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# Psychiatric Rehabilitation Amidst COVID-19: Do Pandemic Restrictions Affect the Therapeutic Efficiency?

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**Abstract:** Community psychiatry is an effective and increasingly popular form of care for patients with mental disorders. Due to sanitary restrictions imposed by the COVID-19 pandemic, psychiatric rehabilitation programs had to adapt to the highly specific requirements and modify the offer of therapeutic activities for patients. Above all the activities focused on, social interactions were limited. The aim of the study was to assess the effectiveness of the modified rehabilitation program in light of the introduced sanitary restrictions due to COVID-19. This prospective observational single-centered study involved 41 patients diagnosed with organic mental disorders, psychotic disorders, affective disorders and anxiety disorders. The patients participated in a 6-week rehabilitation program which included varied forms of physical exercise, cognitive training, psychological training and Small Group Therapy. The quality-of-life assessment and the intensity of depression and anxiety symptoms were measured using standardized scales: Hospital Scale of Anxiety and Depression (HADS) and Short Form Health Survey (SF-36) at two time points before the initiation of the rehabilitation process and at the end of the program's participation period. Median HADS D before admission to the rehabilitation center was 9 (IQR 6–12), and 5 (IQR 3–9) after 6-week participation ($p < 0.05$). Median SF-36 at the beginning of rehabilitation was 93 (IQR 80–106) and 73 (IQR 53–95) at the end of the evaluation period ($p < 0.05$), Median HADS-A at the start of rehabilitation was 11 (IQR 9–14) and 9 (IQR 6–12) after final assessment ($p > 0.05$). The gender and age of the participants did not influence the results of the utilized standardized evaluation tools ($p > 0.05$ for both). We observed an improvement in the participants' subjective assessment of the intensity of the depression symptoms and the quality of life after partaking in the available activities. There was no clear benefit regarding the subjective assessment of the intensity of anxiety symptoms among the study participants resulting from the introduction to the program.

**Keywords:** depression; anxiety; quality of life; COVID-19; community psychiatry; HADS; SF-36



**Citation:** Smolarczyk-Kosowska, J.A.; Dębski, P.; Szczegielniak, A.R.; Piegza, M.; Pudlo, R. Psychiatric Rehabilitation Amidst COVID-19: Do Pandemic Restrictions Affect the Therapeutic Efficiency? *Appl. Sci.* **2022**, *12*, 11930. https://doi.org/10.3390/app122311930

Academic Editor: Rosanna Di Paola

Received: 15 October 2022
Accepted: 22 November 2022
Published: 23 November 2022



## 1. Introduction

The COVID-19 pandemic poses a tremendous threat to the health of the general population and, in particular, to people with mental disorders. The latter may be prone to stronger emotional responses triggered by the COVID-19 epidemic [1,2]. Infection with SARS-CoV-2 may also directly affect mental health. Previous studies have shown a relationship between infection with SARS-CoV-2 and the occurrence of various mental disorders de novo. The long-term effects of infection on the nervous system are still under investigation [3,4]. People who experienced mental health challenges prior to the pandemic may be at greater risk of contracting infection because of problems with understanding the situation, assessing the risk, and adhering to preventive behavior. On the one hand, the need of hospitalization or outpatient healthcare services increases the risk of infection. On the other hand, fear of reaching out for a professional help and a lack of available spots

in mental healthcare facilities are serious risks for further development of disorders [5]. Isolation and blockades from social contact can cause depression and aggravation of anxiety disorders [6,7]. In research conducted by the authors at the beginning of the COVID-19 pandemic, it was observed that participation in a rehabilitation program (including physical exercise, cognitive and social training) can reduce the severity of symptoms of depression and anxiety, having at the same time a positive impact on the overall quality of life of patients suffering from mental disorders [8]. We prepared this rehabilitation program in accordance with the assumptions of community psychiatry, focusing not only on patient deficits and disabilities (which is related to the perspective of the disease) but also on their possibilities and aspirations (a recovery perspective).

