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## Time under control: Time perspective and desire for control in substance use

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► **To cite this version:**

Nicolas Fieulaine, Frédéric Martinez. Time under control: Time perspective and desire for control in substance use. *Addictive Behaviors*, 2010, 35 (8), pp.799-802. 10.1016/j.addbeh.2010.03.022 . halshs-00494177

**HAL Id: halshs-00494177**

**<https://shs.hal.science/halshs-00494177>**

Submitted on 22 Jun 2010

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Abstract

**Objective:** To investigate the role of time perspective and desire for control in self-reported substance use and to test for a moderating effect of desire for control in the relation between time perspective and substance use. **Procedure:** A random sample of 240 persons, aged 15 years and over, selected in various public spaces in an urban region in central France. **Main outcome measures:** Time perspective was measured using subscales of the Zimbardo Time Perspective Inventory (ZTPI, Zimbardo & Boyd, 1999), Desire for control was measured using a translated version of the Desire for Control Scale (DCS, Burger & Cooper, 1979), and substance use was self-reported. **Results:** After controlling for age and gender, significant links were found between time perspective and substance use. Desire for control did not appear to be directly related to substance use. The interaction effect between TP and desire for control appeared to be related to substance use. There was evidence that the relation between TP and substance use is buffered by low desire for control. **Conclusion:** This study converges with previous studies demonstrating the relation between TP and substance use, but provides evidence of the moderating role played by desire for control. Desire for control thus appears as worthy of interest in the analysis of self-regulatory process, and further research on the links between TP and various aspects of control is required. In order to be more effective, the design of future studies and interventions based on time-related issues should consider how desire for control plays a part in establishing vulnerability profiles.

**Keywords:** Substance use, time perspective, desire for control, self-regulation, buffering effect

**TIME UNDER CONTROL:  
TIME PERSPECTIVE AND DESIRE FOR CONTROL IN SUBSTANCE USE**

**1. Introduction**

Growing research in the last decade evidenced that time perspective (TP) is a strong psychosocial predictor of many behaviors, particularly in the field of health (Guthrie, Butler & Ward, 2009). From the perspective of Zimbardo & Boyd (1999), which postulate that TP consists of five factors based on orientation and attitudes towards timeframes, several studies have shown that present orientation, in a hedonistic and sensation-seeking attitude, and future orientation, in a planning and goal-oriented attitude, are the most predictive factors in health behaviors, and in substance use (Keough, Zimbardo & Boyd, 1999; Apostolidis, Fieulaine, Simonin & Rolland, 2006). While individuals focused on future time perspective (FTP) are more likely to engage in health protective behaviors and to avoid risky ones, individuals predominantly possessing a present hedonistic time perspective (PHTP) are more likely to adopt risky behaviors (e.g. Henson, Carey, Carey & Maisto, 2005, Crockett, Weinman, Hankins & Marteau, 2009).

Nevertheless, results are sometimes inconsistent with this general statement (Guthrie & al. 2009; Adams & Nettle, 2009). One reason for this inconsistency may be the intervention of other variables which can buffer, reinforce or reverse this relation (Apostolidis & al., 2006; Apostolidis, Fieulaine & Soulé, 2006). Among these potential intervening variables, control appears to be of particular importance. In the framework of self-regulation theory, several studies have found evidence of the buffering effect of self-control on substance use with regard to risk factors (Wills, Walker, Mendoza & Ainette, 2006). In these studies, having good (or high) self-control appears to be negatively related to substance use, and to reduce the impact of risk factors on substance use (e.g. Wills, Ainette, Stoolmiller, Gibbons & Shinar, 2008).

Our purpose in this study was to introduce a new control component into this framework, namely the construct of desire for control (DC, Burger & Cooper, 1979), which corresponds to the desire or motivation to maintain control, make one's own

decisions, and be in charge of one's activities. DC is presumed to be a source of motivation for control, varying from situation to situation but resulting in a general and measurable level, and is depicted as an important dispositional factor within various phenomena, such as achievement, psychological adaptation, stress, or health (Burger, 1992; Gebhardt & Brosschot, 2002). DC is distinct from other measures related to perceptions or beliefs about control, given that it examines the degree to which control is attractive, desirable and valuable, while other measures generally assess the level to which, and how, control is attained (cf. Skinner, 1996). Hence, if self-control resembles a muscle in self-regulation processes (Muraven & Baumeister, 2000), desire for control could function as the oxygen or the fuel of muscular activity and may thus be considered as a motivational basis for self-control. In the self-regulation framework, DC could therefore intervene as a moderator regarding distal risk factors, and as having a buffering effect on the relation of TP to substance use.

