

SOCIAL CAPITAL, THE MINIATURIZATION OF COMMUNITY AND HIGH ALCOHOL CONSUMPTION: A POPULATION-BASED STUDY

MARTIN LINDSTRÖM*

Department of Community Medicine, Malmö University Hospital, Lund University, 205 02 Malmö, Sweden

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Abstract — **Aims:** To study the impact of social participation, trust, and the miniaturization of community, i.e. high social participation/low trust, on the risk of high alcohol consumption. **Methods:** The Scania 2000 public health survey is a cross-sectional, postal questionnaire study. A total of 13 604 persons aged 18–80 years were included. A logistic regression model was used to investigate the association between the social capital variables and high alcohol consumption (168.0 g/week or more for men and 108.0 g/week or more for women). The multivariate analyses analysed the importance of confounders (age, country of origin, education, and economic stress) on the risk of high alcohol consumption according to the social capital variables. **Results:** A 14.0% proportion of all men and 7.8% of all women had an alcohol consumption above recommended levels. High alcohol consumption above recommended levels was not associated with social participation but negatively associated with trust among men. The miniaturization of community category, i.e. high social participation/low trust, had significantly higher risks of high alcohol consumption compared to the high social capital (high social participation/high trust) category among men. **Conclusion:** High social participation combined with low trust, i.e. the miniaturization of community, is positively associated high alcohol consumption among men. A structural/social factor which may affect the amount of alcohol consumed has thus been identified in this study.

INTRODUCTION

In recent years, the social capital literature has provided a basis for the analysis of the effects of social and contextual factors on health (Kawachi *et al.*, 1996, 1997). There are several rather similar definitions of social capital (Bourdieu, 1986; Coleman, 1990; Loury, 1992; Putnam, 1993). Social capital has been defined by Putnam as ‘... features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions.’ (Putnam, 1993). Social capital is causally related to health by direct psychosocial mechanisms, by the norms and values which are related to health related behaviours, by crime and the degree of social disorganization, and by the access to health care and amenities (Kawachi *et al.*, 1999). Social capital has mostly been operationalized as social participation and trust. While some theorists regard social capital as ‘ties’ and norms binding individuals within large organizations or linking them across a variety of institutional and formal and informal associational realms (Rueschemeyer and Evans, 1985; Granovetter, 1996), others emphasize that social capital primarily is a ‘moral resource’ such as trust (Fukuyama, 1995). Macinko and Starfield (2001) have even identified four different levels for the analysis of social capital: countries/regions, neighbourhoods, social networks, and individual attitudes such as trust. Social participation and trust are considered mutually dependent and are hypothesized to mutually enhance each other. High social participation increases generalized trust in other people, and generalized trust enhances social participation (Putnam, 1993). However, their relationship may not always be reciprocal. Social participation has to some extent changed to much more ideologically narrowly defined single issue movements and formal and informal social networks, and activities entailing a much more narrow ‘radius of trust’ (Putnam, 2000). These new forms of social

participation do not seem to enhance generalized trust in other people. This phenomenon has been defined by Fukuyama as the miniaturization of community (Fukuyama, 1999).

The concept miniaturization of community may be described as a theoretical specification within the social capital theory concerning the relationship between social participation and trust. The concept may be seen as a consequence of the empirical observation that social participation and trust do not always enhance and strengthen each other, as would have been expected from the theoretical literature on social capital. In a public health survey in Scania 2000 in southern Sweden 25% of all men and 28% of all women aged 18–80 years were found in the miniaturization of community category (Lindström, 2003). High alcohol consumption is a health related behaviour which may be affected by social and contextual circumstances such as social capital and the miniaturization of community. The miniaturization of community represents a combination of social participation that may be hypothesized to increase alcohol consumption among individuals and groups of individuals who are prone to consume such alcohol because of psychological traits associated with low generalized trust. The other theoretically unexpected combination, i.e. low social participation combined with high trust, has in a previous paper been termed traditionalism. This group may include both in different respects—disabled persons and older persons with high trust who may have had high social participation. Older people are overrepresented in the traditionalist group (Lindström, 2003). The four different social participation/trust combinations (high/high = high social capital, high/low = the miniaturization of community, low/high = traditionalism, and low/low = low social capital) and their associations with health and health related factors have been analysed previously in the Scania public health survey 2000 data material. These studies have found a positive and significant association between the miniaturization of community and intermittent smoking (Lindström, 2003), poor psychological health (Lindström, 2004a), cannabis smoking (Lindström, 2004b), patient dissatisfaction with treatment in primary health care (Lindström and Axén,

