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Research Paper – Araştırma Makalesi

COVID-19 VACCINATION RATES IN PATIENTS WITH SEVERE MENTAL ILLNESS

AĞIR RUH HASTALIĞI OLAN HASTALARDA COVİD-19 AŞILAMA ORANLARI

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Özet

Pandeminin ciddi akıl hastalığı (SMI) olan hastaları etkilediği düşünülüyor. Türkiye'de SMI hastalarında COVID-19 aşısı ile ilgili veri bulunmamaktadır. Çalışmamızın amacı, bir toplum ruh sağlığı merkezinde (TRSM) takip edilen SMI hastalarında aşılama oranları ile aşılama ile ilişkili olabilecek demografik ve klinik özellikleri belirlemektir. TRSM'de izlenen 307 hastanın demografik ve klinik özelliklerini içeren veriler elde edildi. Hastaların yaş ortalaması 44.17±1123 idi. 199 (%64.8) erkek, 205 (%66.8) bekar, 247 (%80.5) işsiz, 288 (%95) ailesiyle birlikte yaşıyordu. 242 (%78.8) kişiye şizofreni spektrum bozukluğu, 65 (%21.2) kişiye bipolar bozukluk tanısı kondu. 78'i (%28.9) geçmişte intihar girişiminde bulunmuştur. 118'inin (%38.4) kronik yandaş hastalığı vardı. Hastaların 50'sinde (%16.3) daha önce Covid-19 enfeksiyonu geçirilmişti. 257 hastaya (%83,7) 1 doz, 246 hastaya (%80,1) 2 doz, 173 hastaya (%56,4) 3 doz, 61 hastaya (%19,9) 4 doz, 9 hastaya (%2,9) 5 doz aşı uygulandı. 150 hasta (%48,9) tamamen aşılanmıştı, 107 hasta (%34,9) kısmen aşılanmıştı ve 50 hasta (%16,3) hiç aşılanmamıştı. Mevcut çalışmada, SMI hastalarında Covid 19'a karşı aşılama oranları genel popülasyona göre daha düşüktü. SMI hastalarında medeni durum dışında demografik veya klinik özellikler açısından tam veya kısmi/aşılanmamış gruplar arasında fark yoktu. SMI hastalarında aşılama oranlarını artırmak için organizasyonel değişikliklere ihtiyaç vardır.

Anahtar Kelimeler: Bipolar Bozukluk; COVID-19; Şizofreni; Aşı

Abstract

The pandemic is thought to affect patients with severe mental illness (SMI). There are no data onCOVID-19 vaccination in patients with SMI in Türkiye. The aim of our study is to determine the vaccination rates and demographic and clinical characteristics that may be associated with vaccination in SMI patients followed in a community mental health center (CMHC). Data including demographic and clinical characteristics of 307 patients followed in CMHC were obtained. The mean age of the patients was 44.17±11.23. There were 199 (64.8%) male, 205 (66.8%) single, 247 (80.5%) unemployed, and 288 (95%) patients living with their families. Of the patients, 242 (78.8%) were diagnosed with schizophrenia spectrum disorders and 65 (21.2%) were diagnosed with bipolar disorder. 78 (28.9%) of them had a suicide attempt in thepast. 118 (38.4%) had chronic co-morbidities. Fifty (16.3%) of the patients had past Covid-19infection. 257 patients (83.7%) got 1 dose, 246 (80.1%) got 2, 173 (56.4%) got 3, 61 (19.9%) got 4 and 9 (2.9%) got 5 doses of the vaccine. 150 patients (48.9%) were fully vaccinated, 107patients (34.9%) were partially vaccinated and 50 patients (16.3%) were unvaccinated. In the current study, vaccination rates against Covid 19 were lower in SMI patients than in the generalpopulation. There was no difference between full or partial/unvaccinated groups in terms of demographic or clinical characteristics except marital status in SMI patients. Organizational changes are needed to increase vaccination rates in SMI patients.

Keywords: Bipolar Disorder; COVID-19; Schizophrenia; Vaccination

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1. INTRODUCTION

Pandemics are expected to particularly affect individuals with low access to healthcare and health literacy, such as severe mental illness (SMI) patients (Hamada et al., 2020, pp. 3-5; Kozloff et al., 2020, pp. 752-757). Besides that understanding that Covid 19 infection causes more morbidity and mortality in people with SMI has led to calls by experts to prioritize those patients in vaccination against Covid-19 (Toubasi et al., 2021, pp. 1-14; De Hert et al., pp.54-55; Raffard et al., 2022, pp.1228).