Due to restrictions related to the COVID-19 pandemic, changes were introduced to the initial rehabilitation program. They included shortening of its duration, limitation of social skills training and workshops with psychologists, as well as resignation from all activities conducted in larger groups (group gymnastics, active music therapy, thematic lectures, etc.).

The aim of the study was to assess the effectiveness of the modified rehabilitation program under the Mental Health Support Centre (CWZP) in Tarnowskie Góry in the light of the introduced sanitary restrictions due to COVID-19. In this study, we investigate the differences between the original version of our therapeutic program and the modified one shaped by the superior conditions of the pandemic. Final mental health outcomes of the program are interpreted in relation to them (Table 1).

**Table 1.** Elements of the rehabilitation program before and after the introduction of sanitary restrictions.

| **Elements of the Rehabilitation Program before the Introduction of Sanitary Restrictions** | **Elements of the Rehabilitation Program after Modification due to Sanitary Restrictions** |
|---|---|
| Psychiatric consultation | Psychiatric consultation |
| Psychoeducation | Psychoeducation |
| Education of families or | - |
| guardians | |
| Therapeutic community | - |
| Psychological | Psychological |
| examination | examination |
| Individual psychological | Individual psychological |
| therapy | therapy |
| Group therapy with | - |
| psychologist | |
| Soft skills training & | Soft skills training & |
| activization exercises | activization exercises |
| Relaxation | Relaxation |
| Individual psychotherapy | Individual psychotherapy |
| Morning gymnastics | - |
| (group) | |
| Respiratory and general | - |
| fitness training (group) | |
| Balance training (group) | - |
| Interval training | Interval training |
| (individual) | (individual) |

**Table 1.** *Cont.*

| Elements of the Rehabilitation Program before the Introduction of Sanitary Restrictions | Elements of the Rehabilitation Program after Modification due to Sanitary Restrictions |
|---|---|
| Choreo therapy | - |
| Art therapy | Art therapy |
| Horticulo therapy | Horticulo therapy |
| Ludo therapy | - |
| Music therapy | Music therapy |
| Bibliotherapy | Bibliotherapy |
| Social skills training | - |
| Individual consultation | Individual consultation |
| with a social worker | with a social worker |
| Computer-based | Computer-based |
| cognitive training | cognitive training |
| Massage chair | Massage chair |
| Culinary training | - |

## 2. Materials and Methods

The study population included 41 patients admitted to the CWZP in Tarnowskie Góry, including 28 women and 13 men, with an average age of 59.54 ± 20.10 (SD). The study involved patients diagnosed with organic mental disorders, schizophrenia, affective disorders or anxiety disorders. Due to the pandemic restrictions, the average program duration was reduced from the planned 12 weeks to 6 weeks. The respondents took part in a rehabilitation program including physical exercises, cognitive training, art therapy, individual therapy with a psychologist and consultations with a psychiatrist. Psychopharmacological treatment in patients was not significantly modified during the study. The inclusion criteria for the program are described in detail in a previously published study [8] and in Table 2 (Table 2), however, since the prioritization was given to those vaccinated, the study group changed in terms of age and diagnosis. In Poland, initially, the vaccination program covered health care workers and the elderly [9], which resulted in an increase in the average age of the respondents and a related increase in the number of patients diagnosed with organic mental disorders (as many as 21 out of 41 respondents). Patients gave their voluntary consent to participate in the study. The basic sociodemographic properties of the study group are presented in Table 3 (Table 3).

**Table 2.** Inclusion and exclusion criteria.

| The Inclusion Criteria | The Exclusion Criteria |
|---|---|
| - diagnosis of organic, psychotic, affective or anxiety disorders<br>- 18 years of age<br>- psychophysical condition enabling safe use of the activities offered<br>- ability to give an informed consent to participate in the project | - addiction to alcohol or other psychoactive substances with the inability to maintain a 3-month abstinence ($N$ = 2)<br>- breaking abstinence during the project ($N$ = 0)<br>- withdrawing consent to participate in the project ($N$ = 1)<br>- deterioration of health preventing further use of rehabilitation activities ($N$ = 0) |

*N*—number of patients excluded for a given reason.

