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The rise of the total abstinence model. Recommendations regarding alcohol use during pregnancy in Finland and Denmark

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ABSTRACT

AIMS – Adverse effects of alcohol on the fetus are currently defined as a serious public health problem in all western countries. Exposure of the fetus to alcohol may result in a spectrum of adverse effects, referred to collectively as fetal alcohol spectrum disorders (FASD). Different countries vary in terms of policy regarding alcohol consumption during pregnancy. This paper sets out to examine and compare official recommendations on alcohol intake during pregnancy in Finland and Denmark since the 1970s. In addition, the paper analyses the rationale behind these recommendations. METHODS AND DATA – The method used is qualitative content analysis. The data consists of 1) health education material for pregnant women and 2) reports and guidelines produced by government health authorities. The data comes from Finland and Denmark and covers the period between the 1970's and today. RESULTS – The article demonstrates how the official Finnish and Danish recommendations regarding alcohol intake during pregnancy have in the last decades fluctuated between a more permissive and a total abstinence approach. Both countries have recently adopted a total abstinence message. This policy line is not, however, based on research evidence pertaining to the harmfulness of a small-to-moderate alcohol intake during pregnancy but rather on the principle of precaution. The Finnish data contains very little information about the background of the changing recommendations whereas the Danish trajectories are explained in policy documents and expert debates. The paper suggests that the recent adoption of a total abstinence message in Finland and Denmark is closely linked to a change in the social and cultural climate regarding FASD. Moreover, it is argued that the adoption of the total abstinence model in Finland and Denmark is part of a wider international trend. CONCLUSIONS – The knowledge gap with regards to the fetal effect of low-to-moderate levels of alcohol consumption combined with an urge to protect the fetus makes the formulation of health education messages complicated. The paper discusses problematic features in the current Finnish and Danish policy arguing that the recommendations to pregnant women contain contradictory elements. Future research should focus on women's and health professionals' risk perceptions and international trends with regards to the total abstinence model.

KEY WORDS – Fetal alcohol syndrome disorders (FASD), pregnancy, health education, total abstinence, risk, Denmark, Finland.

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Introduction

Recent research has shown that countries may vary considerably in terms of attention related to alcohol consumption during pregnancy and how the risks linked to prenatal alcohol intake are interpreted by health authorities (O'Leary et al. 2007; Drabble et al. 2009). This paper analyses how health authorities have interpreted the risk caused

by prenatal drinking in two heavy-drinking Nordic countries, Finland and Denmark, between the 1970s and today.

The term 'fetal alcohol syndrome' (FAS) was invented in the early 1970s to describe a new scientific discovery: the triad of dysmorphic facial features, impaired growth and central nervous system abnormalities caused by heavy alcohol exposure in utero (Golden 2005). During the 1980s and 1990s other terms have been used to refer to less severe expressions of prenatal alcohol exposure. These terms include 'fetal alcohol effect' (FAE) or 'partial FAS' (PFAS), 'alcohol related birth defects' (ARBD) and 'alcohol related neurodevelopmental disorder' (ARND). Since 2003, the umbrella term 'fetal alcohol spectrum disorder' (FASD) has been used to describe all the above mentioned conditions, that is, a continuum of permanent birth defects, which are understood to be caused by maternal consumption of alcohol during pregnancy (Sokol et al. 2003). Originally, alcoholic pregnant women raised the alarm but the concern has spread to moderate and low levels of alcohol intake during pregnancy.

This paper explores the perception of FASD risk. Why talk about *perception* of risk? Is it not a straightforward scientific fact that a certain level of alcohol use during pregnancy causes fetal damage? In her sociological account of the evolution of medical knowledge about the effects of alcohol on fetal development, Elisabeth Armstrong (2003, 6) argues that "although FAS and its kindred syndromes are often presented as clearly established diagnostic paradigms (…) considerable uncertainty pervades our understanding of the relationship between alcohol and reproductive outcome". Further, according to Armstrong (2003, 4), there is little evidence substantiating such diagnoses as FAE, PFAS, ARBD or ARND.

In their recent discussion on the effects of prenatal alcohol exposure on neurodevelopment, Gray et al. (2009) call into question the evidence base for the increased concern that prenatal alcohol exposure may result in ARND at low-to-moderate[1] alcohol consumption. According to Gray et al. (2009), it seems clear that heavy alcohol consumption during pregnancy can result in FAS but the effects of drinking at low-to-moderate levels are much less clear. To make matters even more complicated, there is recent evidence according to which low alcohol intake during pregnancy can actually be beneficial to the development of the fetus (Kelly et al. 2009).

Drawing attention to the uncertainty of the knowledge basis concerning the fetal effects of low-to-moderate alcohol consumption during pregnancy may seem out of place in the current social climate with its widespread concern for the risks of prenatal alcohol exposure. The fact, however, is that there is no consistent evidence in humans linking low-to-moderate level of alcohol use during pregnancy to adverse effects (Henderson et al. 2007; Gray et al. 2009; Abel 2009).

The uncertainties around the causal relationship between prenatal alcohol use and FASD have not, however, stopped the translation of knowledge into policy. There are two recent studies comparing official guidelines about prenatal alcohol consumption in different countries. Drabble et al. (2009) and O'Leary et al. (2007) concluded that there is a variation between, and sometimes also within countries, when it comes to guidelines and

recommendations of alcohol intake during pregnancy. Some countries provide a consistent abstinence message while others advise women to abstain from alcohol while at the same time providing the message that "consumption of low levels of alcohol is associated with minimal risk to the fetus" (O'Leary et al. 2007, 468).