Although SMI patients were given priority in vaccination in most of the developed countries, a longitudinal cohort study from Israel showed that SMI patients still have lower rates of vaccination and have higher hospitalization and mortality risk (Tzur Bitan et al., 2021, pp. 901-908; De Picker et al., 2021, pp.356-369; Stip et al., 2021, pp. 275-276). The worse outcomes of COVID-19 among SMI have been attributed to high obesity and smoking rates, immune system impairment, lower socioeconomic status and factors associated with help-seeking behavior (Vai et al., 2021, pp.797-812; Moreno et al., 2020, pp. 813-824; Mazereel et al., 2021, pp. 444-450). Researchers have suggested that immunizations may be less effective in patients with severe mental illness, even if they follow the vaccination recommendations (Tzur Bitan et al., 2021, pp. 901-908). It has been proposed that people with severe mental illness may have a diminished immune response to immunizations, which would mean that vaccinations might not lower the risk of morbidity (Mazereel et al., 2021, pp. 444-450). Besides these, SMI patients have various obstacles for vaccination in terms of accessibility issues, costs, potential fears, and absence of medical recommendation (Miles et al., 2020, pp. 172-180).

As of 30 October 2022 in Türkiye, 90% of adults have been vaccinated against COVID-19 for 1 dose, 80% for 2 doses, 66% for 3 doses (Republic Of Türkiye Ministry Of Health Covid-19 Vaccine Information Platform, 2023). Although the 6th dose of vaccine has been started to be administered to priority groups, 4th, 5th, and 6th dose vaccination rates are not available in Türkiye. In addition, data on which vaccines are preferred are not known.

Currently, BioNTech, Sinovac and Turkovac vaccines are available in our country. There are no data available regarding COVID-19 vaccination in patients with SMI in Türkiye. The aim of our study is to determine the vaccination rates and the demographic and clinical features that may be related with vaccination among SMI patients followed in the community mental health center (CMHC).

2. METHODS

2.1. Study Design, Participants and Procedure

The files of 440 patients followed up at XXX Training and Research CMHC were obtained. Vaccination status of 307 patients accessed via the Digital health record system of Ministry of Health of Türkiye. Patients' age, gender, education level, marital status, employment status, medical and psychiatric diagnoses, duration of psychiatric illness, onset age of illness, hospitalization numbers, suicide attempt history, alcohol/substance/tobacco use history were obtained from the CMHC files and hospital data systems.

The study was conducted in accordance with the Declaration of Helsinki, with the approval of the Buca Seyfi Demirsoy Training and Research Hospital Non-Pharmaceutical Scientific Research Ethics Committee (Approval No: 2021/12-69).

During the pandemic, the concept of fully vaccination against Covid-19 have changed. In the light of our current knowledge, those vaccinated with 3 doses of BioNTech, those vaccinated with 2 doses of Sinovac + 2 doses of BioNTech, those vaccinated with 3 doses of Sinovac + 1 dose of BioNTech, those vaccinated with at least 2 doses of BioNTech before or after Covid- 19 infection, those vaccinated with at least 2 doses of BioNTech before or after Covid-19 infection and those with 2 doses of Sinovac + 1 dose of BioNTech before or after Covid-19 infection are considered as fully vaccinated (Current Immunication Recommendations Against Covid-19, 2023)

2.2. Statistical Analysis

We performed the statistical analysis using SPSS version 21.0 program. The conformity of the variables to the normal distribution was evaluated with Kolmogorov-Smirnov and Shapiro-Wilk tests. In comparisons between groups, ANOVA test-post hoc Bonferroni correction was used for normally distributed continuous variables, and Kruskal Wallis test was used for non-normally distributed continuous variables. All measurements are shown as “mean ±standard deviation”. Non-continuous variables with normal distribution were evaluated using the Chi-square test, and non-continuous variables without normal distribution were evaluated using Fisher's exact probability test. For all tests, p-value <.05 was considered statistically significant.