**Table 3.** Basic demographic characteristics of the study group ($N$ = 41).

| **Age** | | | | | |
|---|---|---|---|---|---|
| *N* | Mean | SD | Median | Min. | Max. |
| 41 | 59.54 | 20.10 | 69 | 24 | 83 |
| **Gender** | | | | | |
| | Female | Male | | | |
| | 28 | 13 | | | |
| **Diagnosis** | | | | | |
| | Organic disorder | Schizophrenia | Affective | Anxiety disorder | |
| | 21 | 8 | 8 | 4 | |
| **Education** | Primary | Vocational | Secondary | Higher | |
| | 2 | 5 | 22 | 12 | |
| **Marital status** | | | | | |
| | Single | Married | Divorced/ separated | Widow/ widower | Informal relationship |
| | 13 | 5 | 4 | 17 | 2 |
| **Place of residence** | | | | | |
| | Rural area/village | City; <100,000 inhabitants | City; 100,000–3,000,000 inhabitants | City; >300,000 inhabitants | |
| | 4 | 29 | 3 | 5 | |
| **Living conditions** | | | | | |
| | Living alone | Living with family | Social Welfare Home | Others | |
| | 16 | 19 | 1 | 5 | |
| **Professional activity** | | | | | |
| | Retirement | Sickness Benefit | Dependent on the family | Unemployed | Others |
| | 20 | 14 | 1 | 3 | 3 |
| **Smoking** | | | | | |
| | Yes | No | | | |
| | 5 | 36 | | | |
| **Comorbidities** | | | | | |
| | Hypertension | Diabetes | Diseases of the thyroid gland | Bronchial asthma | |
| | 11 | 8 | 6 | 2 | |

Patients were examined through a form consisting of questions on sociodemographic data and two standardized measurement scales:

The Hospital Scale of Anxiety and Depression (HADS) is a commonly used screening tool to assess the severity of anxiety and depression symptoms in the last 14 days preceding the survey. It was created to address the need of examining non-psychiatric patients aged 16 to 65 years [9]. The tool consists of 14 statements to which the respondents indicate from 1 to 4 answers, assessed on a 0–3 scale. The tool has two subscales—relating to the severity

of symptoms of anxiety (HADS-A) and depression (HADS-D). Each subscale consists of seven questions. The maximum number of points that can be obtained is 42. It is assumed that the borderline score indicating the risk of a significant severity of anxiety and/or depression is eight points for each of the subscales. The tool is characterized by satisfactory psychometric properties [9,10]. In our study, the reliability of the tool, assessed with the Cronbach's alpha coefficient, ranged between 0.820 and 0.852 in individual measurements. The study also used the Short Form Health Survey (SF-36) assessing the overall quality of life. SF-36 is one of the most popular tools used for subjective assessment of the quality of life and its main aspects. This tool consists of 36 statements which refer to the last month preceding the survey. The tool allows you to estimate the score for the overall quality of life as well as eight subscales which are made up of two basic factors—physical health and mental health. The higher the numerical score, the worse the quality of life. SF-36 has good psychometric properties [11,12]. The reliability of this tool in our study was 0.870 and 0.900 in individual measurements. The results were calculated with the use of the statistical program Statistica 13.3. The normality of the distributions was checked using the Shapiro-Wilk test. In order to assess the significance of differences for the measurements made at two points in time, the Student's t-test was used for dependent samples for variables in which the distribution turned out to be normal and the Wilcoxon pair-order test was used for variables in which the normal distribution was not obtained. The Mann-Whitney U test was used to compare the values of the variables with the dichotomous grouping variable. Comparisons with the use of a multi-category grouping variable were performed using the Kruskal-Wallis ANOVA rank test. The study of relationships between the variables was performed based on the Spearman's rank correlation coefficient. The level of statistical significance was assumed to be $\alpha \leq 0.05$. The study received a positive opinion of the Bioethical Committee of the Medical University of Silesia.

