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ABSTRACT
AIMS – During the last two decades there has been a substantial liberalisation of Norwegian alcohol policy in terms of increased availability of alcohol. We have studied what happens with public support for alcohol control policies in a country where the policy is liberalised. First, we summarise the findings from previous Norwegian studies on changes in attitudes toward alcohol control policies. Second, we present new empirical analyses on changes in attitudes toward a broad spectrum of policies in 2005–2012, and whether the pattern of change varied according to gender, age, education and alcohol use. DESIGN – The empirical analyses were based on self-reported attitudes toward Norwegian alcohol policies from nine web surveys conducted among 20–69-year-old Norwegians (N = 12 304). RESULTS – The analyses showed increased support for a wide range of restrictive alcohol policy measures from 2005 to 2012 – both for measures that had been liberalised and those that had been stable. We found no substantial moderation by gender, age, educational level and drinking frequency, which indicates that the pattern of change was similar for various sub-groups based on such variables. CONCLUSIONS – Previous research has observed a shift toward increasing support for a restrictive alcohol policy around the millennium. Current data shows that this trend has continued until 2012. We discuss the relationship between alcohol policy and public opinion, and propose that the trend may be connected to changes in value orientations, increased experience with alcohol-related harm and changes in beliefs about the harm-limiting effect of restrictive measures.
KEYWORDS – alcohol policy, public opinion, attitudes, support

Submitted 19.08.2013          Final version accepted 31.10.2013

Traditionally, Norway has been considered among the western countries with the most restrictive alcohol policy (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007; Karlsson & Österberg, 2001). However, during the last two decades there has been a substantial liberalisation in terms of increased availability of alcohol. Parallel to the changes in availability, the level of consumption has increased. This paper addresses what happens with public opinion on alcohol policy in a country where the policy is liberalised.

First, we review the development of Norwegian alcohol policy and alcohol consumption from 1990 until today and,

Acknowledgement
We wish to thank the Norwegian Directorate of Health for allowing us to use the data they commissioned from Ipsos MMI. However, the Directorate is not responsible for our analysis or the interpretation of the findings.
second, we summarise findings from previous research on attitudes toward alcohol policy in Norway since 1990. We will also present new empirical analyses of changes in attitudes from 2005 to 2012. Has increased availability and the rise in consumption contributed to a normalisation of alcohol, with a corresponding decline in support for alcohol control measures? Or does liberalisation entail that fewer people oppose the current control measures? A third reason to expect changes is that the increase in consumption could make salient the negative consequences of drinking. Regardless of underlying causes, we find it important to describe the changes and the current status of public attitudes toward alcohol policy, because these opinions reflect the legitimacy of various policy measures and priorities in the population.

**Change and stability in Norwegian alcohol policy**

The most striking change in Norwegian alcohol policy during the last decades has been the increase in availability. In Norway, alcohol is sold in licensed grocery stores (beverages with an alcohol content up to 4.7%), the Norwegian Wine and Spirits Monopoly (beverages with a higher alcohol content), and licensed on-premises. The number of monopoly outlets has more than doubled over the last two decades: the number of outlets was fairly stable from 1990 to 1997, but gradually increased from 114 in 1997 to 267 in 2011 (Edland-Gryt, 2012). The monopoly has also become more consumer-oriented in other respects. For example, the traditional over-the-counter sales of alcohol have been replaced with self-service since 1999 (Horverak, 2008). The monopoly’s increased consumer orientation is a result of the authorities’ wish to ensure public support for the monopoly system and to reduce the pressure for permitting sales of wine and spirits in grocery stores (Skjælaaen, 2011). As a result of structural changes in the retail industry, the number of grocery stores selling alcohol has decreased somewhat since 1990 (Edland-Gryt, 2012), but the great majority of municipalities had off-premise sales of alcohol with less than 4.75% alcohol by volume during the whole period.

Moreover, the number of licensed on-premises gradually increased from 4574 in 1990 to 7391 in 2011, which represents an increase of 62%. Accordingly, the number of municipalities without licensed on-premises declined, and in 2011 only 4 out of the 429 municipalities did not have premises that served alcohol. In addition to many more licensed on-premises, an increasing proportion of the licensed premises were allowed to serve alcohol with more than 22% alcohol by volume (Edland-Gryt, 2012). The trading hours at both licensed off- and on-premises are decided by the municipalities, but since 1997 trading hours have been regulated by national maximum limits. Since this change in the Alcohol Act, an increasing proportion of municipalities have extended their trading hours (Skjælaaen, 2009).

