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Short Communication

The relationship between temporal profiles and alcohol-related problems in University undergraduates: Results from the United Kingdom☆,☆☆,★

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HIGHLIGHTS

- Temporal profiles were formed using ZTPI scores.
- These related meaningfully to AUDIT scores.
- Future Positives were least likely to drink problematically — 80% of British university students are problematic drinkers.

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ABSTRACT

Time perspective is an individual difference variable which assesses the extent to which orientation to the past, present and future affects current behaviors. The present study investigated the viability of temporal profiles and the degree (if any) to which these predict meaningful differences in alcohol-related problems. Participants were undergraduates recruited from a University in the North West of England. Full survey data were available for 455 individuals (aged 18–25; 49.7% male) on (a) time perspective, and (b) alcohol-related problems. Four profiles emerged and were labeled Future-Positive, Present, Past Negative-Future, and Ambivalent. As hypothesized, the Future-Positive profile was associated with the best alcohol-related outcomes. The Present profile was associated with the worst outcomes. This study demonstrates that temporal profiles are associated with alcohol-related problems.

1. Introduction

Heavy drinking and alcohol-related problems among university and college students are key public health challenges (e.g., Johnston, O'Malley, Bachman, & Schulenberg, 2011), with around 1 in 10 students likely meeting diagnostic criteria for alcohol dependence (e.g. Beenstock, Adams, & White, 2011, El Ansari, Sebena, & Stock, 2014, Knight et al., 2002). Scholars interested in addressing alcohol use in young adults have begun to examine time perspective, an individual difference variable that accounts for both the consideration of, and attitudes toward, the past, present, and future (Adams, 2009). The relationship between time perspective and alcohol use has been extensively studied with more problematic alcohol use associated with a foreshortened future orientation and a higher present orientation (e.g. Beenstock et al., 2011, Klingeman, 2001).

Zimbardo and Boyd (1999) proposed a five-factor construct for time perspective assessed by the Zimbardo Time Perspective Inventory (ZTPI). Past Negative (PN) represents a pessimistic attitude toward the past (e.g., *Painful past experiences keep being replayed in my mind*); Past Positive (PP) represents a positive view of the past (e.g., *It gives me pleasure to think about my past*); Present Hedonistic (PH) includes the desire for enjoyment of present experiences (e.g., *I do things impulsively*); Present Fatalistic (PF) represents a lack of hope for the future and the belief that uncontrollable forces determine one's fate (e.g., *Fate determines much in my life*); Future (F) represents a general future orientation (e.g., *It upsets me to be late for appointments*).

One limitation is that virtually all published analyses have been variable focused (e.g., correlational in nature), and/or have only reported scores on the PH and F subscales. Because individuals hold all five ZTPI

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factors simultaneously, or to matters of degree (e.g., Shipp, Edwards, & Schurer-Lambert, 2009), a more comprehensive and accurate approach may be to employ person-centered analyses. Using such a methodological approach would account for the degree to which alcohol use or related problems are associated with the totality of time perspective as assessed by the ZTPI. In fact, Zimbardo and Boyd (1999) themselves proposed that researchers should consider scores across ZTPI subscales in the prediction of behavior, and theorized that a balanced time perspective was ideal. They argued that Balanced profiles are characterized by high scores on PP, PH and F domains, and low scores on PN and PF domains.

Some have successfully applied person-oriented analyses (using a hierarchical cluster analysis approach) to ZTPI scores and identified interpretable ZTPI profiles (e.g. Boniwell, Osin, Alex Linley, & Ivanchenko, 2010, McKay, Andretta, Magee, & Worrell, 2014), although the collective set of studies provided some confounding results. In a sample of British and Russian University undergraduates, Boniwell et al. (2010) reported that membership of their Balanced profile was associated with the highest levels of wellbeing. By contrast, McKay et al. (2014) reported that among adolescents, those with a Future profile were least likely to drink problematically, while those with a Hedonistic profile were most at risk. It should be noted, however, regarding the "Balanced" profile in their British sample, Boniwell and colleagues observed, "this cluster does not completely satisfy the Boyd and Zimbardo criteria, as it shows only moderate scores on the three 'positive' TP scales alongside the low scores on the two 'negative' scales" (p. 30). Furthermore, McKay and colleagues derived profiles from scores on a validated short form of the ZTPI, while Boniwell et al. used the full ZTPI.

In the present study, we employed hierarchical cluster analysis to examine the relationship between time perspective profiles and alcohol-problems in a large sample of University undergraduates using ZTPI scores from the full version of the ZTPI. In keeping with the emerging literature, we hypothesized to observe the highest levels of alcohol-related problems in undergraduates with a present oriented profile(s), with the reverse true for those with a more future-focused and/or balanced profile.

