

Correlation between Psychological Distress with Level of Methamphetamine Dependence in Male Chronic Methamphetamine Users in the Rehabilitation Center of North Sumatra Province

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Abstract: The aim of this study was to find the correlation between psychological distress and level of methamphetamine dependence in male chronic methamphetamine users. Drug users have fulfilled the inclusion criteria, has been done detoxification, male, methamphetamine use disorder, not psychotic. The exclusion criteria are those who have general medical illnesses based on the history of the disease, have a history of previous head trauma and organic mental illnesses. Structured interviews with MINI ICD-10 to determine subject is indeed a substance use disorder. To know the psychological distress, we determine it with the Hospital Anxiety and Depression Scale (HADS), and to see the score level of dependence, we used WHO ASSIST (The Alcohol, Smoking and Substance Involvement). The study found that out of 88 males subjects with methamphetamine use disorder. The median of dependency level score is 30.5 (6-41), and mean of HADS score is 15.67 (4.76). This study obtained Pearson correlation of psychological distress level scores and dependency level scores with $r = 0.242$, $p = 0.023$. There is a significant weak correlation between psychological distress level scores and dependency level scores.

1 INTRODUCTION

Methamphetamine dependence is a serious public health problem in the world with medical, psychiatric, cognitive, socioeconomic and legal consequences. The use of amphetamine is ranked second after cannabis as the most commonly used prohibited substance worldwide. Globally it is estimated that 33.8 million people aged 15-64 years are methamphetamine-dependent (Glasner-Edwards et al., 2009; Karila et al., 2010; Marshall et al., 2011; Opsal et al., 2013). In Indonesia, drug abuse among students in 2018 from 13 provinces reached 2.29 million people and one of the community groups prone to drug abuse are those who are in the 15-35 year range or millennial generation (PUSLITDATIN, 2019).

Glasner-Edwards et al., (2009) found that symptoms of depressive pre-treatment had clinical significance in the attachment to treatment and became a chronic condition of depression, symptoms and depressive syndrome at the end of treatment and follow-up (in the next 30 days) showed the

association of Initial use of methamphetamine and abstinence from methamphetamine with decreased symptomatology of depression and major depressive disorders associated with greater overall severity in methamphetamine users.

Depression and anxiety often occur in methamphetamine users, short-term abstinence can improve depression and quality of life but do not improve anxiety in methamphetamine abusers.

In chronic methamphetamine users, repeated and sustained release of monoamine in central nervous system (CNS) has a major role in the chronic neurological influence of methamphetamine abusers. Frequent use causes dopamine depletion in CNS and damages the dopamine and serotonin terminals. Damage to monoamine neurotransmission has important effects on brain circuits and mood regulation and also functions of self-control, motivation, cognitive performance, and psychological stress. These changes bring the user unable to be happy without substances (anhedonia) which makes it easier to cause severe depression.

During abstinence and release of substances, the patient will experience different symptoms. These symptoms are related to recurrence of substance use.

This study wants to find the correlation between psychologic distress and the level of methamphetamine dependence on chronic users, after detoxification at a rehabilitation center in Northern Sumatra, Indonesia.

2 METHODS

Subjects were chronic methamphetamine users who underwent treatment in the rehabilitation of the province of North Sumatra (research period May to November 2019) who had fulfilled the inclusion and exclusion criteria as research subjects.

Inclusion criteria:

- Detoxification has finished;
- Has used methamphetamine for more than a year;
- Criteria for mental behavioral disorders due to methamphetamine use are met;
- The sample has a dependency level score based on WHO ASSIST (The Alcohol, Smoking and Substance Involvement) > 4;
- Willing to participate in research;
- Minimum education in junior high.

Exclusion criteria:

- Has a history of previous medical ailments;
- Have been treated by a psychiatrist before;
- Has an organic mental disorder;
- Have psychotic symptoms.

2.1 Procedure

A total of 88 males subjects will have a urine drug test to ensure that the subject has abstained and completed detoxification then a structured interview with MINI (The Mini International Neuropsychiatric Interview) according to ICD-10 to establish a diagnosis of mental behavioral disorders due to substance use. Hospital Anxiety and Depression Scale (HADS) to see the problems of depression symptoms and their anxiety or psychological distress with the sum score on each depression or anxiety scale having a range of 0-21 and Ozalp said that the total score ≥ 17 is optimal for identifying affective psychopathology cases (Ozalp et al., 2008; Zigmond & Snaith, 1983). To see the level of dependency, the WHO ASSIST questionnaire was used. it is made for use by all cultures and can be used in different cultures. To screen tobacco, alcohol, cannabis/cocaine, amphetamine and sedative/hypnotic/ benzodiazepine

stimulants, hallucinogens, inhalants, opioids, and other substances (WHO, 2010).

WHO ASSIST determine the risk score of each substance used to discuss appropriate interventions with substance users. WHO ASSIST consists of eight questionnaire items which were carried out within 5 minutes. WHO ASSIST gets information about substance users throughout the life and related to problems throughout the last three months and values:

- 0 (never); not using the last three months;
- 1 (one or two times); up to twice in the last three months;
- 2 (every month); an average of 1-3 times per month for three months;
- 3 (every week); 1-4 times every week;
- 4 (every day); 5-7 times per week or almost every day.

History of substances used, types of substances, and the degree of dependence measure with WHO ASSIST can determine the type of intervention used. If the WHO ASSIST score 0-3, it does not require intervention, a score of 4-26 requires a brief intervention and a score of more than 27 require more intensive treatment, and to see the demographic characteristics and background of the environment and family factors, a questionnaire will be used which will be filled out by the subjects.

