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Denial and Diagnosis of Methamphetamine Dependence Severity

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ABSTRACT

INTRODUCTION: Denial, or lack of awareness of problems related to substance misuse, is a common feature of drug use disorders and can affect engagement in treatment and recovery. This study tested for association of denial with severity of symptoms used in the diagnosis of Methamphetamine Dependence.

METHODS: This secondary analysis used data from 69 participants (52.2% male) who met criteria for the diagnosis of Methamphetamine Dependence on the Structured Clinical Interview for DSM-IV (SCID). The association between diagnostic severity, determined from a SCID summary score (8 items), and denial, measured by the *University of Rhode Island Change Assessment Scale* (URICA) Precontemplation score, was tested by Pearson correlation. In post hoc *t*-tests, participants who differed on individual SCID items were compared on the Precontemplation score. The additional URICA subscales (Contemplation, Maintenance, Action) were also tested on a secondary basis.

RESULTS: SCID summary scores were negatively correlated with URICA Precontemplation scores ($P = .003$). Post-hoc tests revealed that participants who denied continued methamphetamine use despite persistent or recurrent problems (SCID item 6) had significantly higher Precontemplation scores than those who endorsed these problems ($t = 3.066$, $P = .003$). In contrast, positive correlations were observed between diagnostic severity and greater openness/willingness to change on the URICA (eg, Maintenance, $r = .26$; $P = .01$).

CONCLUSIONS: The findings highlight the importance of a patient's insight regarding their addiction in clinical diagnosis. Because minimizing the impact of methamphetamine use may preclude or delay treatment, it is advised that self-report be supplemented to improve accuracy of diagnosis.

KEYWORDS: Insight, denial, diagnosis, Methamphetamine Use Disorder, URICA Scale, Methamphetamine Dependence

Introduction

For people with substance use disorders, denial of untoward consequences from their actions is common and can affect commitment to treatment. In 2019, 96% of untreated individuals with a substance use disorder in the previous year denied needing treatment.[1] Psychodynamic approaches toward addiction encourage accountability and minimizing denial; and 12-step programs, such as Alcoholics Anonymous, target denial by encouraging clients to acknowledge that they have lost control over addictive behavior, with a focus on accountability-centered goals. Among participants who had polysubstance misuse and attended Alcoholics Anonymous or Narcotics Anonymous, the number of days in attendance was associated with decreased self-deception measured in a follow-up assessment.[2] The transtheoretical model of behavior change likewise posits that changing addictive behavior relies on a transition from lack of recognition that a problem exists to increased awareness and motivation to change.[3]

The rostral anterior cingulate cortex (rACC), which participates in self-related processing, including self-awareness, has been implicated in personal relevance of drug-related stimuli, as is the ventromedial prefrontal cortex, which contributes to decision making.[4] In an fMRI study, denial of methamphetamine-related problems was negatively related to resting-state connectivity between the rACC and precuneus.[5] Among participants who met diagnostic criteria for Methamphetamine Dependence (equivalent to Methamphetamine Use Disorder, moderate to severe),[6] denial of methamphetamine-related problems correlated negatively with overall cognitive function and with rACC connectivity to frontal lobe regions, including the precentral gyri, left ventromedial prefrontal cortex, and left orbitofrontal cortex.[5] These data implicate the rACC and its

connections in a person's ability to acknowledge problematic aspects of their substance use.

One of the most important clinical measurements, the diagnosis of a substance use disorder, involves clinical judgment, but self-reports are very important. Structured diagnostic interviews, such as the Structured Clinical Interview for DSM-IV (SCID) or Mini-International Neuropsychiatric Interview (MINI), query self-reports of symptoms indicating craving, tolerance, withdrawal, and interference with activities of daily living. Although interview guidelines encourage the use of referral notes, records, and observations of friends and family,[7] diagnosis often relies on interview with the client alone. In these interviews, denial of problems related to substance use is common and can alter diagnosis.

