

# Socioeconomic inequalities in alcohol use of adolescents: the differences between China and Finland

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## Abstract

**Objectives** Findings from previous studies on socioeconomic inequalities in alcohol use among adolescents are not consistent. This study examined and compared the relationship between socioeconomic status and alcohol use of adolescents in China and Finland.

**Methods** The sample included 2,005 Chinese and 1,685 Finnish 15-year-old school children. The associations between Family Affluence Scale (FAS) and alcohol use were examined separately in two countries through binary logistic regression.

**Results** Chinese adolescents from the high FAS group were more likely to report experiencing monthly alcohol use (OR = 2.13) and early onset of alcohol use (OR = 1.55) (girls), and early onset of drunkenness (OR = 1.81) (boys). However, no statistically significant difference was found in three FAS groups for all four measures of alcohol use among Finnish adolescents.

**Conclusions** This study indicated clear differences of socioeconomic inequalities in alcohol use between Chinese and Finnish adolescents. It suggested that interventions on adolescent alcohol use in China should be targeted on those who are from the high affluent family whereas in Finland

efforts should be made to curb adolescents drinking across the socioeconomic spectrum.

**Keywords** Adolescent · Alcohol use · Drunkenness · Family Affluence Scale · Socioeconomic inequalities

## Introduction

The evidence of health inequalities has been accumulated from both social and medical research (Marmot 2005; Dalstra et al. 2006). Most of the existing studies concerning socioeconomic inequalities, however, focused on adults only. Studies concerning socioeconomic inequalities' impact on adolescent health have rarely been conducted until recently (DiLiberti 2000; Marmot 2005) and there has been a debate about health inequalities in adolescence (Currie et al. 2008a, b; Marmot 2005; West and Sweeting 2004). It has been well documented that low socioeconomic status has been consistently related to health-risk behaviours among adults (Pampel et al. 2010), while the associations among adolescents were not as uniform as those in adulthood (Hanson and Chen 2007). For instance, research on associations between socioeconomic status (SES) and adolescents' risky health behaviours, such as smoking (Holstein et al. 2004; Richter and Leppin 2007) and alcohol use (Elgar et al. 2005; Richter et al. 2006), have revealed inconsistent results.

Alcohol use of young people has been a global concern and it has been reported that the use of alcohol in adolescence can be a major problem resulting in significant disability and premature death (WHO 2004) and other risks in health, such as injury (Zeigler et al. 2005), alcohol misuse (Gruber et al. 1996), and mental problems (Wechsler et al. 1998). Alcohol is closely intertwined in

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almost every aspect of Chinese culture. Since the 1980s, the alcohol consumption in China has increased rapidly (WHO 2004), and alcohol use among Chinese youth needs to be addressed. A survey conducted in three middle schools in Beijing showed that life-time drinking rates were 48 and 37 % for boy and girl junior students, respectively, and 73 and 56 % for boy and girl senior students. 12 % admitted that they had experienced drunkenness in the last year (Xing et al. 2002). Drinking behaviour of school-aged children is also very common in Finland. A recent survey based on the Finnish family competence study showed that at 15 years of age, 83 % of girls and 79 % of boys had used alcohol, and 18 % of boys and 14 % of girls had been drunk more than once a month (Seljamo et al. 2006). In Finland, adolescents' drinking habits are drunkenness-orientated. The most recent results from the Health Behaviour in School-aged Children (HBSC) study revealed that although the weekly alcohol consumption of Finnish school-aged children is below the HBSC average and even the lowest in the age group of 15 years, the proportion of 15-year-olds who reported first getting drunk at age 13 or younger are much higher than the HBSC average (Currie et al. 2008b).

Several studies have investigated the presence of socioeconomic inequalities of alcohol use (Kunst et al. 1996; Bloomfield et al. 2006), and the clear and persistent social gradient in alcohol-related mortality among adults have been documented by former studies (Mäkelä et al. 2003; Harrison and Gardiner 1999). Most studies, however, focused only on the adult population and there is not enough research targeting alcohol use of adolescents. In addition, the evidence based on previous studies about the relationship between socioeconomic status and adolescent drinking behaviour is inconsistent and even contradictory. For instance, some studies revealed a higher adolescent drinking behaviour among lower socioeconomic groups (Melotti et al. 2011), while others reported that there is no, only limited or even inverse social gradients in adolescent alcohol use (Vereecken et al. 2003; Richter et al. 2006). The findings from the latest HBSC reported that the association between alcohol use and family affluence differed within the participation countries (Currie et al. 2008b).

