

## The Relationship of Psychosocial Factors on Amphetamine Substance Addiction in Rehabilitation Medan Plus, Indonesia

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### Abstract

*Amphetamines and other amphetamine-like substances are known to interfere with other mental and physical conditions, such as impaired social functioning. The relationship between substance-related disorders and social factors, socioeconomic factors play an important role in the prognosis of patients with substance-related disorders. In fact, amphetamine use has been found to be associated with several markers of social adjustment disability such as crime, other substance use, unemployment, suicide and homicide. This study aims to determine the relationship between psychosocial factors and amphetamine dependence in Medan Plus rehabilitation. This research is a one-time unpaired observational analytic study with a cross sectional approach. The research sample was obtained by means of non-probability sampling consecutive sampling type by recruiting 76 subjects based on age, gender, education level and occupation as risk factors for amphetamine dependence, which were patients with amphetamine dependence who were treated at the Medan Plus Rehabilitation for more than 1 year. In identifying the period of use and substance use, an ASSIST (Assessment Smoking and Substance Involvement Screening Test) assessment was carried out, it was called amphetamine independent, the value was ASSIST 0-26, and the amphetamine dependence was ASSIST 27. There was a significant relationship between age ( $p=0.017$ ), gender ( $p=0.001$ ) and amphetamine dependence. There was no significant relationship between education ( $p=0.505$ ), occupation ( $p=0.220$ ) and amphetamine dependence. Factors influencing amphetamine dependence were gender (OR= 15.93), occupation (OR= 0.556), and age (OR= 0.106).*

### Keywords

Psychosocial factors; ASSIST; amphetamine dependence



## I. Introduction

Various clinical and social features are observed in substance-related disorders and symptoms related to legal regulation and the substance itself is strongly influenced by cultural and ethnic specificity. The relationship between substance-related disorders and social factors, socioeconomic factors play an important role in the prognosis of patients with substance-related disorders (Yoishimasu, 2013)

Amphetamines and other amphetamine-like substances are known to interfere with other mental and physical conditions, such as impaired social functioning. In fact, amphetamine use has been found to be associated with several markers of social adjustment disability such as crime, other substance use, unemployment, suicide and homicide. Families are associated with environmental factors such as early experiences of neglect and abuse, and sexual abuse in particular, particularly parental substance abuse, is known to influence substance use, abuse and dependence (Miura, 2006).

Epidemiological studies show that amphetamine abuse has increased and is now a major public health problem (Committee Opinion, 2011). Amphetamines are a widely used illicit drug in the United States. Estimates from 2012 show that more than 12 million people 12 years of age and older (4.7% of total respondents) have used amphetamine in their lifetime, 1.2 million people (0.45%) reported using amphetamine in the past year and approx. 440,000 (0.2%) of them indicated using amphetamine in the past few months. Amphetamines, which are similar to amphetamine, are used more frequently. According to the United Nations Office on Drugs and Crime (UNODC) in 2012 around 0.7% of the global population (33.8 million) aged 15-64 years were amphetamine users (Courtney, 2014) (National for Education and Training, 2015). Estimated rates of amphetamine dependence are equal between men and women with 53% of the main amphetamine users being men (Courtney, 2014).

Drug dependence is a major health problem, especially in the age group of 18 to 35 years. A study conducted by Avci and colleagues found that the demographic factors of 125 men (93.35%), marital status were single as many as 88 people (65.7%), domicile with parents as many as 76 people (56.7 people). %, did not work as many as 85 people (63.4%), basic education (primary school) 63 people (47.0%) (Avci, 2016). Based on this background, through a literature review there has never been a similar study conducted in Indonesia, especially in Medan, which in the end could provide information to clinicians about the differences between age, gender, education level and occupation between non-addicted and amphetamine-dependent users at the Medan Plus Rehabilitation site.

## **II. Research Method**

### **2.1 Participants**

The sample in this study was 76 subjects, each group was 38. All research subjects who had complied with the inclusion and exclusion criteria, were asked for approval to participate in the study through the given informed consent. After obtaining approval, samples that met the inclusion criteria included in this study were patients with amphetamine dependence who were being treated at the Medan Plus Rehabilitation Center with an age range of 18-45 years with a diagnosis of amphetamine substance abuse based on the Guidelines for Classification and Diagnosis of Mental Disorders in Indonesia. III (PPDGJI-III). Based on the first way of working with determination of diagnosis using guidelines and structured interviews Mini International Statistical Classification of Diseases-10 (Mini ICD-10) to rule out psychiatric disorders. Patients who do not have psychiatric disorders will be given the ASSIST questionnaire (Assessment Smoking and Substance Involvement Screening Test).

