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Subjective Social Status, Objective Social Status, and Substance Use among Individuals with Serious Mental Illnesses

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Abstract

Subjective social status (SSS) and objective socioeconomic status (OSS) may appear to be similar social determinants of mental health, but are actually independently associated with diverse health outcomes including substance use and substance use disorders (SUDs). Such associations have not been examined among individuals with serious mental illnesses (SMI) despite their high prevalence of comorbid substance use; frequent treatment and recovery complications associated with such use; and high levels of economic disadvantage, discrimination, and inequities in this marginalized population. These psychosocial adversities manifest as poor mental illness outcomes, poor physical health, and early mortality in the SMI population. We hypothesized that both SSS and OSS would predict substance use severity and SUD diagnoses in 240 patients with SMI. SSS, measured by the MacArthur Scale of Subjective Social Status, was unassociated with a composite measure of income and education used to operationalize OSS. Additionally, SSS and OSS were differentially associated with various types of substance use disorders. Only OSS was associated with whether individuals smoked cigarettes, or the level of nicotine dependence. Conversely, only SSS was associated with drug use severity. Our results shed light on the potential for differential impacts of SSS and OSS among persons with SMI.

Keywords

Addiction; Serious mental illnesses; Social status; Socioeconomic status; Substance use; Substance use disorders

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Declaration of interests

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1. Introduction

While health inequities are socioeconomic-based and linked to objective socioeconomic measures such as educational attainment, income, occupational level, and material wealth, others may be related to perceived social status. As such, it is important to measure social status both conventionally through traditional measures, and subjectively through individuals' perceptions. Subjective social status (SSS) measures perceptions of relative social standing in a community or society (Demakakos et al., 2008; Finch et al., 2013). SSS can address perceived inequality regarding economic wealth, educational status, racial/ethnic discrimination, level of occupational power or control, opportunity for advancement, personality variations, and many other factors that objective socioeconomic status (OSS) measures cannot. Consequently, SSS has proven to be a crucial predictor of health outcomes beyond OSS measures alone (Adler et al., 2000; Cundiff & Matthews, 2017; Friestad, 2010; Hegar & Mielck, 2010; Miyakawa et al., 2011; Ostrove et al., 2000; Singh-Manoux et al., 2005). Additionally, several studies have found that SSS does not always correlate with OSS measures (Adler et al., 2008; Cundiff et al., 2013; Demakakos et al., 2008; Goodman et al., 2007; Ostrove et al., 2000), suggesting that both should be measured.

The physical health implications of SSS are substantial. The impacts have been studied in diverse populations, including pregnant women (Ostrove et al., 2000), the elderly (Demakakos et al., 2008), adolescents (Bello et al., 2019; Finch et al., 2013; Ritterman et al., 2009), immigrants (Leu et al., 2008), individuals who are incarcerated (Friestad, 2010), and those who are experiencing homelessness (Garey et al., 2016). SSS has been inversely associated with health outcomes like increased cardiovascular risk (N. E. Adler et al., 2000; Doshi et al., 2016; Ghaed & Gallo, 2007; Hegar & Mielck, 2010; Pieritz et al., 2016), obesity (Lemeshow et al., 2008), diabetes (Demakakos et al., 2008; Doshi et al., 2016), increased pro-inflammatory cytokines and decreased immune function (Cohen et al., 2008; Demakakos et al., 2008; Derry et al., 2013), sleep dysfunction (N. E. Adler et al., 2000; Miyakawa et al., 2011), and mortality (Demakakos et al., 2018). SSS has also been associated with increased risk of adverse health behaviors such as smoking, substance use, poor dietary habits, and inadequate physical activity (Bello et al., 2019; Garey et al., 2016; Ghaed & Gallo, 2007; Reitzel et al., 2013).

A few studies have analyzed the relationship between SSS and mental illnesses, such as substance use disorders, anxiety disorders, and depressive disorders (Scott et al., 2014; Talavera et al., 2018; Zvolensky et al., 2015). SSS is inversely associated with mood and anxiety disorders in various populations, including prisoners (Friestad, 2010), white women (N. E. Adler et al., 2000), Asian immigrants to the United States (Leu et al., 2008), and disadvantaged Latinos (Talavera et al., 2018). Results from the World Mental Health Surveys, which studied 56,085 individuals from 18 different countries around the world, found an inverse relationship between SSS and mental health disorders including anxiety disorders, mood disorders, impulse control disorders, and substance use disorders (SUDs) (Scott et al., 2014). Associations were strongest between SSS and drug dependence. Specifically, low SSS had the highest odds ratio with drug dependence among all the disorders studied, at 9.0 without adjusting for OSS measures, and 4.9 after adjustment (Scott et al., 2014).

