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Regular drinking may strengthen the beneficial influence of social support on depression: Findings from a representative Israeli sample during a period of war and terrorism

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ABSTRACT

Background: Social support is consistently associated with reduced risk of depression. Few studies have investigated how this relationship may be modified by alcohol use, the effects of which may be particularly relevant in traumatized populations in which rates of alcohol use are known to be high.
Methods: In 2008 a representative sample of 1622 Jewish and Palestinian citizens in Israel were interviewed by phone at two time points during a period of ongoing terrorism and war threat. Two multivariable mixed effects regression models were estimated to measure the longitudinal association of social support from family and friends on depression symptoms. Three-way interaction terms between social support, alcohol use and time were entered into the models to test for effect modification.
Results: Findings indicated that increased family social support was associated with less depression symptomatology ($p = <.01$); this relationship was modified by alcohol use and time ($p = <.01$). Social support from friends was also associated with fewer depression symptoms ($p = <.01$) and this relationship was modified by alcohol use and time as well ($p = <.01$). Stratified analyses in both models revealed that the effect of social support was stronger for those who drank alcohol regularly than those who did not drink or drank rarely.
Conclusions: These findings suggest that social support is a more important protective factor for depression among regular drinkers than among those who do not drink or drink rarely in the context of political violence. Additional research is warranted to determine whether these findings are stable in other populations and settings.

1. Introduction

Israel has traditionally had some of the lowest rates of alcohol use problems in the world (Adler and Kandel, 1983; Bamberger and Barhom-Kidron, 1998; Rahav et al., 1999). However, increases in immigration and ongoing terrorist attacks in recent decades have contributed to an increase in alcohol use rates (Bar-Hamburger et al., 2009; Bleich et al., 2003, 2005; Shoham et al., 1980). Since 2000, over 6400 Palestinians and 1000 Israeli citizens have been killed (B'Tselem, 2012). Terrorism is particularly traumatogenic as it targets civilians and can occur anywhere, especially in highly populated civilian areas (Canetti et al., 2013). This perpetual violence has negatively affected the physical and mental health of people living in Israel (Hobfoll et al., 2012). Recent studies report a high incidence of depression and war-related stress in Israel and the Palestinian territories (Canetti et al., 2010).

Heavy drinking is associated with a number of negative consequences including unintentional injury, violence, risk-taking behaviors, neurological problems, liver disease, depression and risk for suicide (Castaneda et al., 1996; Centers for Disease Control and Prevention, 2012; Corrao et al., 2004; Heron, 2007; National Center on Addiction and Substance Abuse, 1999; Smith et al., 1999; Sullivan et al., 2005; Wechsler et al., 1994). Studies focusing on alcohol use following terrorist attacks primarily examine these

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adverse effects of heavy alcohol use. Findings have demonstrated that heavy alcohol use may impede recovery or treatment of psychiatric problems following a terrorist attack and is thought to be an avoidant coping strategy for dealing with stress in such circumstances (Adams et al., 2006; North et al., 2002; Schiff et al., 2006; Thoits, 1995).

Other research has described the potentially positive effects of alcohol use. A review by Baum-Baicker (1985) found that light to moderate alcohol use increased psychological well-being and that heavy drinkers and non-drinkers had higher rates of depression than moderate drinkers. A longitudinal investigation in Norway found that adults who abstained from alcohol their entire lives had weaker social networks and a higher risk for depression than those who did not abstain from alcohol (Pedersen, 2013). Despite these indications of the positive effects of moderate alcohol use, it is not yet known whether moderate drinking is causally associated with diminished psychiatric symptoms (Peele and Brodsky, 2000) or whether drinking behavior interacts with other factors to produce these benefits. The nature of this relationship within the context of terrorism also remains unclear.

People rely on social support as a coping mechanism following potentially traumatic events (Bleich et al., 2003; Thoits, 1995) and social support has consistently been shown to be a strong protective factor against the development of depression (Belle, 1987; Brown et al., 1986; Kendler et al., 2005). Although heavy alcohol use is generally and appropriately seen as an unhealthy coping strategy following traumatic events (Adams et al., 2006), it is plausible that there is a moderating effect of alcohol use on social support. For example, a study in Japan found that moderate drinkers reported greater social support from friends than did heavy drinkers or non-drinkers (Yoshihara and Shimizu, 2005). Ikehara et al. (2009) found an interactive effect between light-to-moderate alcohol drinking and social support such that light-to-moderate drinking demonstrated a stronger protective effect against cardiovascular disease among those with higher social support compared to those with lower social support.

