Implicit Death Primes Increase Alcohol Consumption
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CITATION
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Objective: The authors examined whether priming thoughts of death are associated with increases in alcohol consumption. Method: Research assistants handed out fliers that were stacked in a random order to pedestrians walking through campus (N = 377). These fliers served to remind them of either their death or of an aversive condition unrelated to death (severe back pain), which served as the control. Then they were solicited to purchase an alcoholic or nonalcoholic beverage. Results: The authors used a 2 × 2 log-linear analysis, with type of prime (death–pain) and beverage type (alcoholic–nonalcoholic) as the independent variables and consumption (yes–no) as the outcome measure (11.9% of the total sample consumed a beverage). Results revealed that a greater percentage of students who received the death prime consumed alcohol (36.59%) versus students in the pain prime condition (8.94%), G^2(4, N = 377) = 64.3, p < .001, W = .41. The type of prime (death–pain) did not influence the consumption of nonalcoholic beverages. Conclusion: The current research indicates that death-related concerns may play a role in increasing the consumption of alcoholic beverages.

Keywords: mortality, alcohol consumption, death, substance use

The current research examines whether subtle primes of death may increase the rate of drinking alcohol. According to the terror management health model (TMHM: Goldenberg & Arndt, 2008), death anxiety may underlie the decision to use substances, which in turn may regulate existential concerns. This proposition, however, has not been empirically validated to date. In this research, we examined whether implicit primes of death are associated with increases in alcohol consumption. To this end, we conducted a behavioral field experiment that enabled us to address this question using experimental methods in real-life settings.

Drinking alcoholic beverages plays a role in the regulation of aversive mental states because it reduces negative affectivity (e.g., Holahan, Moos, Holahan, Cronkite, & Randall, 2001), serves as a form of self-medication to blunt unbearable negative feelings (Swendsen, 2000), and provides a source of psychological relief by reducing self-awareness (e.g., Hull, 1981; Hull & Slone, 2004). These effects are consistent with the terror management health model (Goldenberg & Arndt, 2008) and offers the possibility that consuming alcohol may offer a momentary escape from intolerable thoughts of death by regulating negative affect and reducing self-awareness.

In this research, we examined whether brief, unobtrusive primes of personal death are associated with increases in alcohol consumption. Specifically, we examined the impact of implicit primes of death on the purchase and consumption of alcoholic or nonalcoholic beverages among pedestrians walking through a college campus. Alcohol is often consumed to regulate distress (Holahan et al., 2001) and is effective in doing so for physiological (Adolorato, Leggio, Cardone, Ferrulli, & Gasbarrini, 2009) and psychological (Carney, Armel, Tennen, Affleck, & O’Neil, 2000) reasons. On this basis, we hypothesized that death primes would increase the consumption of alcoholic beverages but not of nonalcoholic beverages.

Method

Participants

Three-hundred-and-seventy-seven participants (60% men, 40% women) ranging in age from 20 to 53 (M = 25.2, SD = 0.7; age data are based on 80% of the sample who agreed to provide this information) participated in the study. Because of compulsory military service for both men and women, Israeli undergraduate students are typically 3–4 years older than their American counterparts. All of the participants were legally allowed to drink (the legal drinking age in Israel is 18). The gender distribution in this study was similar to the gender distribution on campus. Participants were approached on the Interdisciplinary Center (IDC) Herzliya campus and were handed a flier by research assistants. Then, another research assistant seated at one of two booths solicited participants to buy beverages.

Procedure and Materials

The study was conducted in a central location on the IDC campus where many student activities take place. Two research assistants handed out fliers that were stacked in a random order (based on a procedure used by Hirschberger, Ein-Dor, & Almakias, 2008) and that served to remind participants of either
their death or of an aversive condition unrelated to death (severe back pain), which served as the control. We chose to compare death with severe pain because previous terror management research has demonstrated that death primes have a unique effect compared not only with neutral conditions but also with other aversive conditions (Burke, Martens, & Faucher, 2010). Therefore, comparing death with severe back pain in the current research constitutes a stringent and parsimonious test of our hypotheses.

Recruitment rate was high (above 90%; because every person who took a flier was part of the study. The remaining 10% were offered a flier but refused to take it) and did not differ between conditions. The fliers displayed the logo of the Kalima Institute, a fictional organization, and in the death prime condition (N = 175) the fliers read: “Are you concerned about death? We can help! Call us and we can ease your suffering both physically and spiritually.” In the control condition (N = 202) the fliers read: “Are you dealing with severe back pain? We can help! Call us and we can ease your suffering both physically and spiritually." The words “death” and “severe back pain” were printed in bold letters. Following the text were a phone number and name of a contact person (none of the participants called either during the experiment or after debriefing). The fliers were folded (such that research assistants would be unaware of condition), stacked in randomized order, and were marked on their backs with either green or red stickers to specify experimental condition (as in Hirschberger et al., 2008).

Fifteen meters away from these research assistants, a third research assistant sat at a booth and solicited those who received fliers to come and purchase a beverage. A fourth research assistant observed the situation and recorded whether a participant received a flier with a red or green sticker. The research assistant was trained in a 15-min pretest that was held a week before the onset of the study to ensure her valid and accurate perception. Research assistants were not informed of the purpose of the study and did not know the meaning of the stickers on the fliers to ensure that they would be blind to experimental conditions. Thus, neither the person selling the beverages nor the person recording sticker color knew anything about this research beyond their specific role. The study was conducted during the month of May 2010 on Tuesdays between 2:00 and 4:00. Only one type of beverage was offered on each day, such that during one day the beverages sold at the booth were alcoholic (Caipirinha, 30% alcohol), and were explicitly advertised as alcoholic on signs around and above the booth. On the consecutive week, the booth sold an identically made beverage at a cost of 5 NIS (approximately U.S. $1.50; all proceeds were donated to charitable organizations). The research assistant who observed the situation noted whether a participant bought and consumed the beverage. At the end of the procedure, participants were approached by an experimenter, debriefed, and asked several basic demographic questions. This study was approved by the institutional review board of the IDC.