Other studies support this association between SSS and substance use. Current research has mostly focused on the adolescent and young adult populations, with findings showing lower SSS to be associated with greater tobacco, marijuana, and polysubstance use (Bello et al., 2019; Finch et al., 2013; Rittnerman et al., 2009). However, Finch et al. (2013) found alcohol use severity among adolescents to remain constant regardless of SSS score. In adult populations, although tobacco use is consistently associated with lower SSS (Garey et al., 2016; Reitzel et al., 2007, 2010), alcohol and marijuana use is linked with both high and low objective socioeconomic status (Lynch et al., 1997; Patrick et al., 2012; Redonnet et al., 2012). Though the relationship between SSS and substance use has been examined in several vulnerable populations, it has yet to be studied in persons with serious mental illnesses (Friestad, 2010; Garey et al., 2016; Talavera et al., 2018). This population frequently reports lower SSS than the general population (Scott et al., 2014; Singh-Manoux et al., 2005) and has a well-documented high risk of comorbid SUDs (Drake et al., 2007; Ziedonis et al., 2003). However, to our knowledge, there is no extant research on SSS and substance use in this population.

Examining SSS and OSS in a sample with SMI is important because of the widespread social and economic disenfranchisement of this population. In a sample of persons with SMI very similar to the sample in our current analysis (nearly evenly split between Caucasians and African Americans; 52% and 46%, respectively) 49% had 11 years of education or less, 8% were homeless, and 85% were unemployed (Compton et al., 2016). Persons with SMI consistently rate themselves lower on the subjective social status ladder than persons without mental illnesses (Scott et al., 2014; Singh-Manoux et al., 2005). They also report significant stigma and discrimination due to their mental illness (Dickerson et al., 2002; Mantovani et al., 2016; Vass et al., 2015).

In this secondary analysis, we used data from a relatively large, well-characterized sample of individuals with serious mental illnesses (SMI) who were participating in a study that happened to measure SSS. Our objectives were threefold. First, we sought to describe SSS ratings in this sample, as well as the correlation between SSS and a composite measure of OSS. Next, we evaluated associations between both SSS and OSS, and substance use severity, as measured by the *Fagerström Test for Nicotine Dependence* (FTND; Heatherton et al., 1991), the *Michigan Alcohol Screening Test* (MAST; Selzer, 1971), and the *Drug Abuse Screening Test* (DAST; Skinner, 1982). We hypothesized that both SSS and OSS would be predictive of substance use severity in this sample. Third, we assessed associations between SSS, OSS, and SUD diagnoses, as determined by the *Structured Clinical Interview for DSM-5: Clinical Version* (SCID-5-CV; First, 2015). Again, we hypothesized that those with alcohol use disorder and drug use disorders would have lower scores for both SSS and OSS. Finally, we secondarily explored associations with specific drug use disorders.

2. Methods

2.1. Setting and Sample

Participants ($n=240$) were recruited as part of a larger study in Southeast Georgia evaluating the effectiveness of a new form of recovery-oriented case management and community navigation (Compton et al., 2011; 2016). The study included adults with SMI recruited from

three inpatient psychiatric facilities—a state psychiatric hospital and two crisis stabilization units. Clinicians referred potentially eligible patients who were then evaluated on capacity to give informed consent and their interest in taking part in a randomized, controlled trial. Eligibility criteria included: (1) 18–65 years of age; (2) English speaking; (3) a clinical diagnosis of a psychotic disorder or a mood disorder (confirmed with the SCID, as below); (4) two separate inpatient psychiatric admissions for two or more days in the past 12 months; (5) absence of known or suspected developmental or intellectual disability, or dementia; (6) absence of active serious medical symptoms that would interfere with study participation; (7) being able and willing to provide written informed consent for research participation; and (8) being discharged to reside within the eight counties served by the public mental health agency hosting the research. Enrollment and baseline assessments occurred as patients were about to be discharged.

