

## Satisfaction with care in patients with schizophrenia treated in a pilot program model and traditional care models

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### Summary

**Objective.** The purpose of this study was to compare satisfaction with care in patients with schizophrenia in two Community Mental Health Team (CMHT) models: traditional and pilot program group with concurrent assessment of symptom severity and social functioning.

**Method.** Ninety patients with schizophrenia treated in Community Mental Health Teams were included in the study, 60 in the traditional model and 30 in the pilot program model. A demographic data questionnaire, the *Positive and Negative Syndrome Scale* (PANSS), the *Verona Service Satisfaction Scale* (VSSS-54), the *Disability Assessment Schedule* (WHO-DAS), the *Social Network Index* (SNI), and a scale measuring loneliness (*UCLA Loneliness Scale*) were used.

**Results.** The pilot program group was characterized by significantly lower age of subjects ( $p = 0.048$ ), less psychiatric medication use ( $p = 0.027$ ), higher total ( $p < 0.001$ ) and positive ( $p < 0.001$ ) symptom severity in PANSS, smaller social network ( $p = 0.003$ ), less role activity in social network ( $p < 0.001$ ), higher level of loneliness ( $p = 0.001$ ) and higher level of disability ( $p < 0.001$ ). The pilot program group had significantly higher satisfaction with involvement of families in the therapeutic process ( $p = 0.024$ ).

**Conclusions.** In the pilot program group, younger, more severely ill patients with higher severity of symptoms and worse social functioning were included in the treatment with no differences in the number of hospitalizations between the groups. It can be initially concluded that CMHT in the pilot program Mental Health Centers (MHCs) protects this group of patients from hospitalization. There was also higher satisfaction with family involvement in the

therapeutic process in the pilot program group. Additional assessment of treatment outcomes in all CMHTs operating under the pilot program MHCs would be useful.

**Key words:** pilot program, community psychiatry, community mental health team

## Introduction

In Poland, as early as the 1970s, measures were taken to prepare for the introduction of a reform of psychiatric care. It was then proposed to create a rational system of location of psychiatric hospitals and the role of outpatient treatment units, including community mental health teams, was emphasized. In 1979, a report was created on the state of psychiatric care and directions of postulated systemic changes, which, however, were not accompanied by appropriate legislative processes [1]. In 1994, the Mental Health Act was passed, which, among other things, assumed the dissemination of the community treatment model, but it was not until 2008 that its amendment was passed, based on which the National Mental Health Program (NMHP) was created. Its first edition was adopted by the government in December 2010 and was valid until 2015. It aimed to improve the quality of life and treatment of people with mental disorders in Poland and emphasized the need to modernize psychiatric care, as well as to raise public awareness about mental disorders. Its assumptions have not been met, mainly due to the lack of definition of responsibility for its implementation and lack of changes in the financing of psychiatric care. In 2009, only 3.4 percent of all health care expenditures were allocated to psychiatric care, with outpatient care accounting for about 20 percent of all funds allocated to psychiatric care and community care accounting for only 0.5 percent.

The system was based primarily on 24-hour hospitalizations in large psychiatric hospitals, fostering social stigma and marginalization of patients. At a further stage, this led to the automatic placement of patients in the social care system, without the possibility of rehabilitation and professional activation in the community, generating further costs of care for the mentally ill patients [2–4]. In 2017, expenditures on psychiatric care in Poland amounted to 3.5% of all health care expenditures, which gave an average of 10.72 euros per person per year. Compared to developed European countries, even after taking into account the purchasing power parity of the euro, this is many times less an amount – in Germany at that time it was almost 260 euros, and in the UK 176 euros [5, 6].

The expectations and hopes associated with the dissemination of the community-based model of psychiatric care in the first edition of the NMHPP have not been fulfilled, mainly due to the lack of changes in the way psychiatric health care services are funded. Continuing to finance psychiatric hospitalizations on a per-patient basis does not allow for a reduction in the number of beds in large psychiatric hospitals and does not entail greater interest on the part of institutions in developing forms of out-of-hospital care [7]. Despite the difficulties in implementing the assumptions of the NMHPP, between 2011 and 2014 the largest increase in the number of patients covered by psychiatric care was reported in community care in community mental health teams, where the total number of patients tripled from 9.6 thousand to 29.8 thousand.

The number of community mental health teams across the country also almost tripled: from 48 in 2010 to 132 in 2014 [8].

