



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

University of Wollongong
Research Online

Faculty of Health and Behavioural Sciences - Papers
(Archive)

Faculty of Science, Medicine and Health

2012

What influences Australian women to not drink during pregnancy?

Sandra C. Jones

University of Wollongong, sandraj@uow.edu.au

Joanne Telenta

University of Wollongong, jot@uow.edu.au

Publication Details

Jones, S. C. & Telenta, J. 2012, 'What influences Australian women to not drink during pregnancy?', *Australian Journal of Primary Health*, vol. 18, no. 1, pp. 68-73.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:
research-pubs@uow.edu.au

What influences Australian women to not drink during pregnancy?

Abstract

There is a strong social norm against consuming alcohol during pregnancy. However, many women do not realise they are pregnant until the sixth week and are not provided with information about the risks of consuming alcohol until they visit a health professional in the second trimester. We conducted semi-structured interviews with 12 midwives and 12 pregnant women from two regions in NSW in 2008–09 to explore attitudes towards alcohol consumption during pregnancy, and the factors that may encourage or inhibit women from following the recommendation to abstain from drinking while pregnant. Both groups noted the social issues around pregnant women consuming alcohol due to perceived social norms and the challenges in not revealing early pregnancy status at social events.

Keywords

australian, influences, women, not, during, drink, pregnancy

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Jones, S. C. & Telenta, J. 2012, 'What influences Australian women to not drink during pregnancy?', *Australian Journal of Primary Health*, vol. 18, no. 1, pp. 68-73.

What influences Australian women not to drink alcohol during pregnancy?

Sandra C. Jones (PhD) and Joanne Telenta (MPH)

Centre for Health Initiatives, University Of Wollongong, NSW, Australia

Corresponding Author

Professor Sandra Jones
Centre for Health Initiatives
University of Wollongong
NSW, 2522
Ph: +61 2 4221 5106
Fax: +61 2 4221 3370
sandraj@uow.edu.au

Acknowledgements

The authors would like to acknowledge the Faculty of Health and Behavioural Sciences (University of Wollongong) for the award of a small research grant to conduct this pilot research. The authors would also like to acknowledge the Illawarra Area Health Service, Sutherland Antenatal Clinic and the Illawarra Midwifery Group Practice for facilitating and participating in the interviews. We would like to thank; Keryn Johnson (Associate Research Fellow, Centre for Health Initiatives, University of Wollongong), Lyn Phillipson (Research Associate, Centre for Health Initiatives, University of Wollongong) and Allison Shorten (Senior Lecturer, Nursing, Midwifery and Indigenous Health, University of Wollongong) for their assistance in the conduct of the study and also the pregnant women who were involved in this study. These authors do not have any conflict of interest in relation to this study.

Abstract

There is a strong social norm against consuming alcohol during pregnancy. However, many women do not realise they are pregnant until the sixth week and are not provided with information about the risks of consuming alcohol until they visit a health professional in the second trimester. We conducted semi-structured interviews with 12 midwives and 12 pregnant women from two regions in NSW in 2008-2009 to explore attitudes towards alcohol consumption during pregnancy, and the factors that may encourage or inhibit women from following the recommendation to abstain from drinking while pregnant. Both groups noted the social issues around pregnant women consuming alcohol due to perceived social norms and the challenges in not revealing early pregnancy status at social events.

Keywords: social norms, Australia, attitudes

What influences Australian women to not drink alcohol during pregnancy?

“I think it (society) discourages it. I think if you see a pregnant woman drinking there would be a lot of negative judgement going on against her. I think a lot of people would be “what are you thinking?” (Midwife 5)

In February 2009, the National Health and Medical Research Council (NHMRC) released the new “Australian Guidelines for Low Risk Drinking” (NHMRC 2009) after a lengthy public consultation process following the release of the draft guidelines in October 2007 (NHMRC 2007). Under this revision, the previous 12 guidelines were reduced to three: one universal guideline for men and women; one for children and people under 18 years of age; and one for women who are pregnant, planning a pregnancy or breastfeeding. Additional health advice and precautions are given for situations where not drinking is the safest option, for people who should be aware that they are at increased risk if they drink, and for people who should seek medical advice if they are considering drinking.