*Author to whom correspondence should be addressed at: Tel.: +46 040 333003; Fax: +46 040 336215; E-mail: martin.lindstrom@smi.mas.lu.se

2004), and the consumption of home made and smuggled liquor (Lindström, 2005a) in this adult 18–80 year population. The study concerning home made and smuggled liquor (Lindström, 2005a) is of particular interest in the present study, because the results indirectly suggest that the total consumption of alcohol might be higher in the miniaturization of community category than in the high social capital category (which was the reference category throughout the previous studies). In the present study, the hypothesis thus concerns the combinations of the social participation/trust variables and total alcohol consumption (the sum amount of drinking in normal days and binge drinking). The hypothesis of this paper is thus that the miniaturization of community and low social capital are properties associated with a high total consumption of alcohol.

Alcohol is an important cause of a number of diseases. Alcohol was estimated in 1996 to be the cause of 1.5% of all deaths in the world, 2.1% of all premature deaths in the world, 6% all lives lost due to functional disability, and 3.5% of the summary measure of mortality and DALY (disability adjusted life years). Alcohol is positively related to disease in over 60 diagnoses, while, on the other hand, a negative association between alcohol consumption and disease has been observed for ischemic heart disease, cardiovascular disease in the brain, and type II diabetes (Murray and Lopez, 1996). Since 1996 the estimated contribution of alcohol to total mortality in the world has been estimated to having increased to 3.2% and the total disease burden measured by DALY to 4.0% (Rehm, *et al.*, 2004).

The total per capita consumption of pure (100%) alcohol among all citizens aged 15 years and above has increased in Sweden since the mid-1990s. The registered per capita consumption, i.e. the sales through the Swedish State Monopoly and through the restaurants, increased from 5.8 l 100% alcohol per capita in 1998 to 6.5 l in 2001. However, one part of the total alcohol consumption in Sweden is not registered in the official sales statistics. This unregistered part of the consumption in Sweden seems to have increased dramatically for several years due to less severe restrictions on the amounts of different kinds of alcohol permitted to be brought into the country. In 2001 unregistered alcohol added almost another 3 l of 100% alcohol per capita to the total per capita consumption, which was estimated to be 9.2 l (Centralförbundet för alkohol- och narkotikaupplysning, 2002), and in 2003 the estimated total alcohol consumption in Sweden had increased further to 10.6 l per capita (www.sorad.su.se). In Sweden this increase in alcohol consumption may have even more severe health consequences than in some other countries, e.g. countries in southern Europe, because in Sweden each drinking occasion is 2–3 times more likely than in southern Europe to lead to harmful intensive consumption (Babor *et al.*, 2003).

In Sweden, alcohol consumption is related to individual characteristics such as age, sex, country of origin, education, and economic stress (National Public Health Report, 2001). The current highest recommended levels of alcohol consumption which are not considered to have a damaging effect on health, e.g. an increased risk of liver cirrhosis, are 168.0 g of pure alcohol/week for men but 108.0 g/week for women (British Medical Association, 1995), which constitute lower levels than the previous recommendations in Sweden 210 g/week for men 120 g/week for women.

The aim of this paper is to investigate the impact of social participation, trust, and the miniaturization of community on the risk of high alcohol consumption above recommended levels. The main hypothesis is that the miniaturization of community, i.e. high social participation combined with low trust, and low social capital, i.e. low social participation/low trust, cause a higher inclination to high alcohol consumption.

MATERIAL AND METHODS

Study population

The 2000 public health survey in Scania is a cross-sectional study. A total of 24 922 randomly selected persons born 1919–1981 answered a postal questionnaire over the period November 1999 to February 2000. Three letters of reminder were sent to the non-respondents. Finally, each person who had not responded was telephoned at one occasion. A total of 1207 persons were impossible to reach during this period. A total of 13 715 persons answered the questionnaire. The participation rate was 59%, but 111 persons lacked information concerning age and/or sex. The random sample was weighted to some extent by age, sex, and geographic area. This has been corrected by a weighting variable, so that the representative prevalences (%) for the entire Scania region are given. The differences in prevalences between the uncorrected and corrected data are very small. The 59% participation rate can be considered as sufficient for a postal questionnaire (Kuo *et al.*, 2002). A previous study has shown a very good correspondence, i.e. no significant differences, according to age, sex, marital status, education, and consumption/utilization of health care between the respondents of the original sample randomly selected for the 2000 health questionnaire and the general population in Scania investigated by official population registers. The only significant differences were observed for country of origin, showing significantly higher rates of not responding among persons born in other countries than Sweden, especially women born in Arabic speaking countries (Carlsson *et al.*, 2005). There are thus no strong reasons to believe that this study is subject to serious selection bias.