The current edition of the National Mental Health Program (NMHP) for 2017–2022 is another opportunity for a comprehensive and systemic reform of psychiatric care in Poland. The program aims to provide people with mental disorders with a comprehensive and universally accessible treatment system through the implementation and dissemination of a community-based model of psychiatric health care and the introduction of standards or recommendations for medical management within a network of local, evenly distributed Mental Health Centers (MHCs) [8]. The changes are intended to be multidimensional and to include action on many levels. The main idea is to provide people with mental disorders with health care and other forms of assistance in the family and social environment [7]. At the same time, a radical change is being made in the way health care is financed to a capitation model. An innovative way of financing has been introduced: the entity running the MHC receives for the implementation of this task the so-called lump sum per population which is the product of the rate per capita and the number of adult residents of the area of operation. The rate per capita is subject to annual valorization. In 2018 it amounted to 75 PLN per year, and is currently valorized and amounts to 87.96 PLN [9, 10].

Based on the Regulation of the Minister of Health (MH) of April 27, 2018, as part of the NMHP for 2017–2022, a pilot program of Mental Health Centers was introduced in Poland. As of July 1, 2018, 27 Mental Health Centers in 14 provinces were operating in Poland under the pilot program. The new way of organizing and financing psychiatric care covered 10% of adult Poles in the first year of the program. Current extensions of the pilot program and new signed contracts cover approx. 4.2 million adult Poles (12% of the population). The pilot program is expected to test the new system by the end of 2022, with plans to expand it nationwide thereafter [11].

The pilot program requires a reevaluation of thinking about the needs of people in treatment and their families; it also requires a new organization and financing of mental health care. Organization is linked to accountability for the local community, to the ability to quickly provide assistance to the patient and his/her family. The decisive factor is the prompt provision of help, which from the beginning must be oriented to treatment, to psychotherapy, to social and professional rehabilitation, must be integrated and comprehensive. The order is reversed, as treatment begins with a mental health clinic, community mental health team and day ward, and only then, in justified situations, does it take place in an inpatient 24-hour ward, preferably located in a general hospital. Funding for the program is capitated and therapy requires cooperation and coordination rather than competition between institutions [12]. Perhaps an CMHT operating as part of a capitation-funded Mental Health Center has the potential to fulfill the role of an alternative to inpatient hospitalization already common in more developed countries (known as a CRT: Crisis Resolution Team or MCHT: Mobile Crisis Home Treatment), and the reform will be the first step in specializing the CMHT into more intensive treatment forms as well.

In recent years, a large increase in the number of Community Mental Health Teams and, consequently, the number of patients under care could be seen. In

2018, there were 193 Community Mental Health Teams in Poland with almost 60,000 patients under their care. Since 2000, there has been an 11-fold increase in the number of Community Mental Health Teams in Poland and an almost 27-fold increase in the number of patients under community care [1]. Community Mental Health Teams (CMHTs) are a form of treatment that takes care of patients in their family and social environment, which is in line with the idea of community psychiatry. According to research, CMHTs are more effective compared to standard hospital and post-hospital care, there is a positive impact of CMHTs on reducing the number [13–18] and duration of psychiatric hospitalizations [19–23] and reducing treatment costs [21–25].

An important parameter assessing the effectiveness of treatment that emphasizes the role and involvement of the patient in the therapeutic process is satisfaction with care. According to Ruggeri et al. [26], over time, more and more attention is being paid to the satisfaction of patients and their families with psychiatric care, and this indicator may itself define a measure of treatment outcome. Satisfaction with care is significant as a treatment outcome from two different perspectives: patient and service level. Satisfaction measurement is also seen as an important source of information about the quality of care – high satisfaction rates are seen in studies as a sign of good organization and providing service at a satisfactory level [27]. According to Ruggeri [28], satisfaction with care determines the effectiveness of interventions and influences better understanding of interventions by the patients. High satisfaction with psychiatric care is an important goal to achieve for service providers, and measuring it is important from a service evaluation perspective.

The aim of this study was to compare satisfaction with care, considered as an indicator of treatment outcome, in patients with schizophrenia in two models of CMHTs: traditional and pilot program ones, with simultaneous assessment of the severity of symptoms and social functioning.