Guideline 3 reads: “For women who are pregnant, are planning a pregnancy or are breastfeeding not drinking is the safest option.” This is more conservative than the previous 2001 guideline, as is the case for the guidelines for the general population and for young people. In the 2001 Guidelines, women who were “pregnant or might soon become pregnant” were advised that they “may consider not drinking at all; most importantly, should never become intoxicated; if they choose to drink, over a week, should have less than 7 standard drinks, AND, on any one day, no more than 2 standard drinks (spread over at least two hours); and should note that the risk is highest in the earlier stages of pregnancy, including the time from conception to the first missed period” (NHMRC 2001).

That is, while women could consider not drinking at all, no firm advice was given not to drink, with the authors noting that while it was difficult to exactly identify the lower levels of drinking that may cause harm to the child, the limited available evidence indicated that drinking at guideline levels, an average of one drink per day, had no measurable impact on a child's physical and mental development.

While the change to a recommendation of abstinence from alcohol consumption in pregnancy is consistent with the recommendations in the United States, New Zealand, and Canada, (O'Leary *et al.*. 2007) as well as the views of the Australian Medical Association, and a range of other NGOs and government authorities, (O'Leary *et al.*. 2007; Australian Broadcasting Commission News 2007; The National Organisation for Fetal Alcohol Syndrome and Related Disorders Incorporated 2008) it has not been without criticism. The President of the Royal Australian and New Zealand College of Obstetricians argues that a zero tolerance approach is not supported by the evidence and could create anxiety in those women who had consumed alcohol in their early pregnancy (Stark 2007). This is supported by Australian and Canadian specialists who have suggested that women have terminated pregnancies due to fear over damage to the foetus from drinking before they knew they were pregnant (Koren and Partuszak 1990; Koren *et al.* 1996); a claim which was dismissed by the chairman of the NHMRC as "anecdotal" (Stark 2007).

Other commentators have argued that the autonomy of women to make informed choices for themselves should be respected, and that primary care givers need improved communication of safe limits rather than paternalistic absolutism (O'Brien 2007). It has also been suggested that research into maternal drinking, always a sensitive area, may be further compromised by women underreporting alcohol consumption due to guilt and embarrassment (Simmonds 2008).

Prevalence of alcohol use in pregnancy

Australian estimates for alcohol use in pregnancy vary, but are generally high. A national survey in 2004 found 47% of women reported having consumed alcohol whilst pregnant or breastfeeding (Australian Institute of Health and Welfare 2007). A study of 587 women from Perth hospitals between 2002 and 2003 found 35% of women consumed alcohol during pregnancy with 4% drinking at levels over the previous 2001 guideline of no more than 7 standard drinks per week (Giglia and Binns 2007). An earlier study, again from Western Australia, (1995 to 1997, n=4839) found 59% drank alcohol in at least one trimester of pregnancy, 15% drank outside the 2001 guidelines in the first trimester of pregnancy and 10% in the second and third trimesters (Colvin *et al.* 2007). It is important to note that this research also found that 47% of women had not planned their pregnancy; with 80% of women reporting they had drunk alcohol in the three months before becoming pregnant, a high number could unknowingly be exposing the developing foetus to alcohol.

International research suggests that rates of consumption of alcohol are similar in the UK (Royal College of Obstetricians and Gynaecologists 2006), Canada (Public Health Agency of Canada 2004), and Sweden (Goransson *et al.* 2003), but substantially lower in the US (Centers for Disease Control and Prevention 2004). It is relevant to note that in the US, both for pregnant women and the population in general, the guidelines have historically recommended substantially lower levels of consumption than Australia; and that in the US, alcohol products carry warning labels about drinking while pregnant. Both in Australia and overseas, the limited evidence that is available suggests that women in older age groups, those with higher incomes and employment levels, and those who are married are more likely to drink alcohol during pregnancy (Colvin *et al.* 2007).

The objectives of the current study were to explore awareness of, and attitudes towards, alcohol consumption during pregnancy – among both pregnant women and midwives – and the factors that may encourage or inhibit women from following the recommendation to abstain from drinking while pregnant.

Method

Data and sample selection

A qualitative study, using semi-structured individual interviews, was conducted with midwives and pregnant women in one Area Health Service within regional New South Wales, Australia. Midwives were recruited from the antenatal clinic in a large public hospital with the consent of the relevant Area Health Service. The twelve midwives were from various sections of the clinic including prenatal, delivery suite and postnatal/parent education; and each took part in an individual face-to-face interview, with an average duration of 30 minutes. All of the midwives had completed their midwifery training in Australia; they had an average of 10 years in the role; an average age of 42 years (range 24 - 62); and an average of 1.5 children (range 0 – 3).

