)	.844
	BD	35 (73)	
2. I currently feel that I have sufficient follow-up for my medication after discharge. N (%)			
	Total	**57 (71)**	
	SSD	26 (67)	.304
	BD	31 (76)	
3. I will take my medication more correctly. N (%)			
	Total	**49 (65)**	
	SSD	23 (64)	.533
	BD	26 (67)	
4. MSM will increase my own safety. N (%)			
	Total	**42 (55)**	
	SSD	21 (60)	.829
	BD	21 (55)	
5. MSM will result in fewer problems with my medication after discharge. N (%)			
	Total	**69 (87)**	
	SSD	35 (88)	.979
	BD	34 (87)	
6. My medication knowledge will increase. N (%)			
	Total	**56 (73)**	
	SSD	28 (72)	.591
	BD	28 (74)	

7. MSM during hospitalisation will allow me to experience a positive sense of confidence. N (%)			
	Total	**69 (88)**	
	SSD	32 (80)	**.023**
	BD	37 (97)	
8. MSM during hospitalisation gives me more order and structure. N (%)			
	Total	**59 (75)**	
	SSD	30 (75)	.958
	BD	29 (74)	
9. MSM may be unsafe in case of forgetfulness. N (%)			
	Total	**36 (44)**	
	SSD	21 (49)	.711
	BD	15 (38)	
10. MSM may be unsafe if I do not have enough knowledge about my medication. N (%)			
	Total	**45 (54)**	
	SSD	25 (58)	.483
	BD	20 (50)	

[1] Mann-Whitney U test

Agree: sum of patients indicating absolutely agree, somewhat agree and agree

Disagree: sum of patients indicating disagree, somewhat disagree and strongly disagree.

MCAR: X^2 (75, N = 64) = 89.959, p = .115

Table 5: Univariate logistic regression analysis

Variable	Yes[1]	No[2]	Wald	OR [95% CI]	p-value
Age	n=61	n=19			
mean	37.6	49.7	10.81	.92 [.88–.97]	**.001**
[SD]	[12.1]	[11.1]			
MSM Attitude (score 0–50)	n=48	n=14			
mean	35.8	31.3	3.88	1.09 [1.01–1.19]	**.049**
[SD]	[5.8]	[10.3]			
Extent of support from significant others (score 0–70)	n=56	n=17			
mean	27.9	18.9	.18	1.24 [1.04–1.08]	**.036**
[SD]	[14.9]	[13.1]			

OR: Odds ratio;

CI: Confidence interval;

[1] Patients who were willing to participate in MSM during hospitalisation (sum of patients indicating agree, somewhat agree and strongly agree)

[2] Patients who were unwilling to participate in MSM during hospitalisation (sum of patients indicating disagree, somewhat disagree and strongly disagree).