The Family Affluence Scale (FAS) provides a unique approach to examine and describe socioeconomic inequalities in relation to adolescent health behaviours and has been used extensively in the HBSC study in the past decade (Currie et al. 2008a). Previous studies proved that FAS is a useful and valid SES measure for adolescents in HBSC member countries (Molcho et al. 2007; Wardle et al. 2002) as well as in Beijing, China (Liu et al. 2012). Through using FAS as the same and comparable SES measure, we can examine and compare the relationship between SES and health behaviours of adolescents in different countries. In

order to examine whether the FAS is more sensitive in a certain context, and therefore make further developments, more comparative studies, using the FAS as a SES indicator should be conducted in different contexts, such as developing and developed countries, or countries with small and big socioeconomic inequalities.

Findings from previous innumerable studies on socioeconomic inequalities and alcohol use of adolescents are not consistent and universal, which highlights the need for further study. Furthermore, previous studies were mainly conducted in most of developed countries from North America and Europe (Richter et al. 2006). However, such comparative studies have seldom been done between Europe and Asian countries. More research in a wide range of countries/regions needs to be carried out to understand the whole picture of this issue.

Regardless of the differences of culture, economic, geographical and political context, both China and Finland intend to decrease the prevalence of alcohol use of adolescents and health inequalities. Meanwhile, Finland represents a developed European country with a good social welfare system and rather less socioeconomic inequalities, and China represents a developing Asian country with an underdeveloped social welfare system and rather high socioeconomic inequalities. Research on socioeconomic inequalities in alcohol use between these two countries can provide the evidence on whether socioeconomic status influences adolescents' alcohol use independently of their cultural and political contexts, the findings of which can also be valuable for policy makers and health practitioners in all countries concerned. Therefore, the present study aims to address the following research questions: (1) what are the associations between the socioeconomic status and adolescents' alcohol use in China and Finland? (2) does socioeconomic inequalities in alcohol use of adolescent differ in these two countries?

## Methods

The data used in the present study comprised data from both China and Finland. The Chinese data used in this study were from the results of the Health Behaviour and Lifestyle Survey for School-aged Children in Beijing, which was conducted in December 2008 using the same questionnaire items and research protocol as the HBSC survey used in Finland (Currie et al. 2001). The Chinese survey was conducted by the Chinese Institute of Sport Science (CISS) and it was approved by the ethics committee of the CISS. The Finnish data were obtained from the HBSC study 2005/2006, a World Health Organization collaborative cross-national survey, of which the Finnish survey was conducted between March and May 2006. The

Finnish HBSC study was conducted by the Research Centre for Health Promotion at the Department of Health Sciences of the University of Jyväskylä and it was approved by the Finnish National Board of Education (FNBE) and the Trade Union of Education in Finland.

### Sample

The target population for the HBSC study is young people who are attending school aged 11, 13 and 15 years old. Approximately 1,500 respondents in each of the three age groups were recruited in the survey countries. The present study only analysed data gathered from adolescents aged 15 years old, due to the rather low prevalence of alcohol use among 11 and 13-year-old adolescents in both China and Finland.

The Chinese survey sample was from state schools in Beijing area using multi-stage strata and random cluster method. The detailed information of sampling procedure in China can be found elsewhere (Liu et al. 2012). The response rates for schools and students in China were 90.0 and 100 %. The Finnish survey sample was gathered from state schools through Finland via cluster sampling with probability proportional to size (PPS) of schools method. The response rates for schools and students in Finland were 95.2 and 84.5 %. The sample size used and data analysed in this study consisted of 1,685 Finnish and 2,005 Chinese 15-year-old adolescents. Overall, the sample size, gender proportion and the mean age are very similar in the two countries (Table 1).