Dependent variables

High alcohol consumption (above recommended levels) was defined following current international recommendations (British Medical Association, 1995) as a consumption of 168.0 g or more of pure alcohol per week for men and 108.0 g or more per week for women. Alcohol consumption was assessed with a QF (quantity/frequency) method of alcohol assessment which measures the number of days of alcohol consumption and the amount of alcohol consumed during a typical day of alcohol consumption (beer, wine, liquor) during the past 30 days (reference period), and the number of days during the last year with a daily consumption of five bottles or four cans of beer or more, one bottle of wine or more (75 cl), and 37 cl of strong liquor or more (half of this amount for women) (see Appendix). The dependent alcohol consumption variable is thus dichotomous with 168.0 g/week or more as the limit among men and 108.0 g/week or more as the limit among women. Abstainers (no alcohol consumption) are also included in the male and female categories with an

Table 1. Prevalence (%) of high alcohol consumption above recommended levels (168.0 g per week or more for men and 108.0 g per week or more for women), demographic, socioeconomic, and social capital variables among the respondents

	Men (n = 6715)	Women (n = 6889)
High consumption of alcohol above recommended levels		
No	86.0	92.2
Yes	14.0	7.8
(Missing)	(786)	(1239)
Age (years)		
18–34	30.0	28.6
35–44	18.0	17.4
45–54	18.8	19.1
55–64	16.5	15.2
65–80	16.7	19.7
(Missing)	(0)	(0)
Country of origin		
Sweden	87.4	88.0
Other countries	12.6	12.0
(Missing)	(84)	(104)
Education (years)		
13	24.8	27.3
10–12	44.8	41.3
9	30.4	31.4
(Missing)		
Economic stress during the past year		
Never	70.5	68.2
Occasionally	19.4	20.5
About 6 months a year	4.8	5.0
Every month	5.3	6.3
(Missing)	(170)	(248)
Social participation		
High	67.9	68.4
Low	32.1	31.6
(Missing)	(250)	(269)
Trust		
High	58.8	54.6
Low	41.2	45.4
(Missing)	(212)	(273)
Social participation/trust		
Low/low	15.6	17.1
High/low	25.2	28.2
Low/high	16.1	14.0
High/high	43.1	40.7
(Missing)	(334)	(404)

The public health survey in Scania 2000.

alcohol consumption of <168.0 g/week and <108.0 g/week, respectively, in Tables 1–3.

Independent variables

Age groups were divided into the age intervals 18–34, 35–44, 45–54, 55–64 and 65–80 years of age.

Country of origin. All persons born in countries other than Sweden were merged into a single category, which yielded the two categories 'Sweden' and 'other'.

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.

Economic stress was categorized by the answer to the question 'How many times during the past year did you not have money enough to afford the food or the clothes you and your family need?'. The respondents were classified by the alternatives: (i) (almost) every month, (ii) ~6 months a year, (iii) very occasionally, and (iv) never.

Table 2. Crude odds ratios (OR) and 95% confidence intervals (CI) of high alcohol consumption above recommended levels (168.0 g/week or more for men and 108.0 g/week or more for women) in relation to demographic, socioeconomic and social capital variables