In the inclusion criteria, patients were taken in rehabilitation treatment for a period of 3 to 6 months. Patients who have only used amphetamines for more than one year, understand Indonesian, are available as respondents and can be interviewed. Meanwhile, the exclusion criteria in this study were having comorbid other medical illnesses, organic mental disorders and other psychiatric disorders.

### **2.2 ASSIST (Assessment Smoking and Substance Involvement Screening Test)**

After taking a blood sample, an ASSIST assessment is carried out. One of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) instruments is a structured interview validated by WHO for use in public health services (Newcombe, 2016). And to screen for problems or risky uses such as tobacco, alcohol, marijuana,

cocaine, types of stimulant amphetamine, tranquilizers, hallucinogens, inhalants, opiates and other drugs in primary health care (Newcombe, 2016).

- The interview begins with general screening questions about lifetime substance use. If the respondent acknowledged recent substance use the interview continued, but if there was no substance use then the interview could be terminated.
- The second question is about recent drug use (last 3 months). If no substance has been used in the last three months then the interviewer jumps to the last three questions to explore the problem and pattern of use across their lifetime.
- The third question measures psychological dependence;
- The fourth question is the use of hazardous substances;
- The fifth question is whether the respondent failed to fulfill the role obligations;
- The six question through eight asked about lifelong and recent problems including whether friends or relatives had expressed concern, prior attempts to control substance use, and whether they injected.

The interview can be completed in about 10 minutes. According to the scores obtained on the questionnaire respondents can be classified according to their level of risk (low or no problem) of substance use, moderate or risky use, high or problematic/substance dependence. For those individuals whose substance use may be classified as 'moderate risk' (ie, harmful but independent), and whose substance use may otherwise go undetected, an appropriate brief intervention may be delivered. Called not dependent on amphetamine, the score is ASSIST 0-26, depending onbro amphetamine ASSIST value  $\geq 27$  (Newcombe, 2016).

### 2.3 Statistic Analysis

This study is a one-time unpaired categorical comparative observational analytical study with a cross-sectional approach. Statistical processing and analysis of the data obtained was carried out in a computerized manner using the Statistical Package for Social Sciences (SPSS) program. To determine the demographic characteristics, age, gender, education level, occupation, the Chi Square test is used if it meets the Chi Square test requirements. The criteria for the significance of the presence or absence of a significant relationship is to use a p value  $<0.05$ . In order to determine whether age, gender, level of education and occupation are risk factors for amphetamine dependence. Multivariate logistic regression analysis was performed using the enter method. The requirement for multivariate analysis was  $p < 0.25$ .

## III. Results and Discussion

The demographic description of amphetamine dependent patients is presented in table 1. The categorical variables discussed in table 1 are age, education, marital status, gender and occupation. Categorical data are presented in number (n) and percentage (%).

Based on table 1, it can be seen that from the age variable, the majority are aged 18-24 years, namely 26 subjects (34.22%). From the variable level of education, the highest was secondary education, namely 46 subjects (60.53%). Of the gender variables, the majority were women, namely 63 subjects (63.0%). Of the work variables, the majority were unemployed, namely 55 subjects (55.0%).

**Table 1.** Distribution of Research Subjects Based on Demographic Characteristics

Variable	n	%
<b>Age</b>		
18-24 years old	26	34.22
25-34 years old	25	32.89
35-45 years old	25	32.89
<b>Education</b>		
Elementary-Junior High	30	39.47
SMA-PT	46	60.53
<b>Gender</b>		
Man	48	63.16
Woman	28	36.84
<b>Profession</b>		
Working	21	27.63
Doesn't work	55	72.37

### 3.1 Age Difference between Non-Addicted and Amphetamine-Addicted Users

Table 2 shows that of 76 subjects aged 35-45 years (22.36%) were amphetamine addicted and for subjects aged 18-24 years (22.37%) were not non-addicted amphetamine. Based on the results of the analysis using the chi square test showed that there was a significant difference in age between users who were not dependent and dependent on amphetamine and the level of amphetamine dependence ( $p = 0.017$ ).

