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Materialist and post-materialist values and cannabis smoking among young adults: A population-based study in southern Sweden

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Abstract

Objectives: The association between materialist, mixed and post-materialist values, and the experience of cannabis smoking among young adults was investigated.

Methods: The 2004 public-health survey in Skåne, southern Sweden, is a cross-sectional study with a 59% response rate. The 6,787 persons aged 18-34 years included in this study answered a postal questionnaire. A logistic regression model was used to investigate the association between materialist, mixed and post-materialist values and ever having experienced cannabis smoking. The multivariate analysis was performed to investigate the importance of possible confounders (age and education) on the differences in ever having experienced cannabis smoking according to materialist, mixed and post-materialist values.

Results: Twenty-eight percent of the men and 17% of the women had ever experienced cannabis smoking. The experience of cannabis smoking was significantly and positively associated with post-materialist values among both men and women. The odds ratios were 2.4 (1.8-3.1) for men with post-materialist values compared to men with materialist values, and 3.1 (2.4-4.0) for women with post-materialist values compared to women with materialist values.

Conclusions: This study suggests that post-materialist values are positively associated with the risk of ever smoking cannabis. Since this is a cross-sectional study, the direction of causality remains to be investigated.

Keywords: cannabis smoking, materialist values, mixed values, post-materialist values.

Introduction

Cannabis is the most prevalent illegal substance in most Western countries (Hall et al., 1999; Gilvarry, 2000; Smart and Ogborne, 2000). Cannabis abuse is concentrated in late adolescence and young adulthood (Ellickson et al., 1992; Golub and Johnson, 1994; Chen and Kandel, 1995). In Sweden cannabis is mainly abused in the form of smoking. Cannabis smoking is more common among men than among women (National Public Health Report, 2001). Apart from its own health detrimental effects, cannabis use is also an important precursor for the consumption and abuse of other drugs (Dupre et al., 1995).

Values and attitudes influence health. Adolescence and early adulthood are the periods during which most attitudes and values are founded, including values and attitudes concerning health-related behaviours such as alcohol consumption, smoking and drug use. It has been shown that antisocial beliefs and values are positively associated with cannabis abuse (Wells et al., 1992). Lack of parental monitoring has also been demonstrated to predict children's initiation of substance use (Chilcoat and Anthony, 1996; McArdle et al., 2002). The social contexts of peer groups and schools have been shown to be of importance for the risk of initiation of drug abuse, and attachment to substance-abusing peers are significantly associated with the risk of early initiation (Dupre et al., 1995; Bailey and Hubbard, 1991; McMillan and Chavis, 1986). There is increasing empirical evidence for contextual, cultural and social influences on health behaviour, but few theoretical models of the causal mechanisms behind contextual, cultural and social effects have been suggested. One dimension of values and attitudes which may increase the understanding of cannabis smoking and other aspects of illicit drug abuse is the materialist versus post-materialist values dimension. This dimension of values and attitudes has been studied by Inglehart et al. and followers since the 1970s (Inglehart, 1990). The theoretical foundation is Maslov's theory of hierarchy of human needs. Basic human needs include sustenance needs (e.g. stable economy, economic growth, fighting rising prices) and safety needs (e.g. strong defence forces, fight against crime, maintaining order in society). Human needs further up in the hierarchy of human needs include needs to belong and to feel esteemed (e.g. a less impersonal society, more influence over one's work situation, more say in government) and aesthetic and intellectual needs (e.g. beautiful environment, open discussion of different and even opposite ideas, pluralism, free speech), according to Maslov (Maslov, 1954; Inglehart, 1977). Maslov's theory of hierarchy of human needs suggests that when more basic human needs such as

sustenance needs and safety needs are already satisfied, less basic needs will become more important (Maslov, 1954).