Also, the quotas for private untaxed import of alcohol to Norway were increased in 2006. The import limit for private persons was 1 litre of spirits and 1 litre of wine, or alternatively 2 litres of wine, but this was raised to 1 litre of spirits and 1.5 litres of wine, or alternatively 3 litres of wine. The explicit reason for this change was to secure a better match between the quotas and the size of wine bottles and
“bag-in-box” wine. The quota for beer (2 litres) remained unchanged.

In addition to such increased availability, alcohol has become more affordable for most Norwegians. The real price indices for the various alcohol beverages have been fairly stable since 1990. However, due to increased wages and salaries, alcohol has become more affordable for most Norwegians since the year 2000 (Edland-Gryt, 2012).

Alcohol has thus become more easily available and more affordable during the last few decades. However, a corresponding liberalisation of other control measures has not taken place. On the contrary, the authorities prescribed a more restrictive blood-alcohol limit (BAC level) for driving in 2001 (from 0.05 to 0.02%). Other important measures have remained unchanged, including age limits for purchasing alcohol (18 years for beer and wine and 20 years for spirits), the monopoly system for retail sale of wine and spirits, and a total ban on alcohol advertising. A more detailed description of changes and stability in Norwegian alcohol policy in the period 1990–2010 is given elsewhere (Rossow, 2010).

Changes in alcohol consumption
Greater affordability and increased availability have been accompanied by a considerable increase in consumption of alcohol. After some years with a decrease in the sale of alcohol in Norway, the sales increased gradually from 1993 to 2008, and have since levelled out. In 1990, the registered sales amounted to 5.0 litres of pure alcohol each year per adult, whereas in 2011 this figure was 6.6 litres. This change was largely a reflection of growing wine sales (Edland-Gryt, 2012). In addition, private import by travellers to Norway has increased, including cross-border shopping from Sweden (Lavik & Nordlund, 2009). Regular surveys since 1995 indicate that both the proportion of adults who drink alcohol and the proportion of those who drink several times a month has increased. However, the proportion that drinks to intoxication on a regular basis has been fairly stable (Østhus, Bye, & Storvoll, 2011).

Change in attitudes toward alcohol policy
The National Institute for Alcohol and Drug Research (SIFA) / the Norwegian Institute for Alcohol and Drug Research (SIRUS) mapped public opinion on Norwegian alcohol policy with regular intervals in 1962–2004. According to these surveys, the proportion of the adult population that agreed that the rules regulating the sales of alcohol were too strict increased from the 1960s until the mid-1990s, followed by a short period with relatively stable support. In 1999–2004, there was increased support for regulations again, i.e. there was a decrease in the proportion that agreed that the rules were too strict (Saglie & Nordlund, 1993; Østhus, 2005).

From 1973, a question about alcohol prices was included in the surveys, and in the 1970s, the proportion of respondents who thought that alcohol was too expensive decreased. Opposition to high alcohol prices increased until 1999, then decreased again until 2004 (Saglie & Nordlund, 1993; Østhus, 2005). According to a recent study commissioned by the Norwegian Tax Payers Association, the proportion of the population that thought that alcohol taxes were too high decreased fur-
ther from 2006 to 2008, but has remained fairly stable since (İpsos-MMI, 2013).

After 1991, the SIFA/SIRUS surveys also included questions about the Norwegian alcohol monopoly system for retail sales of alcohol. In short, support for the monopoly decreased in the 1990s and increased from 1999 to 2004 (Østhus, 2005). In addition, information about attitudes toward the monopoly system was collected yearly in 1990–2009. This study confirmed the findings of the study with longer time intervals: a fall in support throughout the 1990s and a shift toward greater support around the millennium. Support kept increasing until 2009 (Nordlund, 2007, 2010). The Norwegian Wine and Spirits Monopoly has also commissioned its own surveys, starting in 2002, in order to map public opinion on various aspects of the company. According to these surveys, support for the monopoly system was fairly stable at the beginning of the 21st century and increased later (Dalen & Lillebø, 2005; Hestmann, 2012).

