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Future time perspective as predictor of cannabis use: Exploring the role of substance perception among French adolescents

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Abstract

This study explored the relation of Future time perspective (FTP) to cannabis use and tested the potential mediating role of cannabis perception, with a sample of 276 French adolescents. FTP was assessed using ZTPI subscale, cannabis perception was evaluated from a list of nine items related to drug-oriented perception (DOP), and participants were asked to report both their cannabis use and the level of use. Results showed that FTP acts as a significant predictor of cannabis use, and is significantly linked to DOP. A significant relationship between DOP and cannabis use also appeared. Regression analyses showed that DOP acts as a mediator in the link between FTP and cannabis use. These findings confirm the protective role of FTP in cannabis use and suggest the indirect nature of this role.

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1. Introduction

Many previous studies underlined the essential role of general personality variables when analysing substance use and abuse. Among these variables, time perspective (TP) was shown to be a relevant dispositional construct for this analysis. It was seen to play an important role and was described as being

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predictive of psychoactive substance consumption (Keough, Zimbardo, & Boyd, 1999), and of cannabis use in particular (Wills, Sandy, & Yaeger, 2001). Above all, it appears from those studies that future time perspective (FTP) is significantly inversely related to substance use. Although a well-developed body of studies has demonstrated this relationship, few studies have investigated the link between TP and substance related cognitions. In order to further our understanding of the ways by which TP, as a distal factor, operates in the process of substance use, it would appear useful to examine the role played by a proximal factor such as cannabis perceptions. In the French context, despite the statistical and cultural normalization of cannabis use within young adolescents, the way cannabis is perceived is still a cause for much social debate, especially about its definition as a “drug”. Differential perceptions and beliefs related to cannabis are rooted, amongst other things, in its labelling as a drug (Dany & Apostolidis, 2002), and are important factors when analysing substance use (e.g., Chabrol, Massot, & Mullet, 2004). They would thus appear, from a socio-cognitive perspective, to be a salient dimension when analysing the psychosocial dynamic of contemporary cannabis use, particularly within young adolescent populations.

Therefore, the current study tested how the effect of FTP (i.e., distal factor) is mediated by a behaviourally specific immediate predictor (i.e., proximal factor), namely drug-oriented perception of the substance, in the context of early cannabis use. This mediating hypothesis was based on previous cross-sectional studies which suggest that the link between personality variables, such as TP or impulsivity, and substance use could be mediated through proximal factors (e.g., ways of coping; Wills et al., 2001).

2. Method

A sample of adolescents were recruited from the 10th grade classrooms of a public high school in Marseille (France). Students took part voluntarily and anonymously in this study and filled the questionnaire individually during normal class hours in group sessions. From the 304 pupils registered at this level, 280 were present the day when the data collection occurred. 276 students filled the questionnaire completely (average age=15.6): 128 males and 148 females.

FTP was measured using the FTP subscale of the ZTPI (Zimbardo & Boyd, 1999) in its French validated version (Apostolidis & Fieulaine, 2004), which contains 12 items referring to an attitude of planning for and achievement of future goals, and to conscientiousness. The scale score was calculated by the mean.

Perceptions of cannabis as a drug were evaluated on the basis of a created questionnaire containing 9 items (Cannabis is a drug; Cannabis leads to psychological dependence; Cannabis leads to physical dependence; Consuming cannabis can lead to an overdose; Cannabis consumption leads to the consumption of other drugs; Cannabis consumption involves health damage; Cannabis consumers suffer from psychological problems; A cannabis consumer is a drug-addict; Consuming cannabis is an act which harms law and order.). The statements were derived from previous exploratory findings concerning cannabis perceptions among adolescents and young adults (Dany & Apostolidis, 2002). For each statement, participants rated their level of agreement on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This questionnaire enables the calculation of an indicator of participants' agreement with a drug-oriented cannabis perception by averaging the scores of the items.

To assess the respondents' cannabis use, we used a self-reported questionnaire. Firstly, participants indicated if they had already consumed cannabis (*no/yes*). Secondly, those who declared past consumption indicated how often they had used cannabis according to 5 levels of consumption based on the patterns used in national surveys conducted in France (experimental: not during the last 12 months; occasional: less than 10 times during the last 12 months; repeated: less than 10 times during the last 30 days; regular: more than 10 times during the last 30 days and daily: at least once per day).

3. Results

The alpha coefficient for FTP scale was calculated and appeared to be satisfactory ($\alpha = .72$, $m = 3.27$, $SD = .55$). To examine the unidimensionality of the drug-oriented perception indicator (DOP), we conducted exploratory factor analysis on the items. As expected, only one factor emerged, explaining 44.55% of the total variance ($KMO = .86$), and the indicator appeared to have a satisfactory internal consistency ($\alpha = .84$, $m = 3.43$, $SD = .75$). In the total sample, 41.3% ($N = 114$) of respondents reported having already used cannabis: 49.2% of males and 34.4% of females ($\chi^2 = 6.16$, $p = .01$). Among them, the substance use level was: 26.3% experimental, 39.5% occasional, 11.4% repeated, 11.4% regular and 11.4% daily.

