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# Determinants of COVID-19 Vaccine Uptake Among People with Substance Use Disorder in Türkiye

# Türkiye'de Madde Kullanım Bozukluğu Olan Bireylerde COVID-19 Aşılanma Durumu ve Etkileyen Faktörler

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**Öz**

**Giriş ve Amaç:** COVID-19 pandemisi, özellikle Madde Kullanım Bozukluğu (MKB) olan bireyler gibi sosyal açıdan dezavantajlı gruplar için önemli sosyoekonomik ve sağlık eşitsizliklerini belirgin hale getirmiştir. Bu popülasyonda ciddi COVID-19 geçirme riski artmış olmasına rağmen, MKB olan bireylerin genel nüfusa kıyasla daha fazla aşı tereddüdü yaşadığı ve daha düşük aşılama oranlarına sahip olduğu görülmüştür. Bu çalışma, Türkiye'deki MKB hastalarının aşılama durumunu değerlendirmeyi ve aşılanmayı etkileyen faktörleri araştırmayı amaçlamıştır.

**Gereç ve Yöntemler:** Bu kesitsel çalışma, 5 Şubat- 30 Nisan 2024 tarihleri arasında İzmir Demokrasi Üniversitesi Buca Seyfi Demirsoy Eğitim ve Araştırma Hastanesi Denetimli Serbestlik Kliniği'nde gerçekleştirilmiştir. Çalışmaya toplamda 571 kişi başvurmuş, bunlardan 367'sinde Madde Kullanım Bozukluğu (MKB) saptanmıştır. Sistemik, nörolojik veya immünolojik hastalıkları olanlar, 18 yaş altı veya 45 yaş üstü olanlar, çalışmaya katılmayı reddedenler ve başvuru sırasında psikoaktif madde etkisinde olanlar çalışma dışında bırakılmıştır. Sonuç olarak çalışmaya 177 katılımcı dahil edilmiştir. Veriler, katılımcılara uygulanan Sosyodemografik Veri Formu, Belirti Tarama Listesi-90-Gözden Geçirilmiş (SCL-90-R) paranoid düşünce alt ölçeği ve Oxford COVID-19 Aşı Güveni ve Rehaveti Ölçeği ile toplanmıştır. İstatistiksel analizlerde tanımlayıcı istatistikler, kategorik veriler için Ki-kare testi ve COVID-19 aşılanma durumunu etkileyen faktörleri belirlemek için lojistik regresyon analizi kullanılmıştır.

**Bulgular:** Aşıya olan güvenin aşılama durumunun birincil belirleyicisi olduğunu, diğer sosyodemografik faktörlerin ise aşılanma ile anlamlı bir ilişki göstermediğini ortaya koymaktadır.

**Sonuç:** Bu sonuçlar, sağlık hizmetlerine duyulan güvensizlik ve lojistik engelleri ele almak için özel olarak hazırlanmış halk sağlığı müdahalelerinin gerekliliğini vurgulamaktadır. Bu yüksek riskli grupta düşük aşılanma oranlarını daha iyi anlamak ve etkili önleme stratejileri geliştirmek için daha fazla araştırma yapılması önerilmektedir.

**Anahtar kelimeler:** Madde Kullanım Bozukluğu, COVID-19, Aşılama, Aşı Tereddütü, Paranoid Düşünce, Sosyoekonomik Eşitsizlikler

**Abstract**

**Aim;** The COVID-19 pandemic has highlighted significant socioeconomic and health disparities, particularly for socially vulnerable populations such as individuals with Substance Use Disorder (SUD). Despite the heightened risk of severe COVID-19 outcomes, individuals with SUD demonstrated higher vaccine hesitancy and lower vaccination rates compared to the general population. This study aimed to assess the vaccination status of SUD patients in Türkiye and explore factors influencing vaccine uptake.

**Method;** This cross-sectional study was conducted at the İzmir Democracy University Buca Seyfi Demirsoy Training and Research Hospital Probation Clinic between February 5 and April 30, 2024. A total of 571 patients applied to the clinic, and 367 of these individuals were diagnosed with substance use disorder (SUD). Patients who had systemic, neurological, or immunological diseases, were younger than 18 or older than 45 years, refused to participate, or were under the influence of psychoactive substances at the time of application were excluded from the study. Ultimately, 177 participants were included. Data were collected using the Sociodemographic Data Form, the Symptom Checklist-90-Revised (SCL-90-R) Paranoid Ideation subscale, and the Oxford COVID-19 Vaccine Confidence and Complacency Scale. Statistical analyses included descriptive statistics, chi-square tests for categorical data, and logistic regression analysis to identify factors affecting COVID-19 vaccination status.

