Focus On: Alcohol warning labels and FASD

Introduction

Fetal Alcohol Spectrum Disorder (FASD) describes a range of birth defects and neurobehavioral disabilities that can result from alcohol exposure during pregnancy. According to the United States Behavioral Risk Factor Surveillance System (BRFSS) data (2011–2013), the prevalence of any alcohol use and binge drinking among pregnant women in the past 30 days were 10.2% and 3.1%, respectively.\(^1\) Among Canadian babies, every year an estimated one in 100 are affected by FASD,\(^2\) which is a higher prevalence than other well-known disorders, such as one in 450 for Autism Spectrum Disorder\(^3\) and one in 750 for Down syndrome.\(^4\) While FASD is present at birth, diagnosis is difficult because symptoms such as learning disabilities and behavioural issues emerge later in life.\(^2\) In 2006, the lifetime financial burden of FASD in Canada was estimated at $1 million per case, resulting in roughly $4 billion annually, with approximately 4000 new cases a year.\(^5\)

FASD affects individuals, families and societies. While there is currently no cure, FASD is the leading known cause of preventable developmental disability in Canada.\(^6\) The harmful impact of alcohol consumption on the fetus has been recognized in the scientific community for decades.\(^7\) To reduce the alcohol consumption during pregnancy, jurisdictions have implemented education and health promotion
programmes comprised mainly of information provision to consumers.\textsuperscript{8} Labelling falls within this arena and can include labels affixed to alcohol bottles or signage where alcohol is purchased and/or consumed. In the US, the Alcohol Labelling Act introduced in 1989, includes labels on alcohol containers warning against drinking during pregnancy.\textsuperscript{7} Apart from the US, countries such as France, Russia, and South Africa also have mandated regulations regarding alcohol labelling to warn about risks of drinking during pregnancy.\textsuperscript{9}

In 2000, the Canadian Parliament voted overwhelmingly (217 yes - 11 no) for liquor bottles to carry the wording: “Drinking alcohol during pregnancy can cause birth defects”.\textsuperscript{10} The motion, though passed, has yet to be implemented. Alcohol labelling is left to the discretion of individual provinces and territories and, as a result, labelling requirements (e.g., ingredient list, origin, and declaration of quantity and alcohol by volume) and health warnings vary across jurisdictions.\textsuperscript{11-12} The Yukon Liquor Corporation, due to increased concern over FASD, has, since 1991, placed self-adhesive warning labels about potential risks of drinking during pregnancy on all alcoholic beverages.\textsuperscript{12} In Ontario, the Liquor Licence Act requires the following premises to post warning signs that drinking alcohol during pregnancy can cause FASD: restaurants and bars licensed to sell alcoholic beverages; the Liquor Control Board of Ontario (LCBO) and other retailers authorized to sell alcoholic beverages; and licensed ferment-on-premises facilities.\textsuperscript{13} The signage must be prominently displayed and failure to comply is an offence under the Liquor Licence Act.\textsuperscript{13}

Ultimately, the aims of health warning labels are twofold: to improve consumer awareness of potential risks associated with alcohol consumption, and to modify consumer behaviour to mitigate the harmful effects of alcohol.\textsuperscript{14} This document focuses on the impacts of alcohol warning labels on both awareness and behavior of consumers in relation to adverse pregnancy outcomes. It is important to note that the majority of evidence synthesized in this regard comes from the United States, and is mostly dated (from 1990’s). This definitely highlights the need of more research for contemporary evidence and from other jurisdictions around the world; nonetheless, the available literature highlights the important aspects about alcohol warning labels associated with adverse pregnancy outcomes.

Do alcohol warning labels increase awareness of the risks of drinking during pregnancy?

There are two important aspects regarding awareness about alcohol warning labels: to notice the label; and to recall the information conveyed through the label. Noticing labels: A study, by Hankin et al (in 1995), using a probabilistic sample of 1,107 women found that in the past 12 months, 18% of abstainers had noticed a warning label as compared to 52% percent of drinkers.\textsuperscript{15} A study, conducted by Kaskutas et al (in 1998), observed different results; among 321 women, 97% of abstainers had noticed a warning label as compared to 77% of drinkers.\textsuperscript{16} Another study reported that older pregnant women (specifically those over the age of 29) are less likely to notice alcohol warning labels than their younger counterparts.\textsuperscript{17-18} Recall information: According to a meta-analysis conducted by Argo and Kelley, consumers can moderately recall information presented in a warning (avg. $r = .32$, $N = 1538$) and there is no significant difference in recall between younger and older consumers.\textsuperscript{20} In a telephonic survey conducted by Barrett et al. among Illinois women in 1993 ($n=1515$), approximately only 25% could recall information about pregnancy associated risks contained in warning labels.\textsuperscript{19} However, Hankin et al found that 77% of those who had seen the label recalled that it mentioned birth defects.\textsuperscript{15}

