ORIGINAL PAPER

The Study of Psycho-demographic Factors Associated With Suicidal Thoughts in Poly-drug Users

Fahmy MT[1], Haggag WL[1], Mohamed KA[1], Baalash AA[2]

[1]Neuropsychiatry Department, Suez Canal University, Ismailia, Egypt
[2]Al-Baha Psychiatric Hospital, Al-Baha,22888, Saudi Arabia

Abstract

Background: Patients suffering from suicidal behaviors among substance abusers are common. Although our knowledge about substance abuse and suicidal behavior is increasing, we lack sufficient knowledge about factors associating suicidal thoughts or behaviors and substance abuse. Objective: This study aimed to examine the associative factors of suicidal thoughts among poly-substance abusers. Methods: This is a case control comparative study on 239 subjects between 18 and 45 years of age. We reviewed 122 individuals who fulfilled the DSM- IV -TR criteria of substance abuse for two or more substances, and their data were compared with that collected from 117 control persons. Participants` detailed demographic, clinical evaluation and laboratory investigations were conducted and they were administered semi-structured psychiatric interview and examination, on almost the tenth day after admission. Results: Suicidal cases were 64.75% of poly-substance abusers. Statistically significant relation to suicidal thoughts ($p<0.05$) was found in older age, living in high altitude, being not married, working in non-professional jobs, lower educational level, presence of academic or occupational deterioration, history of legal troubles, younger age of initiation of cigarette smoking, duration of substance abuse, bereavement before age of 18, disturbed home atmosphere, poor family support, positive family history of substance abuse and positive family history of suicidal attempts. Conclusion: This study demonstrated that associative psycho-demographic factors characterized by chaotic social life and living in high altitude in addition to long duration of substance abuse may trigger suicidal thoughts in poly-substance abusers, and that religious upbringing is a helpful method for protection.

Keywords: Poly-Substance Abuser, Psycho-Demographic, Suicidal Thought

Introduction

The prevalence of actual substance abuse among youths has nearly doubled over the past decade[1]. Substance abuse is associated with suicidal ideation and suicide. This is attributed to the intoxicating and

disinhibiting effects of many psychoactive substances[2].

Suicide as a concept and as an act evokes very strong feelings in many people. However suicide rates usually increase throughout the world[3]. It occurs in every country in the world[4]. It accounts for nearly 1% of all deaths[5]. For example; Suicide rates are increasing from one year to another in Saudi Arabia. The main reasons, according to social workers in Jeddah, that lead to suicide are weak faith and a sense of overwhelming pressure where a person cannot cope and thus sinks into a deep depression that leads to suicide or attempted suicide. Suicide also stems from social, psychological and economic reasons and many drug addicts commit suicide[6].

Beck (1986) defined suicidal ideation as the presence of thoughts or contemplation about suicide or a wish of an individual to terminate his or her life, but there is no self destructive action related to these thoughts[5]. The range of suicidal ideation varies greatly from fleeting to detailed planning, role playing and unsuccessful attempts, which may be deliberately constructed to fail or be discovered, or may be fully intended to succeed[7].

High rates of suicidal ideation were found by Cottler Linda et al in a research on a group of substance abuse patients[8].

The term "Suicide" stems from the Latin ward "Sui" that means the one-self, and "cida" from caedera that means to kill. Suicide is a significant social problem and, theoretically, a preventable cause of death[9].

Prevention of suicide depends on the timely assessment of suicide risk. Shea says that timely assessment depends on clinicians' overcoming their own fixed ideas and basing their assessment on three pillars: analyzing the risk factors and predictors, uncovering and understanding suicidal ideation, and developing prevention strategies[10].

The main objective of this study is to investigate the basic psycho-demographic characteristics of suicidal substance abusers. Assessment of these links is important to identify predictors for suicide in substance abusers to develop specific interventions for persons in substance abuse treatment.

Methods

Study design

A case control comparative study was carried out, to describe psycho-demographic and other factors characterize participants.

Setting of the study

This study was conducted between the periods from May 2011 to June 2012, in Al-Baha psychiatric hospital in south area in Saudi Arabia.

Study population

Cases in this study were made up of male in-patients admitted to Al-Baha psychiatric hospital between the periods from May 2011 to June 2012, aged 18 - 45 years, who met to the criteria of Diagnostic and Statistical Manual of Mental Disorders, Text Revision, fourth edition (DSM- IV -TR) for psychiatric diagnosis of substance abuse, and who were abusing two or more substances.