### Instrument and variables

The HBSC survey was based on completion of a self-report questionnaire during a normal school class with a teacher and/or researcher administering and supervising. The

**Table 1** Demographic characteristics of respondents and distribution of family affluence scale groups by country (China 2008 and Finland 2006)

	China				Finland			
	n	%	Age		n	%	Age	
			Mean	SD			Mean	SD
Gender								
Boys	892	44.5	15.82	0.32	790	46.9	15.79	0.33
Girls	1,113	55.5	15.75	0.33	895	53.1	15.76	0.31
FAS								
Low (0–3)	1,025	51.1	15.80	0.32	262	15.6	15.82	0.31
Middle (4, 5)	649	32.4	15.76	0.32	792	47.0	15.78	0.32
High (6, 7)	331	16.5	15.75	0.33	631	37.4	15.76	0.32
Total	2,005	100.0	15.78	0.32	1,685	100.0	15.78	0.32

students were instructed on how to fill in the questionnaire and also informed that only the researcher will read their answers. Student's participation in the survey was voluntary. The questionnaire used in the Chinese survey was based on the English version of the questionnaire used in the Finnish HBSC Survey in 2006. The questionnaire was firstly translated from English to Chinese by two researchers independently and re-translated from Chinese to English by other professional translators to check for any discrepancies. The survey questionnaire has satisfactory test–retest reliability for the students in Beijing (Liu et al. 2010). All survey procedures followed the guidelines provided by the HBSC research protocol (Currie et al. 2001).

### Measurements of alcohol use

**Alcohol consumption** Alcohol consumption was assessed by the item 'At present, how often do you have the following alcohol drinks? Also include those times when you only drink a very small amount'. For each type of beverage: beer, wine, strong liquor, mild alcohol drinks, and any other drink that contains alcohol, the possible answers were: 'daily', 'at least once a week', 'at least once a month', 'less', and 'never'. Monthly alcohol use was defined as drinking any alcohol at least once a month.

**Onset of alcohol use** The initiation of alcohol use was examined by asking the questions 'At what age did you drink alcohol (more than a small amount) for the first time?' The answers were never, 11 years old or less, 12 years old, 13 years old, 14 years old, 15 years old or older. Early onset of alcohol use was defined as first drinking alcohol at age 13 or younger.

**Drunkenness** Frequency of drunkenness was assessed by asking the respondents whether they had ever had so much alcohol that they had been really drunk. The response alternatives were: 'never', 'yes, once', 'yes, 2–3 times', 'yes, 4–10 times' and 'yes, more than 10 times'. Frequent drunkenness was defined as 2–3 or more times.

**Onset of drunkenness** The initiation of drunkenness was examined by asking the questions 'At what age you were drunk for the first time?' The answers were: never, 11 years old or less, 12 years old, 13 years old, 14 years old, 15 years old or older. Early onset of drunkenness was defined as those respondents who reported they were first drunk at age 13 or younger.

### Measurements of socioeconomic status

**Family Affluence Scale** The FAS has been used to examine and explain socioeconomic inequalities in the

HBSC study for more than 10 years (Currie et al. 2008a), and it has also been shown as a reliable and valid SES measure for adolescents in China (Liu et al. 2012). The scale comprises four items: does your family own a car (0, 1, 2 or more)? Do you have your own room (0, 1)? How many times over the last year did you travel away somewhere on holiday with your family (0, 1, 2, 3 or more)? And, how many computers does your family own (0, 1, 2, 3 or more)? A composite FAS score was calculated by summing the responses of these four items ranging from 0 to 7. The composite scores were subsequently recoded into high (6, 7), middle (4, 5), and low (0–3) family affluence. The distribution of three FAS groups in two countries can be seen from Table 1.