## Material and method

The study was conducted between March 1, 2019 and December 31, 2019, after obtaining approval from the Bioethics Committee of the Jagiellonian University Medical College in Krakow. Ninety patients with schizophrenia treated within three community mental health teams were studied, 60 of whom were treated at CMHT in a traditional model and 30 in the pilot program model. Patients were cared for by:

- (1) Community Mental Health Team of Antoni Kępiński University Mental Health Center, Kopernika Str. 21a, Krakow (CMHT–S), pilot program model;
- (2) Krakow Nowa Huta Community Mental Health Team of Józef Babiński Specialist Hospital in Krakow, os. Centrum B 11a, Krakow (CMHT –NH), traditional model;
- (3) Community Mental Health Team, Center for Psychotherapy and Personal Development, Olkusz, Kazimierza Wielkiego Str. 64 (CMHT–O), traditional model.

The study was conducted simultaneously. A list of patients with a diagnosis of schizophrenia was created at each of the three CMHTs where the study was conducted, and then the study group was selected using a random number generator. The study was conducted by two psychiatry specialists. To ensure a high level of reliability and credibility of the study, an additional consistency verification of the obtained results was performed – a randomly selected group of patients examined by both researchers was formed. Consistent results occurred in both evaluations. Four patients refused to take part in the study and were replaced by other patients who met the conditions of the study in order to obtain a study group of 90 people, 30 in each of the three CMHTs.

In the pilot program group, 30 subjects were examined, including 15 females and 15 males, 33.3% were in a relationship, 26.7% of the subjects were employed, 83.3% lived with family, 40% had children, 33.3% were taking extended-release injectable antipsychotics, 43.3% had comorbidities. In the comparison group, 60 subjects were examined, including 31 females and 29 males, 20% were in a relationship, 20% of the subjects were employed, 73.3% lived with family, 30% had children, 38.3% were taking extended-release injectable antipsychotics, 51.7% had comorbidities (Table 1).

**Table 1. Sociodemographic characteristics, medications and comorbidities in the pilot program and comparison group**

|                   | Pilot program group<br>(CMHT-S)<br>n (%) | Comparison<br>group (CMHT-NH<br>and CMHT-O)<br>n (%) | Test result         | p     |
|-------------------|--|--|---------------------|-------|
| Sex               |  |  |                     |       |
| Female            | 15 (50.0)                                | 31 (51.7)  | $\chi^2(1) = 0.022$ | 0.881 |
| Male              | 15 (50.0)                                | 29 (48.3)  |                     |       |
| Marital status    |  |  |                     |       |
| in relationship   | 10 (33.3)                                | 12 (20.0)  | $\chi^2(2) = 1.925$ | 0.165 |
| Single            | 20 (66.7)                                | 48 (80.0)  |                     |       |
| Employment status |  |  |                     |       |
| Employed          | 8 (26.7)                                 | 12 (20.0)  | $\chi^2(2) = 0.514$ | 0.473 |
| Unemployed        | 22 (73.3)                                | 48 (80.0)  |                     |       |
| Housing status    |  |  |                     |       |
| Alone             | 5 (16.7)                                 | 16 (26.7)  | $\chi^2(2) = 1.118$ | 0.290 |
| with relatives    | 25 (83.3)                                | 44 (73.3)  |                     |       |
| Children          |  |  |                     |       |
| Yes               | 12 (40.0)                                | 18 (30.0)  | $\chi^2(2) = 0.900$ | 0.343 |
| No                | 18 (60.0)                                | 42 (70.0)  |                     |       |
| Depot medications |  |  |                     |       |

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|                   |           |           |                     |       |
|-------------------|-----------|-----------|---------------------|-------|
| No                | 20 (66.7) | 37 (61.7) | $\chi^2(2) = 0.215$ | 0.643 |
| Yes               | 10 (33.3) | 23 (38.3) |                     |       |
| Comorbid diseases |           |           |                     |       |
| No                | 17 (56.7) | 29 (48.3) | $\chi^2(2) = 0.556$ | 0.456 |
| Yes               | 13 (43.3) | 31 (51.7) |                     |       |

No differences were evident between the groups in terms of gender, marital status, employment status, residence, fertility rates, presence of comorbidities, and use of extended-release injectable (depot) medications (Table 1).

The age of the subjects in the pilot program group ranged from 18 to 65 years, with a mean of 43.97 years. The average length of psychiatric treatment was almost 18 years, and the average length of treatment under a CMHT was more than 5 years. The subjects were hospitalized almost 4 times on average, with an average of 0.07 times in 2019. Patients were prescribed an average of nearly 2 medications, with an average of 1.43 antipsychotic medications. In the comparison group treated in the traditional model, the age of the subjects ranged from 27 to 75 years, with a mean of almost 50 years. The mean duration of psychiatric treatment was slightly more than 20 years, and the mean duration of treatment under a CMHT was more than 5 years. Respondent patients were psychiatrically hospitalized almost 7 times on average, with an average of 0.18 times in 2019. Patients were prescribed more than 2.5 medications on average, with an average of 1.74 antipsychotic medications (Table 2).