Thus, it seems that Norwegians’ support for price and availability restrictions decreased or was fairly stable during the 1990s. Support seemed to increase again from the year 2000. Studies from Finland (Holmila, Mustonen, Österberg, & Raitasalo, 2009; Österberg, 2007) and Sweden (Holmberg & Weibull, 2011, 2013; Hübner, 2012), but not from other western countries (Giesbrecht, Ialomiteanu, Anglin, & Adlaf, 2007; Giesbrecht, Ialomiteanu, Room, & Anglin, 2001; Greenfield, Johnson, & Giesbrecht, 2004; Greenfield, Yu, & Giesbrecht, 2007a, 2007b; Wilkinson, Room, & Livingston, 2009), also indicate a shift toward more positive attitudes to alcohol control policies around the turn of the millennium.

Reduced opposition to availability and price restrictions observed since the year 2000 may reflect the fact that alcohol has become more available and more affordable, and thus, that there is less reason to oppose such measures. In line with this assumption, a comparative study from the USA and Canada showed that there was greater support for curtailing access to alcohol in the jurisdiction with less restrictive measures on a particular policy (Giesbrecht & Greenfield, 1999). For these reasons, a “true” increase in support for a restrictive alcohol policy should also be reflected in support for measures kept stable across the time period in focus, such as age limits for purchasing alcohol, the ban on alcohol advertising and BAC levels for driving. Since 2005, the Norwegian Directorate of Health has collected information each year on public opinion on a broad spectre of alcohol policy measures. Analyses of data until 2009 indicate that the tendency of increased support for a restrictive alcohol policy seen at the beginning of the 21st century continued after 2005 – not only for price and availability restrictions but also for other important measures (Storvoll, Rossow, & Rise, 2010). This paper elaborates on these findings by including data from three new data collections in the period 2010–2012.

**Aims of this study**

To broaden our knowledge about how alcohol policy and public opinion are associated over time, this paper will address changes and stability in support for a broad spectre of policies in Norway in 2005–2012 both for liberalised and stable policies.

Since gender, age, alcohol consumption
and education might be related to levels of support for alcohol policies (e.g., Greenfield et al., 2007b; Holmila et al., 2009; Ialomiteanu et al., 2010; van der Sar et al., 2012), we were also interested in whether patterns of change in support differed as a function of these variables.

Methods

Participants and procedure

The data consisted of nine surveys commissioned by the Norwegian Directorate of Health from Ipsos MMI (previously Synovate) in the period 2005–2012. For each survey, new respondents were drawn from Ipsos MMI’s web panel, which comprises 50,000 demographically mapped individuals recruited via the telephone (http://ipsos-mmi.no/web). All surveys were conducted online. The overall response rate was 43%, whereas the response rate for each survey varied between 33 and 55% (see Table 1).

In 2009–2012, the samples were drawn in a manner that produced a high proportion of participants from the county of Nord-Trøndelag. In this paper all analyses were conducted on weighted samples that reflected the actual proportions of people from this county in the population (http://statbank.ssb.no/statistikkbanken/). Persons aged 70 years and older were strongly underrepresented in the sample (4.4% versus 10.5% of persons aged 20 and older in the population (http://statbank.ssb.no/statistikkbanken/)). We therefore chose to limit the analyses to 20–69-year-olds (N=12,304).

After the sample was weighted for the over-sampling of respondents from Nord-Trøndelag and the 70+ year-olds were excluded, the distribution of the respondents’ geographical regions was fairly similar to the distribution in the population. Compared to the 20–69-year-olds in the population, there were somewhat more women (51.6% versus 49.0%) and 50+ respondents (43.2% versus 36.1%) in the sample. However, the largest deviance was found for the educational level. Whereas 51.8% of the sample had an education at university level, this was the case for only 33.0% of the population (http://statbank.ssb.no/statistikkbanken/). We will discuss the implications of this difference for the interpretation of the results later.