## 3. Results

The study of the severity of symptoms of anxiety and depression (HADS) and quality of life (SF-36) was carried out at two time points in the group of CWZP patients. The first measurement took place before the rehabilitation program started, the second one after its completion. The assessment of the differences between the results obtained at two time points revealed a statistically significant difference in the overall quality of life of the patients. There has been an improvement in the assessment of quality of life after the completion of the rehabilitation program (Figure 1). In the study group, a decrease in the total score in the HADS scale (Figure 2) and the HADS D subscale (Figure 3) was also observed, which indicates a reduction in the severity of depression symptoms. There were no significant changes in the severity of anxiety symptoms (Figure 4). The descriptive statistics of the variables along with the results of tests of significance of differences are presented in Table 4 (Table 4).

Taking into account the gender of the respondents, there were no significant differences in the intensity of the studied variables (HADS total before, $p = 0.051$; HADS total after, $p = 0.407$; HADS A before, $p = 0.118$; HADS A after, $p = 0.376$; HADS D before, $p = 0.065$; HADS D after, $p = 0.877$; SF-36 before, $p = 0.492$; SF-36 after, $p = 0.306$). There were also no statistically significant correlations between the intensity of the variables and the age of the respondents. The level of intensity of depressive symptoms (HADS-D) positively correlated with the level of intensity of anxiety symptoms (HADS-A) both in the first (Spearman correlation, $r = 0.415$, $p < 0.05$) and second measurement (Spearman correlation, $r = 0.475$, $p < 0.05$).