Interestingly, a study by Kaskutas and Graves (1994) observed the effect of multiple exposures to health messages on awareness related to drinking during pregnancy. Three kinds of exposures were studied: alcohol warning labels on bottles; warning posters in restaurants and bars; and media advertisements. Respondents exposed to any one or a combination of any two or all three different message sources
were significantly more likely to converse about the harms of drinking during pregnancy in comparison to no exposure group (odds ratio = 2.6, 3.8, and 4.1, respectively). ̊

**Do alcohol warning labels have an impact on drinking behaviour related to pregnancy?**

The literature suggests that even though warning labels improve awareness about adverse pregnancy outcomes their effectiveness in changing behaviour regarding alcohol consumption is limited. ̊³²,²³ Despite increased awareness and knowledge about potential risks from alcohol during pregnancy, many women do not consider their fetuses to be at risk. ̊²² According to one study, warning labels had the most influence on lighter drinkers (i.e., less than 0.5 ounce of absolute alcohol per day) as a significant reduction in their drinking was observed during pregnancy; however, no change in the drinking behaviour of heavy or binge drinkers (i.e., 0.5 ounce or more of absolute alcohol per day) was observed during pregnancy. ̊²⁷

The U.S. data suggest that women going through their first pregnancies were more likely to pay attention to alcohol warning labels and to reduce drinking compared to those who had been pregnant before. ̊²⁴ Kaskutas and Graves who studied the effect of three different forms: posters; warning labels on containers; and advertisements found that although exposure to any single form of message was not effective, respondents exposed to a combination of any two or all three different types of messages were significantly more likely to reduce alcohol consumption in comparison to a group with no exposure to warning messages (odds ratio = 1.6 and 2.0, respectively). ̊²¹

**Factors affecting the impact of alcohol warning labels on awareness and/or drinking behaviour**

The impact of alcohol warning labels on the awareness and behavior of pregnant women is influenced by several factors, including previous birth status, frequency of drinking, age, education, cultural beliefs, and type of alcohol consumed. ̊¹⁷,¹⁸,²¹,²⁴⁻²⁶ Women with no previous live births (nulliparous) were found to exhibit a significant decline (t=2.00, P<0.04) in drinking behavior following implementation of the alcohol warning labels, while women with at least one previous live birth (multiparous) reported no change in their drinking behaviour. ̊²⁴ Also, women who have delivered healthy babies after drinking during pregnancy may be more likely to discount warning messages. ̊²⁴ Frequent and heavy drinkers report higher levels of awareness about ill effects of drinking as compared to infrequent drinkers (probably because of more exposure). ̊²⁴,²⁷

Two studies reported that the age of pregnant women was positively associated with a higher amount of alcohol consumption and incidence of FASD. ̊³⁷,³⁸ A recent Australian study found that younger and binge drinkers, and those who drink directly from the alcohol container are more aware of the labels. ̊²⁸

Some studies found that awareness about alcohol warning labels is higher among those who have more personal relevance. ̊²¹,²⁹ A study by Hankin et al (1993) observed that recall about health warnings and birth defects are higher among those who attended antenatal clinics. ̊²⁹ Another study, by Kaskutas and Graves (1994) show women of child bearing age are particularly likely to notice warning labels and their messages. ̊²¹

Awareness of warning labels and drinking behaviour seem to be potentially negatively modified by education level and cultural belief as well. A survey of Hispanic women in the U.S. showed that level of
education and cultural beliefs (that drinking during pregnancy is helpful and not associated with health problems) were closely linked to knowledge about alcohol warning labels. According to a survey conducted by Health Canada, in 1999, although a near unanimous belief was observed that the likelihood of harm increases with the amount of alcohol consumed; women with lower levels of education were somewhat less knowledgeable about the risks of alcohol use during pregnancy when compared to more educated women. Similar findings were observed in a nationwide survey, conducted in 2006 among 18-45 year old Australian women, who were not pregnant at the time of survey. A large proportion (92.7%) of women agreed that alcohol can affect the unborn child; however, women with higher education levels were more likely to know the effects of alcohol consumption in pregnancy (adjusted OR: 5.62; 95% CI: 3.20 to 9.87).

The impact of alcohol labels is also related to their design and visibility. Current labels often use small fonts, are difficult to read and do not stand out from other information on the product. There is evidence that labels placed horizontally, with large, easily-read fonts and written at a high school level are more effective. Respondents are more likely to recall messages on horizontal labels. It has also been found that exposure to multiple messages results in lower alcohol consumption. Rotating pictorial warnings, as used on cigarette packages, can also be a consideration for improving the effectiveness of alcohol warning labels.