| Time          | Target sample | Respondents | Response rate |
|---------------|---------------|-------------|---------------|
| August 2005   | 1,976         | 1,080       | 55            |
| December 2005 | 2,475         | 1,033       | 42            |
| October 2006  | 4,456         | 2,191       | 49            |
| June 2007     | 2,402         | 1,030       | 43            |
| July 2008     | 4,673         | 2,057       | 44            |
| February 2009 | 3,645         | 1,486       | 41            |
| March 2010    | 3,178         | 1,337       | 42            |
| March 2011    | 3,277         | 1,394       | 43            |
| January 2012  | 3,850         | 1,278       | 33            |
| Total         | 29,932        | 12,886      | 43            |
Measures

Attitudes toward Norwegian alcohol policy were measured by asking the respondents to what extent they agreed/disagreed with eight statements concerning the current policy (see Appendix). The response categories were: totally agree (coded 1), partly agree (2), partly disagree (3), totally disagree (4), and impossible to answer (5). Those who found it impossible to answer were omitted from the analyses (0.4–1.4%). When studying change at the level of an item, we divided the respondents into two groups: those who agreed (coded 0) and those who disagreed (1) with each statement. For other analyses we created a Policy Support Index based on the mean of scores for all eight items (Cronbach’s $\alpha = 0.81$). The possible range of scores on this index was 1–4, where a higher score indicated stronger support for a restrictive alcohol policy.

The time variable was coded as years after the first data collection: August 2005 (coded 0), December 2005 (0.33), October 2006 (1.17), June 2007 (1.83), July 2008 (2.92), February 2009 (3.50), March 2010 (4.58), March 2011 (5.58), and January 2012 (6.42).

Men were coded as 0 and women as 1, whereas the age variable was continuous. Length of education was measured by asking the respondents about their highest completed education. These responses were categorised into lower education (coded 0), which represents all education below university level, and higher education, which represents education at the university level or equivalent (coded 1). Altogether, 6.9% of the respondents said they were still in education. Since the respondents were at least 20 years old, it seems reasonable that the majority of this group studied at university. Accordingly, this group was categorised as having a higher education.

Drinking frequency was measured by asking the respondents how often they drank, and the response categories were: never, once a month or less, 2–3 times a month, 1–2 days a week, 3–5 days a week and every day. In the analyses we used a semi-continuous variable reflecting monthly drinking frequency: 0, 0.5, 2.5, 6, 16 and 30.

Analytic strategy and statistical analyses

First, we tested whether the characteristics of the respondents varied with survey years. Differences in proportions were tested using Pearson’s $\chi^2$ while differences in means were tested using ANOVA. Second, we performed logistic regression analyses to test whether attitudes toward each separate measure changed over time, both bivariately and adjusted for different compositions of the samples. Thus, in the first block of the regression analyses, we examined the effect of time on disagreement with each attitude item, and in the second block we examined the effect of time controlling for age, gender and monthly drinking frequency. Third, we examined the effect of demographics and drinking frequency on policy attitudes and on changes in attitudes over time. The potential impact of time, alcohol use/demographic variables and the interaction between time and alcohol use/demographics (e.g. Time*Drinking) were tested using OLS regression analyses with the Policy Support Index as the dependent variable. Continuous variables were mean-centred. Time, alcohol use and demographics were
Table 2. Sample characteristics by survey year

| Year      | Gender | Age          | Education | Alcohol useb |
|-----------|--------|--------------|-----------|--------------|
|           | Women (%) | Mean (st. dev.) | Higher (%) | Mean (st. dev.) |
| N         | 12 304 | 12 304 | 12 304 | 12 247 |
| 2005 (Aug.) | 52.3   | 42.3 (13.8) | 59.0     | 4.3 (5.1) |
| 2005 (Dec.) | 49.6   | 42.2 (13.8) | 59.7     | 4.2 (5.1) |
| 2006       | 47.8   | 43.7 (13.0) | 58.7     | 4.8 (5.4) |
| 2007       | 51.9   | 44.4 (13.0) | 56.3     | 5.0 (5.8) |
| 2008       | 52.9   | 47.2 (12.2) | 56.7     | 5.0 (6.0) |
| 2009       | 52.5   | 46.4 (13.8) | 58.1     | 4.8 (5.7) |
| 2010       | 53.9   | 46.5 (13.1) | 60.2     | 4.7 (5.3) |
| 2011       | 51.5   | 47.7 (13.4) | 61.6     | 5.3 (6.1) |
| 2012       | 53.4   | 49.6 (13.1) | 59.1     | 5.3 (6.2) |