This study sought to clarify how a diagnostic measure of Methamphetamine Dependence (SCID for DSM-IV) that relies on self-report is related to a participant's denial of his or her addiction problem. Participants comprised a sample of 69 individuals who acknowledged enough symptoms on the SCID to meet criteria for the diagnosis of Methamphetamine Dependence. They also completed the University Rhode Island Change Assessment Scale (URICA), which assesses motivation for change by providing scores on 4 stages of change: *Precontemplation*, Contemplation, Action and Maintenance. The Precontemplation score measures the respondent's denial that their drug problem warrants change,[8,9] and is based on a transtheoretical model of addiction.[10] In a prior study, the Precontemplation score was positively related to years of heavy methamphetamine use and arrests for drug offenses,[5] supporting the notion that high scores reflect denial rather than the absence of problems. We hypothesized the Precontemplation score would correlate negatively with symptom severity, confounding the diagnosis.

Methods

Participants

A quasi-experimental, non-intervention design was employed using secondary data analysis. Other studies of the parent dataset have been published.[5,11-18] Participants, recruited using internet and local newspaper advertisements, provided written informed consent, following the guidelines of the UCLA Office for Protection of Research Subjects. This analysis included data from 69 participants.

Detailed inclusion/exclusion criteria are published.[5] In brief, participants were fluent in English, met criteria for Methamphetamine Dependence but not diagnoses related to drugs other than methamphetamine, cannabis, or tobacco; or for any Axis-I psychiatric disorders other than those related to drug abuse (eg, methamphetamine-induced mood disorders). They had a positive urine test for methamphetamine at screening but were not seeking treatment and were otherwise healthy. Participants received monetary payment for their time.

Measures

The Structured Clinical Interview for DSM-IV (SCID) was used for diagnosis.[7] For the diagnosis of Methamphetamine Dependence, the SCID includes 8 items with response options ranging from "1" to "3" (see below). The first item captures frequency of use, with responses of "1" ("Never used drug, used 1x, or taken only as prescribed"), "2" ("Used drug <2x, but >10x in 1 month"), and "3" ("Used drug <10x in 1 month, reports prescription dependence, or uses more than directed"). The 7 other items were: "Often taken in larger amounts or over longer period"; "Persistent desire/unsuccessful efforts to cut down"; "Time spent obtaining or recovering from substance"; "Important activities given up or reduced"; "Use continued despite persistent or recurrent physical or psychological problems"; "Tolerance—Increased amounts/diminished effect"; and "Withdrawal—characteristic symptoms/substance taken to avoid." These 7 items were scored as "1" (not present), "2" (sub-threshold), or "3" (present). Responses to the 8 items were used to create a summary score with a possible range of 8 to 24, with higher scores indicating greater severity.

Participants completed the University of Rhode Island Change Assessment (URICA), a measure of the motivation to change behavior that is based on the Transtheoretical Model.[10] The model proposes that the motivation to change one's behavior undergoes a series of stages, beginning with denial or a lack of recognition that a problem exists and needs to be changed (Precontemplation), followed by increased recognition and motivation to initiate change (Contemplation, Action, Maintenance). The Precontemplation score was used to assess the respondent's denial that their drug problem warrants change, in which participants responded to 8 items as they related to their methamphetamine use (eg, As far as I'm concerned, I don't have any problems that need changing; I would rather cope with my faults than try to change them; It doesn't make much sense for me to be here; I have worries but so does the next guy. Why spend time thinking about them?). Response options were "strongly disagree" (1), "disagree" (2), "undecided" (3), "agree" (4), and "strongly agree" (5). Responses to the 8 items were averaged with a possible range of 1 to 5, with higher scores indicating greater denial. The additional URICA subscales (Contemplation, Action, Maintenance) were also tallied and analyzed on a secondary basis.