The current analysis makes use of baseline data, though participants were followed longitudinally for the larger study. All procedures were reviewed and approved by the university's and the State's Institutional Review Boards.

2.2. Measures and Rating Scales

Research diagnoses were made using the mood disorders, psychotic disorders, and SUD modules of the *Structured Clinical Interview for DSM-5: Clinical Version* (SCID-5-CV; First, 2015)

The *Fagerström Test for Nicotine Dependence* (FTND; Heatherton et al., 1991) assessed physical nicotine addiction on a scale of 0–10, with 10 being the highest level of dependence. Participants are asked six questions that measure the impulse for cigarettes and quantity used daily. The FTND has shown consistent reliability and validity when compared to other measures (Payne et al., 1994; Pomerleau et al., 1994).

The *Michigan Alcohol Screening Test* (MAST; Selzer, 1971) is a clinical screening tool and research instrument that measures the extent of alcohol misuse. Participants are asked questions about their general drinking habits and behaviors such as “Have you ever lost a job because of drinking?” A score >5 indicates a serious alcohol use disorder. The MAST is one of the most widely used measures for assessing alcohol misuse and has shown good reliability and validity (Gibbs, 1983; Storgaard et al., 1994; Zung, 1982).

The *Drug Abuse Screening Test* (DAST; Skinner, 1982) is a self-report measure used to detect problematic drug use, and drug use disorders. Participants are asked questions such as, “Do you abuse more than one drug at a time?” and “Have you gotten into fights while under the influence of drugs?” This measure has shown good validity and reliability in a variety of populations, regardless of whether the 10-, 20-, or 28-item measure was used (Gavin et al., 1989; Villalobos-Gallegos et al., 2015; Yudko et al., 2007). This study utilized the 20-item version.

SSS was measured with the *MacArthur Scale of Subjective Social Status*, which is a picture of a ladder with 10 rungs (Adler and Stewart, 2007). The instructions provided to participants were: “Think of this ladder as representing where people stand in the United

States. At the top of the ladder are the people who are the best off—those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off—who have the least money, the least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. Where would you place yourself on this ladder? Please place a large “X” on the rung where you think you stand at this time in your life, relative to other people in the United States” (Adler and Stewart, 2007). As such, higher rungs and higher scores indicate greater SSS. Although the measure has been used extensively in psychiatric and physical health studies, it does not appear to have made its way into clinical practice. In research settings, it has been used in diverse populations (Ostrove et al., 2000), (Demakakos et al., 2008), (Bello et al., 2019; Finch et al., 2013; Rittnerman et al., 2009), (Leu et al., 2008), (Friestad, 2010), (Garey et al., 2016). This test has been shown to have test-retest reliability (Giatti et al., 2012; Operario et al., 2004), and validity has been documented in the U.S. and internationally (Adler et al., 2000; Miyakawa et al., 2011; Scott et al., 2014; Singh-Manoux et al., 2005).

To derive a measure of OSS, we averaged *z*-scores for participants’ total monthly income, participants’ highest level of education achieved, participants’ parents’ highest level of education achieved, and participants’ parents’ highest occupation. Specifically, participants’ mother’s and father’s Hollingshead-Redlich (Hollingshead & Redlich, 2007) scores (which range 1–9 based on highest occupation) were averaged for a single parental occupation measure. When data was only available for the mother or the father, the single value was used. The same process was used for parents’ highest educational level. We had mother’s occupation data for 190 participants and father’s occupation data for 167 participants, resulting in a parent occupation measure for 204 individuals. Likewise, 185 participants had data for mother’s educational level and 137 had data for father’s educational level, resulting in 192 participants with a parental educational measure. The *z*-scores of these two measures were averaged with the *z*-scores of the participant’s total monthly income and highest level of education to derive our overall measure of OSS.

2.3. Data Analyses

Distributional properties and descriptive statistics were examined for all variables. Bivariate tests included Pearson’s correlations and independent samples Student’s *t*-tests. For all of the outcomes variables of interest (smoking cigarettes, FTND score, MAST score, DAST score, presence of a SUD based on the SCID, presence of an AUD, and presence of a cannabis use disorder), we conducted multiple linear regression or binary logistic regression models using the enter method with the following predictors: age, gender, race, mood versus psychotic disorder, SSS, and OSS.

