



Substance use disorders as risk factors for suicide in an Eastern and a Central European city (Tallinn and Frankfurt/Main)

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Abstract

Cultural and regional differences on the well-known elevated suicide risk in substance use disorders have not been clarified yet. Therefore, the suicide risk associated with substance use disorders in a society of transition and in a socially and economically stable society should be identified and compared. Data from two population-based matched case–control studies were used to analyse the association between alcohol and other substance consumption and the risk of suicide. Data in Frankfurt were obtained by a semi-structured interview including the Structured Clinical Interview for DSM-IV Axis I (SCID-I) in 163 suicides that occurred in 1999 and 2000, and data from Tallinn were collected according to DSM-IV criteria on 156 deceased persons who committed suicide in 1999 by using the psychological autopsy method and in each city in matched population-based control persons by personal interview. In both cities, substance use disorders were significantly associated with suicide. Odds ratios for suicide were higher in Tallinn than in Frankfurt. The highest risk was observed in Tallinn among men with alcohol use disorders, aged 35 to 59 years. Although substance use and, in particular, alcohol use disorders were confirmed as risk factors for suicide in Tallinn and in Frankfurt, the much higher suicide risk associated with alcoholism in Tallinn than in Frankfurt indicates the importance of cultural, socio-political, and regional impact of suicide risk in alcoholism.

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1. Introduction

Suicide prevention requires a comprehensive response to the intimate link between substance use disorders and suicide. Psychological autopsy studies in different continents during different decades have consistently shown major depression and substance use disorders, particularly alcoholism, as the most prevalent psychiatric disorders in suicides (Barraclough et al., 1974; Rich et al., 1988; Duberstein et al., 1994; Conwell et al., 1996).

Follow-up studies (Harris and Barraclough, 1997; Hiroeh et al., 2001; Wilcox et al., 2004) and case–control studies using the psychological autopsy method have identified substance-related disorders and particularly alcohol-related disorders as risk factors for suicide in spite of differences in diagnostic methodology (Lesage et al., 1994; Cheng, 1995; Foster et al., 1999; Vijayakumar and Rajkumar, 1999; Waern, 2003).

An effect of alcohol consumption was not only reported on the individual level, but also on the aggregate level in different countries (Gruenewald et al., 1995; Lester, 1995). However, in these studies, large variations of the correlation between a national global consumption of alcohol and suicidal rate are detected according to age (Mäkelä, 1996), gender (Lester, 1992), and country (Lester, 1995). Results from time series analyses on aggregate level data from a number of European countries may be indicative of a stronger effect of alcohol consumption on suicide in low consumption countries as opposed to high consumption countries (Norström, 1988; Skog, 1993; Rossow, 1993; Ramstedt, 2001; Norström and Ramstedt, 2005). For Western Germany, Lester (1995) found a positive correlation between suicide rate and alcohol consumption per capita during the years 1950 to 1974, but Ramstedt (2001) found a significant correlation only for females during the years 1952 to 1995.

Several studies at an aggregate level revealed a positive correlation of suicide mortality and alcohol consumption in the former USSR republics during reformation (“Perestroika”) that included strict limitation of alcohol sale and consumption (Wasserman et al., 1994; Wasserman et al., 1998; Nemtsov, 2003). In Estonia, which was part of the Soviet Union at that time, suicide rates for males had fallen from 54.4 to 37.2, death from alcohol poisoning from 28.3 to 14.0 per 100,000 males and alcohol consumption from 11.6 to 6.2 L of absolute alcohol consumption per capita between the years 1984 and 1986. In 1999, suicide rate per 100,000 inhabitants was 13.6 in Germany (20.2 for men, 7.3 for women; 13.3 in Frankfurt) and 32.5 in Estonia (56.0 for men, 12.1 for women; 28.8 in Tallinn),

with especially high suicide rates for Estonian men aged 45 to 64 years — 96.5 per 100,000. Also, a very high rate of death from alcohol poisoning (29.2 for males and 7.8 for females in 1999) is indicative of the higher overall alcohol consumption in Estonia, which is reported to be the highest in all Baltic countries (McKee et al., 2000). In Germany, only 40 females and 114 males died from alcohol poisoning in 1999 (Statistisches Bundesamt, personal communication). Analyses at an aggregate level are marred by great uncertainty regarding causality and connections. But a study from Denmark has shown that suicide rates among alcoholics fell when their alcohol consumption decreased, while the suicide rates among non-alcoholics did not change (Skog, 1991; Skog, 1993).

Derived from results of the above-mentioned studies, we hypothesized that substance use disorders are associated with higher suicide risk in Tallinn than in Frankfurt. Furthermore, Estonia is a society that has experienced economic and social disintegration during the transition to a market economy; in this period, people in Estonia tend to emphasize security above all other goals and feel threatened by the changes in the society (Inglehart and Baker, 2000). A probable mechanism through which society has an impact on an individual's risk of committing suicide is the increase of adverse life events with which they have to cope after changes in society. For example, economic recessions with rapidly rising unemployment may increase frequency of life events that are difficult to deal with (Preti and Miotto, 1999). Many of these social factors are also associated with suicide, especially in the case of alcoholics (Murphy et al., 1992; Conner et al., 2003b). However, it is not possible to compare the risk associated with suicide in two societies on an aggregate level. As part of two studies, in Estonia (Kõlves et al., 2006) and in Frankfurt/Germany (Schneider et al., 2005), the present analysis was carried out to identify and compare the suicide risk associated with substance use disorders in a society of transition with a high percentage of heavy alcohol consumers (Tallinn, capital of Estonia) and in a stable society (Frankfurt/Main, Germany). The hypotheses of our study were that (1) substance use disorders are risk factors for suicide in both cities and (2) substance use disorders and, in particular, alcohol use disorders will elevate suicide risk particularly in middle age with higher elevated suicide risk in Tallinn than in Frankfurt, as suicide risk in this age group might be most strongly influenced by alcohol consumption (Värnik et al., 1998) and in Estonia, alcohol intake is especially high in middle age (McKee et al., 2000). Furthermore, based on comprehensive prospective cohort studies (Harris and

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