In the UK, for example, up until 2007 government officials considered abstinence the "safest" option while at the same time advising pregnant women to drink a maximum of 32 grams of alcohol per week with no more than 2 standard units per day. In Australia, the recommendation was, up until 2009, that abstinence "may be considered" and the advice was a maximum of 70 grams of alcohol per week with no more than 2 standard units per day. Australia had the most liberal policy in a comparison of five English-speaking countries (O'Leary et al. 2007). In March 2009 Australia, however, started to advocate total abstinence (National Health and Medical Research Council 2009). United States has traditionally had the strictest policy advising total abstinence and stating that during pregnancy there is no safe level of alcohol use (O'Leary et al. 2007).

It has been argued that the prominence of risk calculation and risk management has increased in late modernity and dominates the way we perceive reality (Douglas 1992). At the same time, health has come to represent a moral imperative that is embedded in social and cultural norms and expressed in public policies (Lupton 1995). New medical technologies have contributed to fetal health becoming an object of great interest (Rothman 1986; Ruhl 1999). Experts play a key role in the management of health risks by claiming the authority to construct the border between "acceptable" risks and risks that are deemed too dangerous. In scientific and expert discussion on risk there is, however, often disagreement on what constitutes an acceptable risk (Beck 1992; Lupton 1999). What is more, risk assessment is not only scientific but also political and closely linked to cultural context and values (Douglas & Wildavsky 1982; Caplan 2000). Previous studies have depicted ways in which the perception and management of FASD risk is influenced by social climate, and it has been argued that the alarm FASD generates has many of the characteristics of a moral panic (e.g. Kaskutas 1995; Armstrong & Abel 2000; Armstrong 2003; Golden 2005; Drabble et al. 2009; Bell et al. 2009). A key feature of a moral panic is the proliferation of concern about a certain threat, which overstates the actual danger the subject of the panic poses (Cohen 1972).

A Nordic perspective into the discussion on FASD risk perception and policy-making regarding alcohol intake in pregnancy has been lacking. This paper sets out to examine and compare the policy implications of FASD risk perception in two Nordic countries, Finland and Denmark since the 1970s. The paper explores the following two questions: 1) How is the risk related to alcohol intake during pregnancy perceived and communicated to pregnant women in the official health education material between the 1970s and today? 2) Are the given recommendations justified by referring to scientific evidence? The paper ends with discussing the broader social context of FASD risk perception and drawing policy implications.

Context of the study

Why compare Finland and Denmark? There are interesting similarities and differences in alcohol control policy in these countries, which make comparison of policy on prenatal drinking particularly interesting. Restrictive alcohol policy has been considered as an integrated part of the Scandinavian welfare model in Norway, Sweden and Finland. Denmark, however, "has always been an exception without the influence of strong restrictions in purchase of alcohol, without the so called 'alcohol monopoly stores', without a strong 'treatment tradition' and without other strong regulations for the individuals" (Eriksen 2009, see also Johansson 2000.) Until the 1990s Finland carried out strict alcohol control policy based, since the 1970s, on the "total consumption model" which aimed at reducing alcohol consumption on the level of the whole population. Since 1995, however, after Finland joined the EU, Finnish alcohol control policy has been liberalised e.g. in the form of tax cuts. (Tigerstedt 2001, see also Sulkunen 2000).

In Finland and Denmark the modernization process and a strong ethos of gender equality have since the 1970s made women's alcohol use more common and socially accepted. The alcohol consumption of Finns and Danes is beyond the European average and on par with countries such as France. In 2007, the alcohol intake of Finns was 10,5 litres of 100 % alcohol per capita and the alcohol intake of Danes (> 14 years) was in 2007 12,1 litres per capita, a figure that has decreased to 11,1 in 2009 (Suomen alkoholiolot … 2009; Danmarks Statistik 2010). In Finland, women's consumption of alcohol has undergone an almost sixfold increase within the last 40 years, 10 % of women are abstinent and 15–49 year old women drink an average of 5,7 standard drinks per week (Mäkelä et al. 2009; Mäkelä et al. 2010). A national survey in Denmark on alcohol consumption in 2002 showed that 1,9 % of adult women (18–70 years) never drank alcohol and that 81 % drank less than 7 units of alcohol per week (Laursen et al. 2004). Danish women have an average consumption of 5,1 standard drinks per week (age group 16–) (Kristiansen et al. 2008). A standard drink contains 12 grams of alcohol. Two studies from Denmark show that the proportion of abstainers among pregnant women seems to have increased from the 1980's into the 1990's. A study by Olsen et al. from 1985–86 show that 18 % of pregnant Danish women were abstainers (Olsen et al. 1987); a later study by Kesmodel et al. from 1998 showed that 75 % of a sample of pregnant women either abstained or drank no more than one drink a day (Kesmodel et al. 1998).

Methods

Initially, we examine policy regarding alcohol intake in pregnancy by analysing *health education material for pregnant women* produced by the government health authorities. In both Finland and Denmark, there is a free of charge, public maternity care service system which reaches virtually all pregnant women early on in pregnancy. Booklets with information about pregnancy, giving birth and nursing children are provided to pregnant women at these clinics by general practitioners, nurses or midwifes. The health education material we analyse thus reaches virtually all pregnant women in Finland and Denmark early on in the pregnancy. Second, we scrutinize

the rationale behind the recommendations to pregnant women in order to understand the arguments behind the policy. We do this by looking at relevant *official documents*, such as policy reports, guidelines to professionals and research reviews created by government health authorities. These official documents are both a source of public information and directed at professionals. Documents are included in the analysis from 1970 onwards. Leaflets and guidelines from the 1960s serve as historical background material.

■ Finland

A health education booklet for pregnant women has been published in Finland since 1937 first by various third sector actors; in 1980 a central agency subordinated to the Ministry of Health and Social Affairs took over the production of the booklet (Kokko 2008). These booklets contain advice to pregnant women on pregnancy, the development of the fetus, giving birth and parenting. The booklet has been modified numerous times since its first publication. The data for this paper includes all the booklets from the period 1971–2009.