Pregnant women were initially contacted and consented via a Midwifery Group Practice (MGP) Program in the same Area Health Service. A total of 12 pregnant women took part in individual telephone interviews, lasting between 10 and 25 minutes. Participants were on average 29 years old (range 24 – 25) and had 0.83 children (range 0 to 3). Eleven participants were married or partnered and one was single; four had completed a university degree or post-graduate studies, four a trade certificate, and the remaining four between four and six years of secondary education. Five of the women were employed

full-time, three part-time, two on a casual or contract basis and two were undertaking home duties.

All participants were given an information sheet outlining the aims of the study, gave written consent and completed a short demographic questionnaire. To maintain anonymity, participants were allocated a unique identifier and data were de-identified for analysis. Ethics approval for this research was granted by the University Human Research Ethics Committee.

Measures

The use of semi-structured interviews ensured the interviews remained focused on the topic while enabling participants to expand on their responses. The participants discussed antenatal advice given by midwives and received by pregnant women, and then engaged in a discussion about their perceptions of the risks and benefits of alcohol consumption and the factors that influence women's decisions whether to drink during pregnancy. All interviews were audio recorded, transcribed and analysed to identify common concepts and issues within and across the two groups of participants. The analysis was conducted independently by the second author (J. T.) and a colleague working on a related study, and a synthesis of the two independent reports compiled by the first author (S. C. J.) with any discrepancies discussed and resolved as a group.

Results

Perceived risks associated with alcohol consumption in the population

The participants readily identified a range of risks associated with alcohol consumption, and identified that the negative aspects of consuming alcohol far outweighed any positive

benefits. Participants noted the impact that alcohol had on crime and violence in the community, youth binge drinking, drink driving and women's safety, and several discussed the contribution that alcohol plays in family breakdowns:

A lot of people abuse it and it causes a lot of domestic violence in some families and a lot of money issues so it leads to a lot of theft and violence in the community, binge drinking, especially in teenagers...and I think a lot of families and parents are drinking so it affects the families so that's not a good thing. (Midwife 1)

It's things like domestic violence and car accidents and I've seen all that side of life through my work for the last 15 years. (Pregnant Woman 6)

Interestingly, health risks were not the focus of discussions for either group of participants. Several interviewees raised potential health benefits of moderate alcohol consumption, discussing the confusion in trying to interpret mixed messages about risks and benefits, and that people may use health benefits as an excuse to drink. Participants noted the alleged link between red wine and its cardiovascular benefits as well as the detrimental effects that can occur to the body such as liver damage and hangovers:

...the study as well says one glass of wine a day can help your cardiovascular health. (Midwife 5)

I don't think having one or two glasses a night is bad for you or unhealthy, I think there are good and bad for both. Sometimes for me it can be actually, having a glass of wine at the end of a really hard day is better for me, healthily I find, as far as stress relief, and it just relaxes me rather than going to bed and feeling really uptight and really cranky. (Pregnant Woman 4)

Perceived risks associated with alcohol consumption during pregnancy

Participants were asked whether they thought the risks and benefits of consuming alcohol were any different for pregnant women. All participants agreed there were no benefits to drinking alcohol while pregnant and that it was not just affecting the mother but the baby they were carrying. Importantly, however, the majority of the pregnant women – and many of the midwives – expressed a lack of knowledge of the actual risks of alcohol consumption on the developing foetus, expressing rather a general perception that it was probably unsafe:

Well I don't think there are any positives drinking alcohol in pregnancy, I think there are a lot of negatives. It affects the babies, the growth and development of their baby. (Midwife 1)

Not specifically, no. Is there like low birth weight, some birth defects? No, I'd be guessing. (Pregnant Woman 5)

Conception

Participants varied in their views on alcohol consumption while trying to conceive; with the pregnant women's view appearing to be influenced by whether they had been actively trying to fall pregnant or it had happened unexpectedly. The women who thought no alcohol during conception was the safest option tended to be the participants who had been actively trying to conceive:

I just think when you're trying to conceive you should just cut out everything, you know? I just think why take the risk, it might not cause anything but there could be potential problems or it might prevent you from conceiving. (Pregnant Woman 1)

Participants who had fallen pregnant quite quickly or unexpectedly had a more relaxed attitude about alcohol consumption during conception. While some mentioned being worried about how much alcohol they had consumed at the stage they discovered they were pregnant, in general they felt that as they had not consumed great amounts of alcohol they were unlikely to experience any potential negative effects:

Well, because we weren't actually trying, I didn't really think about it, but up until we found out I was pregnant I was drinking. Not copious amounts but I'd come home from work and have a wine or two, on weekends, if we had a BBQ, that sort of thing; mainly because we weren't actually trying. So it wasn't an issue....