The economic and political development in many countries, particularly western countries, has led to the fulfilment of most sustenance and safety needs in major parts of the population. Human needs and values which represent higher steps in the hierarchy of human needs, such as needs to belong and to feel esteemed as well as aesthetic and intellectual needs, will then be given higher priority and guide human behaviour to a higher extent. There is a strong causal connection between human needs, human behaviour, and human values. Value systems should include the salient needs and goals that guide human behaviour (Rokeach, 1973; Dalton, 2002). Inglehart has proposed that the shift in economically developed countries from highest priority given to more basic human needs over to the fulfilment of human needs higher up in the hierarchy of needs has resulted in a corresponding “culture shift” or “value shift”. This “culture shift” represents a transformation of values, beliefs and attitudes from materialist values, which give priority to sustenance, economic and safety considerations, to post-materialist values, which give priority to sense of belonging, individualism, freedom of speech, political influence, environmental issues and aesthetic/intellectual fulfilment. The prevalence of materialist and post-materialist values in an age cohort is mostly regarded as the result of the material conditions and possibilities during adolescence and young adulthood of that particular age cohort. Good material conditions lead to the fulfilment of basic material needs. Higher priority will then be given to post-materialist needs and values (Inglehart, 1990).

Studies on the materialist versus post-materialist values dimension have been conducted following Inglehart in many countries (Inglehart et al., 1998). In the Inglehart materialist-post-materialist assessment instrument, respondents are asked which political goals should be given priority by the government. There are four such goals and they include law and order, influence in political decision making, price stability and freedom of speech. Respondents who give priority to law and order and price stability are termed “materialists”, while respondents who give priority to political influence and freedom of speech are termed “post-materialists”. In accordance with Maslov’s hierarchy of needs theory, the materialist priorities given to law and order and price stability are considered as more basic human needs. Respondents giving priority to a mix of materialist and post-materialist values are termed

“mixed”. Empirical findings over the past thirty years suggest an increase in post-materialist values in many western countries (Maslov, 1954; Abramson and Inglehart, 1995).

Inglehart’s materialism-post-materialism item has not remained unquestioned, because it rests on a single measurement instrument. The challenges to and criticisms of Inglehart’s findings concern the measurement of post-materialist values (Clarke et al., 1999; Davis, 2000), the genesis of post-materialist values (Dutch and Taylor, 1993), the predictive power of post-materialism for decision making (Trump, 1991), and the individual level aggregation of the Materialist-Post-Materialist Index (MPMI) to the national level (Davis, 2000). The critique also concerns the fact that materialist and post-materialist values might interact, and that both sets of values might be found in one person (Giacalone and Jurkiewicz, 2004). However, it should be noted that Inglehart’s item just considers the priority given to different values. In fact, Maslov’s theory of hierarchy of needs, on which the Inglehart materialist-post-materialist question is based, suggests that when you have fulfilled one level in the hierarchy of needs and go to the next level, you do not give up the more basic needs (Maslov, 1954).

Post-materialist values seem to have had a substantial influence in many western countries in recent decades in many respects starting in the years of the student revolt in the late 1960s. The medial and political élite has to an increasing extent endorsed post-materialist values. The party structure has also been affected. The materialist-post-materialist values dimension has resulted in a new authoritarian versus libertarian ideological dimension in politics. New Green environmentalist parties have entered many West European parliaments propagating libertarian political programs based on post-materialist values. In contrast, and as a reaction to the post-materialist culture shift, right-wing populist parties have also entered many West European parliaments propagating authoritarian political programs based on materialist values. This new political dimension can also be observed among the voters. Survey investigations have shown that the electorates of the Green parties have post-materialist values to a higher extent than the electorate of any other parties. Conversely, the electorates of the right-wing populist parties have materialist values to a higher extent than any other political parties. The authoritarian-libertarian dimension is separate from the traditional left-right dimension. Both the libertarian and the authoritarian parties have been able to attract voters from all different parts of the traditional left-right political dimension. In this new political dimension the libertarian political standpoint (freedom of the individual to experiment with new lifestyles, self-expression, pro-immigration stance, a more permissive

attitude towards different behaviours etc.) is connected with post-materialist values. On the other hand, the authoritarian standpoint (less stress on individual freedom and self-expression, less permissive attitudes towards different behaviours, xenophobia etc.) is connected with giving priority to materialist values (Dalton, 2002; Inglehart, 1997; Kitschelt, 1994). People with post-materialist values and libertarian political attitudes are thus inclined to have high tolerance levels towards a variety of new behaviours or behaviours which deviate from traditional norms and values than people with materialist values. Previous studies have shown that permissive and unconventional attitudes and beliefs are positively and significantly associated with cannabis smoking and experience of cannabis smoking (Chabrol et al., 2004; Gorman, 2002). Inglehart has also found a strong association between post-materialist values and permissive and tolerant values towards marijuana/cannabis (Inglehart, 1997). However, none of these studies have specifically investigated the association between post-materialist values and cannabis smoking *experience*. A hypothesis stating that post-materialist values may be positively associated with experience of cannabis smoking seems plausible and will be investigated in this study.