The Finnish documents that may shed light on the rationale behind the policy regarding alcohol intake in pregnancy are published by Ministry of Health and Social Affairs and the central agency subordinated to the ministry.[2] The documents analysed here include all reports on maternity care and recommendations and guidelines to maternity care professionals published between 1999 and 2009 (Lääkintöhallitus 1988; Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus 1999; Sosiaali- ja terveysministeriö 2004; 2005; 2007; 2009). A search was made in a Finnish electronic database (Medic) to see if recommendations on alcohol intake in pregnancy have been debated in Finnish medical journals since the late 1970s. These journals contain a lot of texts on FAS and FASD in general but only one very short text debating the justification of the total abstinence message to pregnant women in health education material.

■ Denmark

In Denmark the National Board of Health produces health education booklets for pregnant and parenting women. Brochures prior to the 1970s focused primarily on nutrition and child care and only mention the use of stimulant in more general terms, such as "Stimulants such as coffee, wine and tobacco should be used with moderation", with no message on the recommended maximum intake (Indenrigsministeriets Helbredsudvalg 1960). In a brochure from 1970 pregnant women's use of stimulants such as wine, tobacco or coffee is mentioned accompanied by specific recommendations about their use. The data for this paper includes reprints of leaflets between 1970 and today.

The National Board of Health also produces official documents, such as reports, literature reviews, guidelines and recommendations. They shed light on the background of the advice given to pregnant women (Sundhedsstyrelsen 1999; Sundhedsstyrelsen 2009a; Sundhedsstyrelsen 2009b). We also included reports which have served as the basis for the change in the official recommendations (Sundhedsstyrelsen 1999; Strandberg-Larsen & Grønbæk 2006). Finally, recent periodical articles discussing the Danish recommendations and guidelines are included

(Andersen et al. 2001; Kesmodel 2003; Kesmodel 2006)

■ Analysis

The data has been analysed using qualitative content analysis (Krippendorff 2004). In the analysis we have systematically sought for the meaning of and compared 1) the recommendations given to pregnant women with regard to alcohol consumption during pregnancy and 2) the rationale that lies behind the recommendations, in effect whether they are justified by referring to scientific evidence. By using data covering several decades, we are also able to examine the changes that have taken place.

Results: Recommendations regarding alcohol use in pregnancy in Finland and Denmark

■ Finland

1971: alcohol should be avoided but can be used as medicine

In 1971 the Finnish health education booklet for pregnant women deals with alcohol intake under the heading "Nutrition during pregnancy". The last short paragraph of a fairly lengthy chapter on nutrition deals with tobacco and alcohol, with the emphasis on the former. The advice given about alcohol is the following: "Alcohol also travels through the placenta. Therefore alcoholic drinks need to be avoided during pregnancy. In some cases alcohol can, however, be used in late pregnancy for medical purposes to prevent strong contractions" (Syntyvä lapsesi 1971–1977). Alcohol has a minor role in the text and the recommendation to avoid it is given without any further explanation, justification or much emphasis. Further, the advice to avoid alcohol seems ambiguous next to a reference to the fact that in the 1970s alcohol was used by physicians orally and intravenously to prevent premature labor (Ylikorkala & Fuchs 1978). It is possible that the advice to avoid alcohol is included in the booklet precisely *because* alcohol was given to pregnant women by physicians at the time – to warn women against other than medical use of alcohol in pregnancy.

1978: Absence of recommendations

Interestingly, the advice to avoid alcohol during pregnancy has disappeared from the health education material by 1978. The booklet warns pregnant women about the harms of smoking but alcohol is not mentioned. It is a mystery why alcohol was at this point not viewed as a relevant topic for pregnant women. It is obvious, however, that, alcohol intake in pregnancy was not yet viewed as particularly dangerous; it was not until 1979 that physicians started to discuss the scientific discovery of FAS in Finnish medical journals (Leppo, forthcoming).

1980: Continuous drinking may harm your child

The following advice was given to pregnant women between 1980 and 1987: "Mother: smoking and continuous alcohol consumption during pregnancy may harm your child" (Meille tulee vauva 1980, 8) and "Frequent alcohol intake or large amounts of alcohol on any one day is a strain to the mother's and the child's liver and central nervous system. Four bottles of strong beer or four glasses of wine on one evening is too much. Even small quantities

are harmful if consumed on a daily basis" (Meille tulee vauva 1980, 24).

Between 1980 and 1987 the policy regarding alcohol intake during pregnancy was in retrospect permissive in that only "continuous" and "frequent" drinking and large amounts of alcohol were considered dangerous. As long as drinking did not take place every day and one drank less than four drinks on any one day, alcohol consumption during pregnancy was considered harmless.

1988: Contradictory abstinence message

The message about drinking changed in 1988 and after that remained the same in the reprints of the booklet for over fifteen years, between 1988 and 2005. In 1988 the booklet first tells pregnant women that "smoking and alcohol use during pregnancy may harm the child", and secondly gives the following, more detailed advice: "Alcohol use during pregnancy can harm the fetus and also be a strain to the mother. Even small amounts can be harmful if alcohol is consumed on a daily basis. A safe level of alcohol use during pregnancy is currently unknown, and therefore abstinence is recommended during pregnancy." (Meille tulee vauva 1988, 19).

The formulation above concludes that abstinence is the best choice during pregnancy. The abstinence message is, however, contradictory: the text implies that small amounts are dangerous only if consumed daily. Further, the message is vague as there is no indication what a *small amount* means. The former guideline of four drinks being "too much" has disappeared. The text explicitly acknowledges the lack of scientific evidence for the abstinence recommendation and thus depicts abstinence during pregnancy as a form of sensible precaution.