Statistical Analyses

Using SPSS v24.0, a bivariate Pearson correlation was used to test association of the SCID summary score for Methamphetamine Dependence and the URICA Precontemplation score. To explore which items of the SCID scale were related to Precontemplation, the individual SCID items were categorized as "present" (response of 1) or "absent" (response of 2 or 3) and *t*-tests were run to compare the Precontemplation scores of participants who had these dichotomized responses on the

individual SCID items [these *t*-tests were used because the range on individual SCID items was too restrictive for correlation (ie, 1-3)].

Results

Participants were on average 34 years old and had the following ethnic distribution: 40.6% Caucasian, 33.3% Hispanic/Latino, 10.1% other, 10.1% African American, 4.3% Asian American, and 1.4% Native American. Most were unemployed (75.4%) and never married (66.7%) (see Table 1). Although there was variation, on average they had a history of heavy methamphetamine use of 9 years ($\pm$8.2 SD years, N = 63). Self-reports of drug and alcohol use in the month before participation in this study were on average: 24 ($\pm$8.0) days for methamphetamine, 7.2 ($\pm$11 days) for cannabis, 2.9 ($\pm$4.1 days) days for alcohol. Most of the participants (83.3%) also smoked cigarettes. The average score on the SCID was 22 (SD = 2.4) and the average URICA Precontemplation score was 2.0 (SD = 0.59).

SCID summary scores and the URICA Precontemplation scores were negatively correlated, $r(69) = -.355$, $P = .003$. Post hoc *t*-tests comparing URICA Precontemplation scores of participants who rated the SCID item as present or absent indicated that only SCID Item #6 ("Use continued despite persistent or recurrent problems") separated participants based on their URICA Precontemplation scores, $t(67) = 3.066$, Cohen's $d = 0.877$, $P = .003$ (Table 2). Participants who had the SCID item as "present" had lower URICA precontemplation scores ($M = 1.9$, SD = 0.55) than those with SCID item rated as "absent" ($M = 2.4$, SD = 0.59).

In contrast to the Precontemplation score, positive correlations were found between the SCID summary score and the URICA Contemplation score, $r(69) = .263$, $P = .029$, and the URICA Maintenance score, $r(69) = .309$, $P = .010$, indicating that greater openness/commitment to change was associated with higher SCID scores (the Action subscale was nonsignificant, $P > .05$).

Conclusions

Negative correlation between severity of Methamphetamine Dependence on the SCID and the URICA Precontemplation score highlights the importance of a patient's understanding and openness during the diagnostic process. Denial that their behavior warrants change can affect the disease course and recovery. In extreme cases, minimizing the impact of drug use may exclude an individual from treatment; for example, when a positive diagnosis is required for coverage by insurance.

Measures other than self-reports may facilitate objective diagnosis, particularly for those who exhibit denial. Clinicians may utilize narratives from family members, medical documents, and legal histories to compliment the patient's self-reported experience to assist in making an assessment. If denial is indeed a driver of severity of the disease, then identifying its neural substrates may point to anatomical sites amenable to

Table 1. Characteristics of participants.[a]

Demographics	
Sex (% Male)	52.2
Age (years), M (SD)	34 (9.5)
Shipley verbal, M (SD)	28 (4.5)
Education (years), M (SD)[b]	13 (1.3)
Ethnicity	
Caucasian (%)	40.6
Hispanic/Latino (%)	33.3
Other (%)	10.1
African American (%)	10.1
Asian American (%)	4.3
Native American (%)	1.4
Employment (N = 68)	
Full time (%)	8.7
Part time (%)	14.5
Unemployed (%)	75.4
Marital status	
Never Married (%)	66.7
Married (%)	10.1
Divorced (%)	13.0
Separated (%)	7.2
Widowed (%)	2.9
Substance Use[c]	
Smoked cigarettes (% yes)[d]	83.3
Alcohol days, M (SD)[e]	2.9 (4.1)
Marijuana days, M (SD)[f]	7.2 (11)
Methamphetamine days, M (SD)[f]	24 (8.0)
Years heavily used methamphetamine, M (SD)	9.0 (8.2)