3. Results

3.1. Sociodemographic and Clinical Characteristics of the Study Sample

Sociodemographic characteristics of the study sample are shown in Table 1. The sample was split nearly evenly between those who identified as Black or African American and White (47.5% and 48.3%, respectively), and the vast majority did not identify as Hispanic or

Latino (95.0%). The majority of participants (155, 64.6%) were male, and the average age was 35.9 ± 11.6 years. The majority (148, 61.7%) were single and never married. Prior to their current hospitalization, 83 (34.6%) lived with parents or other family members, 69 (28.8%) were experiencing homelessness, 43 (17.9%) lived with friends or significant others, and 31 (12.9%) lived alone. The sample was socioeconomically disadvantaged, with 208 (87.0%) being unemployed, an average educational attainment of 11.0 ± 2.7 years, and an average monthly income of $\$450.5 \pm 653.0$. Over half (155, 64.6%) had a psychotic disorder, and 147 (61.3%) had a co-occurring SUD (with alcohol and cannabis use disorders being the most common).

3.2. Subjective Social Status and Objective Social Status

SSS data, from the Social Status Ladder, were available for 236 (98.3%) participants. The mean score was 4.0 ± 2.4 , and the mode was 5. The distribution of scores is shown in Figure 1. Our OSS composite measure was not associated with SSS ($r = .095$; $p = .146$). Associations between SSS and OSS and age, gender, race, and diagnostic category are shown in Table 2. Age was significantly, though weakly, negatively correlated with SSS ($r = -.197$, $p = .002$), but it was not associated with OSS. Race, gender, and psychotic versus mood disorder were all significantly associated with SSS. Only gender was associated with OSS, with females having a higher mean OSS score ($t = 3.105$, $df = 238$, $p = .002$). On the other hand, males had a significantly higher SSS score (4.3 ± 2.5) in comparison to females (3.6 ± 2.2 ; $t = 1.791$, $df = 234$, $p = .050$). Participants identifying as Black or African American also had a higher mean SSS score than White participants (4.5 ± 2.4 compared to 3.6 ± 2.4 ; $t = 2.644$, $df = 224$, $p = .009$). Individuals with a psychotic disorder had a significantly higher mean SSS score (4.5 ± 2.5), as compared to those with a mood disorder (3.3 ± 1.9 ; $t = 3.877$, $df = 234$, $p < .001$). Because Black participants were more likely to have a psychotic disorder diagnosis, we conducted secondary t -tests of SSS with diagnosis stratified by race and found this pattern persists across both Black ($t = 2.798$, $p = .006$) and White participants ($t = 1.914$, $p = .058$), though the association among White participants was just less than significant.

Because of the significant associations of age, gender, race, and diagnosis with SSS—and gender with OSS—we ran preliminary tests for every regression model to examine for interaction terms, but the only interaction term that was significant and thus included in the final model was between gender and SSS in the model for MAST. The results of all of the binary logistic regression models can be seen in Table 3, and the linear regression models in Table 4.

3.3. SSS, OSS, and Cigarette Smoking and Nicotine Dependence

SSS was not associated with whether individuals smoked cigarettes, nor with FTND scores among smokers. However, OSS was associated with both measures: those who reported smoking cigarettes had lower OSS scores than those who did not ($t = 2.003$, $df = 237$, $p = .046$), and OSS was associated with total FTND scores ($r = -.18$, $p = .006$). In the binary logistic regression model for smoking cigarettes and the linear regression model for total FTND score models, OSS was the only significant independent predictor.

3.4. SSS, OSS, and MAST and DAST

SSS was modestly associated with both MAST ($r=-.15$, $p=.021$) and DAST ($r=-.17$, $p=.008$) scores, though OSS was not. The inter-correlation between MAST and DAST was .40 ($p<.001$). The linear regression model with all of the predictors explained 10.5% of the variance in total MAST score, and diagnosis ($\beta=-.198$, $p=.007$) was a significant predictor even while controlling for the other predictors ($F=3.636$, $df=7$, $p=.001$), with those with mood disorders having higher scores than those with psychotic disorders. The model for DAST scores explained 7.3% of the variance in total scores with two variables as independent predictors: SSS ($\beta=-.165$, $p=.018$) and age ($\beta=-.200$, $p=.005$) (model: $F=2.867$, $df=6$, $p=.010$).