Because we found out so early...I hadn't been going out or binging or anything so.. I wasn't really worried. (Pregnant Woman 3)

Pregnancy

In general, all of the women believed that not drinking was the best option during pregnancy and stated that this belief reflected their actual behaviour. However, for some women, there was an important contradiction between the evidence of the risks associated with drinking *early* in pregnancy and their greater concerns about drinking alcohol as the pregnancy progressed. There was often reference to feelings of guilt as a reason for not drinking, and some reflected that they were careful not to judge other women who did drink during pregnancy:

In the beginning for me, knowing only the facts sort of thing and not being aware of me growing, I was totally comfortable with people to have a glass once a month or half a glass every couple of weeks just with dinner or something like that but towards the end it was complete no go for me, I felt so uncomfortable, just being so

aware of her moving and seeing the ultrasounds and building that relationship with her as she grew inside then it was just a complete no go for me. The idea of it made me feel sick that I had had a few glasses. (Pregnant Woman 2)

I don't know, I don't sort of take into account other people, I don't like to condemn anyone for anything they do or decisions they make. I think I just made a personal choice that I just feel too guilty. (Pregnant Woman 12)

The social implications of not drinking during pregnancy

Participants consistently talked about alcohol within their personal social context. The positive aspects of alcohol were spoken about using the terms “social” and “celebration”, and alcohol consumption was described as a way to relax and enjoy social experiences. Almost all participants raised the point that during social events there was an expectation that alcohol would be consumed:

...it goes along with a social occasion and it goes along with a celebration...

(Pregnant Woman 2)

.... It's nice [laugh] it's socially acceptable, it's good with your friends to just unwind and enjoy yourself. (Midwife7)

Both groups of participants noted that drinking was seen as a social norm that was ingrained into Australian culture and often associated with social gatherings, celebrations and functions. Christmas, New Year, birthdays and weddings were included as key events where alcohol would normally be consumed. Participants spoke of drinking as being ‘ingrained’ in Australian culture; and those who had moved to Australia from another country (such as Canada) particularly noted the ubiquitous nature of alcohol in social interactions and celebrations in this country. Many of the participants noted that the

Australian drinking culture meant that drinking was seen as a social norm and not drinking was looked upon as anti-social behaviour:

...in some circles if you're not drinking it's almost as though you're being anti-social. (Pregnant Woman 3)

I'm aware socially with my 18 year old who's really not accepted because she doesn't drink and the other one who's well accepted because she loves to party, so to me there never seems to be a fine balance, people either seem to not drink or they're just so over the top (Midwife 10)

Both groups of participants noted the social issues around pregnant women consuming alcohol due to perceived social norms. The use of alcohol during social gatherings and celebratory events created challenges for women who were pregnant but did not wish to reveal their pregnancy to others. The word "pressure" was used to describe the social expectation of drinking alcohol. Participants expressed the view that as there was an underlying expectation within society that women will cease drinking when they are pregnant, it was often assumed that a woman who was not drinking must be pregnant.

Women spoke of strategic ways to hide the fact that they were not drinking at the early stage of their pregnancy, before they were ready to tell people they were pregnant. Elaborate stories or actions were described to provide a feasible reason for not drinking (other than pregnancy) or even make it appear as though they were still drinking as expected under the social circumstances. Women spoke of revealing their pregnancy to explain why they were not drinking alcohol and to avoid being pressured into drinking so as not to reveal the pregnancy; but also spoke of instances they were aware of where women had consumed alcohol so as not to reveal their early pregnancy:

Extremely hard, that was probably the hardest. I had to make up I was on medication which is quite extreme, especially in work situations, because we do have a lot of cocktail parties and things like that. I just had to make up a story I couldn't just say I don't want one, because there is that pressure there. (Pregnant Woman 4)