Official guidelines to health professionals within maternity care stated in 1980 that pregnant women should avoid substances (Lääkintöhallitus 1988). In 1999 guidelines to professionals stated that heavy alcohol use during pregnancy is harmful to the fetus (Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus 1999, 83). In 2004 an unequivocal abstinence message was given: "A safe limit for alcohol use in pregnancy is not known and therefore abstinence is recommended during pregnancy." (Sosiaali- ja terveysministeriö 2004, 206). The 1999 and 2004 documents state in general terms that all recommendations are based on research findings or consultations with Finnish experts. There is a discrepancy in that the health education material urged pregnant women to abstain already in 1988 while the guidelines to professionals have explicitly recommended abstinence only since 2004. The 2004 guidelines to professionals do not explain why total abstinence policy was adopted at that point.

2006: Unequivocal abstinence message

The most recent changes pertaining to advice given on alcohol intake during pregnancy were made in 2006 when the entire booklet was renewed. The 2006 booklet has a new section called "Risk factors" which deals with lifestyle risks such as drinking, smoking, use of prescribed and illegal drugs and travelling. The booklet contains more information about the adverse effects of alcohol on the fetus than before, and it urges pregnant women to "Stop smoking and give up alcohol!" Further, it states that "Alcohol causes fetal damage" and "Binge drinking (consuming large quantities of

alcoholic beverages) is particularly dangerous for the fetus. The body parts and organs develop during the first trimester (the first three months of pregnancy), and a dangerous drinking pattern during the first trimester can result in fetal malformations, e.g. a congenital heart defect. Excessive alcohol use should be avoided whenever there is a possibility of pregnancy. Pregnant women should avoid alcohol completely". In addition, the brochure states that women who may become pregnant need to avoid getting drunk and that alcohol slows down the fetuses growth, can have adverse effects on the central nervous system and can cause mental retardation, cognitive problems, miscarriage etc. The leaflet concludes that "a safe drinking level cannot be established during pregnancy" (Meille tulee vauva 2006, 7, 17–18).

This version of the booklet is more strict that the one before; pregnant women are urged to "give up alcohol". This total abstinence message is very similar to current guidelines promoted e.g. in the United States by most of the relevant actors in the field (see O'Leary et al. 2007). In addition, the Finnish brochure advices women, who may get pregnant, to avoid binge drinking which indicates an extension of the target group as women planning a pregnancy were not previously addressed in the booklet.

Instead of clearly stating that a safe drinking level during pregnancy *is not known*, the 2006 recommendation uses a vague formulation which could either indicate that a safe level does not exist or that it is not known. The original wording in Finnish is: "Turvallista rajaa alkoholinkäytölle raskausaikana ei voi asettaa" (Meille tulee vauva 2006, 18) and our translation above is: "a safe drinking level during pregnancy cannot be established". The official printed English language version of the booklet uses the expression: "There is no safe amount of alcohol that a woman can drink while pregnant" (Meille tulee vauva 2006) indicating that every drop of alcohol is dangerous in pregnancy. Our translation, however, implies that there could be a safe level. Either way, the booklet no longer clearly indicates that while there may be a safe level of drinking during pregnancy, it is currently not known and that is why abstinence is recommended.

A report reflecting retrospectively on all the changes made to the booklet in 2006 sheds some light on why the total abstinence message was launched (Kokko 2008). The report was written by one of the members of the expert group behind the new booklet, a sociologist who analysed the renewal process as a part of her academic studies. The report does thus not have the same status as an "official document" as the other reports etc. included in our analysis. According to the report, the expert group behind the booklet had vivid discussions about how to formulate the advice on drinking and smoking. The group also consulted the country's leading FAS specialist (a physician). In the end, the group came up with very definitive total abstinence messages despite their expressed general inclination to avoid patronizing tones (Kokko 2008, 11, 17–18). The report refers in general terms to "research findings" which justify the new policy line on alcohol but no specific references are given.

The national guidelines to maternity care professionals in 2007 recommended abstinence during pregnancy, and also when planning the pregnancy: "A safe drinking

level of alcohol use with regards to malfunction of the central nervous system is not known, and the safest choice during pregnancy is abstinence. (Current Care guidelines: Treatment of Alcohol Abuse 2005). It is safest to start abstinence already when planning pregnancy." (Sosiaali- ja terveysministeriö 2007). This report refers to the national guidelines on evidence based care and treatment practices, the Current Care guidelines[3]. The most recent report by the Ministry of Health and Social Affairs repeats the total abstinence policy (Sosiaali- ja terveysministeriö 2009). The lack of specific references in these reports and the Current Care Guidelines website means that the public has no access to the evidence base and arguments behind the policy.

■ Denmark

1970: Absence of recommendations

In Denmark the National Board of Health provides health education information to pregnant and parenting women. In a booklet from 1970 the Board advised pregnant women to restrain their use of stimulants such as coffee, wine and tobacco (Sundhedsstyrelsen 1970). In 1970 the recommendation focused upon harm done by smoking tobacco during pregnancy and not upon alcohol. It stated: "stimulants such as coffee, wine and tobacco should be used with moderation, or at least minimize use of tobacco as much as possible." (Sundhedsstyrelsen 1970, 8). The 1970 booklet contained no message concerning recommended maximum intake of alcohol during pregnancy, neither were there any references to scientific basis for these guidelines.