3.5. SSS, OSS, and Substance Use Disorders

Mean SSS scores were significantly lower among those with any SUD ($t=2.158$, $df=234$, $p=.032$), amphetamine/stimulant use disorder ($t=2.254$, $df=234$, $p=.025$), and opioid use disorder ($t=2.562$, $df=234$, $p=.011$), but SSS was not significantly associated with alcohol, cannabis, cocaine, or other SUD. Figure 2 graphically depicts the magnitude of associations of SSS scores with SUDs by comparing those with each respective SUD to those without. It should be noted that many individuals exhibited multiple SUDs; Table 5 shows the prevalence of co-occurring diagnoses. The only SUD that was associated with OSS was cocaine use disorder: individuals with cocaine use disorder had lower OSS than those without ($t=2.955$, $df=238$, $p=.003$).

The binary logistic regression model for presence of any SUD ($\chi^2=10.089$, $df=6$, $p=.121$) was not significant. Because the presence of a cannabis use disorder was associated with a slightly *higher*, rather than lower, SSS score (though the association was not significant), we reran the binary logistic regression for the presence of any SUD while excluding those with cannabis use disorder. In this model, both SSS ($B=-.194$, $p=.014$) and OSS ($B=-.575$, $p=.050$) independently predicted the presence of a SUD while controlling for the other predictors ($\chi^2=14.990$, $df=6$, $p=.020$).

Given their prevalence in this sample, we chose to further examine alcohol use disorder and cannabis use disorder. For both models, only age remained a significant predictor after controlling for all other variables: increasing age increased the likelihood of AUD, while younger age was associated with having cannabis use disorder. The models explained 7.5% of the variance in likelihood of AUD ($\chi^2=12.554$, $df=6$, $p=.051$) and 12.1% of the variance for cannabis use disorder ($\chi^2=20.741$, $df=6$, $p=.002$).

4. Discussion

Several findings are noteworthy. In this sample of individuals with psychotic and mood disorders, an objective measure of socioeconomic status (including income, educational attainment, parental educational attainment, and parental highest occupation) was not associated with perceived social status. This is consistent with previous findings in other marginalized and minority populations (N. Adler et al., 2008; Cundiff & Matthews, 2017; Demakakos et al., 2008; Goodman et al., 2007; Ostrove et al., 2000). In these populations,

normalized standards for SES may not accurately reflect internalized or perceived social status. Miyakawa et al. (2011) found that only 35% of the variance in SSS was predicted by conventional objective SES measures. SSS takes lifetime perspectives and experiences into account, potentially detecting effects of pervasive discrimination against marginalized groups, such as those with SMI. However, several studies found significant correlations between traditional SES measures and SSS even in marginalized populations, though we did not (Garey et al., 2016; Reitzel et al., 2013). Additional research is needed to clarify these associations or lack thereof.

Although SSS measures social standing relative to others, results can differ based on the population the sample is comparing itself to. For instance, asking participants to compare themselves to others in the U.S. as opposed to others with SMI may illicit different responses. To better represent marginalized populations, a community version of the McArthur scale has been developed that asks participants to rate themselves within their community, rather than the U.S. overall, and it has shown reliability in minority and marginalized groups (Reitzel et al., 2013). Consequently, including both approaches to SSS in health-related research is necessary to better understand how perceived social hierarchy is associated with health outcomes—including those pertaining to substance use and addiction—across diverse populations.

Of note, our results showed that African Americans had significantly higher mean SSS scores than White participants. Similarly, Goodman (2007) found the same in a sample of adolescents without SMI. Goodman (2007), however, made the following association: “black teens from families with low parental education had higher SSS than white teens from similarly educated families, while white teens from highly educated families had higher SSS than black teens from highly educated families.” It is possible that this relationship between educational attainment and SSS may help explain our data as our average participant had 11.0 ± 2.7 years of education, indicating that the average participant did not complete high school. We also found that participants with psychotic disorders had higher mean SSS scores than participants with mood disorders. Individuals with psychotic disorders frequently over-estimate their current functioning, while people with mood disorders are typically more accurate in their assessment (Sabbag et al., 2012); this pattern may extend to self-assessments of social status.