The controls were male subjects who never had the experience of taking illicit substances, and not suffering any current or past psychiatric disorders or any serious medical disease.

Controls were matched for age, residential environment and they were chosen from

employees, workers in the hospital, and their relatives and friends.

Ethical considerations

Ethical approval letter was obtained from General Directorate of Health Affairs in Al-Baha. In addition, written Informed consents were obtained from the patients after explaining to them the aim of the study and the importance of data they are going to offer, and that these Data are confidential.

Sampling technique and data collection

This is a prospective randomized study. The presumptive prevalence of substance abuse among this study population will be 7.8 % similar to study of (Amir, Taha, 2001)[11]. The calculated sample size per group was around 122 According to the following equation: $n = (z/e)^2 (p) (1 - p)$ where, n: the sample size per group, p: the expected prevalence = 7.8%, z: the critical value which determine the area underlying the 95% of population on the normal distribution curve = 1.96, e: the margin of sample error tolerated = 0.05, $n =(1.96/0.05)^2 x (0.078) x (1- 0.078) = 111$. The expected drop-out was 10%, so the total sample size will be 122.

Participants in this study were 122 cases in addition to 117 controls. Five participants from the control group were considered as dropout because they did not fulfill the criteria. Sample selected by systematic random sampling. There is about 225-273 cases suffer poly-substance abuse admitted to the hospital yearly, while our sample size is 122, so our interval = 273/122 = 2. Calculated as: K=N/n, Where "K" is the interval, "n" is the sample size, and "N" is the population size.

The first case was chosen randomly then every 2nd case was selected to fulfill the sample size required which is 122 cases. Participants were organized into two major groups, patients (poly-substance abusers) group (n=122), and control group (n=117). Then, patients were classified into suicidal and non-suicidal according to the presence of a lifetime history of suicidal ideation or attempt (Grohol 2012)[12]. The study was carried out for both groups:

Information from family members was gathered in some cases.

Assessment

Participants were subjected to:

1. Psychiatric history and mental state examination. Patients were diagnosed according to Diagnostic and Statistical Manual of Mental Disorders, Text Revision, fourth edition (DSM- IV -TR).

2. Full physical and neurological examination, routine laboratory tests (CBC, blood chemistry, thyroid function, liver function and urine analysis) and ECG are done in order to exclude serious organic pathology. Urine and blood toxicology screen for substance abuse to detect (benzodiazepine, alcohol, amphetamine and amphetamine derivatives, opioids, cocaine, PCP, barbiturate, cannabis).

3. Modified Simi-structured Questionnaire for the drug intake and the assessment of socio-demographic data in which we used the original sheet constructed by (Soueif et al., 1986)[13] plus a suitable semi-constructed interview by using modified Ain Shams University case sheet (Magda Taha 1989)[14].

4. Religion is an organized system of beliefs, practices, rituals and symbols designed to: facilitate closeness to the transcendent (God, Higher Power, or ultimate truth/reality) and foster an understanding of a person's relationship and responsibility to others in living together in a community[14]. Religiosity was classified according to case sheet (Magda Taha 1989) into: [Religious; regular practicing, Believer; not regular practicing, Agnostic, Does not care][14].

Screening for suicidal thoughts

Suicidal ideation defined as thoughts about wishing to kill oneself, making plans of when, where and how to carry out the suicide, and thoughts about the impact of one's suicide on others[15]. Fleeting thoughts of self-harm or threats in the context of a tantrum without any previous or subsequent ideation were not considered sufficient to meet the criteria.

Statistical analysis

The collected data were organized, tabulated and statistically analyzed using software statistical computer package (SPSS) version 16. For quantitative data, the mean and standard deviation were calculated. For qualitative data, comparison between two groups and more was done using Chi-square test (χ^2). For comparison between means of two groups of parametric data, student t-test was used. For comparison between more than two means, the F value of analysis of variance (ANOVA) was calculated, where Tamhane's T2 test for was performed to compare between each two means if F value was significant. With the help of SPSS. Standard normal variant and p values were calculated.

Results

The sample consisted of 122 cases (79 suicidal cases and 43 non suicidal cases) and 117 controls. It was found that: suicidal cases were highly present among poly-substance abusers 64.75%, and there were 22.13% of cases have history of at least one suicide attempt (not tabulated).