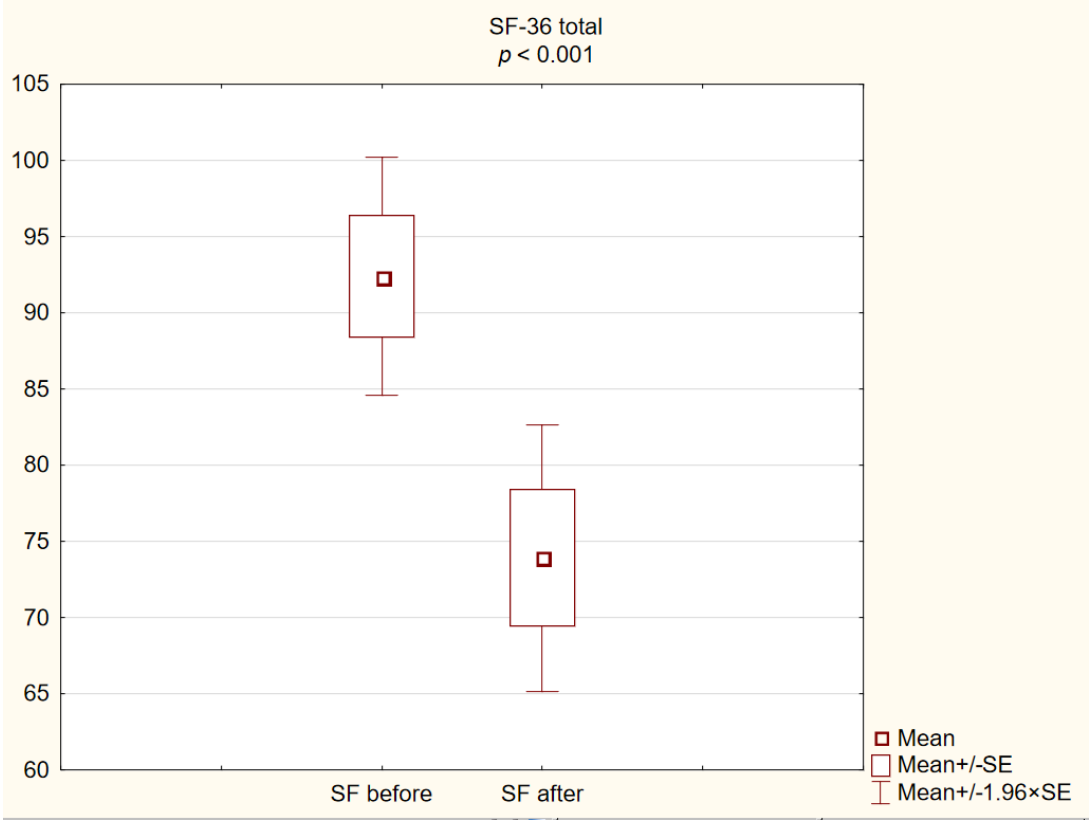


**Figure 1.** Quality of life among patients before and after the rehabilitation program, Student's *t*-test.

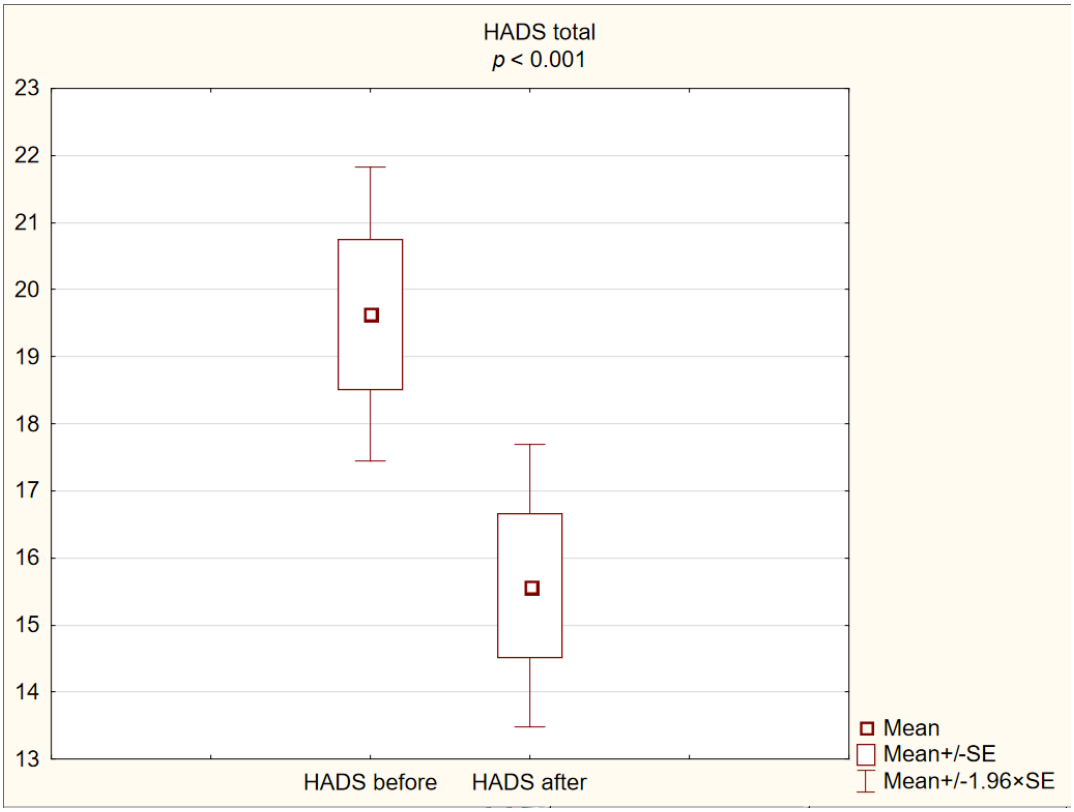


**Figure 2.** HADS score before and after completion of the rehabilitation program, Student''s *t*-test.

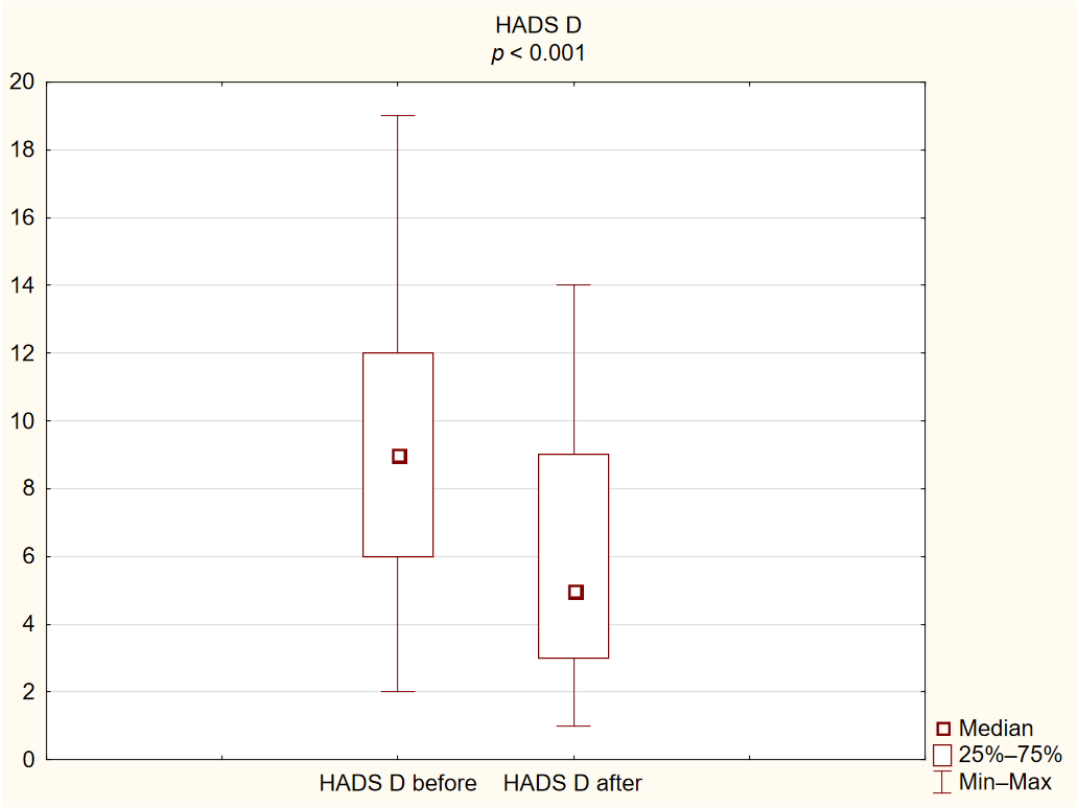


**Figure 3.** Worsening of depression symptoms before and after the rehabilitation program, Wilcoxon test.

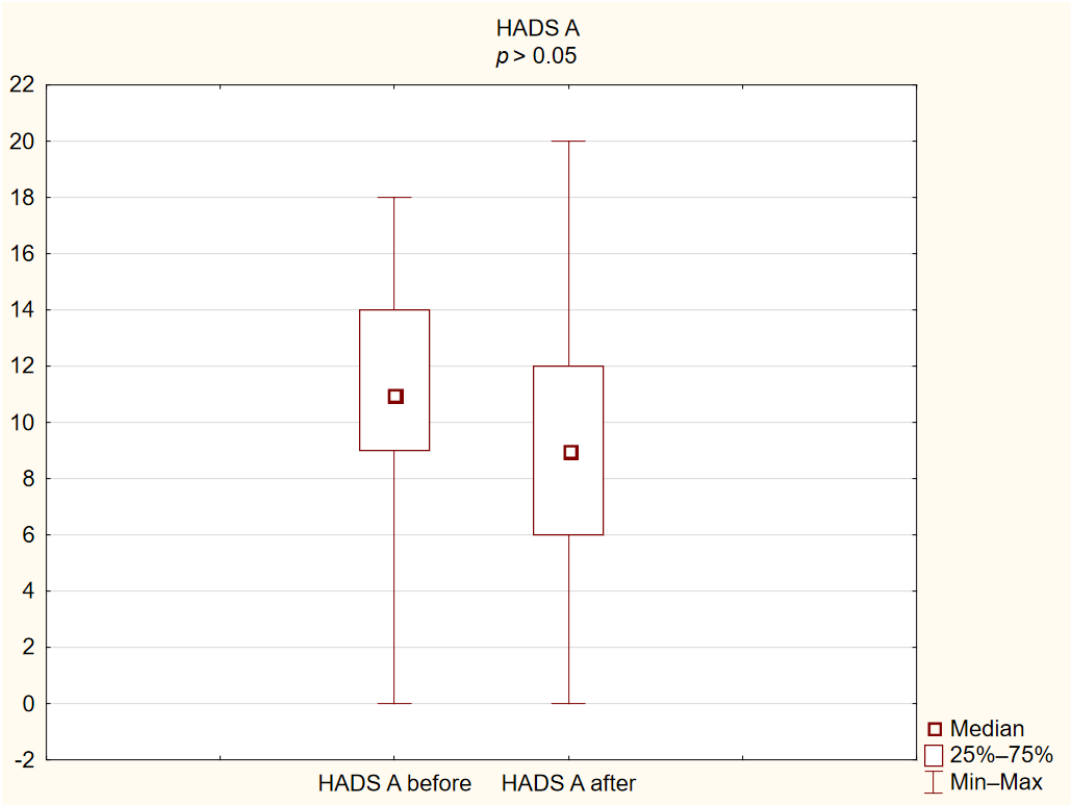


**Figure 4.** Worsening of symptoms of anxiety before and after the rehabilitation program, Wilcoxon test.

**Table 4.** Descriptive statistics of the variables and the assessment of the significance of differences between the two measurements.

| Variable | Median | Min. | Max. | IQR | Mean (SD) | t/Z | *p* |
|---|---|---|---|---|---|---|---|