### Statistical analyses

Descriptive statistics were used to show the characteristics of the study sample and the distribution of FAS groups. Differences in percentage of alcohol use in the two countries and in the three FAS groups were compared by Pearson's Chi-square test. The above-mentioned analyses were conducted separately for boys and girls and for China and Finland, and a  $p$  value of  $<0.05$  was considered statistically significant. In addition, binary logistic regression models were used to investigate the relationships between all variables of alcohol use and FAS category for the two countries. In each model, the associations were evaluated by gender and countries and the low FAS group served as the reference category with odds ratios and 95 % confidence intervals (CIs) being computed for the middle and high FAS groups for comparison. In logistic regression analyses, 95 % CIs do not overlap were considered statistically significant. All analyses were done by Analytics Software (PASW, formerly SPSS), version 18.0 (SPSS, Inc., Chicago, IL, USA).

## Results

The prevalence of alcohol use of Chinese and Finnish adolescents is shown in Tables 2 and 3. In general, the percentage of monthly alcohol use of Chinese 15-year-old students is 18.7 % while the percentage of Finnish adolescents is approximately double (39.2 %), of which both Finnish boys and girls reported monthly alcohol use more often than Chinese boys and girls. For the onset of alcohol use, nearly one-fourth of Chinese adolescents and more than one-third of Finnish adolescents reported that they had drunk alcohol at age 13 or younger. No significant difference was found for early onset of alcohol use between Chinese and Finnish boys. However, the results indicate that more Finnish girls (32.3 %) have early onset of alcohol

use than Chinese girls (20.5 %). Similar to the results for alcohol consumption, Finnish respondents reported nearly five times greater frequent drunkenness and three times greater early onset of drunkenness than Chinese respondents. The gender difference is clear among Chinese adolescents; more boys experienced monthly alcohol use, frequent drunkenness and early onset of alcohol use and drunkenness than girls. However, this situation cannot be found among Finnish students. Especially for the proportion of early onset of alcohol use, for which Finnish girls are even slightly higher than boys. In general, the results reveal that, except for early onset of alcohol use among boys, the four measures of alcohol use have statistically significant differences among Chinese and Finnish adolescents.

The percentages for alcohol use in different FAS groups are shown in Table 4. Although a significant difference was only found for monthly alcohol use of Chinese girls and for early onset of drunkenness of Chinese boys, we can see that, compared with the adolescents in the low FAS group, both Chinese boys and girls who are in the middle and high FAS groups reported higher likelihood of alcohol use. Apart from the result of monthly alcohol use among Chinese boys, alcohol use difference in line with the change of the FAS groups among Chinese students. Irregular results were observed among Finnish students: the highest proportion of alcohol use can be found in the middle FAS group for girls and in the low or middle groups for boys. The differing reports of alcohol use for Finnish adolescents in the three FAS groups do not reach the level of statistical significance.

We employed binary logistic regression models to investigate the associations between all variables of alcohol use and FAS category by gender for China and Finland and odds ratios with 95 % CIs are shown in Table 5. When the low FAS group was used as a reference group, Chinese girl respondents who belong to the high FAS group are more likely to report experiencing monthly alcohol use (OR = 2.13) and early onset of alcohol use (OR = 1.55). Meanwhile, the Chinese boys categorised in the high FAS group have a risk of reporting more early onset of drunkenness (OR = 1.92) compared with those who are in the low FAS group. However, the regression analyses revealed that, compared with the Chinese results, no significantly lower or higher odds ratios were found among Finnish boys and girls in both the middle and the high FAS groups.

## Discussion

Overall, this study found that monthly alcohol use and early onset of alcohol use is rather common in both China and Finland. Compared to China, many more Finnish