Differences? \( \chi^2 = 20.16^* \) \( F = 45.98^{**} \) \( \chi^2 = 12.02^{ns} \) \( F = 5.34^{**} \)

ns Not significant, * \( p < 0.01 \), ** \( p < 0.001 \)
a Including respondents still in education (6.9% of the total sample)
b Monthly drinking frequency

included in the first block of the regression analysis and the interaction terms in the second block. Statistically significant interaction terms indicate that the patterns of change in attitudes over time are different for various sub-groups, for example sub-groups based on the respondents’ drinking habits. Due to the large sample size and a large number of comparisons, we used the one-percent level of statistical significance in the analyses.

Results

Table 2 shows the characteristics of the respondents in the nine surveys. There was no variation in education level by survey year. However, the proportion of women in the samples fluctuated somewhat over time. Overall, there was a tendency for an increasing proportion of women throughout the period. Moreover, mean age and the average monthly drinking frequency increased. The different compositions of the samples were controlled for when studying changes in attitudes over time (c.f. Table 3 and Table 4).

Changes in attitudes toward alcohol control measures

Table 3 shows the proportion who disagreed with various statements related to important measures in Norwegian alcohol policy. With one exception (“Alcohol advertising should be allowed”), the proportion who disagreed with the statements increased during the period 2005–2012. For example, the proportion who disagreed with the statement “It should be possible to buy wine in grocery stores” increased from 30% to 47%, while the level of disagreement with the statement “Alcohol is too expensive in Norway” increased from 26% to 44%. Since disagreement with these statements could be interpreted as support for the existing policy, it seems that public support for crucial parts of Norwegian alcohol policy increased during these years.
As shown in Table 2, the distribution of gender, mean age and mean drinking frequency varied according to survey year. Attitudes toward alcohol policy also varied according to these characteristics (see Table 4). To be sure that the changes in attitudes described above did not reflect different compositions of the samples, we controlled for these variables in the regression analyses. According to the adjusted OR presented in Table 3, the observed changes were not a function of differences in sample composition in terms of age, gender and drinking frequency. For the remaining analyses, the eight items considered in Table 3 were averaged into a single score and used as a general index of policy support.

**Effects of demographics and drinking frequency**

In order to investigate the impact of demographics and drinking frequency, we performed a hierarchical regression analysis with the Policy Support Index as the dependent variable. In the first block (Model 1, Table 4), we entered time of survey, gender, age, education and drinking frequency as independent variables. In the second block (Model 2, Table 4), we added the two-way interactions between time of survey and the other variables mentioned above.

Support for the existing policy was highest among females, older respondents, those with a higher education, and those who drank less often. Time was positively related to the alcohol policy index when controlling for the effect of demographics and drinking frequency, reflecting the increase in support also apparent for individual items in Table 3. The interaction between time and drinking frequency, and the interaction between time and education, were not statistically significant, which indicates that the pattern of change over time was similar across sub-groups based on drinking habits and education.

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**Table 3. Proportion that disagreed (totally disagreed or partly disagreed) with the following statements (Lowest N=11 894) and tests of linear effects of time**

| Year | 05 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | Linear trend |
|------|----|----|----|----|----|----|----|----|----|--------------|
|      | Aug | Dec | Oct | Jun | Jul | Feb | Mar | Mar | Jan | OR | Adj. OR^a |
| Measures | Too difficult to buy alcohol | 76 | 81 | 79 | 84 | 85 | 82 | 84 | 81 | 85 | 1.06** | 1.05** |
|        | Wine sold in grocery stores | 30 | 33 | 29 | 35 | 38 | 40 | 46 | 47 | 47 | 1.14** | 1.15** |
|        | Liquor sold in grocery stores | 74 | 77 | 78 | 80 | 82 | 83 | 86 | 84 | 88 | 1.13** | 1.12** |
|        | Age limits too high | 92 | 92 | 95 | 96 | 96 | 96 | 96 | 95 | 96 | 1.12** | 1.11** |
|        | OK to smuggle – own use | 44 | 44 | 47 | 49 | 52 | 57 | 60 | 56 | 59 | 1.11** | 1.09** |
|        | Alcohol is too expensive | 26 | 30 | 28 | 36 | 41 | 41 | 42 | 41 | 44 | 1.13** | 1.13** |
|        | Allowed to promote alcohol | 75 | 74 | 80 | 84 | 83 | 82 | 83 | 75 | 78 | 1.01ns | 1.01ns |
|        | Too severe legal BAC levels | 78 | 79 | 81 | 86 | 86 | 87 | 92 | 88 | 90 | 1.18** | 1.19** |
| Sum index (scale 1–4)^b | 2.9 | 2.9 | 3.0 | 3.1 | 3.1 | 3.1 | 3.2 | 3.1 | 3.2 | 3.2 |
| (Mean, st. dev.) | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 |