1984: Stricter recommendations

In 1984 the National Board of Health sharpened their recommendations and pregnant women were advised to be cautious with alcohol and preferably avoid alcohol. The information to the women in 1984 also included a passage on the uncertainty and inconclusiveness of the research data available at that time: "Whether consumption of a modest amount of alcohol during pregnancy cause harm to the fetus or increase the risk of abortion is yet unclarified, but studies point in that direction. It is therefore advised for pregnant women to be very cautious with, and preferably to avoid intake of, alcohol" (Sundhedsstyrelsen 1984, 13).

This recommendation was, according to the 1984 booklet, based on the known teratogenetic effect of regular intake of large amounts of alcohol during pregnancy, as well as the presumed increased risk for miscarriage related to daily intake of alcohol (Sundhedsstyrelsen 1984). The booklet states that it is unclear but probable that lower levels of alcohol consumption also could harm the unborn child. The inconclusiveness of research data is used to justify abstinence as the safest choice for pregnant women. The 1984 recommendations directed women towards abstinence, but, as it will appear the message was not as unequivocal as in 2007.

In a later publication from 1999 the Danish National Board of Health described their 1984 recommendation as restrictive and as a zero tolerance position and explained that the recommendation at that time was in line with other countries such as Norway, Canada and USA. Further, the 1984 guidelines were based on studies of FAS, at a time when knowledge about

a safe level of alcohol consumption during pregnancy was very uncertain (Sundhedsstyrelsen 1999).

1999: Tolerating a low consumption of alcohol during pregnancy

In March 1999 the recommendation to pregnant women was changed, in terms of 'allowing' pregnant women to drink small amounts of alcohol. Pregnant women were primarily recommended not to drink, but if they drank alcohol – and studies showed that 70–80 % of pregnant women did – they were not to drink more than one standard drink on any one day and avoid drinking every day (Kesmodel et al. 1998). The recommendations to pregnant women were expressed in the following statements: 1) Avoid alcohol in pregnancy if possible; 2) If you drink, drink no more than one drink per day; 3) Do not drink every day. In addition it was stated that pregnant women should never become intoxicated (Sundhedsstyrelsen 1999, 59).

These new recommendations were based on a systematic review of the scientific evidence for the 1984–1998 policy on alcohol-intake during pregnancy (Sundhedsstyrelsen 1999). The review was initiated in 1998 by the Danish National Board of Health, and stated that that there were no scientific evidence for sustaining a zero tolerance policy regarding consumption of alcohol during pregnancy. It was concluded, that an intake of 1 or more units/day ($\geq$ 7 units/week) could harm the fetus, and that it was important, that pregnant women did not drink every day and had a maximum intake of one unit/day.

The 1999 recommendation was based on the following argument: scientific research has not proven a harmful effect caused by the intake of small amounts of alcohol during pregnancy, and it is probable that pregnant women are able to consume small amounts of alcohol without causing harm to the fetus. At the same time the National Board of Health pointed out that more than one drink a day could be harmful to the fetus (Sundhedsstyrelsen 1999). Drabble et al. (2009, 2) describe this kind of policy line as an interpretation of risk in which, "abstinence is the safest choice, with a concurrent message that lower intake is unlike to cause harm"

2007: Return to the abstinence message

In 2007 the Danish National Board of Health changed their recommendation again and also extended its target group. These new recommendations can be described as a return to a zero tolerance policy. Now both pregnant women and women trying to become pregnant were recommended not to drink alcohol. The argument to the women was that alcohol is a teratogene and can be extremely harmful to the fetus in a range of vital areas. The object of concern was not only fetal alcohol syndrome (FAS) caused by heavy consumption of alcohol but a whole range of adverse effects associated with pregnant women's use of alcohol. The message to women was, that it is not possible to establish a safe drinking level, one drink a day or more may cause harm to the fetus, and alcohol is proven to be the most dangerous substance to the unborn child. Since there were no beneficial effects to the fetus of alcohol consumption during pregnancy, it was recommended to avoid alcohol both for the sake of the child and the mother (Sundhedsstyrelsen 2009a).

On the official website for the Danish National Board of Health the informa-

tion to the women and families is quite detailed and comprises a list of possible harm caused by different levels of alcohol consumption during pregnancy. It is highlighted that different levels of alcohol intake cause different types of harm ranging from small insignificant damages to severe handicaps or death. This change in the guideline to pregnant women was initiated by the Danish National Board of Health but was not based on data from a new review of the scientific literature as was the case in 1999 when the recommendations were changed. What changed in 2007 was not the scientific conclusions but the argument and the principles behind the recommendation.

Discussion

In this paper we have examined government recommendations in relation to alcohol intake during pregnancy in Finland and Denmark by analysing how risk has been communicated to pregnant women in health education material since the 1970s. We have also explored the arguments behind the shifting recommendations. We start by summing up and discussing our main findings and finish by considering the implications of our results to policy-making and future research.

Since 1970 in Denmark and 1980 in Finland health education material to pregnant women has given an unequivocal message to pregnant women that heavy and frequent alcohol intake should be avoided in pregnancy. When it comes to low-to-moderate level of drinking there has, however, been fluctuation in the recommendations in both countries. Both countries have recently arrived at a total abstinence message. Both countries have also recently witnessed an extension of the target group of alcohol education to women who are planning pregnancy or may get pregnant. The Finnish and Danish developments are summed up in table 1.

Between 1980 and 1988 the Finnish health education booklet advised pregnant women that four standard drinks per day is too much. Between 1988 and 2005 women were recommended to abstain based on the notion that a safe level of drinking was not known. The abstinence message was, however, contradictory as it implied that small amounts of alcohol were harmless if not consumed on a daily basis. In 2006 pregnant women were explicitly told to stop drinking, and it was no longer implied that occasional small amounts of alcohol are harmless. In addition, in 2006 women planning pregnancy were added to the target group and told not to get drunk and the uncertainty concerning a possible safe level of drinking in pregnancy was no longer clearly communicated to pregnant women.