**Table 2** Prevalence of alcohol use by gender and country (China 2008 and Finland 2006)

	Total				China				Finland			
	China		Finland		Boys		Girls		Boys		Girls	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Alcohol consumption</b>												
Never	617	30.8	364	21.6	241	30.1	376	33.8	183	23.2	181	20.2
Less than once a month	1,015	50.6	662	39.3	414	46.4	601	54.0	290	36.7	372	41.6
At least once a month	204	10.2	499	29.6	119	13.3	85	7.6	226	28.6	273	30.5
At least once a week	139	6.9	155	9.2	94	10.5	45	4.0	88	11.1	67	7.5
Daily	30	1.5	5	0.3	24	2.7	6	0.6	3	0.4	2	0.2
Total	2,005	100	1,685	100	892	100	1,113	100	790	100	895	100
<b>Drunkenness</b>												
Never	1,569	78.3	761	45.1	639	71.6	930	83.7	348	44.0	413	46.1
Once	230	11.5	161	9.6	114	12.8	116	10.4	75	9.5	86	9.6
2–3 times	160	8.0	281	16.7	105	11.8	55	4.9	123	15.6	158	17.7
4–10 times	25	1.2	213	12.6	19	2.1	6	0.5	99	12.5	114	12.7
More than 10 times	21	1.0	269	16.0	15	1.7	6	0.5	145	18.4	124	13.9
Total	2,005	100	1,685	100	892	100	1,113	100	790	100	895	100
<b>Onset of alcohol use</b>												
Never	1,128	56.3	525	31.2	423	47.4	705	63.4	259	32.8	266	29.7
11 or less	266	13.3	84	5.0	133	14.9	133	11.9	48	6.1	36	4.0
12	114	5.7	132	7.8	64	7.2	50	4.5	67	8.5	65	7.3
13	112	5.6	312	18.5	68	7.6	44	4.0	127	16.1	185	20.7
14	139	6.9	363	21.5	63	7.1	76	6.8	160	20.3	203	22.7
15 or older	246	12.3	269	16.0	141	15.8	105	9.4	129	16.4	140	15.7
Total	2,005	100	1,685	100	892	100	1,113	100	790	100	895	100
<b>Onset of drunkenness</b>												
Never	1,579	78.8	687	40.7	642	72.0	937	84.1	314	39.9	373	41.6
11 or less	76	3.8	40	2.4	44	4.9	32	2.9	24	3.0	16	1.8
12	34	1.7	78	4.6	22	2.5	12	1.1	42	5.3	36	4.0
13	43	2.1	254	15.1	25	2.8	18	1.6	113	14.3	141	15.8
14	79	3.9	325	19.3	50	5.6	29	2.6	139	17.6	186	20.8
15 or older	194	9.7	301	17.9	109	12.2	85	7.7	158	19.9	143	16.0
Total	2,005	100	1,685	100	892	100	1,113	100	790	100	895	100

**Table 3** Drinking behaviour by gender and country (China 2008 and Finland 2006)

	Total					Boys					Girls				
	China		Finland		<i>p</i>	China		Finland		<i>p</i>	China		Finland		<i>p</i>
	<i>n</i>	%	<i>n</i>	%		<i>n</i>	%	<i>n</i>	%		<i>n</i>	%	<i>n</i>	%	
Monthly alcohol use	373	18.7	659	39.2	***	237	26.6	317	40.2	***	136	12.2	342	38.2	***
Early onset of alcohol use	492	24.7	528	32.0	***	265	29.9	242	31.7	ns	227	20.5	286	32.3	***
Frequent drunkenness	206	10.3	763	45.4	***	139	15.7	367	46.6	***	67	6.1	396	44.3	***
Early onset of drunkenness	153	7.7	372	22.6	***	91	10.4	179	22.5	***	62	5.6	193	21.8	***

\*\*\*  $p < 0.001$

**Table 4** Percentages of alcohol use in different Family Affluent Scale groups by gender and country (China 2008 and Finland 2006)

	China								Finland							
	Boys				Girls				Boys				Girls			
	Low	Middle	High	<i>p</i>	Low	Middle	High	<i>p</i>	Low	Middle	High	<i>p</i>	Low	Middle	High	<i>p</i>
Monthly alcohol use	23.3	29.8	29.1	ns	9.7	13.7	18.7	**	33.3	42.9	41.3	ns	38.1	40.0	36.6	ns
Early onset of alcohol use	28.3	29.2	35.3	ns	18.0	22.6	25.3	ns	36.1	30.5	32.1	ns	30.6	35.1	30.0	ns
Frequent drunkenness	14.5	14.8	19.3	ns	5.7	5.9	7.8	ns	44.4	49.4	44.4	ns	42.5	48.3	39.9	ns
Early onset of drunkenness	8.9	9.0	15.9	*	5.1	6.2	6.5	ns	25.2	25.2	21.4	ns	21.6	24.2	19.2	ns

*ns* no significant difference

\*  $p < 0.05$ , \*\*  $p < 0.01$

schoolchildren have experienced frequent drunkenness and early onset of drunkenness. Gender differences in alcohol use were hardly found among Finnish respondents, whereas a greater proportion of alcohol use of Chinese youth was contributed by boys. Very interestingly, SES gradients of alcohol use were found among Chinese adolescents, yet those gradients were absent among Finnish adolescents. In addition, some significant effects of family affluence on drinking and drunkenness were observed among Chinese schoolchildren but not among Finnish schoolchildren when analysed by gender.