The aim of this paper is to investigate the association between the materialist-mixed-post-materialist values dimension and the risk of ever having smoked cannabis in a young adult population in Skåne, southern Sweden.

Material and methods

Study population

The 2004 public-health survey in Skåne is a cross-sectional study. A total of 27,963 randomly selected persons aged 18-80 years answered a postal questionnaire in the Autumn of 2004 (59% participation rate). Two letters of reminder were also sent to the respondents, and a subsequent phone call was made to the remaining non-respondents. In the present study, the 6,787 persons aged 18-34 years who answered the questionnaire, were investigated. The participation rate was approximately the same in this age interval as in the whole study population.

Dependent variable

Ever having smoked cannabis was assessed by an item, 'Have You ever smoked cannabis?', with four alternatives: 'No', 'Yes, within the last month', 'Yes, earlier this year', and 'Yes, earlier but not this year'. This variable was dichotomised, defining the first alternative as "No" and the three latter alternatives as 'Yes'.

Independent variables

Age groups were divided into the age groups 18-24, 25-29 and 30-34 years.

All analyses were stratified by *sex*.

Education was divided by length of education into 9 years or less, 10-12 years, and 13 years of education or more.

The most frequently used item to measure *materialism/post-materialism* contains four goals. Respondents were asked to select what they believe their country's two top goals should be among the following four alternatives: 1) maintaining order in the nation, 2) giving people more say in government decisions, 3) fighting rising prices, 4) protecting freedom of speech. If the respondent answered alternatives 1) and 3) he/she was considered "materialist". If the respondent answered alternatives 2) and 4) he/she was considered "post-materialist". The other four possible combinations (1-4, 1-2, 2-3, 3-4) were considered "mixed" (Abramson and Inglehart, 1995). The answer "do not know" was also possible. The proportion of internally missing was approximately 4%.

Statistics

Prevalences for all variables included in the study were calculated with stratification for sex. Significance tests (t-tests) for sex differences were conducted (table 1). Prevalences (%) and crude and age-adjusted odds ratios (OR, 95% CI) of ever having experienced cannabis smoking were calculated for the materialist, mixed, post-materialist and "do not know" categories. The multivariate analyses were performed using logistic regression models in order to investigate the potential importance of possible confounders (age and education) on

the differences in ever having experienced cannabis smoking between individuals with materialist, mixed and post-materialist values, respectively (materialists as reference) (table 2). All analyses were stratified for sex. The statistical analysis was performed using the SPSS software package (Norusis, 2000).

Results

Table 1 shows that the experience of ever having smoked cannabis was more prevalent among young men (28.0%) than among young women (17.2%). The gender differences in age distribution and education were small. Men seemed to have materialist values to a somewhat higher extent than women ($p < 0.001$).

Table 2 shows that the prevalences of ever having experienced cannabis smoking were 21.9% among male materialists, 28.7% among male mixed respondents and 40.0% among male post-materialists. The corresponding prevalences for women were 12.1%, 16.5% and 29.7%, respectively. The odds ratio of cannabis smoking experience among men with post-materialist values was 2.38 (1.85-3.06) compared to men with materialist values. The odds ratio of cannabis smoking experience among women with post-materialist values was 3.07 (2.38-3.96) compared to women with materialist values. The odds ratios of cannabis smoking experience for the “do not know” group do not significantly differ from the materialist reference group. The significant associations between the materialist-mixed-post-materialist dimension and cannabis smoking experience remained unaltered after age- and multivariate adjustments in the logistic regression models among both men and women.