**Table 2. Clinical characteristics and outcomes of symptom severity, social functioning and satisfaction with care under the CMHT-S (n = 30) and the comparison group (CMHT-NH and CMHT-O)**

|  | CMHT-S, N = 30 |       |       |       |       | Comparison group<br>(CMHT-NH and CMHT-O), N = 60 |       |       |       |       |
|--|----------------|-------|-------|-------|-------|--|-------|-------|-------|-------|
|  | M              | Me    | SD    | Min.  | Max.  | M  | Me    | SD    | Min.  | Max.  |
| Age  | 43.97          | 40.00 | 13.53 | 18.00 | 65.00 | 49.87  | 49.50 | 12.95 | 27.00 | 75.00 |
| Duration of psychiatric treatment              | 17.58          | 17.00 | 12.36 | 0.50  | 45.00 | 20.73  | 19.50 | 11.85 | 2.00  | 56.00 |
| Duration of treatment under a CMHT             | 5.42           | 5.50  | 3.95  | 0.50  | 16.00 | 5.25   | 4.00  | 4.59  | 1.00  | 25.00 |
| Total number of psychiatric hospitalizations   | 3.83           | 3.00  | 4.01  | 0.00  | 22.00 | 6.98   | 4.00  | 8.66  | 0.00  | 40.00 |
| Number of psychiatric hospitalizations in 2019 | 0.07           | 0.00  | 0.25  | 0.00  | 1.00  | 0.18   | 0.00  | 0.39  | 0.00  | 1.00  |

*table continued on the next page*

|   |       |       |       |       |        |       |       |       |       |        |
|---|-------|-------|-------|-------|--------|-------|-------|-------|-------|--------|
| Number of psychiatric medications taken   | 1.93  | 2.00  | 1.05  | 0.00  | 5.00   | 2.52  | 2.00  | 1.21  | 1.00  | 6.00   |
| Number of antipsychotic medications taken | 1.43  | 1.00  | 0.73  | 0.00  | 3.00   | 1.74  | 2.00  | 0.73  | 0.00  | 4.00   |
| PANSS-total                               | 95.10 | 96.50 | 33.99 | 33.00 | 172.00 | 64.17 | 62.50 | 17.26 | 34.00 | 119.00 |
| PANSS-POS                                 | 18.43 | 18.50 | 8.73  | 7.00  | 41.00  | 11.40 | 11.00 | 3.76  | 5.00  | 21.00  |
| PANSS-NEG                                 | 25.60 | 25.50 | 10.32 | 8.00  | 41.00  | 21.97 | 21.00 | 8.12  | 7.00  | 41.00  |
| SNI-diversity                             | 4.30  | 4.00  | 1.97  | 1.00  | 9.00   | 4.43  | 4.00  | 1.58  | 1.00  | 9.00   |
| SNI-size                                  | 7.90  | 7.00  | 3.57  | 3.00  | 15.00  | 11.70 | 10.00 | 6.74  | 3.00  | 36.00  |
| SNI-role activity                         | 1.13  | 1.00  | 0.43  | 0.00  | 2.00   | 1.73  | 2.00  | 0.90  | 0.00  | 5.00   |
| Level of loneliness                       | 34.50 | 40.0  | 14.97 | 7.00  | 58.00  | 23.78 | 24.00 | 12.58 | 0.00  | 47.00  |
| WHODAS                                    | 41.34 | 41.32 | 17.37 | 5.56  | 85.42  | 25.90 | 24.65 | 13.65 | 2.80  | 60.40  |
| VSSS-54 – mean                            | 4.28  | 4.30  | 0.44  | 2.84  | 4.95   | 4.35  | 4.36  | 0.50  | 2.60  | 5.00   |
| VSSS-54 – overall satisfaction            | 4.38  | 4.33  | 0.48  | 3.00  | 5.00   | 4.52  | 4.83  | 0.67  | 1.70  | 5.00   |
| VSSS-54 – professionalism                 | 4.12  | 4.22  | 0.47  | 2.56  | 4.69   | 4.28  | 4.44  | 0.46  | 2.30  | 4.70   |
| VSSS-54 – information                     | 4.21  | 4.17  | 0.45  | 3.00  | 5.00   | 4.29  | 4.33  | 0.67  | 2.30  | 5.00   |
| VSSS-54 – access                          | 4.08  | 4.00  | 0.59  | 2.00  | 5.00   | 4.13  | 4.50  | 0.76  | 1.50  | 5.00   |
| VSSS-54 – efficacy                        | 4.22  | 4.25  | 0.48  | 2.75  | 5.00   | 4.19  | 4.25  | 0.65  | 2.30  | 5.00   |
| VSSS-54 –intervention types               | 4.14  | 4.19  | 0.49  | 2.88  | 4.88   | 4.25  | 4.33  | 0.55  | 2.80  | 5.00   |
| VSSS-54 – relative's involvement          | 4.27  | 4.20  | 0.51  | 2.60  | 5.00   | 3.95  | 4.00  | 0.82  | 1.40  | 5.00   |