3. RESULTS

3.1. Sociodemographic Characteristics of The Participants

The data of 307 out of 440 patients followed in the Community Mental Health Center were obtained. The mean age of the patients was 44.17±11.23. 199 (64.8%) were male, 205 (66.8%) were single, 247 (80.5%) were unemployed, 288 (95%) were living with their families. Education level of 265 of them (86.3%) was at high school level or below (Table-1).

Table 1: The Sociodemographic Characteristics of The Participants

Age (mean±sd)	44.17±11.23
Gender n (%) Male Female	 199 (64.8%) 108 (35.2%)
Marital Status n (%) Single Married Divorced/ widow	 205 (66.8%) 78 (25.4%) 24 (7.8%)
Employment n (%) Working Unemployed Retired	 44 (14.3%) 247 (80.5%) 16 (5.2%)
Education n (%) Illiterate Primary school Intermediate school High school University	 13 (4.2%) 96 (31.3%) 69 (22.5%) 87 (28.3%) 42 (13.7%)
Caregiver no yes*	 18 (5%) 288 (95%)

*287 of them were family members and one was nurse

3.2. Clinical Characteristics Of Patients

Of the patients, 242 (78.8%) had a diagnosis of schizophrenia spectrum disorder, and 65 (21.2%) had bipolar disorder. Mean onset age was 23.75 ±9.08 and mean duration of illness was 20.59 ±11.05. 160 (52.1%) patients had a history of tobacco, 47 (15.4%) had history of alcohol, and 27 (8.8%) had history of substance use. 78 (28.9%) patients had past suicide attempt. 118 (38.4%) patients had a chronic comorbid disease (Table-2).

Table 2: Clinical Characteristics of Patients

Duration of illness (mean±sd)	20.59 ± 11.05
Onset age (mean±sd)	23.75 ± 9.08
Diagnoses n (%) Schizophrenia Spectrum Disorders Bipolar Disorder	 242 (78.8%) 65 (21.2%)

Tobacco/ alcohol/ substance use history n (%) Tobacco Alcohol Substance	 160 (%52.1) 47 (15.4%) 27 (8.8%)
Comorbid Physical illness n (%)	118 (38.4%)
Hospitalization (mean±sd)	1.56±1.57
Suicide attempt Yes No	 118 (38.4%) 189 (61.6%)

3.3. Covid-19 And Vaccination Characteristics Of The Participants

Fifty of the patients (16.3%) had past Covid-19 infection. 257 (83.7%) were vaccinated with 1 dose, 246 (80.1%) with 2 doses, 173 (56.4%) with 3 doses, 61 (19.9%) with 4 doses and 9 (2.9%) with 5 doses (Figure 1). 150 (48.9%) of the patients were fully vaccinated, 50 were (16.3%) unvaccinated, and 107 were (34.8%) partially vaccinated. Of the 746 total doses of vaccines administered to the patients, 566 (75,87%) were BioNTech and 180 (24.13%) were Sinovac. (Figure-1).