ns Not significant, * p < 0.01, ** p < 0.001
a Adjusted for age, gender and monthly drinking frequency
b See Table 4 for linear test of change
### Table 4. Multiple regression analysis predicting index of support for a restrictive alcohol policy

|                        | Model 1 (R² = 0.172) | Model 2 (R² = 0.173) |
|------------------------|-----------------------|-----------------------|
| **B (SE)**             | **β**                 | **99% CI**            | **B (SE)**             | **β**                 | **99% CI**            |
| **Intercept**          | 2.796 (0.010)         | 2.771, 2.820          | 2.799 (0.010)         | 2.774, 2.824          |
| Time of survey (years) | 0.041 (0.003)         | 0.130                 | 0.050 (0.005)         | 0.159                 | 0.037, 0.062          |
| Age (years)            | 0.008 (0.000)         | 0.163                 | 0.008 (0.000)         | 0.163                 | 0.007, 0.009          |
| Drinking (per month)   | -0.029 (0.001)        | -0.260                | -0.029 (0.001)        | -0.260                | -0.032, -0.027        |
| Gender (1 = female)    | 0.274 (0.011)         | 0.216                 | 0.275 (0.011)         | 0.216                 | 0.247, 0.302          |
| Education (1 = high)   | 0.219 (0.011)         | 0.170                 | 0.218 (0.011)         | 0.170                 | 0.191, 0.246          |
| Time * Age             | -0.001 (0.000)        | -0.026                | -0.001 (0.000)        | -0.001                | -0.001, 0.001         |
| Time * Drinking        | 0.000 (0.000)         | 0.000                 | 0.000 (0.000)         | 0.000                 | -0.001, 0.001         |
| Time * Gender          | -0.013 (0.005)        | -0.030                | -0.004 (0.005)        | -0.009                | -0.017, 0.010         |
| Time * Education       | -0.004 (0.005)        | -0.009                | -0.004 (0.005)        | -0.009                | -0.017, 0.010         |

*B* = Unstandardised regression coefficient; SE = Standard error; *β* = Standardised regression coefficient; CI = Confidence interval of unstandardised regression coefficient

Confidence intervals not overlapping 0 indicate statistically significant trends below a *p*-value of 0.01

The interaction between time and age, and the interaction between time and gender, obtained *p*-values of 0.002 and 0.011, respectively, and the increase in R-square change between the first and the second model was statistically significant, *p* = 0.003. However, the interactions were only able to explain 0.1% of the variance beyond the main effects, which suggests that the pattern of change was also fairly similar across these demographic groups. Because the effect size was small, we did not investigate the interactions any further.

### Discussion

Overall, the empirical analyses indicate a statistically significant increase in support for a restrictive alcohol policy in Norway during the period 2005–2012. This pertains to both alcohol policy measures that were liberalised at the time and, with the exception of the ban against advertising, to measures that had remained stable. Although the level of support varied according to age, gender, educational level and drinking frequency, the observed changes in attitudes over time were not substantially moderated by these variables. The current sample consisted of over 10 000 respondents, which means that statistical significance is not an indicator of practical significance. However, our results do not suggest only trivial changes in policy attitudes. Several of the individual measures showed an increase in support of about 10 percentage points from 2005 to 2012. Keeping in mind that possible scores on the policy index scale ranged from 1 to 4, an estimated increase of 0.04 points per year (cf. Table 4) represents a substantial change over longer periods of time.