	Men (n = 6715)		Women (n = 6889)	
	%	OR (95% CI)	%	OR (95% CI)
Age (years)				
18–34	18.3	1.0	8.2	1.0
35–44	11.3	0.6 (0.5–0.7)	7.1	0.8 (0.6–1.1)
45–54	12.0	0.6 (0.5–0.8)	7.6	0.9 (0.7–1.2)
55–64	14.8	0.8 (0.6–1.0)	10.2	1.3 (1.0–1.7)
65–80	10.6	0.5 (0.4–0.7)	6.0	0.7 (0.5–1.0)
(Missing)	(787)		(1241)	
Country of origin				
Sweden	14.1	1.0	8.2	1.0
Other countries	10.9	0.7 (0.6–0.9)	4.7	0.6 (0.4–0.8)
(Missing)	(826)		(1297)	
Education (years)				
13	15.0	1.0	9.3	1.0
10–12	15.8	1.1 (0.9–1.3)	8.3	0.9 (0.7–1.1)
9	10.9	0.7 (0.6–0.9)	6.1	0.6 (0.5–0.8)
(Missing)	(971)		(1456)	
Economic stress				
Never	12.7	1.0	7.2	1.0
Occasionally	16.3	1.3 (1.1–1.7)	9.3	1.3 (1.1–1.7)
About 6 months a year	19.7	1.2 (0.7–1.8)	8.1	1.2 (0.7–1.8)
Every month	19.0	1.6 (1.1–2.3)	10.8	1.6 (1.1–2.3)
(Missing)	(905)		(1371)	
Social participation				
High	14.5	1.0	8.5	1.0
Low	13.5	0.9 (0.8–1.1)	6.6	0.8 (0.6–1.0)
(Missing)	(905)		(1357)	
Trust				
High	13.1	1.0	7.9	1.0
Low	15.9	1.3 (1.1–1.5)	7.9	1.0 (0.8–1.2)
(Missing)	(924)		(1368)	
Social participation/trust				
Low/low	13.3	1.0	8.5	1.0
High/low	16.8	1.3 (1.1–1.6)	8.5	1.0 (0.8–1.3)
Low/high	12.4	0.9 (0.7–1.2)	6.6	0.8 (0.5–1.1)
High/high	14.6	1.1 (0.9–1.4)	7.0	0.8 (0.6–1.1)
(Missing)	(1004)		(1433)	

The public health survey in Scania 2000.

Social participation (during the past year) describes how actively the person takes part in the activities of formal and informal groups in society. Respondents were asked whether in the previous 12 months they had been involved in any of the following 13 activities: study circle/course at workplace, other study circle/course, union meeting, meeting of other organizations, theatre/cinema, arts exhibition, church, sports event, writing a letter to the editor of a newspaper/journal, demonstration, night club/entertainment, large gathering of relatives, and private party. It was measured as an index consisting of the 13 items and dichotomized into 'low social participation' (three activities or less) and 'high social participation' (four activities or more). The social participation item has been used by Statistics Sweden in the investigations concerning living conditions since the 1960s and 1970s (National Central Bureau of Statistics, 1980). The reliability of the social participation items have been investigated in Malmö by testing the test–retest stability of 200 respondents in the Malmö Shoulder and Neck Study (MSNS), and the test–retest stability of most of the items was reasonably high

Table 3. Age adjusted and multivariate odds ratios (OR) and 95% confidence intervals (CI) of high alcohol consumption above recommended levels (168.0 g/week or more for men and 108.0 g/week or more for women) according to social participation, trust, and the four social participation/trust combinations

	OR (95% CI) ^a	OR (95% CI) ^b	OR (95% CI) ^c	OR (95% CI) ^d
Men				
Social participation				
High	1.0	1.0	1.0	1.0
Low	1.0 (0.8–1.2)	1.0 (0.9–1.2)	1.0 (0.9–1.3)	1.0 (0.8–1.2)
Trust				
High	1.0	1.0	1.0	1.0
Low	1.2 (1.1–1.4)	1.3 (1.1–1.5)	(1.1–1.5)	(1.1–1.4)
Social participation/trust				
Low/low	1.0	1.0	1.0	1.0
High/low	1.3 (1.1–1.5)	1.3 (1.1–1.6)	1.4 (1.1–1.6)	1.3 (1.1–1.6)
Low/high	1.0 (0.8–1.3)	1.0 (0.8–1.3)	1.1 (0.8–1.4)	1.1 (0.8–1.4)
High/high	1.2 (0.9–1.5)	1.3 (1.0–1.6)	1.3 (1.1–1.7)	1.2 (0.9–1.5)
Women				
Social participation				
High	1.0	1.0	1.0	1.0
Low	0.8 (0.6–1.0)	0.8 (0.6–1.2)	0.9 (0.7–1.2)	(0.7–1.1)
Trust				
High	1.0	1.0	1.0	1.0
Low	(0.8–1.2)	(0.8–1.2)	(0.9–1.3)	(0.8–1.3)
Social participation/trust				
Low/low	1.0	1.0	1.0	1.0
High/low	1.0 (0.8–1.3)	1.0 (0.8–1.3)	1.1 (0.9–1.4)	1.0 (0.8–1.3)
Low/high	0.8 (0.5–1.1)	0.8 (0.6–1.1)	0.9 (0.6–1.3)	0.9 (0.6–1.3)
High/high	0.8 (0.6–1.1)	0.8 (0.6–1.1)	1.0 (0.7–1.4)	0.9 (0.8–1.3)