M – mean; Me – median; SD – standard deviation; Min. – minimum; Max. – maximum

In the pilot program group, in the assessment of mental state with the PANSS, the mean sum for the study group was 95.1; in terms of the PANSS-POS symptoms the mean was 18.43, and the PANSS-NEG the mean was 25.6. Social assessment was presented by means of three indicators: social network, level of loneliness and level of

disability. The variation of the social network in the study group of patients was slightly more than 4, which means that patients had regular contact with four out of the twelve social groups described in the questionnaire (partner, children, parents, in-laws, other relatives, friends, members of a religious group, co-workers, people associated with the school, neighbors, people participating in voluntary activities together, members of other groups). The average size of the social network was almost 8, meaning that each member of the study group had regular contact at least once every two weeks with about 8 people on average. Role activity, that is, the number of social role categories in which the patient is active (has a minimum of 3 regular contacts in the family or 4 regular contacts in another social group), in the surveyed patients was on average 1.13. The average level of loneliness among the surveyed patients was 34.50 points out of a maximum of 60 points, and the average level of disability was 41%. Satisfaction with care in the pilot program CMHT was high, with an average score above 4 (out of a maximum of 5 points) in the mean score and in each of the seven examined areas of satisfaction (Table 2).

In the comparison group, in the assessment of mental state using the PANSS, the total mean for the study group was 64.17; in terms of the PANSS-POS the mean was 11.40, and the PANSS-NEG the mean was 21.97. The variation of the social network in the study group of patients was just over 4, the mean size of the social network was almost 12, and the role activity in the subjects was on average 1.73. The level of loneliness among the subjects was on average 23.78 points out of a maximum of 60 points, and the mean level of disability was almost 26%. Satisfaction with care under a CMHT was high, in terms of the mean score and each of the seven examined areas of satisfaction, except the involvement of families in the therapeutic process, the mean was above 4 (out of a maximum of 5 points) (Table 2).

The following tools were used in the study:

- Sociodemographic and Clinical Data Questionnaire;
- *Positive and Negative Syndrome Scale* (PANSS), which assesses the severity of 30 positive and negative symptoms of schizophrenia on a scale from 1 to 7, where 1 means the absence of a specific symptom, and 7 its extreme severity [29];
- *Verona Service Satisfaction Scale* (VSSS-54) [30], which assesses patient satisfaction with medical services. The scale consists of 54 closed-ended questions and two open-ended questions. It assesses patient satisfaction in seven areas: overall satisfaction, professionals' skills and behavior, information, access, efficacy, types of interventions, and relative's involvement. The patient makes a rating on a scale from 1 to 5, where 5 is the maximum rating;
- *WHO Disability Assessment Schedule 2.0* (WHODAS 2.0 – 36-item) [31]. It consists of 36 questions assessing the level of disability on a scale from 1 to 5, where 1 means no difficulty in performing a task and 5 means extreme effort or inability to perform a task. Six areas are assessed: understanding and communication, mobility, self-care, getting along with others, life activities, participation;

- *Social Network Index* (SNI) [32], a questionnaire used to assess the patient's social participation. It assesses: social network diversity, that is, the number of social role categories (out of 12 available) with which the patient has regular contact at least once every two weeks. The possible score ranges from 0 to 12; the size of the patient's social network, i.e., the sum of the number of people out of the 12 available categories with whom the patient has regular contact at least once every two weeks; role activity, 'embeddedness' in the social network, i.e., the number of different categories of social roles in which the patient is active. Activity was defined as a minimum of 4 regular contacts in a given social group, except for family, where activity was defined as a minimum of 3 regular contacts. A possible score on this scale ranges from 0 to 8.
- *UCLA Loneliness Scale* [33]. It assesses the subjective level of feeling lonely. It consists of 20 questions. The patient indicates how often certain situations affect them on a four-point scale: "often", "sometimes", "rarely", "never". The possible score ranges from 0 to 60.