The mean ages of cases and control group were 31.35 (± 6.25) and 31.7 (± 7.84) respectively. So their ages were almost identical ($p>0.05$). While the difference of mean ages between the three groups (controls, non-suicidal cases and suicidal cases) was highly significant ($p=0.003$), mean age of non-suicidal group was significantly lower than that of the other two groups (Tamhane's T2, $p<0.05$).

Table 1. Demographic data of cases and controls

Variable	Controls (n=117)	cases (n=122)		$\chi 2$	F	P-value
		Non-suicidal (n=43)	Suicidal (n=79)			
Age , mean (±SD)	31.66 (7.84)	28.47 (5.78)	32.92 (5.95)		5.84[a,c]	0.003**
Residency *n (%)*						
High (on mountains)	93 (79.48)	14 (32.56)	66 (83.54)	42		<0.0001*

Low	24 (20.51)	29 (67.44)	13 (16.46)		**
Marital status *n (%)*					
Married	87 (74.36)	9 (20.93)	27 (34.18)	54.1	<0.0001**
Single	26 (22.22)	24 (55.81)	33 (41.77)		
D/W/S	4 (3.42)	10 (23.26)	19 (24.05)		
Employment *n (%)*					
Professional	51 (43.59)	0 (0)	0 (0)	92.9	<0.0001**
Tradesman	13 (11.11)	3 (6.97)	2 (2.53)		
Semi/unskilled	23 (19.66)	4 (9.3)	16 (20.25)		
Unemployed	30 (25.64)	36 (83.72)	61 (77.22)		
Religiosity *n (%)*					
Religious	117 (100)	5 (11.63)	7 (8.86)	197	<0.0001**
Believer	0 (0)	32 (74.42)	62 (78.48)		
Agnostic	0 (0)	4 (9.3)	5 (6.33)		
Doesn`t care	0 (0)	2 (4.65)	5 (6.33)		
Educational level *n (%)*					
Univ. graduated	22 (18.8)	0 (0)	10 (12.7)	73.9	<0.0001**
College or institute graduated	25 (21.4)	4 (9.3)	4 (5.1)		
Secondary sch. graduated	34 (29.1)	19 (44.2)	15 (19)		
Univ. student	14 (12)	2 (4.7)	0 (0)		
Secondary sch. student	6 (5.1)	3 (7)	0 (0)		
Drop out	16 (13.7)	15 (34.9)	50 (63.3)		
Occupational or academic deterioration *n (%)*					
present	0 (0)	13 (30.2)	40 (50.6)	72	<0.0001**

absent	117 (100)	30 (69.8)	39 (49.4)		
History of legal troubles *n (%)*					
present	1 (0.85)	8 (18.6)	53 (67.09)	109	<0.0001***
absent	116 (99.15)	35 (81.4)	26 (32.91)		

According to post-hoc tests:
a= statistical significant difference between control and non-suicidal groups
b= statistical significant difference between control and suicidal groups
c= statistical significant difference between non-suicidal and suicidal groups
*p-value <0.05= significant
**p-value <0.01= highly significant
***p-value <0.001= very highly significant

It was found that 83.54% of suicidal cases live at high altitude, compared to 32.56% of non- suicidal cases, and the difference are very highly significant among the three groups. Forty one percent of suicidal cases were single, 34.18% were married, and 24.05% were divorced, widowed or separated. While most of control group 74.36% were married, and the difference between the three groups were very highly significant.

Our study showed very high significant difference among the three groups in religiosity. 100% of control group are religious and practicing, compared to 9.8% of substance users. Educational level among the three groups showed a very high significant difference. The highest percentage of suicidal cases 63.3% were dropped-out from education compared to only 13.7% of control group.

Seventy seven percent of suicidal patients, and 83.72% of non-suicidal substance users were unemployed compared to 25.64% of control group. Very high significant difference was found between the three groups regarding deterioration of academic or occupational functioning. 50.6% of suicidal cases and 30.2% of non-suicidal cases showed deterioration of academic or occupational functioning. Legal problems were significantly higher among substance users compared to the control group.