2.2 Statistical Analysis

The data is analyzed whether the distribution is normal or not with the normality test, if it is not normally distributed then a non-parametric test is performed to see the correlation between the level of psychological distress and the level of dependence that is the Pearson correlation test. It is meaningful if $p < 0.05$, using SPSS.

3 RESULTS

This study found that (see table 1) out of a total of 88 males chronic methamphetamine users had an age range (years) with a median value of (min-max) being 24 (15-40) years, the median age for first use is 18 (12-33) years, and the median of use duration is 5 (1-21). According to the marital status, the dominant ones are 53 subjects (60.2%) who have not been married, in education level (senior high school) is 78 subjects (88.6%), and 58 subjects (65.9%) are employed. The score of level of dependency was found median (min-max) namely 30.5 (6-41). HADS score with a mean (standard deviation) is 15.67 (4.76). This study obtained Pearson correlation of

psychological distress level scores and dependency level scores with $r = 0.242$ and $p = 0.023$ (see table 2).

Table 1: Characteristics of chronic methamphetamine users with Substance use disorders.

Variable	n (%)	Median (min-max)
Age		24 (15-40)
Age of first time user		18 (12-33)
Duration of use		5 (1-21)
Marital Status		
Single	53 (60.2)	
Married	27 (30.7)	
Divorce	8 (9.1)	
Education level		
Junior high	8 (9.1)	
Senior high	78 (88.6)	
Academic degree	2 (2.3)	
Occupation		
Employed	58 (65.9)	
Unemployed	30 (34.1)	

Table 2: Correlation of HADS scores and Methamphetamine dependency scores.

	HADS score
WHO ASSIST score	$r = 0.242$ $p = 0.023$ $n = 88$

Pearson correlation test

4 DISCUSSION

This study found that the higher the level of dependence of chronic methamphetamine users show a higher level of psychological distress, although this correlation shows a significant relationship with a positive correlation, but the relationship shown is a weak relationship. This study found the average HADS (Hospital Anxiety and Depression Scale) score showed a high level of psychological distress that is above the cut-off. And the level of the dependence of chronic methamphetamine users more than half is above a score of 30.5. Which shows a high level of dependency. All respondents who were predominantly educated were high school and unmarried and according to Gywali, et al, that risk factors for depression and anxiety among patients with substance use disorders in western countries that have been reported were female, younger age, low family income and single. Gyawali et al., (2016) found in their study that 51.1% who were treated at the Kathmandu Hill medical center experienced high

psychological distress symptoms by using the Kessler psychological distress instrument with multivariate analysis showing various factors related to psychologic distress symptoms including age, education, the severity of substance abuse using the-10 DAST and family function.

Glassner-Edwards et al., (2010) who assessed psychiatric problems, substance use and functional outcomes of methamphetamine users with concomitant anxiety disorders three years after treatment. That anxiety disorders are associated with poor drug and alcohol use, high health service use and high psychiatric symptoms including suicide. Emphasis on symptoms and anxiety syndromes in methamphetamine users can help to optimize meaningful treatment outcomes. Studies have shown that high symptoms of anxiety and depression affect help-seeking behaviors such as getting diagnosed and treated for substance abuse disorders, which also affect treatment adherence, decreased quality of life, increased risk of breathing, increased social isolation and the risk of premature death.

This study found that half of the respondents who underwent rehabilitation were using methamphetamine for less than five years and half had rehabilitation after using methamphetamine more than five years. This shows the religiosity in seeking treatment which is in line with the research of Lee et al., (2012) found that previous mental health problems were high and at present from respondents using methamphetamine, they found as many as 22% (18 people) reported mental health problems preceding methamphetamine use and as many as 72% reported having mental health problems after regular methamphetamine use the first time and around the same time as problematic methamphetamine users (Lee et al., 2012). Respondents identified a time delay of five years between the time of the first problematic use of methamphetamine and the search for a treatment for problems related to methamphetamine.

This study also found that half of the respondents started using methamphetamine under the age of 18, the earliest is 12 years old and the latest is 33 years old. While the duration of using of respondents is stretched from five years to 21 years. The interconnection of substance use and psychological distress from adolescents (aged 16 years) to half-life (age 47 years) and continual use over time in African Americans (in cohorts), they found substance use, alcohol and ongoing psychological distress from adolescence to middle age in men and women. Also found that substance use in adolescents predicts greater psychological distress in young adulthood in groups of men.

The explanation for psychological distress and substance use problems is self-medication. People who use psychoactive substances to alleviate psychological symptoms, another explanation that the use of substances causes psychological distress. The use of substances including intoxication and substance release can induce symptoms of anxiety and depression, which will then change spontaneously with the cessation of use and reduction of withdrawal symptoms. Furthermore, the use of substances can cause prolonged psychological distress due to the consequences of the use of putting the individual on a long journey of loss.

This study suggests that it is necessary to detect the presence of psychological distress in chronic methamphetamine users before detoxification, post-detoxification to determine the appropriate treatment according to the individual's needs. Stuart et al., (2017) stated that various studies supporting psychologic treatments that combine elements of psychotherapy, psychoeducation and relapse prevention are the main treatments for methamphetamine users who focus on abstinence and reduce mental health symptoms, including cognitive behavioral therapy and motivational interviewing approaches that have been shown to be effective in reducing the use of methamphetamine focusing on abstinence and reducing mental health symptoms, including cognitive-behavioral therapy and motivational interviewing approaches that have been shown to be effective in reducing the use of methamphetamine and depressive symptoms in people who use methamphetamine.

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