SPSS ver. 25 and STATISTICA 13.3 packages were used for statistical processing of the results. Chi-square test, Student's *t*-test and Mann-Whitney *U* test were used for analysis of intergroup differences. The accepted level of statistical significance in all analyses was  $\alpha = 0.05$ .

## Results

Comparisons between the pilot program group and comparison group were made using Student's *t*-test. The pilot program group had significantly lower age, lower number of psychiatric medication, less extensive social network, less activity in social network roles, higher levels of loneliness, and higher levels of disability. The pilot program group had significantly higher satisfaction with family involvement in the therapeutic process, as well as higher levels of psychopathological symptoms as measured by the PANSS and positive symptoms as measured by the PANSS-POS (Table 3).

**Table 3. Clinical data, severity of schizophrenia symptoms, social functioning, and satisfaction with care – a comparison between the pilot program group (CMHT-S) and the comparison group (CMHT-NH and CMHT-O)**

|                                      | Pilot program group<br>(CMHT-S)<br>M ± SD<br>Me | Comparison group<br>(CMHT-NH<br>and CMHT-O)<br>M ± SD<br>Me | Student's t-test<br>result | p     |
|--------------------------------------|---|---|----------------------------|-------|
| Age                                  | 43.97 ± 13.53<br>40.00                          | 49.87 ± 12.95<br>49.50                                      | t(88) = -2.007             | 0.048 |
| Duration of psychiatric<br>treatment | 17.58 ± 12.36<br>17.00                          | 20.73 ± 11.85<br>19.50                                      | t(88) = -1.172             | 0.244 |

*table continued on the next page*

|   |                        |                        |                     |        |
|---|------------------------|------------------------|---------------------|--------|
| Number of psychiatric medications taken   | 1.93 ± 1.05<br>2.00    | 2.52 ± 1.21<br>2.00    | t(88) = - 2.245     | 0.027  |
| Number of antipsychotic medications taken | 1.43 ± 0.73<br>1.00    | 1.43 ± 0.73<br>2.00    | t(88) = - 1.834     | 0.070  |
| SNI-diversity                             | 4.30 ± 1.97<br>4.00    | 4.43 ± 1.58<br>4.00    | t(88) = - 0.348     | 0.729  |
| SNI-size                                  | 7.90 ± 3.57<br>7.00    | 11.70 ± 6.74<br>10.00  | t(80,912) = - 3.077 | 0.003  |
| SNI-role activity                         | 1.13 ± 0.43<br>1.00    | 1.73 ± 0.90<br>2.00    | t(87,946) = - 4.268 | <0.001 |
| Level of loneliness                       | 34.50 ± 14.97<br>40.00 | 23.78 ± 12.58<br>24.00 | t(88) = 3.572       | 0.001  |
| WHODAS                                    | 41.34 ± 17.37<br>41.32 | 25.90 ± 13.65<br>24.65 | t(88) = 4.611       | <0.001 |
| VSSS-54 – mean                            | 4.28 ± 0.44<br>4.30    | 4.35 ± 0.50<br>4.36    | t(88) = - 0.657     | 0.513  |
| VSSS-54 – overall satisfaction            | 4.38 ± 0.48<br>4.33    | 4.52 ± 0.67<br>4.83    | t(88) = - 1.019     | 0.311  |
| VSSS-54 – professionalism                 | 4.12 ± 0.47<br>4.22    | 4.28 ± 0.46<br>4.44    | t(88) = - 1.558     | 0.123  |
| VSSS-54 – information                     | 4.21 ± 0.45<br>4.17    | 4.29 ± 0.67<br>4.33    | t(79,974) = - 0.654 | 0.515  |
| VSSS-54 – access                          | 4.08 ± 0.59<br>4.00    | 4.13 ± 0.76<br>4.50    | t(88) = - 0.315     | 0.754  |
| VSSS-54 – efficacy                        | 4.22 ± 0.48<br>4.25    | 4.19 ± 0.65<br>4.25    | t(88) = 0.265       | 0.792  |
| VSSS-54 – intervention types              | 4.14 ± 0.49<br>4.19    | 4.25 ± 0.55<br>4.33    | t(88) = - 0.960     | 0.340  |
| VSSS-54 – relative's involvement          | 4.27 ± 0.51<br>4.20    | 3.95 ± 0.82<br>4.00    | t(83,604) = 2.294   | 0.024  |
| PANSS-total                               | 95.10 ± 33.99<br>96.50 | 64.17 ± 17.26<br>62.50 | t(36,654) = 4.691   | <0.001 |
| PANSS-POS                                 | 18.43 ± 8.73<br>18.50  | 11.40 ± 3.76<br>11.00  | t(34,487) = 4.222   | <0.001 |
| PANSS-NEG                                 | 25.60 ± 10.32<br>25.50 | 21.97 ± 8.12<br>21.00  | t(88) = 1.824       | 0.072  |