Table 2. Smoking in cases and controls

Item	Controls (n=117)	Cases (n=122)		$\chi 2$	F	p-value
		Non-suicidal (n=43)	Suicidal (n=79)			
Number of daily cig smokers (n, %)	62 (52.99%)	39 (90.69%)	75 (94.94%)	50.6		<0.0001***
Mean age of initiating smoking (mean, ±SD)	19.77 ±10.66	15.44 ±6.24	11.38 ±6.25		7.07	0.005** [a, b]

According to post-hoc tests:
a= statistical significant difference between control and non-suicidal groups

b= statistical significant difference between control and suicidal groups
c= statistical significant difference between non-suicidal and suicidal groups
*p-value <0.05= significant
**p-value <0.01= highly significant
***p-value <0.001= very highly significant

Cigarette smokers were significantly more in suicidal group compared to control and non-suicidal group. Cigarette smoking significantly started at younger age in substance users compared to control group (Tamhane's T2, $P < 0.05$).

Table 3. Condition of substance abused

Variable	Non-suicidal (n=43)	Suicidal (n=79)	χ^2	T	p-value
Age of onset of S.A					
≤ 18 (n, %)	11 (25.58)	28 (35.44)	1.25		0.264
>18 (n, %)	32 (74.42)	51 (64.56)			
Duration of S.A in years mean (±SD)	6.09 (3.84)	10.58 (7.05)		3.87	<0.0001***

*p-value <0.05= significant
**p-value <0.01= highly significant
***p-value <0.001= very highly significant

It was found that 39 patients (31.97%) started substance use before the age of eighteen. There was no significant association between the age of beginning of substance abuse and suicidal thoughts or behaviors. But duration of substance intake shows very highly significant association with suicidal thoughts or behavior (p< 0.001).

Table 4. Age of bereavement for cases and control

age when parents sep/div/die	Controls		Cases			
			Non-suicidal		Suicidal	
	No	%	No	%	No	%
Before 18	8	34.87	7	53.85	25	75.76
After 18	15	65.23	6	46.15	8	24.24
Total	23	100	13	100	33	100

χ^2= 9.45 p=0.009**

**p-value <0.01= highly significant

Table 5. Family condition for cases and control

Variable	Controls (n=117)	Substance Abuser (n=122)		χ^2	F	P-value
		Non-suicidal (n=43)	Suicidal (n=79)			
Family size *mean (±SD)*	4.19 (3.01)	6.88 (3.47)	7.41 (4.22)		0.37	0.69
Home atmosphere *n(%)*						
Good	102 (87.18)	19 (44.19)	14 (17.72)	97.6		<0.0001***
Average	11 (9.4)	11 (25.58)	36 (45.57)			
Disturbed	4 (3.42)	13 (30.23)	29 (36.71)			
Family support *n(%)*						
Good	105 (89.74)	16 (37.21)	17 (21.52)	111		<0.0001***
Fair	12 (10.26)	13 (30.23)	19 (24.05)			
No support	0 (0)	14 (32.56)	43 (54.43)			
F.H. of S.A *n(%)*						
present	10 (8.5)	12 (27.9)	45 (57)	54.8		<0.0001***
absent	107 (91.5)	31 (72.1)	34 (43)			
FH. Of suicide or attempt *n(%)*						
present	10 (8.5)	10 (23.3)	24 (30.4)	15.8		<0.0001***
absent	107 (91.5)	33 (76.7)	55 (69.6)			

***p-value <0.001= very highly significant

Significantly, separation from parents was more prevalent among suicidal cases (p=0.009), 75.76% of bereaved suicidal cases lost one or both of their parents before the age of 18. However, mean family size in our study is highest among suicidal group but the difference is non-significant among the three groups (p>0.05).

There is very high significant difference among the three groups as regard home atmosphere and family support (p<0.001).

36.71% of suicidal cases described their home atmosphere by disturbed, while only 30.23% of non-suicidal and 3.42% of control group had disturbed home atmosphere. Most of the control group 87.18% described their family support as good, while it was good for only 37.21% of non-suicidal and 21.52% of suicidal respectively.

Family history of substance abuse was significantly more in suicidal cases ($p<0.001$), 57% of suicidal cases have drug abuser family member, while only 27.9% of non-suicidal cases and 8.5% of control group have family history of substance use.

Family history of suicidal attempt found to be significantly more (30.4%) among suicidal substance abusers than non-suicidal substance abusers (23.3%) or control group (8.5%)($p<0.001$).