**Results;** The findings suggest that vaccine confidence is the primary determinant of vaccination status, while other sociodemographic factors showed no significant relationship with vaccination.

**Conclusion;** These insights underscore the need for tailored public health interventions to boost vaccine confidence, particularly in addressing healthcare distrust and logistical barriers. Further research is recommended to better understand the low vaccine uptake in this high-risk group and develop effective strategies for prevention.

**Keywords:** Substance Use Disorder, COVID-19, Vaccination, Vaccine Hesitancy, Paranoid Ideation, Socioeconomic Disparities

## 1. Introduction

The COVID-19 pandemic has significantly exacerbated socioeconomic and health disparities, particularly in socially vulnerable populations such as individuals with substance use disorder [1]. "Social vulnerability" refers to the degree to which external stressors, such as housing insecurity, limited access to healthcare and transportation, and a lack of income, impact on a community's ability to prepare for and respond to hazardous events [2]. These factors create substantial challenges in managing public health crises, as vulnerable populations often have fewer resources and support systems to draw upon.

Despite their higher risk of contagion, COVID-19-related hospitalization and death SUD patients exhibit greater vaccine hesitancy, and their vaccination rates are lower compared to the general population [3]. Low vaccination rates are attributed to factors including stigmatization, barriers to accessing healthcare, mistrust of institutions, underestimation of disease severity, and logistical challenges [3,4].

Additionally, the spread of misinformation and disinformation during the pandemic has further influenced vaccination rates [5]. Research indicates that lower vaccine uptake is linked to conspiracy beliefs about vaccination and paranoid personality traits [6, 7]. Substance use can lead to paranoid ideation, and individuals with paranoid ideation are more likely to use psychoactive substances [8]. There is also increasing evidence that socially vulnerable groups are more prone to believing in conspiracy theories, which can further decrease vaccine acceptance [9, 10]. To overcome lower vaccine uptake, some western countries prioritized COVID-19 vaccination for SUD patients. For example, Canada and the United Kingdom implemented targeted vaccination campaigns for high-risk groups, including those with SUD, which resulted in higher vaccination rates in these populations [11]. Furthermore, public health interventions such as mobile vaccination units and partnerships with local organizations have proven successful in increasing vaccination rates in hard-to-reach populations [12].

In Türkiye, although SUD patients were not specifically prioritized, the Turkish Ministry of Health provided free vaccines to all citizens, potentially reducing economic barriers. This initiative likely helped alleviate some economic challenges, but logistical issues, such as transportation to vaccination sites and scheduling difficulties, remain significant obstacles. To date, no studies have been conducted in our country examining vaccination rates and factors affecting them in patients with SUD. We aimed to determine the vaccination status of SUD patients in Türkiye and investigate the factors that may influence it; including clinical data related to COVID-19, paranoid ideation, confidence in vaccines, the type of substance used, and disease severity.

## 2. Materials and Methods

**2.1 Study Design and Participants:** This cross-sectional study was conducted at the İzmir Democracy University Buca Seyfi Demirsoy Training and Research Hospital Probation Clinic. Between February 5 and April 30, 2024, 571 patients applied to the probation clinic. Of these, 367 were evaluated as having SUD. Patients with systemic, neurological, or immunological comorbidities, those under 18 years old or over 45 years old, those under the influence of psychoactive substances, and those who did not wish to participate in the study were excluded. A total of 177 individuals were included in the study.

**2.2 Data Collection:** COVID-19 infection and vaccination-related data were collected through digital health records of the Ministry of Health of the Republic of Türkiye. The Sociodemographic Data Form, The Symptom Checklist-90-Revised (SCL-90-R) paranoid ideation subscale, and The Oxford COVID-19 Vaccine Confidence and Complacency Scale were applied to all participants. SUD severity was determined according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) criteria.

### 2.3 Data Collection Tool

**2.3.1 Sociodemographic Data Form:** This form is developed by the authors and includes 8 questions about the demographic data of the participants (age, education level, marital status, having children, who they live with, employment, health insurance, and loss of loved ones).