M – mean; Me – median; SD – standard deviation; t – Student's t-test statistics; p – significance level

A comparison of the duration of treatment under a CMHT and the number of psychiatric hospitalizations in the pilot program and comparison groups is presented below. The evaluation was performed using the Mann-Whitney *U* test. No level of

statistical significance was obtained, but the difference in the number of psychiatric hospitalizations was on the borderline of significance, which may suggest that there are differences between the study groups in this dimension and the topic needs to be expanded in further research in a longer follow-up (Table 4).

**Table 4. CMHT treatment duration and a number of psychiatric hospitalizations – a comparison between the pilot program group and comparison group**

|  | Pilot program group<br>(CMHT-S)<br>M ± SD<br>Me | Comparison group<br>(CMHT-NH and CMH-O)<br>M ± SD<br>Me | Mann Whitney<br>U test result | p     |
|--|---|---|-------------------------------|-------|
| Treatment under a CMHT                         | 5.42 ± 3.95<br>5.50                             | 5.25 ± 4.59<br>4.00                                     | 853.5                         | 0.688 |
| Total number of psychiatric hospitalizations   | 3.83 ± 4.01<br>3.00                             | 6.98 ± 8.66<br>4.00                                     | 684.0                         | 0.063 |
| Number of psychiatric hospitalizations in 2019 | 0.07 ± 0.25<br>0.00                             | 0.18 ± 0.39<br>0.00                                     | 853.0                         | 0.140 |

M – mean; SD – standard deviation; Me – median; p – significance level

## Discussion

In the pilot program CMHT, patients showed significantly higher severity of psychopathological symptoms examined with the PANSS and, consequently, significantly higher level of disability examined with the WHODAS compared to the other two CMHTs. The significant difference concerned mainly the presence of positive symptoms. In terms of negative symptoms, the results were similar. The difference might result from the manner patients were selected and consented to participate in the study. Patients with acute psychotic symptoms and lack of awareness of illness are much more difficult to be recruited for the study. It is possible that those patients in the other two CMHTs refused to participate in the study or were declared legally incapacitated, which excluded them from participation in the study. This hypothesis does not fully explain the clinical difference between the studied groups. Another explanation might be that in the areas of Nowa Huta and Olkusz County patients are more likely to be admitted to institutional care (hospitals, nursing homes), which might be the result of less staff capacity and too many patients under care. Patients with no remission in terms of acute psychotic symptoms are a particularly difficult group. Working with them requires significant effort from the entire team in order to obtain consent for visits in the community. It also requires higher flexibility to adapt to stereotypical patient behaviors when the patient, for example, only allows appointments at a certain time or requests to meet in an open space. In addition, it may be important to note that the pilot program CMHT is affiliated with the Department of Adult Psychiatry at

the University Hospital in Krakow and, as a center with recognized experience and a higher referral level, might be considered a place where families of difficult patients are more likely to seek help.

Another factor explaining the difference in psychopathological symptoms and functioning is funding: the group of patients treated under the CMHT which is a part of the Mental Health Center pilot program, since July 1, 2018 is financially covered by a program that is capitation-funded rather than fee-for-service. This model emphasizes patient retention in the community, creating an alternative within the CMHT to a 24-hour hospitalization. The comparison group was characterized by significantly better parameters describing both lower severity of positive symptoms as well as a larger social network and higher activity in social roles, and a significantly lower loneliness level. This may result from the fact that the pilot CMHT treated more severely ill patients and to a greater extent fulfilled the task of using an alternative to inpatient hospitalization, with a comparable level of treatment satisfaction. Due to the short follow-up period and small study group, this issue requires further exploration.