The Finnish data sheds very little light on the rationale behind the recommendations; no specific references to research literature were provided in the policy documents and no systematic reviews of evidence have been conducted. Finnish sources refer to evidence in general terms and rely on Finnish expert knowledge and they contain virtually no debate about the justification of different policy lines.

In Denmark, the recommendation concerning low-to-moderate use of alcohol during pregnancy has alternated between tolerating intake of low levels of alcohol during pregnancy to a zero tolerance message. In 1984 the message was that pregnant women should take up a cautious attitude toward alcohol and preferably avoid

Table 1. Recommendation and rationale regarding alcohol use during pregnancy in Finland and Denmark, 1970–2010

Finland	Denmark
1971 Alcohol should be avoided but can be used as medicine Alcohol should be avoided. Alcohol is sometimes used medicinally to avoid contractions Target group: Pregnant women Maximum intake: No message on maximum intake Rationale: No reference to the source of information in the health education booklet; no official reports on the subject	**1970 Absence of recommendations** "Stimulants such as coffee, wine and tobacco should be used with moderation, or at least minimize use of tobacco as much as possible" Target group: Pregnant women Maximum intake: No message on maximum intake Rationale: No reference to the source of information in the health education booklet; no official reports on the subject
1978 Absence of recommendations Absence of recommendations on alcohol in health education booklets	**1984 Stricter recommendations** "…recommend that pregnant women take up a cautious attitude towards alcohol and preferably avoid consuming alcohol." "Avoid alcohol in pregnancy" "It is safest not to drink alcohol when you are pregnant" Target group: Pregnant women Maximum intake: Abstinence Heavy drinking is known to be dangerous; Unclear but probable that low levels of alcohol is harmful Rationale: General reference to international and national literature on FAS in the health education booklet. 'Principle of caution'
1980 Continuous drinking may harm your child "Frequent alcohol intake or large amount of alcohol on any one day is a strain to the mother's and the child's liver and central nervous system. Four bottles of beer or four glasses of wine on one evening is too much. Even small quantities are harmful if consumed on a daily basis" Target group: Pregnant women Maximum intake: Three bottles of beer or three glasses of wine per day; Even small amounts can be harmful if consumed daily Rationale: No reference to the source of information in the health education booklet; no official reports on the subject	
1988 Contradictory abstinence message "Alcohol use during pregnancy can harm the fetus (…) Even small amounts can be harmful if alcohol is consumed on a daily basis. A safe level of alcohol use in pregnancy is currently not known, and therefore abstinence is recommended during pregnancy" Target group: Pregnant women Maximum intake: Abstinence is recommended; Small amounts can be harmful if consumed daily Rationale: No reference to the source of information in the health education booklet or the official report	**1999 Tolerating a low consumption of alcohol during pregnancy** Recommendation and maximum intake: 1) Avoid alcohol in pregnancy if possible 2) If you drink, drink no more than 1 drink per day 3) Do not drink every day. Intake of ≥1 unit/day (≥7 units/week) is considered harmful 4) Should never be intoxicated Target group: Pregnant women Rationale: Reference to a systematic review of literature. 'Estimation of risk'
2006 Unequivocal abstinence message "Stop smoking and drinking!" (…) "One must avoid alcohol while pregnant and breast-feeding in order to prevent damage caused by alcohol" (…) "Getting drunk is particularly dangerous to the fetus". Women who may become pregnant should avoid getting drunk. "There is no safe limit for alcohol use during pregnancy" Target group: pregnant women and women trying to become pregnant Maximum intake: Abstinence (Pregnant women) Do not get drunk (Women who are planning pregnancy) Rationale: No reference to the source of information in the health education booklet; general reference to literature on FAS and consultations with Finnish experts in official reports	**2007 Return to the abstinence message** Are you pregnant: avoid alcohol Are you trying to become pregnant: avoid alcohol just for safety Target group: pregnant women and women trying to become pregnant Maximum intake: Abstinence Rationale: Reference to international literature and reports in the health education material. 'Principle of caution'

alcohol. In 1999, however, the recommendation on small amounts changed, based on the notion that small amounts were not proven to be harmful to the fetus. Based on an initiative by the Danish National Board of Health the recommendation was changed in 2007 and abstinence was again advocated during pregnancy. This time the message was not only directed towards pregnant women but also included women trying to become pregnant.

In contrast to Finland, the Danish policy documents contain more information on the background and rationale of the recommendations regarding alcohol intake in pregnancy. Danish experts, such as doctors and midwives, have quite actively debated the changes in recommendations in professional journals (e.g. Kesmodel 2006; Kjeldsen 2007) as well as in policy documents. Danish recommendations represent two different logics. First logic is the 'principle of caution'[4] (Strandberg-Larsen & Grønbæk 2006). This logic is, according to Kesmodel (2006, 1214), based on the notion that because it has not been proved that consumption of small amounts of alcohol is not harmful, the best way to avoid alcohol related harm is to avoid alcohol during pregnancy. The other type of logic is described as an 'estimation of risk' (Strandberg-Larsen & Grønbæk, 2006), and the rationale behind it is that 'it has not been possible to prove a harmful effect of consumption of small amounts of alcohol, and it is likely that consumption of small amounts of alcohol during pregnancy is unproblematic' (Kesmodel 2006, 1214).

Between 1984 and 1999 the Danish National Board of Health based their abstinence recommendation on the principle of caution, referring in a rather unspecific way to "international and national evidence" on FAS and alcohol related harm (Sundhedsstyrelsen 1984). In 1999 the Danish National Board of Health initiated and published a systematic literature review upon the present research knowledge of pregnancy and alcohol (Sundhedsstyrelsen 1999). This review was the basis for a change in policy from 'principle of caution' to 'estimation of risk': pregnant women were recommended to avoid alcohol if possible while there was also tolerance of low consumption during pregnancy. The Danish authorities did not, however, make a new review of the literature prior to 2007, and the total abstinence recommendation in 2007 was a shift in logic back to the 'principle of caution' (Strandberg-Larsen & Grønbæk 2006).

