

Association between alcohol abuse, childhood adverse events and suicide

Povezava med zlorabo alkohola, stresnimi dogodki v otroštvu in samomorom

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Abstract

Background: Negative life events present a risk for suicidal behaviour. The occurrence of suicidal behaviour also depends on type of negative life events, time of their appearance and the support person has in their environment, and can be part of a process triggered by a stressful event. The aim of the study was to investigate adverse childhood events, parental alcoholism and alcohol abuse in association with suicidal behaviour of suicide victims.

Methods: A case-control study was conducted involving 90 individuals from Slovenian population who committed suicide and 90 age-sex matched controls drawn from the living population. Data were collected by means of semi-structured interviews with key informants by the principles of psychological autopsy.

Results: Alcohol abuse was reported more often for suicide victims than for controls. The same was true for severe deprivation in childhood and alcoholism of one or both parents. Differences between groups in separation from one or both parents, death of one or both parents, reported parental divorce in childhood or sexual abuse in childhood were not observed.

Conclusions: We should conclude that negative events in childhood and alcohol abuse in adulthood of suicide victims could be related to suicidal behaviour in population with higher suicide rate. When planning measures for the prevention of suicidal behaviour, adverse events in childhood and alcohol abuse should not be neglected to plan measures to prevent such events accordingly and to raise awareness about the dangers of alcohol abuse for suicidal behavior.

Izvleček

Izhodišča: Negativni življenjski dogodki predstavljajo tveganje za samomorilno vedenje. Pojav samomorilnega vedenja je odvisen od vrste negativnega življenjskega dogodka, časa njegovega pojava in podpore, ki jo ima oseba v svojem okolju in je lahko del procesa, ki ga je sprožil stresni dogodek. Namen študije je bil raziskati pojav neželenih dogodkov in alkoholizma staršev v otroštvu pri žrtvah samomora, zlorabo alkohola med žrtvami ter morebitno povezanost teh dogodkov s pojavom samomorilnega vedenja.

Metode: V raziskavo je bilo vključenih 90 žrtev samomora in 90 intervjuvancev iz splošne populacije, ki so bili vključeni kot kontrolna skupina. Med osebami, ki so bile vključene v raziskavo, ni bilo razlik v spolu in starosti. Podatki so bili zbrani s pomočjo polstrukturiranih intervjujev po metodi psihološke avtopsije.

Rezultati: O zlorabi alkohola so pogosteje poročali pri žrtvah samomora kot v kontrolni skupini. Tudi poročanje o hudem pomanjkanju in alkoholizmu enega ali obeh staršev v otroštvu je bilo pogostejše v skupini žrtev samomora kot v kontrolni skupini intervjuvancev. Razlik med skupinama v

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pogostosti ločitve preiskovancev od enega ali od obeh staršev, smrti enega ali obeh staršev, razvezi staršev v otroštvu ali razlik v poročanju o spolni zlorabi v otroštvu nismo ugotovili.

Zaključki: Negativni dogodki v otroštvu in zloraba alkohola bi lahko bili povezani s tveganjem za samomorilno vedenje v populaciji z enim višjih količnikov samomorilnosti. Pri načrtovanju ukrepov za preprečevanja samomorilnega vedenja ne bi smeli spregledati neželenih dogodkov v otroštvu pri žrtvah samomora in zlorabe alkohola ter temu primerno načrtovati ukrepe za preprečevanje tovrstnih dogodkov in ozaveščanje o nevarnostih zlorabe alkohola za pojav samomorilnega vedenja.

1. Introduction

Negative life events present a risk for suicidal behaviour (1). The occurrence of suicidal behaviour also depends on type of negative life event, time of its appearance and support a person has in his environment, and can be part of a process triggered by a stressful event. Especially threatening are negative events that occur in childhood (2). An expanding body of research suggests that childhood trauma and adverse experiences can lead to a variety of negative health outcomes, including substance abuse, depressive disorders, and attempted suicide among adolescents and adults (2-4). It was shown that childhood sexual and physical abuse are strongly associated with suicidal behaviour in adulthood (5).

Studies also reported that children living in families with alcohol-abusing parents are more likely than other children to have an unpredictable domestic situation and to carry a burden of secrecy as a result of their attempts to hide the alcohol abuse from others. These children also have an increased risk of a variety of other adverse childhood experiences, including being abused or neglected, witnessing domestic violence, and being exposed to drug-abusing, mentally ill, suicidal, or criminal household members (6-11). A greater risk of alcohol abuse, other psychopathology, and other medical and social problems have also been reported among adult children of parents with alcohol dependence than among other adults (12-14).