Previous studies indicate that a tendency of increased support for a restrictive alcohol policy in Norway started around the millennium, after a period with decreasing or fairly stable support (Nordlund, 2010; Østhus, 2005). Studies from Swe-
den and Finland (Holmberg & Weibull, 2011, 2013; Holmila et al., 2009; Hübner, 2012; Österberg, 2007), but not from other western countries (Giesbrecht et al., 2007; Giesbrecht et al., 2001; Greenfield et al., 2004; Greenfield et al., 2007a, 2007b; Wilkinson et al., 2009), suggest a similar shift at the time. The current study suggests that the tendency of increased support for a restrictive alcohol policy continued until 2012, but do these results reflect a genuine increase in support for alcohol control policies in the Norwegian population since 2005? The following section addresses potential limitations of the current study.

**Methodological considerations**

The weighted samples resembled the population with regard to the distribution of geographic regions, but there were somewhat more women and those aged 50+, and the respondents were more highly educated than the population in general. This may have resulted in an impression of a somewhat more positive view on a restrictive alcohol policy than was actually present in the population. Since the pattern of change over time was practically unaffected by gender, age and educational level, we assume that this bias did not have any major impact on the results regarding change. However, because the surveys were conducted in an established panel of internet users and the response rate was relatively low (43%), we cannot rule out the possibility that the samples also deviated from the population in other important dimensions. Because the study mainly focused on alcohol and alcohol policy, it could be assumed that those who were most interested in this topic and also had the strongest opinions in this regard, were overrepresented among the respondents, whereas those who were less interested are missing.

There is also another concern related to the response rate. It is apparent from Table 1 that the response rate decreased during the period of the study. If those who declined to participate possessed more negative attitudes toward alcohol control measures, one may suspect that the change is due to attrition rather than actual change in the population. However, the decline in response rate is only apparent in the first and the last years of measurement, and does not follow the changes in attitudes systematically (a crude test using both response rate and year of survey as predictors of the policy support index showed that the effect of time could not be attributed to variations in response rate). Furthermore, a study of non-response bias in a New Zealand sample suggests that attrition may not constitute a severe problem for measures of attitudes toward alcohol policies. Assuming that late respondents are similar to non-respondents, the study concluded that binge drinking and experience of assault was under-estimated due to non-response, whereas support for alcohol policies was not (Maclennan, Kypri, Langley, & Room, 2012).

Another question is whether the shape of the trend is linear. In exploratory analyses not reported in this paper, we tried to fit other functions to the change across time. A slightly better fit was found with a quadratic function, but the gain in explained variance was negligible (from 0.023 to 0.026). For the sake of parsimony we therefore reported the linear analyses.

Did the survey items measure attitudes
toward policies enacted by the governments, or is it possible that people’s responses reflected something else? It is not obvious that people who agree that wine should be sold in grocery stores think that the monopoly outlets should be shut down. People may believe that they will be able to buy wine both at grocery stores and at the Norwegian Wine and Spirits Monopoly. Moreover, it is not obvious what people who agree that alcohol is too expensive think about price regulations. It may imply that they think that the taxes are too high, but it may also imply that they think that the profit at on- and off-premise outlets is too high. In addition, the real price of alcohol depends not only on regulation by the authorities, but also on factors such as inflation, employment and wages.

Possible explanations of increased support
The overall aim of our paper was to describe changes in the Norwegian public’s support for the existing alcohol policy, and to discuss how changes in policy relate to changes in opinions. The review of previous studies and the current empirical analyses illustrate that public opinion and policy do not necessarily follow each other over time. During two decades when alcohol policy was gradually liberalised, support for restrictive alcohol policy measures first decreased or was fairly stable and then started to increase around the turn of the millennium. As described above, increased support for control policy measures since the year 2000 has not only been observed in Norway. A similar trend has been shown in Sweden and Finland (Holmberg & Weibull, 2011, 2013; Holmila et al, 2009; Hübner, 2012; Österberg, 2007). It is tempting to explain the increased support since the year 2000 as a reaction to a fairly fast liberalisation of the alcohol policy measures that for many years have been regarded as the three pillars of Nordic alcohol policy: strict physical availability of alcoholic beverages, high alcohol taxes and prices, and a comprehensive alcohol monopoly system (Österberg, 2007).