Figure 1: Vaccination doses of patients

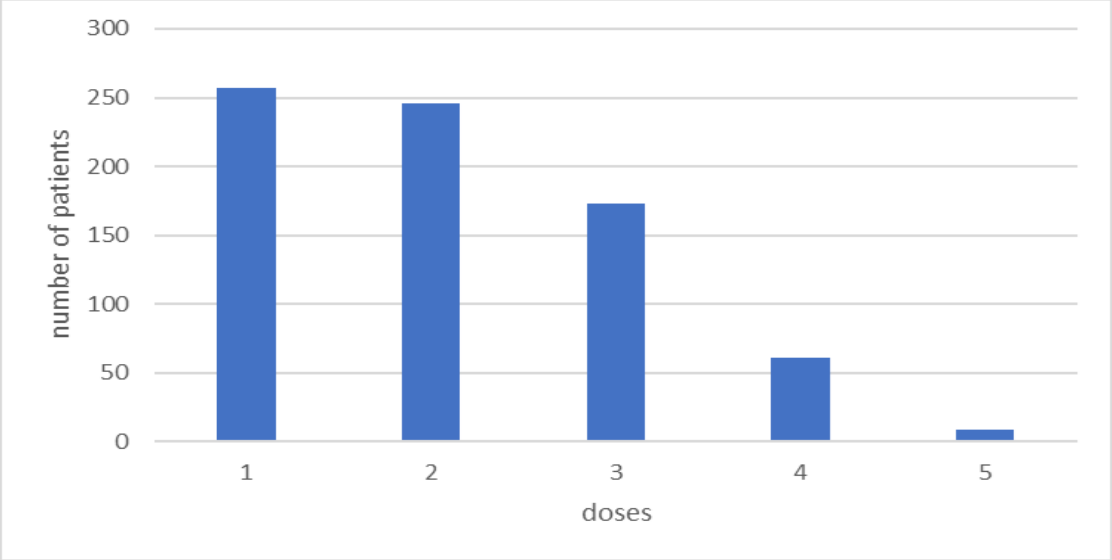

Figure 1: Vaccination doses of patients

3.4. Relationship Between Vaccination Status Of Patients And Their Clinical And Demographic Characteristics

There was no significant difference between 3 groups (full, partial and unvaccinated) in terms of gender (p=0.244), age (p= 0.265), duration of disease (p=0.821), onset age of disease (p=0.423), number of hospitalizations (p=0.618), presence of suicide attempt (p=0.563) educational status (p=0.784), occupational status (p=0.418), diagnosis (p= 0.248), substance,

tobacco or alcohol use history (p=0.331, p=0.323, p=0.052), family/alone living status (p= 0.918) presence of comorbid disease (p=0.848). The rate of singles was found to be higher than the married ones in unvaccinated group (p=0.036) (Table-3).

Table 3: Vaccination Status

	Full		Partial		Unvaccinated		P
	n=150	48.9%	n=107	34.9%	n=50	16.3%	
Gender							
Male	104	33,9%	66	21,5%	29	9,4%	p=0.244
Female	46	15,0%	41	13,4%	21	6.8%	
Education level							
Illiterate	4	1,3%	6	2,0%	3	1,0%	
Primary school	47	15,3%	34	11,1%	15	4,9%	p=0,784
Intermediate school	32	10,4%	28	9,1%	9	2,9%	
High school	46	15,0%	27	8,8%	14	4,6%	
University	21	6,8%	12	3,9%	9	2,9%	
Marital Status							
Married	39	12,7%	34	11,1%	5	1,6%	
Single	95	30,9%	67	21,8%	43	14.0%	p=0.036*
Divorced/widow	16	5,2%	6	1,9%	2	0,6%	
Occupational Status							
Working	21	6,8%	19	6,2%	4	1,3%	
Unemployed	119	38,8%	84	27,4%	44	14,3%	p=0.418
Retired	10	3,3%	4	1,3%	2	0,7%	
Diagnoses							
Bipolar Disorder	37	12,1%	21	6,8%	7	2,3%	p=0,248
Schizophrenia Spectrum Disorder	113	36,8%	86	28,0%	43	14,0%	
Alcohol use history							
No	132	43,1%	83	27,1%	44	14,4%	p=0,052
Yes	17	5,6%	24	7,8%	6	2,0%	
Substance use history							
No	136	44,4%	95	31,0%	48	15,7%	p=0.331
Yes	13	4,2%	12	3,9%	2	0,7%	
Tobacco use history							
No	76	24,8%	45	14,7%	26	8,%	p=0.323
Yes	74	24,1%	62	20,2%	24	7,8%	
Suicide attempt							
No	96	35,6%	64	23,7%	32	11,9%	p=0.563
Yes	42	15,6%	27	10,0%	9	3,3%	
Living with Family	140	46,2%	102	33,7%	46	15,2%	p=0.918

Alone	7	2,3%	5	1,7%	3	1,0%	
Chronical disease No Yes	90 60	29,3% 19,5%	67 40	21,8% 13,0%	32 18	10,4% 5,9%	p=0.848
Duration of illness	20,64±10,21		20,26±11,57		21,58±13,10		p=0,821
Age	45,21±10,68		43,41±11,79		42,68±11,52		p=0,265
Onset age of illness	24,31±9,72		23,64±8,92		22,29±7,24		p=0,463
Hospitalization number	1,61±1,67		1,59±1,48		1,35±1,44		p=0,618

* Fisher's exact test, the difference was between unvaccinated and full vaccinated groups

4. DISCUSSION

To the best of our knowledge this is the first study in Türkiye which investigates vaccination rates against Covid-19 among SMI patients. We found that first, second and third vaccination rates (93%, 85%, 66% vs 83.7%, 80.1%, 56.4%) are lower compared to the general population and full and partial vaccination rates are lower compared to the developed countries. We didn't find any association between vaccination rates and demographical or clinical factors except marital status among SMI patients.