**Table 2.** Age difference between non-addicted and amphetamine- addicted users

Variable	Dependency level		<i>p</i>
	Non-Addicted	Addicted	
Age			
18-24 years old	17(22.37%)	9(11.84%)	0.017
25-34 years old	9(11.85%)	16(21.05%)	
35-45 years old	8(10.53%)	17(22.36%)	
Total	34(44.75%)	42(55.25%)	

*\*Chi-Square*

### 3.2 Gender Differences between Non-Addicted and Amphetamine-Addicted Users

Table 3 shows that of the 76 male subjects, 35 (46.25%) were amphetamine addicted, and 7 (9.21%) were non-addicted amphetamine for female subjects. The results of the analysis using the chi square test showed that there were significant gender differences between users who were non-addicted and addicted on amphetamine.

**Table 3.** Gender differences between non-addicted and amphetamine- addicted users

Variable	Addiction Level		<i>p</i>
	Non-Addicted	Addicted	
Woman	21(27.63%)	7(9.21%)	0.001
Man	13(17,10%)	35(46.05%)	
Total	34(44,73%)	42(55.26%)	

*\*Chi Square*

### 3.3 Differences in the Type of Education Level Between Non-Addicted and Amphetamine- Addicted Users

Table 4 shows that of the 76 subjects with high school education level, as many as 24 people (31.57%) were amphetamine addicted, and 12 people (15.79%) were non-addicted on amphetamine. The results of the analysis using the chi square test showed that there was no significant difference in the level of education between users who were non-addicted and addicted on amphetamine with a value of  $p = 0.505$ .

**Table 4.** Differences in education level between non-addicted and amphetamine- addicted users

Variables	Addiction Level		<i>p</i>
	Non-addicted	Addicted	
Education Level			
SD-SMP	12(15,79%)	18(23,69%)	0,505
SMA-PT	22(28,95%)	24(31,57%)	
Total	34(44,72%)	42(55,26%)	

*\*Chi Square*

### 3.4 Occupational differences between non-addicted and amphetamine- addicted users

Table 5 shows that of the 76 subjects who do not work, 11 people (14.48%) were amphetamine addicted, and 10 people (13.16%) were non-addicted on amphetamine. The results of the analysis using the chi square test showed that there was a significant difference in educational work between users who were non-addicted and addicted on amphetamine with  $p$  value = 0.220.

**Table 5.** Occupational differences between non-addicted and amphetamine- addicted users

Variable	Addiction Level		<i>p</i>
	Non-addicted	Addicted	
Working	10(13.16%)	11(14.48%)	0.220
Doesn't work	24(31.58%)	31(40.78%)	
Total	34(44,74%)	42(55.26%)	

*\*Chi Square*

### 3.5 Multivariate Analysis

Variables that meet the requirements of the multivariate test ( $p < 0.25$ ) are 3 variables, so the type of analysis used is multiple logistic regression analysis or multivariate logistic regression analysis.

By using multiple logistic regression test with the enter method, it was found that all dependent variables had a significant effect ( $p < 0.05$ ) on amphetamine dependence. The most dominant variable on the level of dependence is with the highest OR value = 15.93, which means that subjects based on male sex are at risk of 15.93 times causing amphetamine dependence compared to female sex. The second variable at risk of amphetamine dependence is occupation with an OR value of 0.556 which means that subjects with non-working status have a risk of 0.556 times causing amphetamine dependence compared to working subjects. And the third variable that affects amphetamine dependence is age with an OR value = 0.106, which means that subjects aged 26-34 years have a risk of 0,

**Table 6.** Results of Multivariate Analysis of the Relationship of Psychosocial Factors with Amphetamine Dependence

	Coefficien t	SE	Wald	df	p Nilai value	OR	95% CI	
							Min	Max
Age	-2,285	0.783	10,168	1	0.017	0.106	0.23	-0.486
J. gender	2,770	0.680	16,586	1	0.001	15.93	4,207	-60,495
Profession	-0.588	0.643	0.835	1	0.220	0.556	0.157	-1,960

### 3.6 Discussion

This study is the first study conducted in Indonesia, especially in Medan, North Sumatra with the aim of To determine the relationship between psychosocial factors and amphetamine dependence in rehabilitation, Medan Plus was an unpaired, one-time observational analytical study with a cross sectional approach.