The public health survey in Scania 2000.

^aAdjustment for age.

^bAdjustment for age and country of origin.

^cAdjustment for age, country of origin, and education.

^dAdjustment for age, country of origin, education, and economic stress.

with a κ coefficient 0.70. The internal consistency, i.e. the correlation between the items of an index, was 0.61 for the social participation variable (Hanson *et al.*, 1997).

Trust is a self-reported variable that reflects the person's perception of generalized trust in other people. It was assessed by the item 'Generally, you can trust other people' that contained four alternative answers: 'Do not agree at all', 'Do not agree', 'Agree', and 'Completely agree'. It was dichotomized with the two first alternatives as low trust.

The combination of social participation and trust results in four alternatives: high social participation/high trust (high social capital), high social participation/low trust ('the miniaturization of community'), low social participation/high trust (traditionalism), and low social participation/low trust (low social capital).

Statistics

Prevalences (%) of high alcohol consumption (above recommended levels), demographic, socioeconomic, economic stress, and social capital variables were assessed. Crude odds ratios and 95% confidence intervals (OR, 95% CI) were calculated in order to analyse associations between demographic, sociodemographic and economic stress variables, social capital variables, and high alcohol consumption (above recommended levels). The multivariate analysis was performed using a logistic regression model in order to

investigate the potential importance of possible confounders on the differences in high alcohol consumption (above recommended levels) between individuals with high versus low social participation, high versus low trust, and their combination categories. The statistical analysis was performed using the SPSS software package (Norusis, 2000).

RESULTS

Table 1 shows that 14.0% of all men and 7.8% of all women consumed amounts of alcohol above recommended levels, which is the rationale for stratifying the analyses in Tables 2 and 3 by sex. All the other variables were rather evenly distributed between the sexes. Almost 90% of both men and women were born in Sweden. The proportion with 13 years of formal education or more was 24.8% among men and 27.3% among women, while the proportion with 9 years of education or less was 30.4% among men and 31.4% among women. It was found that 70.5% of all men and 68.2% of all women had experienced no economic stress during the past year. The proportion with low social participation was 32.1% among men and 31.6% among women. The corresponding numbers for low trust were 41.2% among men and 45.4% of all women. The assessments of the combinations of social participation/trust revealed that 43.1% of men and 40.7% of women had high social capital (high/high), 25.2% of men and 28.2% of women could be characterized as miniaturization of community (high/low), 16.1% of men and 14.0% of women as traditionalists (low/high), and 15.6% of men and 17.1% of women as low social capital (low/low).

Table 2 shows that the odds ratios of high alcohol consumption above recommended levels were significantly more prevalent among younger persons (among men), persons born in Sweden (compared to persons born in other countries than Sweden), and persons who had experienced economic stress during the past year. No significant educational differences were observed. The odds ratios of high alcohol consumption in the group with low social participation compared to high social participation were not significant. The odds ratios of high alcohol consumption were significantly higher for the low trust compared to the high trust category among men but not among women. The odds ratio of high alcohol consumption was significantly higher for the miniaturization of community category (high social participation/low trust) compared to the high social capital (high/high) category among men but not among women. The low/high (traditionalist) and low/low (low social capital) categories did not significantly differ in high alcohol consumption from the high social capital category.

Table 3 shows that after adjustments for age, country of origin, education, and economic stress in the multiple logistic regression analyses the odds ratios of high alcohol consumption above recommended levels remained significantly higher for the miniaturization of community category compared to the high social capital category among men, and for the low trust category compared to the high trust category among men. No statistically significant odds ratios were observed for women. The number of internally missing on the alcohol outcome variable is 1239 for women and 786 for men. The number of internally missing added by including

all the age, country of origin, education, economic stress, and social capital/miniaturization of community variables in the analyses is 83 (total 1322) for women and 683 for men. The problem of adding more internally missing to the multiple regression analyses is thus more substantial for men than for women. However, fixing the number of individuals included in the multiple regression analyses (using blocks function in the regressions in the SPSS) does not yield any results differing from the results already presented in this study.