The hypothesis of a mediating effect of DOP in the link between FTP and cannabis use (*no/yes*) was tested according to Baron and Kenny (1986) criteria and using both logistic and linear regression analyses (all controlled for age and sex). Table 1 recapitulates results from the two logistic regressions. The first one indicated a significant negative link between FTP and cannabis use. In a separate linear regression analysis, FTP appeared to be a significant predictor of DOP ($\beta = .31$, $t = 5.29$, $p < .0001$; model: $F(3, 272) = 10.64$, $p < .0001$, $R^2 = .11$). The results of the second logistic regression showed on one hand a negative link between DOP and cannabis use, and on the other hand that the previously significant negative link between FTP and cannabis use becomes non-significant when DOP is integrated into the regression equation. In addition, the Sobel test for the indirect effect was highly significant ($z = -4.15$, $p < .0001$). Together, those results suggested the mediating role of DOP.

Table 1
Summary of logistic regression analyses predicting cannabis use

Predictors	Step 1		Step 2	
	B (SE B)	Exp (B) (95% CI)	B (SE B)	Exp (B) (95% CI)
Age	.43 (.18)*	1.54 (1.07–2.22)	.48 (.22)**	1.62 (1.04–2.50)
Sex	–.50 (.26)	.60 (.36–1.01)	–.53 (.30)	.58 (.32–1.07)
FTP	–.69 (.24)*	.50 (.31–.80)	–.11 (.30)	.89 (.49–1.63)
DOP	–	–	–1.83 (.27)***	.16 (.09–.27)
<i>Model</i>				
χ^2 (DL)	20.36 (3)***		88.55 (4)***	
R^2 (Nagelkerke)	.10		.39	

Note: Cannabis use coded as 0 (*no*) and 1 (*yes*), sex coded as 1 (*male*) and 2 (*female*).

* $p \leq .01$.

** $p \leq .05$.

*** $p \leq .001$.

Moreover, the significant increase in explained variance between the two equations (see Table 1) also suggested that DOP increases the predictive power of the model.

An analogous mediating hypothesis was tested concerning level of cannabis use only among users ($N=114$, $m=15.8$, $SD=.73$), by performing 3 linear multiple regression analyses. Firstly, the results demonstrated a significant negative link between FTP and level of use ($\beta=-.19$, $t=-2.03$, $p<.05$; Model: $F(3, 110)=2.71$, $p<.05$, $R^2=.07$). Secondly, they confirmed the positive link between FTP and DOP in this sub-sample ($\beta=.33$, $t=3.79$, $p<.001$; model: $F(3, 110)=5.47$, $p<.001$, $R^2=.13$). Thirdly, they showed on one hand a highly significant negative link between DOP and level of use ($\beta=-.40$, $t=-4.33$, $p<.0001$), and on the other hand, that the link between FTP and level of use becomes non-significant when DOP is integrated into the regression equation ($\beta=-.06$, $t=-.64$, ns; model: $F(4, 109)=7.07$, $p<.0001$, $R^2=.20$). As with previous analyses, the Sobel test for the indirect effect appeared significant ($z=-2.91$, $p<.01$) and the explained variance increased significantly when the mediator was added ($\Delta R^2=.13$, $F(1, 109)=17.80$, $p<.0001$).

4. Discussion

These findings underline several issues. Firstly, they provide further support to the results already established in the literature concerning the negative relationship between FTP and reported cannabis use. Secondly, drug-oriented perception of cannabis is indicated here as an important factor, being negatively linked to substance initiation, use and abuse. Additionally, findings showed an unconsidered positive link between FTP and this cognitive construct. Beyond those direct relationships, our results support the hypothesis of a mediating role of substance perception in the link between FTP and cannabis use. Given the cross-sectional design of the study, it is not possible to draw conclusions on any causal relation or temporal ordering. However, mediational findings suggest that the relationship between FTP and substance use might be an indirect one. Accordingly, a lower FTP can involve a less drug-oriented cannabis perception and so encourages cannabis initiation and use. This mediating effect may indicate that the primary link between FTP and substance use is through association with a non-specifically time-related cognitive construct. Then, by taking into account that the proximal factor examined here is embedded in social debate, it appears that the protective role of FTP might be mediated by the particular stand an individual takes concerning substance labelling as a drug. In addition, findings suggest that such an emphasis on socio-cognitive dimensions may enhance predictive validity of the models elaborated for analysing substance initiation and use.

Apart from the cross-sectional design, some other limitations of this study should be noted. Firstly, the measures employed for substance use were all self-reported. Secondly, the nature of our sample and the measured cannabis perception (a socially and historically significant construct) does not allow for generalisation in every populations or contexts.

Despite these limitations, this study could offer crucial implications for future research by emphasizing the complexity of FTP's role on substance use when taking into account socio-cognitive dimensions that reflect the socially embedded significations attached to consumption behaviours. The observed mediating effect may illustrate a mechanism by which a distal factor can be dependent on the social context through the mediating effect of a proximal socio-cognitive variable. The current findings highlight the need for future research, especially longitudinal and experimental studies, aimed at a more detailed understanding of the relations between TP, substance use and related perceptions in a specific

social context. Moreover, future studies might also further enhance comprehensive interventions in the field of cannabis use.

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