Alcohol dependence and misuse have also been reported to be a significant risk factors for all types of suicidal behaviour (15,16). In Slovenia, the use of alcohol and annual mortality due to chronic liver disease are among the highest in Europe (17). Slovenia is a country with one of the highest suicide rates in European Union (21.5/100,000 per year) (18). Particularly high rates have been reported among older adults in Slovenia (18). At least 28 % of people that commit suicide in Slovenia have a diagnosed mental disorder associated with alcohol. Mental disorders associated with alcoholism are also the best predictors for suicide rates in different parts of Slovenia (9). The aim of this study was to investigate adverse childhood events, parental alcohol abuse and alcohol abuse in adulthood of suicide victims in association with suicide in a population with one of the highest suicide rates. It was hypothesized that the majority of included factors would be associated with suicidal behaviour and would therefore give a clearer picture of factors related to suicide risk.

2. Methods

2.1. Participants

A case-control design was used, involving 90 cases (suicide victims) and 90 age-sex matched living controls selected from population (27 female, 63 male,

average age 48.5 years, standard deviation 17.36 years).

Cases were recorded by medical examiners at the Institute of Forensic Medicine, Faculty of Medicine, University of Ljubljana, Slovenia, in the years 2001 to 2004. The next-of-kin of the suicide victim was contacted by letter explaining the research, and invited to participate in the study. In some cases, a more appropriate informant was chosen. Of 212 relatives of suicide victims 90 agreed

to participate, an overall response rate of approximately 42 %. They were all from the central part of Slovenia. Participation was voluntary and informants signed written consent. With them a semi-structured interview by the principals of psychological autopsy was performed.

Living controls were used since the aim was to identify those characteristics that differentiate individuals at greater risk of suicide from the general population. They were matched for age (within 5 years) and sex and were found among relatives of psychology students.

The research was approved by the Slovenian Medical Ethics Committee.

Table 1: Demographic variables in the group of suicide victims and the control group.

	group (%)	victims (%)
Nationality		
Slovenian	94.4	90
other	5.6	10
Marital status		
single	24.4	49.4
in combination	75.6	50.6
Number of marriages		
none	28.9	35.6
one	62.2	57.8
more than one	8.9	6.6
Place of residence		
alone	10.3	16.7
in couple	87.4	78.9
other	2.3	4.4
Education		
completed PS*	6.9	32.2
more than completed PS*	93.1	67.8
Employment		
unemployed	3.3	22.2
employed	60	24.4
school child, student or soldier	13.3	12.2
retired	23.4	41.2

PS: primary school

2.2. Data collection

Data were collected by means of semi-structured interviews, using a questionnaire designed for psychological autopsy that was also used in previous studies (20,21) where the data of the first group (cases) were gathered. In the control group, questionnaires were completed at the University during class time under supervision of the researcher, who explained each question and guided the controls through the questionnaire.

The questions covered sociodemographic characteristics, family and social relationships and conditions (reports of adverse events in childhood—separation from one or both parents, death of one or both parents, parental divorce, parental alcohol abuse, sexual abuse and severe deprivation) and data about alcohol consumption. The data about alcohol consumption comprised frequency of alcohol consumption per week, the daily pattern of alcohol consumption, data about unsuccessful efforts to control alcohol use and data about problems related to alcohol use. The questionnaire was not validated. Alcohol use was defined as “yes” answer to the question about alco-

hol use. Alcohol abuse was defined with available data on alcohol use in physically hazardous situations and data on negative consequences of repeated alcohol use. Data about childhood adversities were established when “yes” answer was given by the reporter about each adverse event.

2.3. Data analysis

Analysis was performed with Excel 2010 (Microsoft), using descriptive statistics and χ^2 tests, since the results were two unrelated samples with the variables on the nominal level.

3. Results

3.1. Nationality, marital status, number of marriages, place of residence, education and employment

Table 1 presented some demographic variables of the investigated groups. Participants' nationality in both groups was mostly Slovenian. There were more sin-

gles and also more unemployed and less educated among the victims of suicide than in the control group. No significant differences were noted in the number of marriages and in place of residence at the time of suicide or interview.

Statistically significant differences between the samples appearing in marital status (single or in combination) ($p < 0.001$), education (primary education, or more than primary school) ($p < 0.001$) and employment (unemployed, employed, school child, student, or soldier and retired) ($p < 0.001$) (Table 2).

3.2. Use and abuse of alcohol

Statistical analysis using χ^2 test showed important differences in alcohol use ($\chi^2 = 22.603$; $df = 1$; $p < 0.001$) and abuse ($\chi^2 = 24.096$; $df = 1$; $p < 0.001$) between groups of suicide victims and controls, with reported alcohol misuse being more frequent in the group of suicide victims and reported alcohol use in the control group (Figure 1).