DISCUSSION

This study shows that 14.0% of all men and 7.8% of all women had an alcohol consumption above recommended levels. High alcohol consumption above recommended levels was not associated with social participation but negatively associated with trust among men. The miniaturization of community category, i.e. high social participation/low trust, had significantly higher risks of high alcohol consumption compared to the high social capital (high social participation/high trust) categories. It thus seems that high levels of social participation among people with low trust may lead to an enhanced consumption of alcohol.

The validity of alcohol consumption assessment in questionnaires is defined as the extent to which a person's response in a survey approximates actual consumption levels. Previous studies have consistently shown that surveys and questionnaires tend to underestimate alcohol consumption by 40–60% when compared with total alcohol consumption measured by sales statistics. However, assessment of alcohol consumption by postal questionnaires sent to respondents is still considered sufficiently valid (Dawson, 2003). The proportions of men and women with high alcohol consumption above recommended levels are thus most likely underestimated in this study as in all other studies on alcohol consumption utilizing this assessment method. However, there is no reason to believe that the results in this article differ from the general pattern and experience concerning validity, because the proportions of high alcohol consumers correspond very well with other data on alcohol consumption from Sweden during the same period (National Public Health Report, 2001). There is no reason to believe that this study is prone to differential misclassification. The reliability and validity of the social participation index variable has already previously been demonstrated to be reasonably good (Hanson *et al.*, 1997). Trust is a self-reported and subjective variable which is impossible to directly validate. The patterns of the prevalence of trust agree in a reasonable way with the patterns reported in other studies (Holmberg and Weibull, 1996; Rothstein, 2003).

Age, sex, country of origin, education, and economic stress might be confounders of the association between the social capital and miniaturization of community variables and the self-reported home made and smuggled liquor variables. Stratifying for sex and adjusting for the other variables in a multiple analysis, however, only affected the estimates to some extent.

The cross-sectional study design is a weakness because it is theoretically possible that the direction of causality between the social capital variables and the high alcohol consumption above recommended levels variable may go in both directions.

However, the direction of causality investigated here is certainly the most plausible. Social capital and trust are often founded in early life, during childhood and adolescence (Putnam, 1995, 2000), while high alcohol consumption is measured in the age interval 18–80 years in this study.

The per capita alcohol consumption in Sweden has been increasing rapidly in recent years. The 1999/2000 public health survey in Scania was conducted during this process of rapidly increasing alcohol consumption. The socioeconomic differences in alcohol consumption have for several decades been inverse compared to many other health related behaviours, i.e. higher consumption levels in higher socioeconomic strata (National Public Health Report, 2001). In this study the differences between different educational groups still remain, because the group with the lowest level of education has a significantly lower proportion of persons with high alcohol consumption compared to the group with the highest level of education. It seems to be too early to draw any conclusions concerning the effects of the increase in per capita consumption on the patterns of socioeconomic differences in alcohol consumption.

The difference between men and women in prevalence of high alcohol consumption is in accordance with results of national surveys (National Public Health Report, 2005). There are also differences between men and women in social participation. A previous study with focus on ethnic differences in the different aspects of social participation included in the social participation index variable shows that men attend meetings in other organisations than unions and sports events to a higher extent than women, and women attend study circles, theatre/cinema, arts exhibition, and church to a higher extent than men (Lindström, 2005b).

The core components of the social capital concept, social participation, and trust, may be hypothesized to affect alcohol consumption in different ways. Social participation may either increase or decrease the inclination to high consumption of alcohol depending on the nature of the participation. Social participation of individuals may even exacerbate poor health related behaviours such as high alcohol consumption above recommended levels (Putnam, 2000). On the other hand, the effect of trust on alcohol consumption is more likely to increase alcohol consumption for several reasons which include poorer psychological health (which is partly related to low trust) (Lindström, 2004a), poorer psychosocial conditions, and a higher level of general mistrust in health related information from authorities. The miniaturization of community, i.e. the combination of good access to social participation combined with low trust may be of special importance in this regard. High levels of social participation for people with low trust may provide more effective channels to access and consume alcohol compared with the possibilities for the low social capital category (low social participation/low trust).