First finding of the present study is lower vaccination rates among SMI patients compared to the general population. Similar to our results, most of the studies reported lower vaccination and higher hesitancy rates in SMI patients (Tzur Bitan et al., 2021, pp. 901-908; Peritogiannis et al., 2023, pp. 208-215; Huang et al., 2021, pp. 1-10; Bai et al.,2021, pp.4288–4290). A study from France showed that patients with schizophrenia were under-vaccinated against Covid-19, although they were more willing to get vaccinated than the general population (Bai et al.,2021, pp.4288–4290). And the authors suggested that vaccination rates in schizophrenia do not seem related to attitudinal but rather constitutional limitations such as geographical distance from vaccination sites, living in more deprived areas, limited access to online health information, awareness of services, or absence of medical recommendation. However, it is not possible to explain the lower vaccination rates in our patients by living in rural areas or by cost. Because our population consists of patients living in the center of Izmir, the 3rd largest province of Türkiye, and the vaccines were provided free of charge by the Ministry of Health of the Republic of Türkiye. We can speculate that problems in accessing health information, confusing discourses in traditional and social media, and inadequate physician advice affect SMI more negatively on vaccination.

Secondly, we didn't find any association between clinical or demographical variables and vaccination rates except marital status. Similar to our results, a study conducted in Greece reported that demographic and clinical factors were unrelated to vaccination. However, in this study, vaccination rates were found to be high and similar to the general population. Studies have reported that vaccination is lower in younger, hospitalized and SMI patients with higher perceived stigma, but higher in those with medical comorbidities (Tzur Bitan et al., 2021, pp.

901-908;Bai et al.,2021, pp. 4288–4290; Wiegand et al., 2022, pp.1-6). In our study, however, we did not find a relationship between vaccination and any clinical factor. The limitations of our study are that it is done in a single community mental health center and it is not known which vaccine the patients receive.

5. CONCLUSION

In conclusion, vaccination is the most important and may be the only way for the elimination of COVID-19 pandemic. It is crucial to vaccinate whole population so special groups that are under-vaccinated must be determined. Lower vaccination among SMI patients don't seem to be associated with clinical or demographical characteristics of the patients. The reasons for the low vaccination of patients should be investigated in more detail in future studies.

This patient group should be reached and vaccinated at home without waiting for their arrival to the hospital.

6. REFERENCES

Bai, W., Cai, H., Jin, Y., Zhang, Q., Cheung, T., Su, Z., Tang, Y.L., , Ng, C. H.,Xiang, Y.T. (2023). COVID-19 vaccine hesitancy in community-dwelling and hospitalized patients with severe mental illness. Psychological Medicine, 53(9), 4288–4290.

Current Immunication Recommendations Against Covid-19. https://www.klimik.org.tr/2022/07/11/119309/ Accessed June 12, 2023.

De Hert, M., Mazereel, V., Detraux, J.,Van Assche, K. (2021). Prioritizing COVID-19 vaccination for people with severe mental illness. World Psychiatry, 20, 54–55.

De Picker, L. J., Dias, M. C., Benros, M. E., Vai, B., Branchi, I., Benedetti, F., Borsini, A., Leza, J. C., Kärkkäinen, H., Männikkö, M., Pariante, C. M., Güngör, E. S., Szczegielniak, A., Tamouza, R., van der Markt, A., Fusar-Poli, P., Beezhold, J.,Leboyer, M. (2021). Severe mental illness and European COVID-19 vaccination strategies. The lancet. Psychiatry, 8(5), 356–359.

Hamada, K.,Fan, X. (2020). The impact of COVID-19 on individuals living with serious mental illness. Schizophrenia Research, 222, 3–5.

Huang, H., Zhu, X. M., Liang, P. W., Fang, Z. M., Luo, W., Ma, Y. M., Zhong, B. L.,Chiu, H.F. (2021). COVID-19 Vaccine Uptake, Acceptance, and Hesitancy Among Persons With Mental Disorders During the Second Stage of China's Nationwide Vaccine Rollout. Frontiers in medicine, 8, 761601.