Experts discussed the rationale behind the new recommendation and questioned its scientific basis. Kesmodel (2006, 1214) delineates two types of arguments on which recommendations can be based. The first type of argument builds upon the following conception. Harmful effect of consumption of small amounts of alcohol has not been proved and it is likely that it is unproblematic for pregnant women to consume small amounts of alcohol. The second argument states that as it has not been proven that consumption of small amounts of alcohol is safe, so the recommendation should be abstinence. Kesmodel points out, that since the majority of research in the area is based on the hypothesis that small amounts of alcohol during pregnancy are harmless to the fetus, the second argument is highly problematic: research based on this hypothesis cannot prove that small amounts of alcohol are harmless to the fetus (Kesmodel 2006).

Our findings highlight that both Finland and Denmark have recently introduced a total abstinence message to pregnant women which is not based on evidence about the harmfulness of low-to-moderate alcohol intake during pregnancy. If the adoption of total abstinence advice is not based on scientific evidence how should it be understood? We suggest that the recent changes in recommendations are first of all closely linked to a change in the social and cultural climate regarding FASD. In both countries increasing public attention has been paid to FAS prevention during the last 20 years or so. New treatment services and local development projects have been instigated in municipalities and prevention has been discussed by public officials, experts, media and politicians (Hecksher 2009; Leppo 2009). In both countries, the last decade has witnessed a societal urge, even a moral panic, to prevent FAS, which is reflected most vividly in the recent debates on compulsory treatment of pregnant women with substance abuse problems (Hecksher 2009; Leppo 2009 and forthcoming; Mäkelä 2009; Stenius 2009).

Secondly, we suggest that the recent adoption of total abstinence policy in Finland and Denmark is linked to a wider international trend, a diffusion process, where ideas and policies are copied and adopted between countries. The recent examples from the UK and Australia support our argument. The UK Department of Health revised its guidelines in 2007 to provide a total abstinence message[5] and the Australian authorities adopted a total abstinence message in 2009. In neither country the revised advice was a result of new scientific evidence (Gavaghan 2009; National Health and Medical Research Council 2009). The diffusion of total abstinence policy during pregnancy does not seem to be necessarily affected by national alcohol policy; traditionally more liberal Denmark and more paternalistic Finland have both recently arrived at a total abstinence recommendation regarding pregnant women.

■ Challenges in terms of policy

Recent sociological discussion on health and risk has suggested that construction of individuals as responsible for their own health dominates contemporary public health discourse (Peterson 1997). Individuals are required to be aware of risks and act in accordance with expert risk advice, adopting a rational and prudent attitude to risk (Lupton 1999). These expectations are particularly strong when it comes to pregnant women (Ruhl 1999). Informing women about the risks of prenatal drinking is an example of risk management which builds on individual choice and agency. The danger in this kind of logic is that the structural, social and cultural factors that contribute to women's well-being and shape their consumption of alcohol are forgotten, which can lead to an increase in moralising and punitive attitudes towards pregnant women (Armstrong 2003; Greaves & Poole 2004; Bell et al. 2009).

The knowledge gap with regards to the fetal effect of low-to-moderate levels of alcohol consumption is at least partly responsible for the varying recommendations from policy makers and experts ranging from the urging of total abstinence during pregnancy to recommendations on restricted consumption (O'Leary et. al. 2007; Gray et al. 2009). According to Gavaghan (2009, 301) "in the face of uncertainty as

to whether a safe drinking level exists, and what it might be, there is an obvious appeal to an approach that appears to err on the side of safety". In the light of these observations, we want to draw attention to some problematic features in current Finnish and Danish total abstinence policy.

In Denmark since 2007 the abstinence message to pregnant women was linked to an expectation that an unequivocal message would make it easier for midwifes and doctors to guide the pregnant woman (Sundhedsstyrelsen 2009a; 2009b). However, in the case of pregnant women who had been drinking alcohol prior to acknowledging their pregnancy, the Danish National Board of Health advised professionals to undertake a specific estimation of risk based on the knowledge that the use of one unit alcohol per day is related only to a minimal risk for the fetus. Should pregnant women happen to consume alcohol prior to knowing about their pregnancy they were to be reassured that low levels was seldom a reason for concern (Sundhedsstyrelsen 2008). There is a problematic contradiction at play here: women are told to abstain but if they have been drinking in moderation they are to be told that they do not need to be concerned. A similar contradiction can be found in the recent Australian guidelines on alcohol intake in pregnancy (National Health and Medical Research Council 2009).

The challenge for the authorities and experts in making the policy and formulating the advice to pregnant women is that they aim at a clear, definitive message in a situation where the facts about the risk of harm from low-to-moderate level of drinking are uncertain. When evidence, interpretation and conclusions are not simple and straightforward it is, however, likely that also the message ends up being ambiguous, as the Danish example discussed above demonstrates.

Another problem in current policy is apparent in the current Finnish recommendation to pregnant women, which does not make explicit that there is no evidence of the harmfulness of small amounts of alcohol in pregnancy. It is not mentioned that the advice to abstain is based on lack and uncertainty of knowledge rather than evidence of harm. In Denmark, in contrast, the uncertainty of scientific evidence is clearly communicated to the public. We argue that it is more appropriate and ethical to communicate the inconclusive nature of scientific evidence to the public and provide them with as accurate and objective assessment of the risk as possible. A similar point has been pursued recently in the UK combined with a criticism of the "patronizing and paternalistic" nature underlying the total abstinence approach and the principle of precaution it is based on (Gavaghan 2009). Tryggvesson (2005) has critically commented on Swedish policy by pointing out that it is strange to advocate the logic of precaution to pregnant women regarding the consumption of small amounts of alcohol while it is a normal feature of life that people engage in various activities that have not been scientifically proven to be totally risk free.