2. Materials and methods

2.1. Participants, recruitment & procedure

Participants were 455 University undergraduates (aged 18–25; 49.7% male) recruited from a University in the North West of England through opportunistic and snowball sampling. Participants from within the University received course credits for taking part. The study was given ethical approval by the relevant university ethics committee and all participants gave written informed consent. Completion of the questionnaires took place within the University setting and took approximately 15–20 min.

2.2. Measures

2.2.1. Alcohol-related problems

The Alcohol Use Disorders Identification Test (AUDIT) (Saunders, Aasland, Babor, dela Fuente, & Grant, 1993) was used to assess problematic alcohol use in the sample. The AUDIT demonstrated good sensitivity (.94) and specificity (.92) in undergraduates (Adewuya, 2005), although interpretation of total AUDIT scores varies considerably (e.g. Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Beenstock et al., 2011). The original guidelines recommended by Saunders et al. (1993) are used here. Accordingly, a score of eight or more (out of 40) indicates hazardous to harmful alcohol use. Reliability for AUDIT scores in the present study was $\alpha = .83$.

2.2.2. Time perspective

The 56-item Zimbardo Time Perspective Inventory (ZTPI; Zimbardo & Boyd, 1999) assesses individual differences on five subscales: Past-Negative (PN) and Past-Positive (PP), measures a negative and positive view of the past, respectively; Present-Hedonistic (PH), measures a risk-taking approach to life oriented toward present pleasure; Present-Fatalistic (PF), assesses a pessimistic view of life; and Future (F), assesses preparation for the future and orientation to longer term outcomes. Responses to each item were on a 5-point Likert scale: 1 = very uncharacteristic of me, through 5 = very characteristic of me. Reliabilities for ZTPI subscale scores in the present study were as follows: PN, $\alpha = .80$; PP, $\alpha = .69$; PH, $\alpha = .80$; PF, $\alpha = .75$; F, $\alpha = .76$.

3. Results

Intercorrelations among ZTPI scores were modest ($.10 \le r \le .37$), as were correlations among ZTPI and AUDIT scores ($.01 \le r \le .31$). Scores on all temporal domains and on the AUDIT were neither skewed nor kurtotic. A total of 81.5% of respondents met the criteria for harmful or hazardous drinking (scoring >8 on the AUDIT).

Model-based clustering using the *mclust* package in *R* statistics was employed to identify temporal profiles based on the five ZTPI subscale scores (Fraley, Raftery, & Scrucca, 2014; R Core Team, 2014). The number of clusters in the dataset was determined across the course of several stages of analyses: (a) model fit indices, (b) differences in ZTPI scores across clusters, and (c) average posterior probabilities. The four temporal profiles are shown in Fig. 1. Profile 1 was labeled F-positive because undergraduates in this cluster reported F scores that were substantially above the mean ($\approx +1$ *SD*) and PP scores that were close to the mean, with PH, PF, and PN scores that were far below the mean (>-1 *SD*). Profile 2 was labeled Present and was characterized by elevated PH and PF scores ($\approx +1$ *SD*), coupled with average scores on both PP and PN and depressed Future scores when compared to peers (≈ -1 *SD*). The third profile was labeled PN-future, and undergraduates with this profile reported high PN scores ($\approx +1$ *SD*), average F scores and low scores on the remaining ZTPI subscales (≈ -1 *SD*). Last, the Ambivalent profile was marked by average scores on all five ZTPI subscales when compared to peers with different profiles. It could not be labeled Balanced as the theoretically Balanced profile (Boniwell et al., 2010; Zimbardo & Boyd, 1999) is characterized by relatively low PF and PN scores, coupled with relatively high PP, PH and F scores. These profiles do not reflect the profiles reported elsewhere (Boniwell et al., 2010; McKay et al., 2014).

Results of crosstabulation showed that ZTPI profiles were not contingent upon gender, (χ^2 (3) = 6.07, $p = .11$, *Cramer's* $V = .11$). However, there were significant differences in the categorical distributions between temporal profiles and drinking categories (harmful or hazardous versus non-problematic use) with small to moderate effect sizes ($.12 \le V \le .30$). The profile with the highest proportion of harmful or hazardous drinkers was the Present profile, followed by the Ambivalent, PN-future and F-positive.

Table 1 shows the distribution of problematic and non-problematic drinkers across ZTPI profiles. The highest percentages of problematic drinkers were observed in young adults with Present and Ambivalent profiles. The lowest percentage of problematic drinkers was observed in young adults with Future-Positive profiles, but even this profile included a strong majority of problematic drinkers.

Table 2 shows pre-planned comparisons for alcohol-related problems between groups. In keeping with the extant literature, those with a F-positive temporal profile reported substantively lower levels of alcohol-related problems than peers with Present profiles. Moreover, undergraduates with a Present profile reported substantially higher levels of alcohol-related problems than peers with different temporal profiles. Alcohol-related problems were meaningfully higher in the Ambivalent than the PN-future group.