The findings of the current study regarding socioeconomic inequalities in alcohol use of Chinese adolescents are in line with previous studies conducted in developing countries. For instance, a recent study in Mexico indicated that more risk factors for current drinking were found in the middle or highest tercile of household expenditures compared with the lowest (Ritterman et al. 2009). This pattern was also revealed in a Brazilian study of adults, in which a

higher SES was associated with higher rates of alcohol use (Almeida-Filho et al. 2005). These differences support the diffusion of innovation theory that economic factor, as a determinant of adoption, would increase the diffusion process of drinking behaviour (Ferrence 2001). Therefore, those adolescents from well-off families are more likely to adopt the new behaviour (innovation), such as drinking alcoholic beverages or being drunk. However, the patterns of SES and drunkenness of Finnish adolescents reported in the present study are not consistent with Richter and his colleague's study (2006) which was based on the results of the Finnish HBSC survey 2001/2002. This may be caused by the different SES measures used in these two studies, as well as the data derived from different surveys.

The factors affecting the alcohol use in adolescents are complex and there are several plausible interpretations for the differences of socioeconomic inequalities in alcohol use between Chinese and Finnish adolescents which were found by the present study. The first interpretation is that

**Table 5** The associations between alcohol use and family affluence scale by gender and country, odds ratios with 95 % confidence intervals (China 2008 and Finland 2006)

	China				Finland			
	Middle		High		Middle		High	
	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI
<b>Boys</b>								
Monthly alcohol use	1.39	0.99–1.95	1.35	0.91–2.01	1.51	0.96–2.37	1.41	0.89–2.23
Early onset of alcohol use	1.05	0.75–1.46	1.38	0.95–2.01	0.78	0.49–1.23	0.84	0.53–1.33
Frequent drunkenness	1.03	0.67–1.57	1.42	0.89–2.25	1.22	0.79–1.89	1.00	0.64–1.56
Early onset of drunkenness	1.01	0.60–1.70	<b>1.92</b>	<b>1.13–3.28</b>	0.99	0.61–1.65	0.81	0.48–1.36
<b>Girls</b>								
Monthly alcohol use	1.47	0.98–2.20	<b>2.13</b>	<b>1.31–3.47</b>	1.09	0.71–1.66	0.94	0.61–1.46
Early onset of alcohol use	1.33	0.96–1.84	<b>1.55</b>	<b>1.02–2.35</b>	1.22	0.78–1.92	0.97	0.61–1.55
Frequent drunkenness	1.03	0.59–1.80	1.39	0.70–2.76	1.27	0.83–1.92	0.90	0.58–1.39
Early onset of drunkenness	1.23	0.70–2.16	1.30	0.62–2.72	1.16	0.70–1.91	0.86	0.50–1.46

The reference group in logistic regression was adolescents in low FAS group

Significant difference were shown in bold values

the adolescents' availability of resources to consume alcohol differs in China and Finland. Compared to the adult population, the accessibility of money for drinking is more limited for adolescents (Kunstche et al. 2004). For instance, a relationship between the amount of pocket money and drunkenness was found among Finnish adolescents (Lintonen et al. 2000; Kouvonen and Lintonen 2002). There is a huge difference in national income and income inequality between China and Finland. China is a country with a rather high income inequality, and adolescents who are part of an affluent family usually have more pocket money and hence they have more possibility to buy alcohol than those in less affluent families. However, with regard to Finnish adolescents, although the amount of pocket money of young people in different FAS groups may still vary, even those who live in rather less affluent families might have enough money to buy alcoholic drinks due to the lower income inequality. Similarly, Elgar and his colleagues (2005) examined the effects of income inequality on drinking behaviour among 11, 13 and 15-year-old students in 34 industrialized countries and found that income inequality was associated with drinking and drunkenness among younger adolescents but not among older adolescents.