[a]All met DSM IV criteria for Methamphetamine Dependence, N = 69 unless otherwise stated.
[b]N = 67.
[c]Self-report of use in the month before testing.
[d]N = 66.
[e]N = 63.
[f]N = 67.

intervention. Other barriers to treatment for Methamphetamine Use Disorder have been documented. These include psychosocial reasons, such as stigma or embarrassment, and the view that treatment is unnecessary or that methamphetamine use is not problematic.[19] Denial may reflect cognitive dysfunction. In samples of participants with Alcohol Dependence or Methamphetamine Dependence, higher scores of denial were

Table 2. Comparison of URICA precontemplation scores in participants with SCID items "present" versus those with the item "absent."

SCID ITEMS 2-8[A]	*P*-VALUE
2. Often taken in larger amounts or over longer period	.344
3. Persistent desire/unsuccessful efforts to cut down	.105
4. Time spent obtaining or recovering from substance	.135
5. Important activities given up or reduced	.216
6. Use continued despite persistent or recurrent physical or psychological problems	**.003**
7. Tolerance—Increased amounts/diminished effect	.340
8. Withdrawal—characteristic symptoms/substance taken to avoid	.296

[a]None of the participants scored Item 1 as "absent."; therefore, Item 1 was excluded here.

associated with deficits in memory and executive functioning.[5,20] Given literature implicating the dorsal anterior cingulate cortex in insight regarding one's addiction,[4,21] an assessment of how function in this brain region tracks with denial in Methamphetamine Use Disorder is warranted.

Post hoc analyses identified one item on the SCID that varied as a function of denial: "Use continued despite persistent or recurrent physical or psychological problems." Because patients may not recognize substance-related problems, it may be helpful to offer specific examples of physical or psychological problems (eg, Do you ever feel down or depressed after using methamphetamine? Have you ever felt anxious or paranoid after using methamphetamine? Have you ever noticed problems with your sleep from using methamphetamine? Have you noticed problems with your skin or teeth from methamphetamine use?). In addition, tools such as the Timeline Follow-back (TLFB), which uses participants' daily schedules and a calendar depicting a specified timeframe (eg, 7 days, 30 days) could be implemented to record substance use and related issues. TLFB calendars may be used to show participants how their use is connected to consequences over time, and may be incorporated into stigma-reducing practices such as Acceptance and Commitment Therapy.[22]

In contrast to denial, greater openness and commitment to change on the URICA was positively associated with diagnostic severity, possibly indicating that those with greater severity of Methamphetamine Use Disorder were more committed to changing their behavior. Alternatively, those with increased openness to change may have been more apt to view their methamphetamine use as problematic. Either way, this finding reinforces the view that diagnosis through self-report is inherently sensitive to the perspective of the examinee.

This study has some limitations. One of them is the exclusive reliance on self-reports. Another limitation is that a correlation, as obtained here, does not indicate causality. All of the participants studied here met DSM IV criteria comparable to those of moderate-to-severe Methamphetamine Use Disorder in DSM-5. A narrow range of dependence affects external generalizability. Participants were compensated monetarily, but there is a possibility that they were motivated by interest in neurocognitive test scores also under study, which may have influenced their responses. Additionally, the SCID measure was short and had a limited range for responding to each item. However, the participants studied here acknowledged enough symptoms to warrant a diagnosis. It is possible, therefore, that the relationship between diagnostic severity and denial would be even more robust if the full range of symptom severity were explored by including participants who use methamphetamine chronically without meeting diagnostic criteria for Methamphetamine Use Disorder.

Author Contributions

ACD and EDL designed the study, MR and JS completed data analysis. MR drafted the manuscript, which was edited by ACD and EDL.

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