Accordingly, the aim of the present study is to examine how individual differences in DC moderate the relation between TP and substance use, and if the interaction between TP and DC is a particular predictor of substance use.

## **2. Method**

The study was carried out during Winter 2008. Participants were randomly selected in various public spaces in an urban region in central France. The study was not presented as “a drug study”, but as a survey of opinions and lifestyles, and participants were invited to fill in the questionnaire individually. It was stressed that responses were anonymous and confidential. A total of 240 persons (M age=33.3, SD=10.5), comprising 59.2 % men and 40.8% women took part in this study on a voluntary basis.

### **2.1. Measures**

*Time Perspective* was measured using the Zimbardo Time Perspective Inventory (ZTPI, Zimbardo & Boyd, 1999), in its validated French version (Apostolidis & Fieulaine, 2004). ZTPI measures TP through an inventory of temporally marked

propositions concerning the beliefs, values and preferences that individuals associate with their experiences. Only “Present hedonistic” (PH, enjoyment and pleasure in the present) and “Future” (F, planning and achievement of future goals) subscales were used. Items were assessed on Likert scale according to how characteristic each statement is considered to be by the respondent (ranging from 1 [very uncharacteristic] to 5 [very characteristic]). Subscales reliabilities appeared to be acceptable in the sample (PHTP: N=18,  $\alpha=.75$  ; FTP: N=12,  $\alpha=.70$ ) and scores were calculated by the mean.

*Desire for control* was measured using the Desirability of Control Scale (DCS) elaborated by Burger & Cooper (1979). This scale is a 20-item self-report questionnaire, in which participants indicate their degree of agreement with each statement on a seven-point Likert scale (from 1 [strong disagreement] to 7 [strong agreement]). DCS measures general desire for control over life events in several domains, such as making one’s own decisions, taking preventive action to control upcoming situations, controlling others, or avoiding situations in which others have control (cf. Burger & Cooper, 1979). This scale has been found to have high internal and test-retest reliabilities, and its discriminant validity with other measures of control has been established (Gebhardt & Brosschot, 2002). Given that the scale was not available in French<sup>1</sup>, we translated the scale and then verified its factorial structure and reliability .

*Substance use* was measured with a set of six items concerning the typical frequency of tobacco (2 items), alcohol (2), cannabis (1) and other drug (1) use, assessed on a 4-point Likert scale (ranging from 1 [Never] to 4 [Always]). According to studies supporting the existence of a general factor of substance use (e.g., Bentler & Newcomb, 1986), items were employed as indicators of a substance use latent factor, and a composite indicator was calculated by the mean (ranging from 1 to 4, Cronbach's  $\alpha=.70$ ).

### **3. Results**

*Dimensionality of DC scale and intercorrelations between independent measures*

In order to test the construct validity of the DC scale and to explore its factorial structure, an exploratory factor analysis, (PCA with varimax rotation), was carried out on the data from the 240 subjects' responses to the 20 items of the scale. As in Burger & Cooper (1979) and in Burger (1992), a five-factor structure emerged (scree test, Catell, 1966), accounting for 52.36 percent of the explained variance (see Table 1). The five factors were labeled as (i) 'control others' (desire for influence over others); (ii) 'relinquish control' (desire to avoid decision-making); (iii) 'preparation' (preventive action to ensure control in future situations); (iv) 'control self' (desire for own decision-making and autonomy in life); and (v) 'avoidance of dependence' (rejection of situations where others have control). These factors are similar to those observed by Burger & Cooper (1979), Burger (1992) and Gebhardt & Brosschot (2002). Cronbach's alpha coefficients for the scales were acceptable ( $\alpha = [.70 - .74]$ ).

Intercorrelations between independent variables (N=239) were calculated. DCS subscales were highly intercorrelated, as expected. DC appeared to correlate with TP, and particularly with PHTP. Hence, the higher people score on PHTP, the less they emphasize control preparation ( $r = -.13$ ,  $p < .05$ ), and the more they emphasize 'control others' ( $r = .19$ ,  $p < .01$ ), 'control self' ( $r = .15$ ,  $p < .05$ ) and 'avoidance of dependence' ( $r = .13$ ,  $p < .05$ ). FTP appeared as highly positively correlated with 'control preparation' ( $r = .45$ ,  $p < .001$ ), congruent with the meaning of this subscale.