3.3. Adverse childhood events and sexual abuse

The statistical analysis showed severe deprivation in childhood and alcoholism of one or both parents as important risk factors for suicidal behaviour ($p < 0.001$). The differences between both groups in other variables (separation from one or both parents, death of one or both parents, parental divorce, and sexual abuse) were not significant (Table 3).

4. Discussion

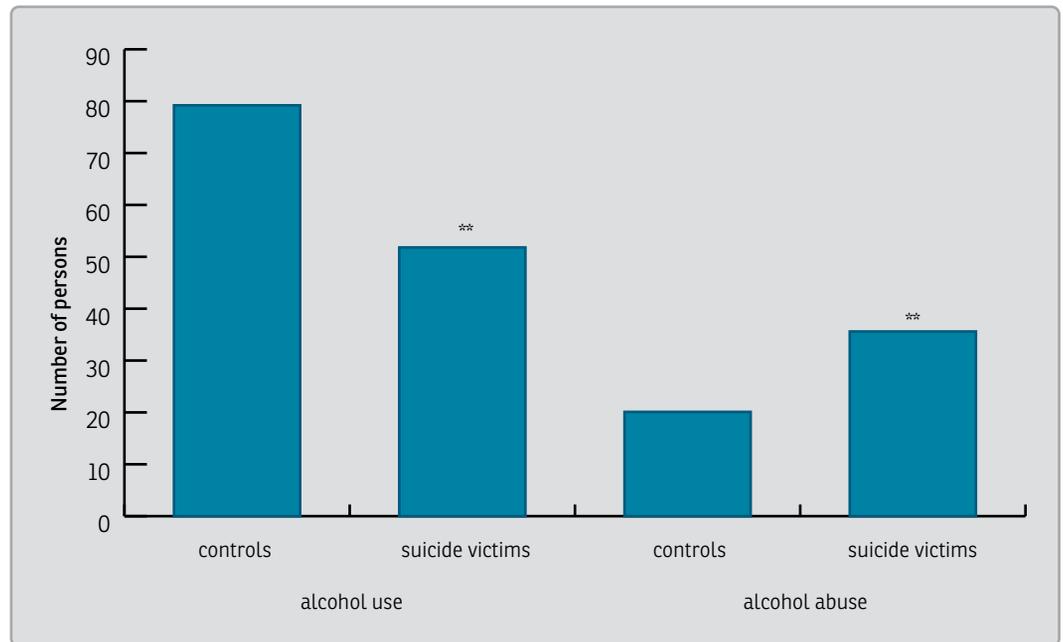
Our results show that alcohol abuse is more frequent in suicide victims than in control group in the population with high alcohol consumption and suicide rates. The results of the present study ge-

Table 2: The results of χ^2 test to verify the differences between the group of suicide victims and the control group with respect to nationality, marital status, number of marriages, living conditions, education and employment variables. * $p < 0.001$.

	χ^2	df	p
Nationality	1.239	1	0.266
Marital status	12.01	1	0.001*
	0		
Number of marriages	1.055	2	0.590
Place of residence	2.287	2	0.319
Education	17.85	1	0.000*
	5		
Employment	30.49	3	0.000*
	6		

Note: * $p < 0,001$

Figure 1: Use and abuse of alcohol in suicide victims and controls. ** $p < 0.001$.



nerally support the findings of previous research that alcohol abuse is an important risk factor for suicidal behaviour, as suicide victims abused alcohol more often than controls (17). It is also known that alcohol-dependent suicide victims express more aggressive and impulsive behaviour than victims without substance abuse (22). This observation is in accordance with previous reports. It was estimated that in Slovenia 11 % of general population have evolved alcohol addic-

tion, additionally 13 % of general population misuse alcohol and only 14.5 % of general population do not consume alcohol (23).

The relationship between alcohol misuse and suicidal behaviour can be conceptualized in a number of different ways. It can be examined from a perspective of biological, psychological or social effects, or it can be analysed by the temporal relationship between the use of alcohol and the suicidal behaviour. Howe-

Table 3: Reported stressful events in childhood of suicide victims and controls.