Important factors differentiating Community Mental Health Teams in Poland are territorial responsibility and funding model. Currently, there are two payment systems: the traditional model pays for each service, while the capitation model, in the pilot program, allows a great deal of freedom to move staff and plan care according to the needs of patients and their families. The objective is funded, not a single intervention. It is important to note that the pilot program group and the traditional care treatment groups did not differ on most sociodemographic data. The pilot program group took a similar number of antipsychotics but significantly fewer other psychiatric medications. Treatment in this group included more patients with severe clinical conditions. Most differences were seen in greater severity of clinical symptoms and poorer social functioning.

Some of the regulations governing the operation of traditionally funded CMHTs have made it difficult for Community Mental Health Teams to act as an alternative to 24-hour hospitalization, although it is recognized that when symptoms worsen, a patient's condition may require such intervention. These include among others the provision that "in the case of multiple home/community visits/advice at one site on the same day, the home visit is reported for the first service user, and for the remaining ones, the services are reported as diagnostic, therapeutic or follow-up advice, according to the services actually provided." [34], which suggests that funding for advice provided within community care, i.e., work in the team, will be lower than in the case when all home visits are billed. The pilot program model allows the freedom to shift more resources and a larger staff group to work in patients' homes and protects newly admitted patients from hospitalization. It is important to note that the pilot program group cared for patients with more severe positive symptoms of schizophrenia and significantly higher levels of disability, yet the number of hospitalizations in 2019, which was entirely covered by the pilot program, was lower compared to the comparison group, although not significantly.

As indicated by Cechnicki [35], the highest dynamics in the number of psychiatric hospitalizations is observed in the first five years after the diagnosis of schizo-

phrenia, after which it decreases to a lower level. This means that younger patients, immediately after diagnosis, in whom the course of the illness is unfavorable from the beginning, are a more difficult group to maintain in community treatment, where participation requires greater self-motivation. This topic requires further research on a larger group of CMHT patients. In a study by Słupczyńska-Kossobudzka et al. [13], the number of hospitalizations was measured after the first and fourth year after entering community care and was higher than in the described study. After one year the mean annual number of hospitalizations was 0.4, after four years it was 1.0. When observing the two treatment outcome indicators used to compare these groups, the positive effect of the pilot program CMHT should be noted on patient satisfaction with family involvement in the therapeutic process and reduction in the number of hospitalizations, although there was no statistically significant difference in this dimension. Given the importance of satisfaction with care as an indicator of treatment outcome, a short follow-up period and a relatively small study group, further research in this area should be considered. It will not be possible to assess the significance this will have in the prevention of inpatient hospitalizations for the entire region until several years of psychiatric care outcomes are known for the entire Mental Health Center pilot program area.

A limitation of the study may be the fact that under the care of Community Mental Health Teams there is a specific group of patients suffering from schizophrenia who are reluctant to consent to the study. They have significant cognitive deficits and problems concentrating, which makes participating in the study, especially for older people, a challenge. Some of the patients under the care of the CMHT were not eligible for the study because they would not have been able to fully complete it, and this might have underestimated clinical and social functioning in the study groups.

In two centers, a part of the study was performed by doctors involved in therapy. On the one hand, this allowed for a better assessment of the patient's mental state and their consent to the study due to trust in a known person; on the other hand, there was a risk of falsification of responses, especially in the assessment of satisfaction with care. The content of questionnaires completed anonymously might have been known to the staff. The respondents might have wanted to please their doctor or feared the consequences of negative assessment.

The sizes of the study groups were not large. The scales used to assess satisfaction and level of perceived loneliness are related to subjective assessment, so the results may have been influenced by patients' suspiciousness, lack of faith in the anonymity of the survey and reluctance to provide their true opinions. The study is extensive, time consuming and the number of questionnaires might have caused the subjects to complete the questionnaires with less attention at some point.

## Conclusions

The pilot program group included younger, more severely ill patients with greater symptom severity and poorer social functioning, while there were no differences in the number of hospitalizations between the groups. It can be tentatively concluded

that CMHT in pilot program Mental Health Centers is more often an alternative to hospitalization for this group of patients. There was also higher satisfaction with family involvement in the therapeutic process in the pilot program group. It would be valuable to continue the study to evaluate the treatment outcomes in all the CMHTs operating under the pilot program MHCs.

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