**2.3.2 The Symptom Checklist-90-Revised (SCL-90-R):** is a 90-item self-report inventory designed to measure a range of psychological symptoms. It includes nine subscales: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Each item is rated on a Likert scale from 0 (not at all) to 4 (extremely). The psychometric properties of the SCL-90-R are well-established, with high internal consistency (Cronbach's alpha = 0.97 for the overall scale and ranging from 0.77 to 0.90 for subscales) and validated construct validity across different populations (13, 14). The Paranoid Ideation subscale, comprising items 8, 18, 43, 68, 76, and 83, specifically assesses paranoid thoughts and perceptions, such as mistrust and perceived threats from others. This subscale also demonstrates high internal consistency (Cronbach's alpha = 0.87) and confirmed validity through factor analyses, indicating a single-factor structure [15].

**2.3.3 The Oxford COVID-19 Vaccine Confidence and Complacency Scale:** developed by Freeman et al. originally consists of 14 items and 4 subscales, designed to determine attitudes of trust and compliance towards COVID-19 vaccines [16]. However, the original structure could not be confirmed in the Turkish culture. Therefore, the factor structure was redefined using Explanatory Factor Analysis (EFA), and this new structure was tested with Confirmatory Factor Analysis (CFA), resulting in a scale with 12 items and a single subscale. Each item on the scale is rated using a 5-point Likert scale. Additionally, the scale includes a "Don't Know" option, which excludes participants who select this option from the scoring due to uncertainty or misunderstanding of the question. Higher scores on the scale indicate highly negative attitudes towards vaccine confidence and compliance. In the study by Freeman et al. (2022), the Cronbach's Alpha value ranged from 0.77 to 0.90, while in the Turkish adaptation study, it was found to be 0.84 [16,17].

**2.3.4 Statistical Analysis**

Descriptive Statistics: The data was summarized using means, standard deviations, frequencies, and percentages for various demographic and clinical variables. The mean age of the participants was calculated along with the standard deviation.

Group Comparisons: Chi-square ($\chi^2$) tests were employed to assess the associations between categorical variables (e.g., vaccination status and demographic/clinical characteristics such as sex, marital status, having children, living arrangements, employment status, health insurance, and educational level).

Logistic Regression Analysis: Logistic regression analysis was conducted to explore the relationship between COVID-19 vaccination status and various predictors, including the SCL-90 Paranoid Ideation subscale score and the Oxford COVID-19 Vaccine Confidence and Compliance Scale score.

The logistic regression model was used to identify significant predictors of vaccination status and to quantify the effects of these predictors.

**2.3.5 Ethics approval and consent to participate**

The Ethics Committee of İzmir Democracy University Buca Seyfi Demirsoy Education and Research Hospital approved the research protocol (Approval Date: 31.01.2024, Approval No: 2024/235). All subjects were informed of the purpose of the study and provided documented

informed consent. All investigations were conducted in strict adherence to the Declaration of Helsinki.

## 3.Results and Discussion

### 3.1 Results

**3.1.1 Demographic and Vaccination Data:** Of the 177 participants, the mean age was 32.23±0.56, 92.1% (n=163) were male, 35.1% (n=62) were married, 57.6% (n=102) had no children, 83.0% (n=147) were not living alone, 35.6% (n=63) graduated from middle school, 58.8% (n=104) had health insurance, and 67.2% (n=119) were employed. Of the 177 sample, 27.7% (n=49) have never received a COVID-19 vaccine, 10.2% (n=18) received one dose, 32.8% (n=58) received two doses, 24.9% (n=44) received three doses, and 4.5% (n=8) received four doses. No statistically significant relationship was found between vaccination status and having children ($\chi^2 = 1.636$, p = 0.201), sex ($\chi^2 = 1.473$, p = 0.417), marital status ($\chi^2 = 0.168$, p = 0.728), living alone ($\chi^2 = 0.576$, p = 0.503), educational status ($\chi^2 = 2.275$, p = 0.517), employment status ($\chi^2 = 0.143$, p = 0.705), or having health insurance ($\chi^2 = 0.907$, p = 0.341). Table 1.