Data Analysis

A 2 × 2 log-linear analysis was conducted to systematically examine patterns of association among the manipulated variables, type of prime (death, pain), and beverage type (alcoholic, nonalcoholic), on the outcome variable, consumption of alcohol (yes, no).

Results

Overall, of the 175 participants in the death prime condition, 82 (46.9%) had the opportunity to purchase alcoholic beverages and 93 (53.1%) had the opportunity to purchase nonalcoholic beverages. Of the 202 participants in the control condition, 123 (60.0%) had the opportunity to purchase alcoholic beverages, and 79 (45.9%) had the opportunity to purchase nonalcoholic beverages.

The analysis revealed a significant main effect for type of prime, $G^2(1) = 32.54, p < .001, W = .29$; Participants consumed more alcoholic beverages (alcoholic and nonalcoholic) when they were primed with death ($N = 31$) than when they were primed with severe pain ($N = 14$). The analysis also revealed a significant main effect for beverage type, $G^2(1) = 10.5, p < .01, W = .17$: Participants consumed more alcoholic beverages ($N = 41$) than nonalcoholic beverages ($N = 4$). These main effects, however, were qualified by a significant interaction between type of prime and beverage type on consumption, $G^2(4, N = 377) = 64.8, p < .001, W = .41$. Further examination of this effect for each beverage type revealed that participants who received death primes were significantly more likely to consume alcohol (36.59%, $N = 30$) than those who received pain primes (8.94%, $N = 11$), $G^2(1, N = 205) = 23.36, p < .001, W = .34$ (see Figure 1). There were no significant differences in the consumption of nonalcoholic beverages between those who received death primes and those who received pain primes ($N = 1$ in the death prime condition, and $N = 3$ in the control condition consumed a nonalcoholic beverage), $G^2(1, N = 172) = 1.43, p = .23, W = .09$.

Discussion

The results of the behavioral field experiment support our hypotheses and show that brief and obnubilative primes of death are associated with increases in the consumption of alcoholic beverages among pedestrians walking through campus. These results may seem, at first sight, to contradict the research on health warning labels, which indicates that health warnings increase the awareness of the risks of alcohol abuse (e.g., Weinstein, 1998). The terror management health model (Goldenberg & Arndt, 2008) provides an explanation for this apparent contradiction, as it makes an important distinction between explicit death primes and implicit death primes that may occur at the fringes of attention. Accordingly, when people are consciously aware of death they tend to behave in a manner consistent with health protection because of the obvious relationship between healthy behaviors and death risk. When death is implicit, however, it may have ironic consequences on health-related behaviors and may elicit attempts to remove the threatening thought. One way to do so may be by consuming...
substances that offer momentary relief, even if this relief comes paradoxically at the expense of actual health. This conclusion is also in keeping with the self-medication hypothesis of substance use (Khantzian, 1997), which suggests that people use substances to alleviate noxious affective states.

Because the measured behavior occurred when participants did not think they were participating in a study is a strength of this research. This field experiment methodology offers the control of a laboratory study with the ecological validity of a field study. It is important, however, to consider some of the shortcomings of field experiments. First, field experiments by nature may reveal cause and effect but cannot examine mediating variables that may elucidate the process linking death concerns to self-medicating behaviors (i.e., Is it the regulation of negative affect or a reduction in self-awareness that is driving the effects?). Second, because of ethical concerns, we could only measure the consumption of a small amount of alcohol (each participant consumed the content of a 30-cc glass, 5% of which is vodka), not enough to conclude that the effects we studied are responsible for the phenomenon of substance abuse. We can, however, suggest that the magnitude of our effect implies that alcohol becomes more attractive when death is salient, suggesting that the regulation of death anxiety should be considered when developing policies or conducting research concerning alcohol consumption. We did not control for alcohol dependence, general life stress or stress tolerance, experiencing the death of a close other, or suffering from chronic pain, and these factors, as well as many others, could potentially influence our results. The random assignment of participants to experimental conditions, as was used in this research, minimizes these influences as they are expected to be evenly distributed between conditions. Another point to keep in mind is that in the study, we compared a death prime with a pain condition, and we cannot be sure that our results are unique to death and do not reflect a more general response to any highly aversive state. In fact, our findings are consistent with a vast literature on stress-induced substance abuse (e.g., Kassel, Stroud, & Paronis, 2003) and could, therefore, reflect a general response to threat and not a specific response to death. A meta-analysis of terror management research, however, indicates that death primes elicit a qualitatively different effect than other negative conditions such as pain, failure, or uncertainty (Burke et al., 2010). Although our findings are consistent with this analysis, we cannot conclude with certainty that they are specific to death. Future research should continue to investigate this question. Finally, our study was conducted on a specific nationality and age group. Although terror management studies have been conducted on numerous populations in numerous countries, the chronic exposure of Israeli participants to existential threat is relatively high. To generalize these findings, it is important to

Figure 1. Percentage of participants who consumed a beverage by condition. The analysis revealed that a greater percentage of students who received the death prime consumed alcohol versus students in the pain prime condition. The type of prime (death–pain) did not influence the consumption of nonalcoholic beverages.
determine whether they would be replicated in other regions where death is less salient.

In spite of these limitations, our research offers new methods to study substance use in a real-life setting while maintaining the stringent conditions of a laboratory experiment. Further study of these effects on larger samples in different settings may have important implications for public health campaigns aimed at controlling alcohol use.

References


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