| **HADS D before** | 9 | 2 | 19 | 6–12 | 9.17 (4.58) | 4.009Z | **<0.001** |
| **HADS D after** | 5 | 1 | 14 | 3–9 | 6.17 (3.97) | | |
| **HADS A before** | 11 | 0 | 18 | 9–14 | 10.46 (4.06) | 1.773Z | **0.05** |
| **HADS A after** | 9 | 0 | 20 | 6–12 | 9.42 (4.24) | | |
| **HADS before** | 20 | 3 | 34 | 15–24 | 19.63 (7.16) | 4.081t | **<0.001** |
| **HADS after** | 14 | 4 | 34 | 10–21 | 15.59 (6.90) | | |
| **SF-36 before** | 93 | 30 | 142 | 80–106 | 92.39 (25.57) | 4.855t | **<0.001** |
| **SF-36 after** | 73 | 27 | 143 | 53–95 | 73.93 (28.58) | | |

Note: HADS—Hospital Anxiety and Depression Scale total score; HADS D—depression, HADS A—anxiety; SF-36—quality of life total score; IQR—interquartile range, SD—standard deviation; t—Student's t-test result; Z—Wilcoxon test result.

## 4. Discussion

Research to date indicates that both personal resources (such as resilience, perception of self, perception of the future, social competence, family cohesion) and social, family and socioeconomic relationships have a strong impact on the recovery process and the maintenance of mental well-being [13–16]. The positive impact of non-pharmacological activities on mental health was already indicated in the study conducted by the authors at the beginning of the epidemic [8].

A rehabilitation program in which social interactions were limited was not as effective in reducing anxiety symptoms as a previously developed program including a series of group activities and social function training with a psychologist (discussion of the contextual, non-verbal and paralinguistic aspects of interpersonal interactions) and joint activities such as cooking.