**3.1.2 COVID-19 Related Data:** According to digital health records of the Ministry of Health of the Republic of Türkiye, the overall COVID-19 testing rate in our sample was 64.4% (n= 114), with 26.6% (n= 47) of participants having tested positive at least once in their lifetime. Only three (1.7%) of the participants were hospitalized due to COVID-19, and only one of them (0.6%) received treatment in the intensive care unit due to COVID-19. Of the participants, 11.2% (n=20) did not experience any loss of loved ones due to COVID-19. No statistically significant association was found between vaccination status and having loss of loved ones due to COVID-19 ($\chi^2 = 3.522$, p = 0.061). No significant relationship was found between positive COVID-19 test results and vaccination status ($\chi^2 = 2.328$, p = 0.089). However, a significant association was found between vaccination status and having taken a COVID-19 test ($\chi^2 = 15.640$, p <0.001). Table 1.

**3.1.3 Substance Use Related Data:** Of the participants, 98 (55.4%) were Tetrahydrocannabinol (THC) users, 45 (25.4%) were Amphetamine (AMPH) users, 13 (7.3%) were Cocaine (COCA) users, and 21 (11.9%) were polysubstance users. Vaccination status was found to be lower in THC users compared to AMPH users (p=0.009). According to DSM-5 criteria, disease severity was classified as mild in 11 (22.4%) individuals, moderate in 14 (28.6%) individuals, and severe in 24 (49%) individuals in the unvaccinated group; while in the vaccinated group, disease severity was mild in 40 (31.3%) individuals, moderate in 47 (36.7%) individuals, and severe in 41 (32%) individuals. There was no association between disease severity and vaccination status (p=0.058). Table 1.

**Table 1** *Comparison of demographic and clinical characteristics of individuals with SUD according to vaccination status*

| | **Total** | **Vaccinated** | **Unvaccinated** | **$\chi^2$** | **p** |
|---|---|---|---|---|---|
| *n* | 177 | 128 (72.3%) | 49 (27.7%) | | |
| *Age* | | | | | |
| 18-25 | 41 (23.1%) | 32 (25%) | 9 (18.4%) | 1.280 | 0.655 |
| 26-35 | 69 (38.9%) | 47 (36.7%) | 22 (44.9%) | | |
| 36-45 | 66 (37.3%) | 48 (37.5%) | 18 (36.7 %) | | |
| *Sex* | | | | | |
| Male | 163 (92.1%) | 116 (90.6%) | 47(95.9%) | 1.473 | 0.417 |
| Female | 13 (7.9%) | 12(9.4%) | 2 (4.1%) | | |
| *Marital Status* | | | | | |
| Married | 62 (35.1%) | 46 (35.9%) | 16 (32.7%) | 0.168 | 0.728 |
| Single/divorced | 115 (64.9%) | 82 (64.1%) | 33 (67.3%) | | |
| *Having Child* | | | | | |
| Yes | 75 (42.3%) | 58 (45.3%) | 17 (34.6%) | 1.636 | 0.201 |
| No | 102 (57.6%) | 70 (54.6%) | 32 (65.3%) | | |
| *Living with* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Family/friends | 147 (83.0%) | 108 (84.4%) | 39 (79.6%) | 0.576 | 0.503 |
| Alone | 30 (17%) | 20 (15.6%) | 10 (20.4%) | | |
| *Employment* | | | | | |
| Yes | 119 (67.2%) | 85 (66.4%) | 34 (69.4%) | 0.143 | 0.705 |
| No | 58 (32.8%) | 43 (33.6%) | 15 (30.6%) | | |
| *Health Insurance* | | | | | |
| Yes | 104 (58.8%) | 78 (60.9%) | 26 (53.1%) | 0.907 | 0.341 |
| No | 73 (41.2%) | 50 (39.1%) | 23 (46.9%) | | |
| *Education level* | | | | | |
| Primary School | 45 (25.4%) | 31 (24.2%) | 14 (28.6%) | 2.275 | 0.517 |
| Middle School | 63 (35.6%) | 48 (37.5%) | 15 (30.6%) | | |
| High School | 56 (31.6%) | 38 (29.7%) | 18 (36.7%) | | |
| University | 13 (7.3%) | 11 (8.6%) | 2 (4.1%) | | |
| *Having COVID-19 test* | | | | | |
| Yes | 114 (64.4%) | 107 (83.6%) | 27 (55.1%) | 15.640 | **0.001*** |
| No | 43 (35.6%) | 21 (16.4%) | 22 (44.9%) | | |
| *COVID-19 test positivity* | | | | | |
| Yes | 47 (26.6%) | 38 (29.7%) | 9 (18.4 %) | 2.328 | 0.089 |
| No | 130 (73.4%) | 90 (70.3%) | 40 (81.6 %) | | |
| *Loss of loved ones* | | | | | |
| Yes | 20 (11.3%) | 18 (14.1%) | 2 (4.1%) | 3.522 | 0.061 |
| No | 157 (88.7%) | 110 (85.9%) | 47 (95.9%) | | |
| *Substance* | | | | | |
| THC | 98 (55.4%) | 79 (61.7%) | 19 (38.8%) | 11.615 | **0.009*** |
| AMPH | 45 (25.4%) | 24 (18.8%) | 21 (42.9%) | | |
| Multi-drug | 21 (11.9%) | 15 (11.7%) | 6 (12.2%) | | |
| COCA | 13 (7.3%) | 10 (7.8%) | 3 (6.1%) | | |
| *Disease Severity* | | | | | |
| Mild | 51 (28.8%) | 40 (31.3%) | 11 (22.4%) | 4.457 | 0.058 |
| Moderate | 61 (34.5%) | 47 (36.7%) | 14 (28.6%) | | |
| Severe | 65 (36.7%) | 41 (32.0%) | 24 (49%) | | |