The significant differences between materialists and post-materialists in cannabis smoking experience may be due to just one materialist and/or just one post-materialist sub-item being more significantly associated with cannabis smoking than the other materialist or post-materialist sub-item, respectively. However, the entire materialist-post-materialist syntax variable seems to have a very consistent association with cannabis smoking. The two sub-items of the materialist-post-materialist values variable used to assess materialist values have very similar and significantly lower prevalences of ever having experienced cannabis smoking when analysed separately compared to both the post-materialist sub-items analysed separately among both men and women (not shown in tables).

The cannabis measure is a life time prevalence assessment which aggregates users with very little experience of cannabis smoking with regular and heavy users. However, separate analyses were performed on the regular and heavy users (not presented in this paper). The results of these analyses yield the same results, i.e. significantly higher prevalence of cannabis smoking among the post-materialists than among the materialists (not shown in tables).

Discussion

The association between materialist, mixed and post-materialist values, and the experience of cannabis smoking among young adults is investigated in this study. The materialist versus post-materialist values item used concerns “materialist” values such as giving priority to law and order and price stability, as opposed to “post-materialist” values giving priority to more say in government decisions and freedom of speech. This item is based on Maslov’s hierarchy of needs. The idea is that social development, including improved material conditions, in recent decades have created a “shift” in values and attitudes from priority given to material conditions to priority given to non-material values such as individual freedom, permissiveness concerning for instance drugs, freedom of speech etc. The study is based on a random sample of the general adult (18-80 year) population in southern Sweden, which may be considered an important strength. The results of this study show a significant association between the materialist/post-materialist value dimension and cannabis smoking experience in a young adult population in southern Sweden. The 59% participation rate is acceptable. There may be some underestimation of the prevalence of ever having smoked cannabis. However, this underestimation has not been large in other studies (Coffey et al., 2002). The age, sex and education distributions also correspond well with the age, sex and education distribution in the general population registers in Skåne (Carlsson et al., 2006). There are thus no strong reasons to believe that there is serious selection bias. Age, sex and education might be confounders of the association between materialist/post-materialist values and cannabis smoking experience. Adjusting for age and education, and stratifying for sex only marginally affected the estimates. This study was focused on the age interval 18-34 years because ever having experienced cannabis smoking is more prevalent in these age groups, and because the young age groups studied are closer to the cannabis experience in late adolescence and early adulthood than the older age groups (Lindström, 2004).

Most studies have indicated that assessments of cannabis use are more reliable than the assessment of other substances including alcohol and tobacco. It seems that the cannabis smoking experience is more salient to many respondents than are experiences with tobacco, alcohol and other substances (Clarke et al., 1999).

This empirical study suggests a significant positive association between post-materialist values and having experienced cannabis smoking. This association has not been investigated previously. It may be that this significant association is causally mediated by libertarian attitudes and beliefs such as a comparatively high tolerance level towards deviant and not law abiding behaviours such as cannabis smoking. The findings are in accordance with previous studies that have shown that permissive and unconventional attitudes and beliefs towards cannabis smoking are positively and significantly associated with cannabis smoking and experience of cannabis smoking (Chabrol et al., 2004; Gorman, 2002). The findings of this study are also in accordance with previous findings that persons who believe that cannabis smoking is morally wrong are significantly less likely to use cannabis (Abide et al., 2001). Inglehart has observed that there is a strong positive association between post-materialist values and permissive and tolerant attitudes towards marijuana/cannabis. The reverse association, i.e. a strong association between materialist values and negative attitudes towards marijuana/cannabis, was also found (Inglehart, 1997). This socio-cultural conflict dimension may also be observed at the political party and health policy levels. The political parties in the libertarian (post-materialist)-authoritarian (materialist) dimension represent the two extremes regarding drug policy. The Green parties in Europe at the libertarian (post-materialist) extreme of this conflict dimension mostly advocate the most liberal views on the rights of individuals to use and deal with marijuana/cannabis. In contrast, the right-wing populist authoritarian (materialist) parties in Europe and their politicians are mostly the least liberal on these issues (Inglehart, 1997; Ignazi, 2003).