Kozloff, N., Mulsant, B. H., Stergiopoulos, V.,Voineskos, A. N. (2020). The COVID-19 global pandemic: Implications for people with schizophrenia and related disorders.

Schizophrenia Bulletin, 46, 752–757.

Mazereel, V., Van Assche, K., Detraux, J.,De Hert, M. (2021). COVID-19 vaccination for people with severe mental illness: why, what, and how?. The lancet. Psychiatry, 8(5), 444– 450.

Mazereel, V., Vanbrabant, T., Desplenter, F., Detraux, J., De Picker, L., Thys, E., Popelier, K.,De Hert, M. (2021). COVID-19 Vaccination Rates in a Cohort Study of Patients With Mental Illness in Residential and Community Care. Frontiers in psychiatry, 12, 1-13, 805528.

Miles, L. W., Williams, N., Luthy, K. E., Eden, L. (2019). Adult Vaccination Rates in the Mentally Ill Population: An Outpatient Improvement Project. Journal of the American Psychiatric Nurses Association, 26, 172-180.

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C. U., Byrne, L., Carr, S., Chen, E. Y. H., Gorwood, P., Johnson, S., Kärkkäinen, H., Krystal, J. H., Lee, J., Lieberman, J., López-Jaramillo, C., Männikkö, M., Phillips, M. R.,Uchida, H., Vieta, E., Vita, A., Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. The lancet. Psychiatry, 7(9), 813–824.

Peritogiannis, V., Drakatos, I., Gioti, P.,Garbi, A. (2023). Vaccination rates against COVID-19 in patients with severe mental illness attending community mental health services in rural Greece. The International journal of social psychiatry, 69(1), 208–215.

Raffard, S., Bayard, S., Eisenblaetter, M., Attal, J., Andrieu, C., Chereau, I., Fond, G., Leignier, S., Mallet, J., Tattard, P., Urbach, M., Misdrahi, D., Laraki, Y.,Capdevielle, D. (2022). Attitudes towards Vaccines, Intent to Vaccinate and the Relationship with COVID-19 Vaccination Rates in Individuals with Schizophrenia. Vaccines, 10(8), 1228.

Republic Of Türkiye Ministry Of Health Covid-19 Vaccine Information Platform. https://covid19asi.saglik.gov.tr/ Accessed June 12, 2023.

Stip, E., Javaid, S.,Amiri, L. (2021). People with mental illness should be included in COVID-19 vaccination. The lancet. Psychiatry, 8(4), 275–276.

Toubasi, A. A., AbuAnzeh, R. B., Tawileh, H. B. A., Aldebei, R. H.,Alryalat, S. A. S. (2021). A meta-analysis: The mortality and severity of COVID-19 among patients with mental disorders. Psychiatry Research, 299, 1-14, 113856.

Tzur Bitan, D., Kridin, K., Cohen, A. D., Weinstein, O. (2021). COVID-19 hospitalisation, mortality, vaccination, and postvaccination trends among people with schizophrenia in Israel: a longitudinal cohort study. The lancet. Psychiatry, 8(10), 901–908

Vai, B., Mazza, M. G., Delli Colli, C., Foiselle, M., Allen, B., Benedetti, F., Borsini, A., Casanova Dias, M., Tamouza, R., Leboyer, M., Benros, M. E., Branchi, I., Fusar-Poli, P.,De Picker, L. J. (2021). Mental disorders and risk of COVID-19-related mortality, hospitalisation, and intensive care unit admission: a systematic review and meta-analysis. The lancet.

Psychiatry, 8(9), 797–812.

Wiegand, H. F., Maicher, B., Rueb, M., Wessels, P., Besteher, B., Hellwig, S., Pfennig, A., Rohner, H., Unterecker, S., Hölzel, L. P., Philipsen, A., Domschke, K., Falkai, P., Lieb, K.,Adorjan, K. (2022). COVID-19 vaccination rates in hospitalized mentally ill patients compared to the general population in Germany: Results from the COVID Ψ Vac study. European psychiatry : the journal of the Association of European Psychiatrists, 65(1), e41,1-6.