Cigarette smoking, and the level of nicotine dependence, were associated with OSS but not SSS. This pattern of higher tobacco use in economically disadvantaged populations is well documented throughout the world (Barnett et al., 2009; Cavelaars et al., 2000; Hiscock et al., 2012; Martell et al., 2016). Studies with African American and female adults without SMI found smoking to be unassociated with SSS, but found correlations between SSS and several other health behaviors (Ghaed & Gallo, 2007; Reitzel et al., 2013). Several studies in adolescents found smoking to be associated with both OSS and SSS, but in adolescents, this may be confounded by the fact that traditional measures of SES in teens are primarily a measure of parental SES (Bello et al., 2019; Finch et al., 2013). Although some studies find SSS associated with smoking habits, several find that level of education (part of our OSS measures) predicts smoking habits better than SSS or other traditional measures of SES (Reitzel et al., 2007; Stuber et al., 2008). It is possible that the additional constructs

encompassed by the single SSS measure do not relate to increased smoking risk in our sample of socioeconomically disadvantaged persons with SMI, but that their low education status (11.0 ± 2.7 years) does significantly contribute. Furthermore, there might be less stigma associated with smoking cigarettes compared to other substances: perhaps smoking does not lower one's perceived social status as much as other drug use.

Perceived social status was associated with DAST scores, the presence of any SUD, the presence of amphetamine/stimulant use disorder, and the presence of opioid use disorder. Furthermore, both SSS and OSS were independently associated with the presence of any SUD when excluding those with cannabis use disorder. These findings help alleviate the dearth of SSS research among individuals with SMI, Fwho are known to have high rates of comorbidity. Our study and others show that traditional measures of SES and SSS can have differential impacts on various types of substance use (Bello et al., 2019; Finch et al., 2013). To further explore these variations, more research should be population-specific to discern more reliable patterns. Although much of the research on substance use and SSS has been done in adolescents and young adults, our results show the need for more research in the adult population, as well as in marginalized groups like those with SMI.

We found that MAST was modestly correlated with SSS, but not with OSS. Additionally, MAST score was higher in those with a mood disorder, than those with a psychotic disorder, even while controlling for all other predictor variables. This is similar to results from the Epidemiologic Catchment Area study ($n=20,291$), which indicated that found 46.2% of those with bipolar I disorder had an AUD, while 33.7% of those with schizophrenia did (Regier et al., 1990). This could be because mood disorders typically have more depressive symptomology than psychotic disorders and participants use alcohol as a readily available mood-altering substance. Interestingly, only age was associated with AUD (older participants were more likely to have AUD).

Several methodological limitations must be acknowledged. First, although internal validity is high given the relatively homogeneous nature of the sample, generalizability or external validity might be limited given its particular sociodemographic and clinical characteristics. For example, all participants were enrolled from public-sector inpatient settings, indicating a high level of socioeconomic disadvantage and clinical severity. Second, our data are cross-sectional; as such, directionality of observed associations cannot be established. Although several of the components of our composite OSS measure clearly pre-dated participants' substance use (e.g., parental educational attainment and parental highest occupation), others (like the participant's income) did not necessarily pre-date substance use. Additionally, the SSS measure could be a causal risk factor for substance use severity and SUDs, the presence of substance use and SUDs could be a predictor or driver of SSS, or the relationship could be reinforcing in nature. Longitudinal research is needed to elucidate directionality and causality. Finally, SUDs do not occur in isolation and there was substantial comorbidity across SUDs. This, however, is expected in a real-world sample, thus making our findings more generalizable.

It is well known that individuals living with SMI are usually of lower socioeconomic status, face discrimination, and experience many other types of inequities. These social

determinants of mental health set the stage for worse mental illness outcomes, for more serious negative physical health outcomes, for early mortality, and for comorbid SUDs. Clinicians routinely have access to their clients' OSS measures, such as educational attainment, employment status, and potentially even income. Our findings that OSS and SSS are differentially associated with various types of substance use disorders highlights the need for clinicians to routinely investigate their patients' perspective on their place in society in addition to traditional measures of socioeconomic status. Furthermore, the fact that problematic substance use correlated with any measure of social status (traditional SES or perceived) highlights the far-reaching effects of social and economic inequities and the urgent need for social and policy reform, especially for raising up the most vulnerable populations. Additional research is necessary to specify the mechanisms by which SSS and OSS differentially impact substance use to inform both clinical programming and public policy.