It seems that priority given to materialist values is associated with other values such as stronger traditional family values and less permissive attitudes which may have protective effects on the risk of ever experiencing cannabis smoking. Priority given to post-materialist values, in contrast, is associated with opposition and revolt against such traditional authorities (Inglehart, 1997). Coleman has proposed that the socialization of children and adolescents is facilitated in a community through the normative consensus among community members, probably due to both increased clarity concerning appropriate and inappropriate behaviours,

and increased monitoring and enforcement of community norms (Coleman, 1998). Behaviours deviating from such norms may often have health detrimental effects. The post-materialist stance is strongly associated with individualist ideas which are not always consistent with common norms and consensus. This interpretation suggests that post-materialist values are not always protective in relation to health related behaviours.

In contrast, a competing hypothesis might have been that materialist values are associated with an increased risk of cannabis smoking. The findings of some empirical studies suggest that materialism is generally connected with lower levels of internal locus of control, poorer psychological health and less healthy behaviours, although materialism was measured differently in these studies (Kasser, 2002; Kasser and Ryan, 1996).

The cross-sectional study design is a weakness, because the direction of causality between materialist-mixed-post-materialist values and experience of cannabis smoking may theoretically go in both directions. Inglehart and colleagues have clearly demonstrated the persistence over time of materialist and post-materialist values in different birth cohorts (Abramson and Inglehart, 1995; Inglehart, 1997). Even in the age group 30-34 years, in which most respondents who reported experience of cannabis smoking probably experimented with cannabis several years earlier, the high persistence of materialist and post-materialist values means that the direction of causality most likely would be from post-materialist values to cannabis smoking.

The results of this study may not have immediate implications for prevention. The demonstration of a significant association between materialist/post-materialist values and experience of cannabis smoking is basic research which helps comprehending social structures and processes in society that affect population health. Such theoretical work may, in the next step, have implications for prevention. Longitudinal research in the teenager and young adult population highlighting the importance of social networks, values and beliefs in a life course perspective on the association investigated in this study seems warranted.

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Table 1 Prevalence (%) of cannabis smoking, demographic, socioeconomic and materialist versus post-materialist variables. The public-health survey in Skåne 2004.

	Men (n=2,907)	Women (n=3,880)	Total (n=6,787)	t-test fsex difference
Experience of cannabis smoking				
No	72.0	82.8	78.3	p<0.001
Yes	28.0	17.2	21.7	
(Missing)	(173)	(120)	(293)	
Age				
18-24	38.7	37.6	38.1	p=0.33
25-29	28.4	29.9	29.3	
30-34	32.9	32.4	32.6	
(Missing)	(0)	(0)	(0)	
Education				
13- years	39.3	46.2	43.2	p<0.001
10-12 years	39.6	36.2	37.7	
-9 years	21.2	17.6	19.1	
(Missing)	(75)	(108)	(183)	
Materialist versus post-materialist				
Materialist	31.2	25.2	27.7	p<0.001
Mixed	42.2	39.2	40.4	
Post-materialist	15.3	18.5	17.2	
Do not know	11.3	17.2	14.7	
(Missing)	(174)	(131)	(305)	

Table 2 Prevalence (%) and crude, age adjusted and multivariate odds ratios (OR) and 95% confidence intervals (CI) of cannabis smoking according to materialist versus post-materialist values men and women aged 18-34 years. The public-health survey in Skåne 2004. Men N=2,907, women N=3,880, Total N=6,787.

	Prevalence (%)	OR (95% CI) ^a	OR (95% CI) ^b	OR (95% CI) ^c
Men				
Materialist	21.9	1.00	1.00	1.00
Mixed	28.7	1.44 (1.17-1.77)	1.45 (1.18-1.78)	1.44 (1.17-1.77)
Post-materialist	40.0	2.38 (1.85-3.06)	2.37 (1.84-3.05)	2.37 (1.84-3.07)
Do not know	25.2	1.20 (0.88-1.62)	1.18 (0.87-1.60)	1.14 (0.84-1.56)
(Missing)	(195)			
Women				
Materialist	12.1	1.00	1.00	1.00
Mixed	16.5	1.44 (1.14-1.83)	1.47 (1.14-1.84)	1.45 (1.13-1.85)
Post-materialist	29.7	3.07 (2.38-3.96)	3.05 (2.36-3.93)	3.06 (2.36-3.97)
Do not know	12.2	1.02 (0.75-1.39)	1.01 (0.74-1.37)	1.05 (0.77-1.44)
(Missing)	(171)			

a Crude.

b Adjustment for age.

c Adjustment for age and education.