People have nowadays easy access to various types of information and they do not exclusively rely on expert information or on official health education booklets. Therefore, in order to be plausible, public information on all kinds of health risks needs to avoid exaggeration. If women do not find the total abstinence message plau-

sible, it may encourage them to distrust or ignore expert advice also in other health issues (Gavaghan 2009). In 1998, 76 % of pregnant Danish women considered some alcohol intake during pregnancy to be acceptable (Kesmodel & Kesmodel 1998). It is possible that the majority of pregnant women still feel that way, in which case the total abstinence policy differs greatly from how women themselves perceive risk. Another problematic aspect is that a recommendation of total abstinence can induce anxiety and shame in women who have been consuming alcohol during pregnancy. This anxiety may, however, be without reason, since the risk caused by the intake of small amounts of alcohol is, as mentioned previously, very small (Strandberg-Larsen & Grønbæk 2006).

Strandberg-Larsen and Grønbæk (2006, 6) have noted that a zero tolerance message during pregnancy might not be in line with what the majority of health care practitioners perceive as an acceptable level of alcohol consumption during pregnancy. This can lead to a situation in which the recommendations stated in the health education materials are not communicated to women by the practitioners because they are perceived as unreliable.

In Finland there is very little public information and debate on the background and justification of the policy on alcohol intake in pregnancy. Even when policy has been altered, this has not been reflected on and discussed in the policy documents. This is problematic as it hinders debate on the rationale and justification of policy. There has been no debate in Finnish medical journals on the justification of the total abstinence policy apart from one recent commentary comment which argued that it is unreasonable to expect women planning to get pregnant or women who are not yet aware of their pregnancy to abstain. The commentator, a prominent physician and FAS-pioneer, referred to the recent evidence by Kelly et al. (2009) according to which 1–2 drinks per week has no adverse effects on the fetus. She was also concerned about the unnecessary guilt felt by pregnant women who may have drank small amounts of alcohol in pregnancy (Duodecim 2009).

Finally, a total abstinence message has very little to offer women who for one or another reason are not able to or do not want to abstain during pregnancy. There would be an alternative solution, namely putting out a "harm reduction message" to this group of women. This could mean telling women to drink in moderation or if unable to do that, to keep the frequency of drinking and dose of alcohol as low as possible. For instance, in the UK the revised Department of Health advice states that "pregnant women or women trying to conceive should avoid drinking alcohol" but "if they do choose to drink, to minimise the risk to the baby, they should not drink more than one to two units of alcohol once or twice a week and should not get drunk" (Updated alcohol advice for pregnant women 2007).

■ Future research needs

This paper analysed textual sources on the basis of which we did not gain insights into how health care practitioners perceive risk or communicate risk. It would be useful to know how health professionals view and communicate the risk caused by alcohol intake in pregnancy e.g. at prenatal clinics. Secondly, it would be important to know

how pregnant women themselves understand risk and handle their situation. What kind of advice and information do women rely on? How do they view the risks? These themes are best studied with surveys and with qualitative methods mapping the deeper logic of professional and lay risk conceptions and practices. Thirdly, it would be important to conduct comparisons of policy regarding alcohol intake during pregnancy in all Nordic countries and map out the variation which may be in interesting ways linked to the tradition and ethos of alcohol policy in each respective country. Fourthly, wider international comparisons on recommendations regarding alcohol intake during pregnancy would help to understand how commonplace the adoption of total abstinence model is.

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NOTES

1) Low-to moderate alcohol consumption is defined as maximum 84 grams of alcohol per week, which e.g. in the UK is up to 10.4 "standard units" per week and in the U.S. 7 "standard drinks" per week. The UK "standard unit" contains 8 grams of alcohol while the U.S. "standard drink" contains 12 grams of alcohol (Gray 2009).
2) In Finland the central agencies subordinated to the Ministries, the National Board of Health and National Board of Social Welfare, were merged into one major institute. First it carried the name National Research and Development Centre for Welfare and Health, and recently there was a further merger after which the name has been the National Institute for Health and Welfare.
3) The evidence-based Current Care guidelines are elaborated by the Finnish Medical Society Duodecim. The guidelines are not binding but they are very influential amongst professionals. Current Care Guideline working groups consist of clinical experts in the relevant fields, including a general practitioner and allied health professionals when appropriate. The process begins with a literature search performed by an experienced medical librarian. Critical appraisal of the literature is based on criteria originally outlined by the Evidence-based Medicine Working Group. Based on the evidence and consensus, the development group drafts a guideline that is widely circulated for comments. (http://www.kaypahoito.fi/)
4) The Danish expression 'forsigtighedsbe-

tragtning' can be translated literally as "principle of caution". Originally, the idea and term comes from environmental policy where it is known as "precautionary principle". One of the primary foundations of the precautionary principle, and globally accepted definitions, results from the work of the Rio Conference in 1992. Principle #15 of the Rio Declaration notes: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." (Rio Declaration on Environment and Development).

5) The revised recommendation by the UK Department of Health in 2007 combined a total abstinence message with advice on maximum intake: "The revised Department of Health advice says: pregnant women or women trying to conceive should avoid drinking alcohol; if they do choose to drink, to minimise the risk to the baby, they should not drink more than one to two units of alcohol once or twice a week and should not get drunk." (http://www.direct.gov.uk/en/Nl1/Newsroom/DG_068143)

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