THC: Tetrahydrocannabinol, AMPH: amphetamine, COCA: cocaine

Group Comparisons: Chi-square ($\chi^2$) tests were employed to assess the associations between categorical variables. *p<0.05

**Paranoid Ideation and Vaccine Confidence**

The mean of the SCL-90 paranoid ideation subscale score was 1.16 ± 0.91 for the unvaccinated group and 1.21 ± 0.86 for the vaccinated group. The mean Oxford COVID-19 Vaccine Confidence and Compliance Scale score was 48.9 ± 18.492 for the unvaccinated group and 31.3 ± 17.035 for the vaccinated group.

In this study, a logistic regression model was used to predict COVID-19 vaccination status. The analysis revealed no significant relationship between COVID-19 vaccination status and the SCL-90 Paranoid Ideation total score (B = 0.031, S.E. = 0.036, Wald = 0.733, p = 0.392). However, the Oxford Vaccine Confidence Scale was found to have a statistically significant negative effect on vaccination status (B = -0.054, S.E. = 0.011, Wald =

26.671, $p < 0.001$, Exp(B) = 0.947). This indicates that as the total score of the scale increases, the probability of vaccination decreases; specifically, each point increase in the scale reduces the probability of vaccination by 5% (Exp(B) = 0.95). The explanatory power of the model, as indicated by the Nagelkerke R Square value, was determined to be 0.268. According to the classification table, the overall accuracy rate of the model is 74.4%.(Table 2)

**Table 2** Logistic Regression Analysis Predicting COVID-19 Vaccination Status

| Variable | B | S.E. | Wald | p-value | Exp(B) |
|---|---|---|---|---|---|
| SCL-90 Paranoid Ideation | 0.031 | 0.036 | 0.733 | 0.392 | 1.031 |
| Oxford Vaccine Confidence Scale | -0.054 | 0.011 | 26.671 | < 0.001 | 0.947 |

Nagelkerke R Square: 0.268; Overall Classification Accuracy: 74.4%

### 3.2 Discussion

We found that more than one fourth of the individuals with SUD have never been vaccinated, and confidence in vaccines and undergoing COVID-19 testing significantly increased vaccine uptake. There was no association between other COVID-19-related variables, demographic data, or paranoid ideation and vaccination status. Although the severity of disease was not associated with vaccination status, we observed lower vaccination rates among THC users compared to AMPH users.

The most striking finding of our study is that confidence in vaccines is the primary factor affecting vaccination. Previous studies have shown that confidence in vaccines is low among patients with substance use disorder [18], and this may lessen their vaccination rates [19, 20]. The reasons for low vaccine confidence in SUD patients can be attributed to a complex interaction of factors such as distrust in the healthcare system, low health literacy, and mental health problems [21, 22, 23]. Health literacy is lower among individuals with SUD compared to the general population [24]. Low health literacy has been shown to negatively affect access to healthcare services and treatment processes [25]. Additionally, mental health problems can lead to negative attitudes toward health interventions such as vaccinations [26]. This patient group often lacks trust in the healthcare system and its providers due to stigma and past negative experiences.