This study shows that there is a significant relationship between amphetamine dependence and age 35-45 years as many as 17 people (22.36%) with ( $p = 0.017$ ), age 36-45 years 8 people (10.53%) not dependent on amphetamine. . A study by Poudel A and colleagues in India found 30 people aged 35-45 years (14.75%) with a value ( $p=0.022$ ). This is due to the behavioral problem domain being positively associated with substance use while negatively associated with age of substance use initiation. Similarly, the problem domains of psychiatric disorders were higher with injection method and early initiation of substance use. Age of substance use initiation was an important predictor of overall psychosocial problem score (Poudel, 2016).

Based on the results of this study, it showed that there was a significant relationship between amphetamine dependence and gender. It was found that there were 35 males (46.05%) with ( $p=0.001$ ). This is in accordance with the study by Miura H and colleagues, it was found that the male sex was 36 people (38.7%) because there were men at great risk of substance abuse due to environmental factors such as social, behavioral and personality factors, especially antisocial personality (Yoishimasu, 2013).

The study by Poudel A also found a significant relationship between amphetamine dependence and male sex as many as 185 people (90.7%) with ( $p = 0.130$ ), because male sex also revealed that substance use affects not only the relationship between individuals but also on behavior and emotions (Poudel, 2016).

This study shows that there is no relationship between amphetamine dependence and the education level of SMA-PT as many as 24 people (31.57%) with ( $p=0.505$ ). The study by Poudel A and colleagues found that the secondary education level of 77 people (37.7%) had no significant relationship with amphetamine dependence ( $p=0.785$ ). This is related to the family environment and economic factors (Poudel, 2016).

This study shows that there is a significant relationship between not working and amphetamine dependence as many as 31 people (40.78%) with ( $p=0.220$ ). Poudel A's study and colleagues showed that there was a significant relationship that 56 people (31.4%) did not work with ( $p=0.112$ ). This is because someone who has experienced amphetamine dependence has the opportunity to work difficult, considering that while working a person is required to comply with all the rules in his work (Poudel, 2016).

A study by Yoshimasu K found a significant relationship between amphetamine dependence and not working, because poor work caused by substance use can result in immediate dismissal, and because psychological stress arising from unemployment or work-related stress induces people to do so. substance enjoyment, substance use,

unemployment status, and stressful work environments are highly correlated with each other, leading to an increased risk for suicide (Yoishimasu, 2013).

By using multiple logistic regression test with the enter method, the most dominant variable on amphetamine dependence is gender with an OR value of 15.93, which means that male subjects are at high risk for amphetamine dependence compared to female subjects. The second variable that is at risk for amphetamine dependence is the age of the subject 35-45 years with an OR value = 0.017 which means that the age at risk is higher for amphetamine dependence compared to the age of 18-24 years and the age of 25-34 years. And the third variable that affects amphetamine dependence is subjects who do not work with an OR value of 0.220 which means that they do not work at a higher risk for amphetamine dependence compared to subjects who work.

#### IV. Conclusion

A total of 76 subjects with amphetamine dependence were being treated at the Medan Plus Rehabilitation Center in October-November 2019. Based on the results of this study, there was a significant relationship between age ( $p=0.017$ ), gender ( $p=0.001$ ) and amphetamine dependence. There was no significant relationship between education ( $p=0.505$ ), occupation ( $p=0.220$ ) and amphetamine dependence. It was found that the factors influencing amphetamine dependence were gender (OR=15.93), occupation (OR=0.556) and age (OR=0.106).

A limitation of this study was that it did not compare amphetamine dependence with a history of psychiatric and other substance use, which may influence amphetamine dependence. A number of studies on psychological symptoms have been documented among amphetamine users such as depressed mood, anxiety, irritability, paranoia, mood swings, difficulty concentrating, aggression, hallucinations and psychosis.<sup>9</sup> Social, cultural, and economic factors are strong determinants of initial use, use of ongoing, and relapsing. Overuse is much more likely when amphetamines are readily available; This is largely demonstrated by the epidemic of amphetamine use in Japan and the United States and by the sharp increase in use that followed the emergence of large-scale laboratories and illicit "kitchens" synthesizing cheap, relatively pure methamphetamine.

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