Another possible explanation for the differences could be due to the different drinking culture between eastern and western countries, and when one considers whether adolescents may drink alcoholic beverages alone, or with their family or peers. Traditional Chinese cultural norms encourage social drinking (Cochrane et al. 2003), especially with family/relatives and friends. When Chinese students were asked where they usually did their drinking, the answer was that the majority of them reported it to be at festivals when families get together (Newman 2002). It is understandable that Chinese adolescents in well-off families could have more opportunities to experience drinking at home than their Finnish counterparts, and therefore, drinking in a family situation may play a less important role in affecting alcohol use of adolescents in Finland.

In addition to the above-mentioned two explanations, the sensibility of the FAS, as the indicator of socioeconomic inequality in two countries, should be taken into account for the reasons of the absence of differences in Finland. Although the FAS has been shown as a reliable and valid SES measure in many HBSC member countries (Currie et al. 2008a), as well as in Beijing, China (Liu et al. 2012), it still needs to be considered whether the socioeconomic inequalities can be detected in a country such as Finland, which has a developed social welfare system and rather small socioeconomic inequalities. The three categories of the FAS may not disclose the socioeconomic difference in the exact same way in Finland as in China.

To our knowledge, this study is the first to examine and compare the socioeconomic inequalities in drinking

behaviour and drunkenness of adolescents among an European country and an Asian country. Research on socioeconomic inequalities in alcohol use between countries rather than within one country can provide evidence that socioeconomic status may not influence alcohol use independently of cultural and political contexts, and the differences presented in this study may reflect how different aspects of SES can influence one certain health behaviour in different countries. On the one hand, from a theoretical point of view, findings from this study can broaden our knowledge in understanding socioeconomic inequalities of alcohol use in adolescence. On the other hand, from the practical point of view, the evidence-based findings from this study can provide valuable information for policy makers and health practitioners. When planning and implementing interventions/programmes aiming alcohol use of adolescent, the target in China should be the reduction of alcohol use of adolescents from more affluent families, and in Finland should be the reduction of the rather high rates of drinking and drunkenness of adolescence in both genders and all socioeconomic status. In addition, this study suggested that the policy of increasing minimum alcohol price may play a greater role in reducing adolescent alcohol use in Finland than it would in China, due to the fact that the Chinese students who often drink are more likely to be from a more affluent family.

There are several methodological limitations in the present study. First of all, the data were only sampled from the Beijing area due to the aims of the survey and the limited resources. In a country with huge diversity such as China, the results should be interpreted with caution since the sample cannot represent the whole nation. Second, we employed FAS as the only SES measure in this study. In spite the fact that FAS has a very high response rate in the present study and it has been proved to be a reliable and valid measure of family wealth between cultures (Brown et al. 2008) and countries (Schnohr et al. 2008), it is still a reflection of family material affluence which may not be absolutely consistent with the available resources that schoolchildren can use to buy alcohol. Moreover, self-reporting on alcohol use could also raise bias due to the social desirability and the crude/dichotomous classifications of drinking behaviour and drunkenness. Such classifications may lose a certain amount of information which leads to report errors. Besides the methodological limitations, alcohol use is influenced by a variety of factors including marketing, cost, income, national programmes and policies, culture, social norms and so on (Simons-Mortona et al. 2009) while these factors were not measured and evaluated in this study.

In conclusion, the present study indicated clear socioeconomic inequalities in alcohol use between Chinese and Finnish adolescents. Chinese 15-year-old students from

more affluent families are more likely to experience alcohol use and drunkenness than those from lower affluent families. In comparison, there is no significant association between family affluence and any measure of alcohol use in Finnish adolescents. Considering the culture and income differences between China and Finland, specific policies and interventions for different target groups should be encouraged and designed for reducing the prevalence of alcohol use of adolescents. Further studies on factors influencing alcohol use of adolescents, such as legislations government policies, should be conducted to understand young people's alcohol use comprehensively.

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