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Highlights

- Two similar types of social determinants of mental health, objective socioeconomic status and subjective social status (one's perceived place in society), were unrelated in this sample and were differentially associated with various types of substance use among individuals with serious mental illnesses.
- Objective socioeconomic status, but not subjective social status, was associated with whether individuals smoked cigarettes, and the level of nicotine dependence among smokers.
- Subjective social status, but not objective socioeconomic status, was associated with drug use severity and the presence of a substance use disorder.

Figure 1.
Distribution of Subjective Social Status Scores, $n=236$

Figure 2.
Magnitude of Mean Differences in Subjective Social Status Scores by SUD Diagnoses

Table 1.Sociodemographic and Clinical Characteristics of the Study Sample ($n=240$)

Age, years (mean $\pm$ SD)	35.9 $\pm$ 11.6
Sex, male	155 (64.6%)
Ethnicity, non-Hispanic	228 (95.0%)
Race	
<i>Black or African American</i>	114 (47.5%)
<i>White</i>	116 (48.3%)
<i>Other (e.g., identified with more than once race or as Hispanic)</i>	10 (4.2%)
Marital status	
<i>Single and never married</i>	148 (61.7%)
<i>Divorced, separated, or widowed</i>	78 (32.5%)
<i>Married or living with a partner</i>	14 (5.8%)
Years of education completed ($n=238$)	11.0 $\pm$ 2.7
Living situation	
<i>With parents, siblings, or other family members</i>	83 (34.6%)
<i>Homeless, or staying in a homeless shelter</i>	69 (28.8%)
<i>With friends, boyfriend/girlfriend, or spouse/partner</i>	43 (17.9%)
<i>Alone</i>	31 (12.9%)
<i>Other</i>	14 (5.8%)
Currently unemployed ($n=239$)	208 (87.0%)
Total monthly income, including those with no income, USD	450.5 $\pm$ 653.0 ^a
Total monthly income, among those with an income, USD ($n=153$) ^b	706.6 $\pm$ 698.9 ^c
DSM-5 SCID psychotic and mood disorder diagnoses	
<i>Psychotic disorder</i>	155 (64.6%)
<i>Bipolar disorder</i>	51 (21.2%)
<i>Depressive disorder</i>	34 (14.2%)
DSM-5 SCID substance use disorder diagnoses	
<i>Any substance use disorder</i>	147 (61.3%)
<i>Alcohol use disorder</i>	81 (33.8%)
<i>Cannabis use disorder</i>	83 (34.6%)
<i>Cocaine use disorder</i>	29 (12.1%)
<i>Amphetamine/related stimulants use disorder</i>	22 (9.2%)
<i>Opioid use disorder</i>	18 (7.5%)
<i>Other substance use disorder</i>	18 (7.5%)

^a median monthly income = \$194.0^b 87 participants reported a monthly income of \$0^c median monthly income = \$566.0

Table 2.

Associations between OSS / SSS and Age, Gender, Race, and Diagnostic Category

	<i>Subjective Social Status (n=236)</i>		<i>Objective SES (n=240)</i>	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Age	-.197	.002	-.071	276
	<i>mean±SD</i>	<i>p</i>	<i>mean±SD</i>	<i>p</i>
Gender				
<i>Male</i>	4.3±2.5		-.109±.627	
<i>Female</i>	3.6±2.2	.050	.156±.641	.002
Race				
<i>Black or African American</i>	4.5±2.4		-.030±.681	
<i>White</i>	3.6±2.4	.009	-.009±.611	.808
Diagnosis				
<i>Psychotic disorder</i>	4.5±2.5		-.017±.661	
<i>Mood disorder</i>	3.3±1.9	<.001	-.012±.614	.958

Table 3.

