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The effects of Present Hedonistic Time Perspective and Past Negative Time Perspective on substance use consequences

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ABSTRACT

Background: The overuse of substances can lead to economic, physical, and social consequences. Previous research has demonstrated associations between time perspective and frequency of substance use, but no studies have investigated time perspective's effect on substance use consequences. This study aimed to fill this gap in the literature.
Methods: Using an MTurk sample ($N = 531$), latent factor models tested the hypothesis that both Present Hedonistic Time Perspective (PrHTP) and Past Negative Time Perspective PaNTP positively predict alcohol and illicit drug use consequences. Bootstrap analyses were then used to test the hypothesis that PrHTP indirectly affected the relationship between PaNTP and alcohol and illicit drug use consequences.
Results: PrHTP significantly predicted alcohol and illicit drug use consequences. PaNTP also significantly predicted alcohol and illicit drug use consequences. PrHTP was found to indirectly affect the relationship between PaNTP and substance use consequences for both alcohol and illicit drugs.
Conclusions: The findings are consistent with previous research and introduce time perspective as an individual differences risk factor for substance use consequences. The partial and full indirect effects are consistent with the idea that individuals with a PaNTP may develop a PrHTP, placing them at risk for substance use consequences.

1. Introduction

Problematic substance use results in significant costs to society. Among individuals in the U.S. aged 12 and older, approximately 21.6 million (8.2% of the population aged 12 and older) suffer from a substance use disorder, with 17.3 million having a diagnosis of alcohol abuse or dependence and 6.9 having an illicit drug abuse or dependence diagnosis (U.S. Department of Health and Human Services, 2013). The excessive use of substances can lead to health, familial, economic, and legal consequences (see Chen and Lin, 2009; Rehm et al., 2009; Room et al., 2005; Stuart et al., 2008). For instance, Rehm et al. (2009) found that the U.S. spent approximately 2.7% of its gross domestic product on alcohol associated economic costs (e.g., health costs, law-enforcement costs). The United States Department of Justice (2010) also found that illicit drug use costs the United States an estimated $193 billion in similar expenses. The considerable costs that result from alcohol and illicit drug abuse highlight the need to identify factors that lead to substance use consequences. In doing so, nascent areas of intervention may be identified that could help curb or prevent these costly consequences.

One such factor that has been found to predict risky behaviors, including substance use, is time perspective. Time perspective is a temporally stable individual differences construct that influences the perception of and focus on past, present, or future events (Gonzalez and Zimbardo, 1985; Zimbardo and Boyd, 1999). It is believed that individuals with a high present time perspective focus their attention on what is currently happening in their lives and are less inclined to forecast into the future or relive the past. Those with a high past time perspective tend to relive or perseverate on past events. Finally, individuals with a high future time perspective tend to forecast what may happen in the future. Zimbardo and Boyd (1999) have proposed the existence of five distinct time perspectives that compose these three higher order time perspectives: *Past Negative, Past Positive, Present Hedonistic, Present Fatalistic*, and *Future*. They posit that a balanced time orientation "allows individuals to flexibly switch temporal frames among past, future, and present depending on situational demands, resource assessments, or personal and social appraisals" (Zimbardo and Boyd, 1999, p. 1272).

Studies investigating the higher order constructs of time perspective have found individuals with a high present time perspective to be more likely to participate in activities such as

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risky driving (Zimbardo et al., 1997) and gambling (Hodgins and Engel, 2002) and to have a higher number of sexual partners (Rothspan and Read, 1996). Consistent with this and most relevant for the present report, researchers have found positive associations between substance use and present time perspective (Keough et al., 1999; Petry et al., 1998; Wills et al., 2001). Research investigating the lower order constructs of time perspective has also found associations with substance use. Specifically, studies have found Present Hedonistic Time Perspective (PrHTP) to be positively associated with substance use (Henson et al., 2006; Petry et al., 1998). Zimbardo and Boyd (1999) define PrHTP as an "orientation towards the pleasures of the present without taking into account the possible future consequences" (p. 1275). Accordingly, individuals with a high PrHTP may be more likely to act on impulse and give little thought to the possible future ramifications of their actions (i.e., compulsive gamblers, over-eaters, problematic substance users).

Whereas an orientation towards the present may increase substance use through impulsive reward seeking, an orientation towards the past may also affect substance-related pursuit. Past Negative Time Perspective (PaNTP) is a negative, antipathetic, and ruminative orientation towards the past and people high on this trait are believed to be sullen and overwhelmingly preoccupied with negative past experiences. Although there is a dearth of literature investigating the association between PaNTP and substance use, the associations between related constructs and substance use provides indirect support for such a relationship. PaNTP is associated with increased levels of stress, arousal, and tension (Stolarski et al., 2013), and there is considerable research linking such constructs characterized by negative affectivity to alcohol and substance use and related problems (Kassel et al., 2000; Takagi et al., 2011; Wills et al., 1999). Given the relationship of PaNTP to negative affect oriented dispositions that have been implicated in alcohol and substance use, PaNTP warrants further exploration as an individual differences factor related to alcohol and drug use.