However, the increased support observed in Norway in the last decade was apparent both for measures that had been considerably liberalised and for measures that had remained more stable. We consider the assessment of a range of different policies as a strength of this study, since it may be tempting to give too much weight to salient policy-specific events, such as attributing a decrease in the proportion who want wine in grocery stores to the increased consumer orientation of the Norwegian Wine and Spirits Monopoly. Although our results do not rule out policy-specific reasons for the increased support, the data suggests that more general mechanisms are also at work. Thus, a brief discussion of other potential explanations of changes in public opinion seems warranted. When searching for such explanations, we concentrate on the increased support observed since the millennium.

The increased support for restrictive alcohol policy measures seems to be in accordance with a biennial survey of Norwegians’ values and attitudes toward various topics (Hellevik, 2008). In this survey, changes were observed that indicate a less materialistic and a more idealistic orientation from 2003 to 2007, and a less conservative and a more radical orientation from 2001 to 2007. Moreover, increased
trust was found in health and social services, and in the Norwegian Parliament and Government, as well as increased satisfaction with Norwegian society. According to a later publication addressing only changes in materialistic/idealistic orientation, the situation stabilised from 2007 to 2011 (Hellevik, 2012). Altogether, it seems that the observed increase in support for a restrictive alcohol policy may to some extent be seen as a part of a more general trend in values and attitudes.

Another potential explanation is related to the increase in alcohol consumption during the period. A Finnish study has recently shown that people who have personal experience of alcohol-related harm in their environment are more likely to support a restrictive alcohol policy than others (Holmila et al., 2009). According to recent reviews of Norwegian registry data on various alcohol-related health problems and legal violations, the data mainly indicate an increase in alcohol-related harm in 1995–2010 (Rossow, 2010; Storvoll & Rossow, 2011). Thus, an increasing proportion of the population may have experienced the dark side of alcohol through their own drinking, someone else’s drinking, or through the media. This may have resulted in more people seeing the necessity of regulating consumption. However, contrary to our argumentation, a recent Canadian study has shown that in provinces with high rates of alcohol-related morbidity, people have been less likely to support increased alcohol taxes (Macdonald, Stockwell, & Luo, 2011).

Finally, a recent publication based on the same surveys as our paper indicates that increased support for price and availability restrictions in 2005–2009 was partly mediated by changes in the respondents’ beliefs about the harm caused by drinking and changes in beliefs in the harm-limiting effect of restrictive measures. In other words, attitudes may also have changed because people have gained more knowledge about the effectiveness of control measures. However, as pointed out in the paper, more research is needed to confirm these findings (Storvoll, Rossow, & Rise, 2013), and if this is part of the explanation it would be interesting to establish why people’s perceptions about effectiveness have changed.

We believe that such speculations, along with other potential explanations, should be explored in future studies. Knowledge about the underlying causes of changes could be important in predicting and influencing public opinion on alcohol control policy.

**Conclusion**

The findings from our empirical analyses, together with those from previous Norwegian studies, indicate a tendency toward increasing support for a restrictive alcohol policy since the millennium. In the 1990s, support was decreasing or fairly stable – depending on the measure in focus. As regards the increased support observed in the period 2005–2012, interaction analyses revealed no substantial moderation of the trend by demographic factors and drinking habits. This indicates that the increased support applied across various sub-groups. The major threats to our empirical analyses concern selection bias and response rate. However, the response rate did not systematically follow the increase in support, and we controlled for potential differences between the samples in terms
of gender, age and drinking frequency when studying changes in attitudes over time.

In addition to discussing the association between changes in alcohol policy and related opinions, we have suggested three possible explanations for increased support for alcohol policy since the millennium. The first is related to changes in value orientation in general, the second to increased experiences with alcohol-related harm and the third to changed beliefs in the effectiveness of restrictive measures. It may turn out that the trend of increasing support cannot be explained by one single factor, but instead is the result of a synergy of different processes.

Declaration of interest None.

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Appendix. Statements used to measure attitudes toward Norwegian alcohol policy
Alcohol is too expensive in Norway.
It is too difficult to buy alcohol.
The age limits for purchasing alcohol are too high.
It should be possible to buy wine in grocery stores.
It should be possible to buy liquor in grocery stores.
Alcohol advertising should be allowed.
The prescribed blood-alcohol limit is too severe.
It is OK to smuggle a little alcohol for one’s own consumption.
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