**Implications for Practice**

Existing evidence show that alcohol health warning labels can increase awareness and convey messages about risks for pregnant women, but have not led to reductions in risky drinking during pregnancy. Nonetheless, the effect in terms of increasing awareness alone cannot be discounted, as awareness is proposed as a preliminary step towards behaviour change according to McGuire’s (1989) Communication Behaviour Change model. It has been suggested that targeting drinkers through various forms of messaging such as posters and advertisements along with warning labels can produce synergistic effects. Also, warning labels may play an important role when integrated in comprehensive strategies; for example, multi-component programs complimented by outreach services (i.e., prenatal services) may help reduce prenatal use of alcohol and the incidence of FASD. Furthermore, some research indicates beneficial impacts from interventions that encompass the interpersonal relationships influencing an individual’s drinking behaviour, for example, spouses, peers and friends.

It is important that alcohol warning labels be worded appropriately so as to avoid unnecessary alarm. For instance, a suggestion that any alcohol consumption causes serious harm to a fetus may overstate risks and cause undue stress for women who may have consumed alcohol before knowing they were pregnant. Label wording should be carefully considered, and supplemental scientific information conveyed, in lay language, to ensure that women receive a comprehensive evidence-base to inform decision-making.

The Liquor Control Board of Ontario (LCBO) has partnered with FASworld Canada and promoted a campaign, “The Baby Bump” in all LCBO stores to raise awareness about FASD. In the US context, it has been suggested that warning labels have the potential to contribute to positive outcomes when they are part of larger coordinated strategies. Enabling factors include high and increasing levels of public support for alcohol warning labels, and increased discussion about drinking during pregnancy.
Summary

- Research show that alcohol use during pregnancy can lead to FASD.
- Alcohol warning labels appear to increase awareness about adverse pregnancy outcomes.
- There is limited evidence that alcohol warning labels change drinking behaviours during pregnancy.
- Factors such as age, education, cultural beliefs, and previous birth status have been found to moderate the impact of alcohol warning labels on the awareness and behavior of pregnant women.
- The language used for alcohol warning labels should be carefully considered to avoid causing undue stress in women who consumed some alcohol before knowing they were pregnant.

Resources

To learn more about Fetal Alcohol Spectrum Disorder (FASD), visit:

References


(14) Stockley CS. The effectiveness of strategies such as health warning labels to reduce alcohol-related harms — an Australian perspective. Int J Drug Policy; 2001;12(2):153-166.


(30) Blume A, Resor M. Knowledge about health risks and drinking behavior among Hispanic women who are or have been of childbearing age. Addic Behav. 2007;32(10):2335-9. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2074884/


Authors
Sonica Singhal, Research Coordinator, HPCDIP
Erin Berenbaum, Research Coordinator, HPCDIP
Julie Hui-Chih Wu, Research Coordinator, Infection Prevention and Control

Acknowledgements
Anneliese Poetz PhD, Manager, Knowledge Translation (KT) Core, NeuroDevNet
James N. Reynolds PhD, Department of Biomedical and Molecular Sciences, Queen's University
Literature searches done to locate relevant evidence were executed by PHO Library Services.

Citation
Ontario Agency for Health Protection and Promotion (Public Health Ontario), Singhal S, Berenbaum E & Wu J. Focus on: Exploring the impact of alcohol warning labels on FASD awareness and drinking behaviours. Toronto, ON: Queen’s Printer for Ontario; 2016.
ISBN: 978-1-4606-7862-6
©Queen’s Printer for Ontario, 2016

Disclaimer
This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence.

PHO assumes no responsibility for the results of the use of this document by anyone.
This document may be reproduced without permission for non-commercial purposes only and provided that appropriate credit is given to Public Health Ontario. No changes and/or modifications may be made to this document without explicit written permission from Public Health Ontario.

Public Health Ontario
Public Health Ontario is a Crown corporation dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, frontline health workers and researchers to the best scientific intelligence and knowledge from around the world.

Public Health Ontario provides expert scientific and technical support to government, local public health units and health care providers relating to the following:

- communicable and infectious diseases
- infection prevention and control
- environmental and occupational health
- emergency preparedness
- health promotion, chronic disease and injury prevention
- public health laboratory services
Public Health Ontario’s work also includes surveillance, epidemiology, research, professional development and knowledge services. For more information about PHO, visit www.publichealthontario.ca.

Public Health Ontario acknowledges the financial support of the Ontario Government.