Much of the prior literature has solely investigated the relationship between time perspective and increased substance use and has ignored consequences resulting from substance use. As research has shown that the escalation of substance use, or the increase in use, is associated with consequences for the user (Colder et al., 2002; Henry, 2010; Henry and Thornberry, 2010), the next important step is to extend the literature by showing a link between time perspective and substance use consequences. Therefore, the first aim of the current study was to establish a connection between PrHTP and substance use consequences. Specifically, it was hypothesized that greater PrHTP scores would be associated with more alcohol and illicit drug use consequences.

The second aim of this study was to establish a relationship between PaNTP and substance use consequences. Research investigating PaNTP has found it to be associated with increased distress and tension (Stolarski et al., 2013; van Beek et al., 2011), which are risk factors for increased substance use (Kushner et al., 1996; Rutledge and Sher, 2001). As research has shown increases in substance use to be associated with more consequences related to substance use, it is important for researchers to understand the role of PaNTP in substance use consequences. This study hypothesized that greater PaNTP scores would be associated with greater alcohol and illicit drug use consequences.

Finally, PaNTP and PrHTP are both related to factors (i.e., negative affect, stress, risky behaviors) that are associated with substance use disorders (Chassin et al., 2004; see Sinha, 2008 for review; Sinha and Li, 2007). Understanding the relationships between PaNTP, PrHTP, and consequences related to substance use will allow researchers to identify time perspective as a possible risk factor for substance use consequences. Given Zimbardo and Boyd's (1999) theory on how time perspective operates and the temporal nature of the PaNTP and PrHTP constructs, this study proposed that individuals with a higher PaNTP may develop a stronger PrHTP in an attempt to alleviate the negative feelings and tension associated with a PaNTP. This reliance on a PrHTP may then expose these individuals to an increased risk for substance use consequences. This study hypothesized that PrHTP would indirectly affect the relationship between PaNTP and substance use consequences.

2. Methods

2.1. Participants and procedures

Participants were recruited through Amazon's Mechanical Turk (MTurk), which is an online crowdsourcing marketplace. Data collected through MTurk has been shown to be diverse and of good quality (Buhrmester et al., 2011; Paolacci and Chandler, 2014). Studies investigating the characteristics of MTurk samples have found that they typically consist of individuals who are overeducated, underemployed, younger (approximately 30 years old), and predominantly Caucasian and middle class (Berinsky et al., 2012; Shapiro et al., 2013). Additionally, studies have found MTurk samples to be more socially anxious (Shapiro et al., 2013) and less extraverted (Kosara and Ziemkiewicz, 2010) than the general U.S. population. Access to the current survey was restricted to respondents who were U.S. residents over the age of 18 who had a Human Intelligence Task rating of over 90% (indicating that their work on previous tasks was of good quality). Participants provided informed consent before completing a battery of questionnaires via a secure online program. The study took approximately 1 h to complete, and participants were paid $2.00 for their efforts.

The online survey was completed by 580 individuals. Validity check items (e.g., "Are you reading this questionnaire?") were included to ensure that respondents were attending to the survey items. In all, 49 participants were excluded for responding incorrectly to at least one of two validity items. The final sample for this report consisted of 531 participants between the ages of 18 and 70 (M = 33.36, SD = 11.59). Racial distribution of the sample was 80% White, 9.2% Black, 6.4% Asian, and 4.4% multiracial or other. Ethnic distribution of the sample was 90.6% Non-Hispanic/Latino, 5.6% Hispanic/Latino, and 3.8% chose not to disclose their ethnicity. With regards to education, .3% reported not having a high school diploma, 11.4% reported attaining a high school diploma, 37.4% reported attending some college, 10.9% reported attaining an Associate's degree, 25.9% reported attaining a Bachelor's in Art or Science degree, 3.2% reported attending some graduate school training, 7.8% reported receiving a Master's degree, and 2.9% reported receiving a Doctorate degree as their highest level of education.

2.2. Measures

Stanford Time Perspective Inventory (STPI): The STPI (Zimbardo and Boyd, 1999) is a 56-item questionnaire that measures five facets of an individual's perception of time. These time orientations include Future Time Perspective (FTP; e.g., "I believe that a person's day should be planned ahead each morning."), PaNTP (e.g., "I often think of what I should have done differently in my life."), Past Positive Time Perspective (PaPTP; e.g., "I enjoy stories about how things used to be in the 'good old times'"), PrHTP (e.g., "I make decisions on the spur of the moment."), and Present Fatalistic Time Perspective (PrFTP; e.g., "Since whatever will be will be, it doesn't really matter what I do."). Internal consistency was high in the present sample for the total STPI (α = .76) as well as the subscales (PaNTP α = .85; PrHTP α = .83). The current study used the PaNTP and PrHTP subscales of the STPI.

Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ): The B-YAACQ (Kahler et al., 2005) measures the occurrence of