A possible explanation for the observed exacerbation of anxiety symptoms is the pandemic itself, in particular anxiety related to concerns about health and living conditions, experiencing isolation and limiting social contacts, the negative impact of information provided by the media [17–20]. Due to the fact that our earlier studies [8] showed effectiveness both in improving the quality of life and reducing depression and anxiety symptoms, we can conclude that the changes in our rehabilitation program forced by sanitary restrictions resulted in a reduction in the effectiveness in relation to anxiety symptoms. The biggest change from the pre-pandemic program was the resignation from group activities with a psychologist, group gymnastics, choreotherapy, ludotherapy and social functioning training. The possibility of psychoeducation of patients' families was also limited to telephone calls only.

One of the essential elements of our therapeutic program, which was significantly limited due to sanitary restrictions, was art therapy. We were forced to reduce the size of the therapeutic groups. Patients participated in art therapy in groups of up to three people, and created their artworks in separate, several meters away from each other. Previous studies [21,22] suggest that art therapy is successfully used in patients with anxiety and depressive disorders, because these patients are reluctant to express their problem with words. It is a way of communicating with others when direct verbal interaction is impossible or difficult [21,23,24]. Art therapy usually includes two elements: creating a work of art and the subsequent narrative of internal experiences and thoughts [21]. It can serve as a useful therapeutic method that helps patients to open up and share their feelings, views and experiences not only with therapists, but also with other members of therapeutic groups with which patients establish interpersonal relationships [23,24]. Expressing emotions and thoughts can be a more important part of art therapy than the process of creation

itself. Therefore, preventing the presentation of one's work in a larger group (which was possible before the pandemic but prevented by subsequent restrictions) could reduce the effectiveness of this form of therapy.

## 5. Conclusions

(1) A psychiatric rehabilitation program with limited social interactions is effective in reducing depressive, but not anxiety symptoms in patients with mental disorders.

(2) In order to improve the quality of life in patients with mental disorders, short-term rehabilitation interventions are beneficial.

(3) Limited social interventions can be a key drawback to recovery process for those with anxiety symptoms.

## 6. Implications for the Future

Despite the fact that the prognosis for the further course of the epidemic remains relatively favorable, especially for North America and Europe, where COVID-19 has become an endemic, it is not over [25]. It should be taken into account that, regardless of the further development of medical knowledge, there is a risk of the emergence of new, more virulent strains. Moreover, the example from different studies shows that policies that restrict social interactions may inevitably lead to a decreased immune response [26], particularly in various risk groups [27]. A psychiatric diagnosis may be an independent risk factor for COVID-19. Previous studies have also shown that people with mental disorders have a higher risk of infection and may present a much more severe course of the disease [28,29]. It is influenced not only by socio-demographic elements or the clinical course of mental disorders, which make it impossible to adapt to sanitary and epidemiological requirements, but also by biological factors [30].

The conclusions from this study show that even in specific, highly restricted conditions, rehabilitation programs should be conducted, while at the same time, looking for new forms of strengthening social interactions, including the use of new technologies, is a priority.

**Author Contributions:** Conceptualization, J.A.S.-K. and R.P.; methodology, J.A.S.-K. and R.P.; software, J.A.S.-K.; validation, J.A.S.-K., R.P. and P.D.; formal analysis, J.A.S.-K. and P.D.; investigation, J.A.S.-K.; resources, J.A.S.-K. and P.D.; data curation, J.A.S.-K.; writing—original draft preparation, J.A.S.-K., P.D. and A.R.S.; writing—review and editing, M.P. and R.P.; visualization, J.A.S.-K. and P.D.; supervision, R.P.; project administration, J.A.S.-K. and R.P. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the Bioethics Committee of the Medical University of Silesia decided that conducting the study does not require the consent of this committee, because the study is not a medical experiment (PCN/0022/KB/179/19).

**Informed Consent Statement:** Written informed consent has been obtained from the patient(s) to publish this paper.

**Data Availability Statement:** All data are available upon reasonable request.

**Acknowledgments:** I would like to thank the Medical Staff of the Mental Health Centre in Tarnowskie Góry for the support in conducting the study.

**Conflicts of Interest:** The authors declare no conflict of interest.

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