The miniaturization of community has been founded as a concept by Fukuyama in the meaning of generalized trust in other people. However, generalized trust in other people has also been demonstrated to be strongly positively associated with political trust and trust in the institutions of society (Brehm and Rahn, 1997), which implies that the results of this study may reflect both the high alcohol consumption above recommended levels in relation to the miniaturization of

community and in relation to lack of political and institutional distrust.

Previous work shows that high social capital and the miniaturization of community have significantly higher prevalences of all the 13 activities in the social participation index variable than the two categories that contain low social participation. Comparisons between the high social capital and the miniaturization of community categories show that study circles at work, other study circles, meetings of other organisations, theatre/cinema, arts exhibition, and gathering of relatives are more prevalent in the high social capital category than in the miniaturization of community category. In contrast, having visited a night club/entertainment during the past year is significantly more prevalent in the miniaturization of community category than in the high social capital category (Lindström, 2003).

The results of this study have direct implications for prevention. High alcohol consumption is not significantly associated with social participation, but significantly and positively associated with low trust and the miniaturization of community (the combination of high social participation and low trust) among men. High social participation combined with low trust thus seems to promote high alcohol consumption among men. Norms and values in general and in particular instances, e.g. high alcohol consumption, are formed in the socialization process during childhood and adolescence. Trust in other people is closely associated with the socialization process during adolescence. Putnam (2000) has also convincingly demonstrated that the decrease in trust in the USA is a birth cohort phenomenon rather than a period phenomenon. The importance of both family, school and peer supervision, and the formation of norms and values have been emphasised (Battistich and Hom, 1997). It is possible that both the formation of norms and values concerning alcohol consumption and the formation of generalized trust in other people which most importantly occur during adolescence should be seen in a life course perspective by targeting adolescents and young adults in the prevention of high alcohol consumption.

The second line of preventive strategies would be measures to restrict alcohol availability in the adult population. Historical data on alcohol consumption in Denmark and Sweden during the course of the twentieth century suggest that consumption levels in both countries clearly correlate with the extent to which alcohol availability was restricted (in Denmark high prices and in Sweden restrictions on amounts) (Lindström, 2005c). The findings in the present study suggest that men with psychological traits such as low trust have high alcohol consumption to a higher extent than other men. This is also particularly observed among low trust men with high social participation, i.e. access to social activities and social networks seems to increase access to alcohol among these low trust men, who for psychological reasons might have the preconditioning for high alcohol consumption. Similar findings have been observed in a previous study concerning cannabis smoking among young men (Lindström, 2004b).

CONCLUSION

High social participation combined with low trust, i.e. the miniaturization of community, is positively associated high

alcohol consumption among men. It seems that high levels of social participation among people with low trust enhances alcohol consumption. Structural/social factors which may affect the amount of alcohol consumed have thus been identified in this study.

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APPENDIX

The quantity of alcohol in grams consumed per day was assessed by a compound measure of the amount consumed during a 'normal' day and binge drinking.

The first question is: When did you drink wine, liquor, or beer at the latest occasion? (If this occurred during the past 30 days, the alcohol consumption of the respondent was calculated.)

The next question is: How many days during the past 30 days have you consumed beer? (The respondent could respond 0–30 days.)

The following question is: If you consumed beer, how much beer did you on average consume on each day you consumed beer? (The number of bottles (33 cl) and cans (45 cl) was recorded.)

The same two questions were asked for wine and liquor/spirits. (Wine: glasses of 12 cl/day, half bottles 37 cl/day, and whole bottles 75 cl/day; liquor/spirits: drinks 4–6 cl/day, half bottles 37 cl/day, and whole bottles 75 cl/day.)

Binge drinking was assessed by separate questions: How many days during the past 30 days did you consume more than five bottles (33 cl) or four cans (45 cl) of beer? (Respondents were asked to answer 0–30 days.)

Similar questions were asked concerning the number of days during the past month the respondent consumed more than one bottle of wine and >37 cl of liquor/spirits in one single day.

The alcohol consumption in centilitres pure alcohol per day was then calculated as the average (beer + wine + liquor)/spirits consumption in all 'normal' days (days without binge drinking) and the binge drinking days (separately), then 'normal days' and binge drinking days were added together.