	Suicide victims, n = 90; number (%)	Control, n = 90; number (%)	χ^2	df	p
Separation from one or both parents	28 (31)	22 (24.4)	0.740	1	0.390
Death of one or both parents	17 (18.8)	14 (15.6)	0.312	1	0.577
Parental divorce	15 (16.7)	11 (12.2)	0.719	1	0.396
Severe deprivation	30 (33.3)	9 (10.0)	12.508	1	0.000**
Alcoholism of one or both parents	41 (45.6)	15 (16.7)	15.273	1	0.000**
Sexual abuse	2 (2.2)	0 (0.0)	1.955	1	0.162

Note: ** $p < 0,001$

ver, data about gene polymorphisms involved in serotonergic system regulation and suicidal behaviour of persons with alcohol abuse are not well understood (19). It seems that genes involved in serotonin synthesis regulation could be involved in alcohol-related suicide. However, for other genetic polymorphisms involved in serotonergic regulation no association was observed in Slovenian population (22).

On the other hand, an indirect relationship between alcohol misuse and suicidal behaviour that is seen mainly on interpersonal and social levels can be established. Kendall proposed that alcohol abuse leads to lowered self-esteem, and ultimately increased risk of suicide, through a process of negative life events (such as marital separation and work problems), loss of social networks and social isolation (24).

Maltreatment, neglect and other relationship problems may lead to a later psychiatric disorder, such as alcohol abuse or dependence, through multiple pathways, including exposure to further trauma, poor educational attainment, unemployment, poverty, alcohol and drug misuse, and unsatisfactory adult relationships (25). The present study showed difference between groups of suicide victims and controls in the presence of severe deprivation and alcoholism of one or both parents, with events being higher in the group of suicide victims. Previous research indicates that the effects of childhood adversity are contingent on other risk factors, especially lack of parental care (26). It was reported that effects of the parent-child relationship varied with parental mental health (27). Genetic predisposition to mental disorder may outweigh effects of exposures such as affectionless control, or may be mediated by the latter (28). Conversely, parental alcohol dependen-

ce may be completely confounded by poor parenting given the difficulty of providing secure, affectionate care when suffering from a mental illness (29). In alcohol dependence the genetic component also plays an important role and on the other hand the child is growing up in an environment where alcohol and its misuse are constantly present. Nevertheless, present study provides additional support that parental alcohol dependence in childhood and alcohol abuse could be important risk factors for suicidal behaviour. These observations are in accordance with previous research indicating that suicide victims were more often reported to have had inadequate family environment and abuses (physical and sexual) in their childhood (24,30). In the present study, differences in the reported sexual abuse (in childhood or adulthood) were not observed. Also, differences between groups regarding separation from one or both parents, death of one or both parents or reported parental divorce in childhood were not observed. However, methodological limitations could influence these results.

5. Limitations

One of the limitations of this study was sample size. The total number of subjects in the control group was too small for a detailed examination of the association between suicide and certain categories of childhood adverse events. For instance, only two case subjects and none in the control group were reported to be a victim of sexual abuse.

Second, some of the variables used in the questionnaire could be more detailed. For instance, the criteria for severe deprivation in childhood were not further defined. Also, in determining alcohol abuse we encountered limitati-

ons. In the questionnaire the data on the frequency of alcohol use were obtained, but not also on the quantity of alcohol consumed. In statistical analysis the limit between still acceptable use of alcohol and its abuse was made (three or more times per week), but the data for a reliable limit were missing.

Third, there are several methodological concerns in a case-control psychological autopsy study. As in similar studies, the use of proxy informants, the retrospective data collection, the lack of blinding regarding case and control subjects, and the potential impact of bereavement and stigma against suicide, mental illness and alcohol abuse may have an impact on the reliability of the reported data. Also, our strategy of scheduling interviews with proxy informants for suicide victims 3 to 6 months after suicide clearly differed from our strategy with informants for living control subjects and could increase the risk of recall bias. This is also a major challenge in other psychological autopsy studies of suicide (31,32).

Lastly, the chosen methodology, a way of choice of the control group, may affect the results of the study. The observed differences between groups could be associated with different demographic characteristics of the groups. Namely, the subjects are the relatives of psychology students, which may in terms of the

sociodemographic parameters depart from the general population.

Because different groups of interviewers were working on data collection separately at various research sites for a period of time, the reliability of data across investigators, time, and location was a challenge. However, the data collected in this study are very likely reliable because of the efforts we put into the training of all interviewers. Nevertheless, the interrater reliability, validation of the questionnaire and correction for multiple comparisons were not performed. Because of many limitations, the reported data should be interpreted with caution.

6. Conclusions

Our study found a significant difference in alcohol abuse between suicide victims and controls, and pointed out alcohol misuse as an important factor associated with suicidal behaviour. Also, severe deprivation in childhood and alcoholism of one or both parents seem to be important predictors for suicidal behaviour in a population with high suicide rate. Further studies are needed to investigate the influence of negative life events on alcohol abuse and suicidal behaviour. However, in prevention of suicidal behaviour adverse events in childhood and alcohol abuse should not be overlooked.

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