We were unable to locate studies that investigated similar effects between moderate alcohol use and social support on mental health, and in particular, depressive symptomatology, within a population living under threat of terrorism. The present study explores the modifying effects of regular alcohol use on the relationship between perceived social support and depression among a representative sample of Israeli adults. We also extend the literature by examining whether modifying effects are similar for perceived support from family and perceived support from friends. We hypothesize that perceived social support from both family and friends will be associated with lower self-reported depression scores and that both of these relationships will be modified by regular alcohol use.

2. Methods

2.1. Participants and procedure

The institutional review boards of the University of Haifa, Kent State University, and Rush University Medical Center approved this study.

A nationally representative sample of 1622 Jewish and Palestinian citizens of Israel (PCI) was obtained through a random telephone survey. Structured telephone interviews were conducted at 3 time points during a period of ongoing violence in Israel; the first wave was conducted from May–July, 2007, the second wave was conducted from November, 2007 to January, 2008, and the third wave was conducted from October to November, 2008. The response rate was 68% of eligible responders, which compares favorably to similar studies (Johnson et al., 2009). A structured survey was translated and back-translated from English into Hebrew, Arabic, and Russian. Native speakers interviewed participants in Hebrew, Arabic, or Russian.

This study is a longitudinal analysis using data from waves 2 and 3 of the data collection. The alcohol use variable of interest at wave 1 referenced a different time period than waves 2 and 3 (drinking in past 12 months vs. past 6 months), and had substantial missing responses, therefore we restricted our analysis to wave 2 and wave 3 data. Wave 2 included a total of 1292 respondents, 1103 Jews and 189 PCI, representing a dropout rate of 20.3% from wave 1; wave 3 included a total of 1206 respondents, 1051 Jews and 155 PCI, representing a 25.6% dropout rate from wave 1. Using logistic regression for continuous predictors and chi-square tests for categorical predictors we determined that dropout was significantly associated with ethnicity (χ^2(df) = 31.57 (1), $p < 0.001$), age (OR = 0.98, SE = 0.004, $p < 001$), sex (χ^2(df) = 4.20 (1), $p = 0.04$), marital status (χ^2(df) = 9.44 (1), $p = .002$), and language (Arabic: OR = 2.08, SE = 0.30, $p < .001$; Russian: OR = 0.67, SE = 0.13, $p = 0.04$). Participants who were PCI, younger, male, and Arabic speaking were more likely to dropout and those who were Russian speaking and married were less likely to dropout. To minimize the potential influence of emigrative selection bias on the results and maintain a representative sample, we conducted multiple imputation to impute values for participants with missing data at waves 2 and 3. All 1622 participants who participated in the first wave were thus included in analyses. Wave 1 data were not included in the current analysis, therefore for the purposes of this study, wave 2 will be referred to as time 1 and wave 3 will be referred to as time 2.

2.2. Measures

Demographic variables included sex, marital status, age, education, ethnicity (Jewish and PCI), immigration status, and income in relation to the average monthly household income (9000 New Israeli Shekel; below average, average or above average).

2.2.1. Covariates

Exposure to terrorism. Participants were asked to report whether they witnessed or had been exposed to a terror or rocket attack, were seriously injured in an attack, and/or had experienced a death or injury of a person close to them as a result of terror or rocket attacks in the past 6 months (Hobfoll et al., 2009). A dichotomous variable was created indicating experiencing any of these events or not.

Financial loss. Participants were asked whether they experienced significant financial losses as a result of rockets or terror attacks during the past 6 months (Hobfoll et al., 2009, 2006; Norris, 2001).

Subjective health was assessed by asking "How would you rate your overall health during the past month?" Responses were: much worse than before; somewhat worse; about the same; somewhat better than before; and much better (Ware and Sherbourne, 1992).

PTSD symptoms occurring in the past month in response to exposure to political violence were measured with the PTSD Symptom Scale Interview (Foa et al., 1993). Participants responded on a 4-point Likert-type scale from 0 (*not at all*) to 3 (*to a very great degree*). This measure demonstrated adequate psychometric properties in Palestinian and Jewish samples (Hall et al., 2010; Hobfoll et al., 2011). Cronbach's alpha at wave 2 was .92 and .93 at wave 3.

Religiosity. Religiosity was defined as a dichotomous variable as either religious or not religious following culturally appropriate labels self-reported by Jews and PCI.

2.2.2. Predictor variables.

Alcohol use was assessed by asking "In the past 6 months, how many times did you drink beer, wine, liquor, or any alcoholic beverage?" Response choices included 1 (*everyday*), 2 (*at least once a week*), 3 (*rarely*), and 4 (*not at all*). The variable

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