#### *Time perspective and desire for control in substance use*

We then tested for the predictive role of TP and DC in self-reported substance use, by using a simultaneous multiple linear regression controlled for sex and age. Results are in line with previous studies showing the relation of TP to substance use. The more people are focused on PHTP, the more they report substance use ( $\beta = .14$ ,  $p < .05$ ), and the more they are focused on FTP, the less they consume ( $\beta = -.18$ ,  $p < .01$ ;  $R^2 = .17$ ,  $p < .001$ ). Surprisingly, no relation appeared between DC and substance use.

In a last step, we performed hierarchical multiple regression analysis controlled for age and sex, in order to test for the predictive role of DC\*PT interaction in substance use (cf. Baron & Kenny, 1986; Frazier et al., 2004). The tested moderating hypothesis postulates that DC will affect the relation between TP and substance use in terms of strength or direction. After having centered TP and DC scores in order to reduce

multicollinearity, TP\*DC interaction terms were calculated and introduced in the model. Interactions were assessed by the significance of (i) the regression coefficient for the interaction term, and (ii) the increase in the explained variance after the introduction of the interaction term. Significant interaction terms were interpreted by examining simple slopes (Aiken & West, 1991).

Results are recapitulated in Table 2. A significant interaction effect appeared for PHTP with 'relinquish control' and for FTP with 'control others' and 'avoidance of dependence'. Even if the increase in explained variance is low, the interaction is significant, indicating that the relation between TP and substance use varies across the level of desire for control. Simple slopes examination indicated that (i) the positive relation between PHTP and substance use is lowered when individuals score highly on the 'relinquish control' dimension of the DCS ( $a = -.09$  vs.  $a = .52$  for high DC), and (ii) that the negative relation between FTP and substance use is lowered when individuals have lowest scores on the 'control others' ( $a = -.15$  vs.  $a = -.44$  for high DC) and 'avoidance of dependence' ( $a = .04$  vs.  $a = -.66$  for high DC) dimensions.

#### **4. Discussion**

Our purpose in this study was to explore the links between TP and DC, and to investigate the role played by the latter in the relation between TP and substance use. The results reflect several studies showing that PH and F dimensions of TP are related to substance use (, but also offer new insights concerning the intervention of desire for control in this relation. In line with our moderating hypothesis, desire for control appears as having a buffering effect on the relation between TP and substance use, and the well-established predictive role of future and present-hedonistic TP in substance use appears to be conditioned by the level of desire for control. More precisely, being PHTP centered does not lead to higher levels of self-reported substance use for those who desire to relinquish control over others, and being FTP centered appears predictive only for those who have a high desire for control over others or for avoiding dependence. Thus, if TP is a risk (for PH) and a protective (for F) factor in substance use, it is dependent on another distal psychological construct. In relation to personal experiences, values and living conditions, TP and DC interact in establishing what one can consider as social-psychological vulnerability profiles for substance use. High PHTP or low FTP and high DC appeared in our sample as the

most vulnerable profiles for substance use. In our findings, PHTP appeared as a risk factor and FTP as a protective factor only when related to desire for control.

Therefore, contrasting with general statement about self-control in self-regulation theory (e.g. Wills & al., 2008), desire for control appears as supporting both protective and risk factors in substance use, when PT is under consideration.

In considering our results, several limitations should be borne in mind. First, substance use was self-reported, and measured by a composite indicator, which may constrain our conclusions. Second, the cross-sectional design of the study leads us to be cautious on causal or temporal relations. Beyond these limitations, several factors strengthen our study. Our sample was randomly selected in public spaces, ensuring more representativeness than those recruited in specialized institutions or in academic settings. Moreover, our study is, as far as we know, the first attempt to relate desire for control to substance use, and to investigate the interaction between time perspective and DC, and findings suggest a variety of future research and application perspectives. How far control can differentiate apparently equivalent time perspectives, and the interaction of the two constructs to produce various health outcomes are two issues we consider as deserving research in future. Our results also bring to emphasize that time perspective and control could be more efficient if used as interactive factors in vulnerability-reduction or competence enhancement programs.



## **Footnotes**

1. Although this scale has been presented in French language publications (e.g. Baron & Laberge, 1987; Pettigrew & al. 1999), no details were given on the procedure and results, and a request to the author for an unpublished manuscript presenting a French translation of the scale received no response. Moreover, this translation is in Canadian French, different in many respects from standard French.

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