Secondly, we observed that vaccination rates were higher among individuals who underwent a COVID-19 test. However, there was no association between test results and vaccination status. Studies have shown that individuals with a previous diagnosis of COVID-19 are less likely to be vaccinated, believing they have developed natural immunity [26, 27, 28]. Our results may suggest that those who understand the severity of the disease and those who trust COVID-19 tests also have higher confidence in COVID-19 vaccines.

We did not find any association between vaccine uptake and the loss of loved ones or hospitalization due to COVID-19 infection. Contrary to our findings, a survey revealed that those who knew someone who became ill with COVID-19 or died from COVID-19 were more likely to be vaccinated in the general population [28]. This discrepancy might be due to the small number of participants in our study who experienced severe outcomes for themselves or their loved ones. Additionally, our findings may be associated with higher risky behaviors and distorted cognitions among people with SUD.

Interestingly, we did not find any association between paranoid ideation scores and vaccination status in our study. In contrast, previous research among university students has demonstrated a link between vaccination status and paranoid ideation [6]. Almost all substances have the potential to increase or trigger paranoid ideation. Furthermore, socially vulnerable groups are more prone to paranoid ideation and believe in conspiracy theories [6]. Our results may indicate that vaccine hesitancy is more related to a lack of information rather than paranoid personality traits.

We did not find any association between vaccination status and age, having children, sex, marital status, living alone, educational status, employment status, or having health insurance. Previous studies have not found any association between gender, marital status, being employed, and vaccination status in SUD patients, which is consistent with our findings [21, 29, 30]. The results regarding the relationship between vaccination status and age in substance users are conflicting. The data regarding the relationship between having children and vaccination in the general population are also conflicting [31]. Contrary to our findings, a previous

study reported that college graduates were vaccinated more frequently [29]. Providing free vaccinations to every citizen in our country may have eliminated economic barriers such as employment and health insurance.

Finally, while we did not find any difference between substance use severity and vaccination status, we found that THC users were less vaccinated compared to AMPH users. Studies regarding vaccination status in patients with SUD generally do not compare types of substances. However, two earlier studies that compared types of substance use and vaccination status found no differences [18, 29]. Additionally, a study investigating the severity of substance use and vaccination status revealed that an increase in disease severity was associated with lower vaccination rates [4]. These findings are contradictory to ours. Further research is needed in this area.

**Limitations**

The first limitation of our study is its cross-sectional design. Patients with comorbid systemic, immunological, or neurological diseases were not included in our study because these individuals were prioritized for vaccination, which may affect vaccination rates. This exclusion limited our study population. The strengths of our study include the use of digital health records to obtain data on participants' diseases, tests, and vaccinations. Instead of including individuals who reported substance use or sought treatment at a clinic, we focused on those referred to a probation clinic for mandatory treatment. These participants were diagnosed with SUD through psychiatric evaluations and toxicological analyses.

## 4. Conclusion

This study highlights the challenges faced by individuals with Substance Use Disorder (SUD) in achieving vaccine uptake against COVID-19. Despite comprehensive public health initiatives, such as providing free vaccinations, low vaccine confidence continues to impede vaccine uptake in this population. Given these insights, tailored interventions are needed to address the specific barriers faced by SUD patients. Strategies could include enhancing vaccine confidence through targeted education and outreach, leveraging trusted community resources. Additionally, public health policies should consider the unique needs of different substance-using populations to optimize vaccination efforts. Further research is essential to explore the underlying reasons for low vaccine uptake in this vulnerable group and to develop effective strategies to overcome these barriers. By focusing on the specific needs and challenges of SUD patients, we can improve vaccination rates and better protect this high-risk population from COVID-19 and other preventable diseases.


## 5. Acknowledgements

It was also presented as an oral presentation (S-52) at the TPD Annual Meeting and the 2nd International 26th National Clinical Education Symposium held between May 9-12, 2024.


## 6. Declarations

### 6.1 Conflict of Interest

No conflict of interest was declared by the authors.

### 6.2 Abbreviations

SUD: Substance use disorder
SCL-90-R: The Symptom Checklist-90-Revised
DSM-V: Diagnostic and Statistical Manual of Mental Disorders
THC: Tetrahydrocannabinol
AMPH: Amphetamine
COCA: Cocaine
ICU: Intensive Care Unit

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