Discussion

The present study has shown that suicidal patients, who had experienced at least one suicidal thought, were highly present among poly-substance abusers 64.75% as compared to the control group which contains none, and there were 22.13% of substance abusers with history of at least one suicide attempt. The results of this study agree with the findings of previous researchers (Felts M. et.al.) linking substance abuse to suicide[16].

This seems to be higher than that in a research by Al-Sharqi AM et.al. (2012) which was conducted at Al-Amal mental health hospitals in three major non-mountainous cities in Saudi Arabia on a group of patients with alcohol and drug abuse, to study suicidal behavior among them; clinical profile revealed, 50.7% of respondents reported any suicidal ideation[17]. This may suggest the possibility of effect of mountainous geographical characteristic of Al-Baha (i.e. high altitude) on suicidality among substance abusers.

This study showed that older mean age, living in high altitude, being not married, working in non- professional jobs, low religiosity, educational drop-out, occupational and academic deterioration, and history of legal troubles were associated with suicidal tendency.

Our results are consistent with previous reports of Haws et.al. about increased suicide rates among high altitude residents[18]. Also with another study which mentioned that higher risk for future suicide attempts in substance-users persons who were not married[19], and many researchers reported that employment and spirituality was protective against suicidal ideation[8, 17].

Primary, intermediate and secondary educations are parts of the official education ladder in Saudi Arabia. We considered participants who did not reach the intermediate education certificate as drop out. The findings in this research are also consistent with previous studies which found that suicide rates are inversely related to level of education, and that higher levels of academic and school performance are significantly predicted lower levels of suicidal behavior[20, 21].

Our result was inconsistent with previous study which reported that older age was protective against suicidal ideation[18]. This difference in our study can be explained by the fact that older age individuals may have longer duration of drug use, more physical illness and more accumulated social and financial troubles that can contribute in provocation of suicidal thoughts among them.

Inconsistent with our results, other study by Linda B Cottler found that marital status was associated with suicidal ideation among drug users[8], and that difference shows the importance of marital competencies more than the status itself.

Cigarette smokers were significantly more in suicidal group compared to control and non-suicidal group in our study and younger age of initiation of smoking was significant in substance users compared to control group. Previous researchers found that even low levels of tobacco use significantly increased the risk of suicidal ideation[22]. The mean duration of using illicit substances was found to be significantly higher (10.58 years) in the suicidal group which is consistent with previous studies[23, 24].

Significantly, most of suicidal cases in our study experienced separation from one or both of their parents before age of 18, confirming another previous study which found that adults who were children when their parents divorced are more likely to seriously consider suicide than adults who grew up in intact families[25].

Good home atmosphere and good family support were significantly less among suicidal cases than non-suicidal and control group in our study. Our findings were consistent with many other previous researches. It was recorded by Yoshiko Okasaka 2006 that suicidal subjects who abuse drugs, scored lower on both the parental and maternal care scores of the Parental Bonding Instrument (PBI)[26]. Another study mentioned that persons with an alcohol or drug problems who die by suicide have often little social support[27].

Family history of substance abuse and family history of suicidal behavior were significantly higher among suicidal group in our study. This was proved by many researchers who recorded that children raised by alcoholic parents are likely to exhibit a spectrum of maladaptive coping responses, including suicidal ideation and suicidal behaviors. Thus, both alcohol abuse and suicidal behavior may be used as means of escaping from serious interpersonal problems. However, genetic factor seems to link alcoholism and suicide, the linkage is probably indirect. This relationship is most likely mediated through the physiological basis of depression. Low levels of serotonin have been found to play a role in depression, suicide, and alcoholism. Thus, neurophysiological factors may provide a link between suicide and a family history of substance abuse[28]. In addition, Alec Roy`s research on drug users found that Significantly most of the patients who had attempted suicide had a family history of suicide[29].

Conclusion

This study demonstrated high suicidal thoughts among poly-drug abusers. Substance abuse and suicidality may have the same familial predisposition, and that religious upbringing is a helpful method for protection. Some psycho-demographic factors may call attention of examiner for designing and implementing preventive and corrective measures for potential suicide.

Acknowledgement

I would like to assert my deepest thanks and gratitude to psychologist Azhar El-Marhoom and Ghada Abdel-Rahman for their great help and valued suggestion.

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Corresponding Author
Amany A Baalash
Al-Baha Psychiatric Hospital,
Al-Baha,22888,
Saudi Arabia
Mobile: +966599121826

Email: Amanyothman000@yahoo.com