Binary Logistic Regressions for SCID-5 Substance Use Disorders

	Smoker (Yes/No), <i>n</i> =225			Any SUD, <i>n</i> =226			Alcohol Use Disorder, <i>n</i> =226			Cannabis Use Disorder, <i>n</i> =226			Any SUD (excluding Cannabis), <i>n</i> =149		
	B	SE B	OR	B	SE B	OR	B	SE B	OR	B	SE B	OR	B	SE B	OR
Constant	1.590	.88 2	4.906	1.358	.66 9	3.888	-1.837	.72 0	.159	1.406	.77 4	4.080	-.5 52	.87 2	.576
Gender ^a	.468	.34 9	1.597	.427	.30 1	1.532	.386	.31 6	1.472	.305	.32 6	1.357	.35 2	.36 8	1.421
Age	-.01 3	.01 5	.987	-.01 5	.01 3	.985	.030	.01 3	1.030 ^{**}	-.05 3	.01 5	948 ^{***}	.01 3	.01 6	1.013
Race ^b	.335	.35 6	1.39 7	-.02 9	.29 9	.971	.314	.30 8	1.369	-.46 1	.31 2	.630	.37 9	.36 7	1.460
Diagnosis ^c	-.02 8	.39 3	.973	.006	.33 1	1.006	-.203	.33 2	.816	-.12 6	.34 9	.882	.12 7	.40 6	1.135
Subjective Social Status	-.05 2	.07 2	.949	-.14 4	.06 2	.866 ^{**}	-.050	.06 5	.951	-.02 9	.06 5	.971	-.1 94	.07 9	.824 ^{**}
Objective SES	-.46 5	.26 2	.628 [*]	-.22 4	.22 2	.799	-.087	.23 2	.917	.160	.23 2	1.174	-.5 75	.29 4	.563 ^{**}
	Smoker (Yes/No)			Any SUD			Alcohol Use Disorder			Cannabis Use Disorder			SUD (excludes Cannabis)		
Nagelkerke <i>R</i> ²	.055			.059			.075			.121			.128		
Chi-Square	8.185			10.089			12.554			20.741			14.990		
<i>df</i>	6			6			6			6			6		
<i>p</i>	.225			.121			.051			.002			.020		

^aGender: 0=female, 1=male^bRace: 0=Black, 1=White^cDiagnosis: 0=mood, 1=psychotic^{*}*p*<.10;^{**}*p*<.05;^{***}*p*<.01

Table 4.

Multiple Linear Regression Results for Substance Use Scales

	MAST, <i>n</i> =226			DAST, <i>n</i> =224			FTND, <i>n</i> =177		
Predictor	B	SE B	β	B	SE B	β	B	SE B	β
(Constant)	1.203	.886		8.381	1.447		4.890	.840	
Gender ^a	.150	.365	.028	-.025	.635	-.003	-.535	.356	-.117
Age	.018	.016	.080	-.077	.027	-.200***	-.005	.015	-.029
Race ^b	.418	.357	.080	.364	.626	.041	.635	.357	.147*
Diagnosis ^c	-1.076	.395	-.198***	-.967	.690	-.104	.157	.384	.035
Subjective Social Status	.076	.125	.070	-.307	.129	-.165**	.049	.070	.055
Objective SES	-.186	.265	-.046	-.608	.463	-.088	-.695	.266	-.200***
SSL X Gender	-.216	.153	-.162						
R ²	.105			.073			.065		
<i>F</i>	3.636			2.867			1.968		
<i>df</i>	7			6			6		
<i>p</i>	.001			.010			.073		

MAST=Michigan Alcohol Screening Test, DAST=Drug Abuse Screening Test, FTND= Fagerström Test for Nicotine Dependence

^aGender: 0=female, 1=male^bRace: 0=Black, 1=White^cDiagnosis: 0=mood, 1=psychotic*
p<.10;**
p<.05;***
p<.01

Table 5.

Occurrence of Comorbid Substance Use Disorders

	Alcohol	Cannabis	Cocaine	Amphetamine	Opioid	Other
1. Alcohol		42.0% *	21.0%	9.9%	14.8%	9.9%
2. Cannabis	41.0%		16.9%	10.8%	8.4%	14.5%
3. Cocaine	58.6%	48.3%		3.4%	13.8%	13.8%
4. Amphetamine	36.4%	40.9%	4.5%		13.6%	22.7%
5. Opioid	66.7%	38.9%	22.2%	16.7%		38.9%
6. Other **	61.1%	66.7% %	22.2%	27.8%	38.9%	

* Percentages represent within row proportions, so this cell shows that 42.0% of those with an alcohol use disorder also have a cannabis use disorder

** Other SUD includes sedatives, inhalants, phencyclidine, other hallucinogens, unknown SUD