I've had a few friends who are hiding that they're pregnant so they've maybe had a few drinks so people wouldn't think they were pregnant. (Pregnant Woman 8)

Midwives also voiced concerns about the difficulties in attempting to alter pregnant teenagers' alcohol behaviours due to the social norms of drinking with their peers:

Socially it's really hard, depending on demographics of course but socially it's a hard road if you're in that social area of people saying "oh go on, go on" and I think pregnancy is no different....I think if someone comes in and they don't want to go to the young mothers' group you have to be particularly vigilant because they're in that demographic, 16, 17 or 18 year olds where all the friends are boozing and binging and we always encourage them to not, but the bottom line is once people leave here, you can only encourage and give them the information. (Midwife 3)

Discussion

The participants in our study had limited knowledge of the health risks associated with alcohol consumption for the general, non-pregnant population, rather seeing the risks of excessive drinking in terms of the potential for violence, crime, and damage to relationships. Consistent with this, they had a limited knowledge of the effects of alcohol consumption during pregnancy on the foetus – with the majority of the pregnant women

expressing a commitment to not drink based on a sense that it was generically harmful or that they would feel guilty. This is consistent with overseas research, which has shown that women contemplating pregnancy have limited knowledge about risk factors and preventive measures regarding adverse pregnancy outcomes (de Jong-Potjer *et al.* 2003; Elsinga *et al.* 2008).

It was clear from the participants' responses, particularly those of the pregnant women, that they perceived a strong social norm against drinking during pregnancy. This is probably not surprising, particularly given the media coverage of the then draft NHMRC guidelines and the fact that they were recruited through the MGP, but suggests that they may have been reluctant to express contrary views or to report actual consumption behaviour.

Our participants reported being strongly influenced by two conflicting social norms: a "drinking" norm which labels non-drinkers as unsocial and makes many women feel pressured to consume alcohol; and the "good mother" norm which engenders a sense of guilt associated with drinking during pregnancy. These conflicting norms are particularly problematic for women in the early stages of pregnancy and those trying to become pregnant.

The fact that the good mother norm does not appear to be supported by a clear understanding of the effects on the foetus of alcohol consumption during pregnancy means that many women are making the abstinence decision from a guilt or expectation motive rather than through an informed decision-making process. There is potential, then, for this decision to be easily influenced by a change of social norm reference group, as noted by the midwives when discussing the particular issues for younger pregnant women. This is consistent with US studies which have found that many pregnant women drink because they believe it is part of socializing with their friends and participating in social events

(Koren *et al.* 2003; Testa *et al.* 2003). Other research has shown that a partner's drinking habits are predictive of women's habits (Enviro-nics Research Group 2003), which suggests that partnered women may be faced with a further social norm which encourages drinking as part of the relationship.

Further, this lack of knowledge of the actual risks enables women to dismiss concerns around even high levels of alcohol consumption during the early stages of pregnancy. Women may not realize they are pregnant until the fourth week, and many in the sixth week, of their pregnancy (Best Start 2003) and drinking during this period could negatively influence the baby's health (Floyd, Decouflé, and Hungerford 1999). It was evident from the interviews with the pregnant women in our study that this ability to discount the effects of drinking in the early stages, which was voiced much more strongly by those whose pregnancies were unplanned, works as a cognitive defence mechanism. Similar effects have been found in the smoking literature. For example, smokers' estimates of the duration of smoking necessary to cause negative health effects increase with the length of time they have been smoking (Hahn and Renner 1998). When their cessation attempts fail, smokers reduce their ratings of the negative effects of smoking (Cohn *et al.* 1995) and they describe the "typical" lung cancer victim as smoking more cigarettes per day, over a shorter period, than themselves (Schwarzer 1994).

Limitations

There are a number of limitations which should be considered in interpreting the findings of this study. First, the sample size was relatively small (12 midwives and 12 pregnant women) although the data analysis confirms that data saturation was reached well before cessation of the interviews. Second, this study was conducted in a regional area of

New South Wales, Australia, so the findings may not be generalisable to other populations.

Third, the use of a convenience sample and the voluntary nature of participation in the study means that our sample may differ from the broader population in their attitudes to alcohol consumption in pregnancy.

Conclusion

Interventions to encourage women to comply with the NHMRC Guidelines on alcohol consumption during pregnancy will need first to increase women's knowledge of the risks to the foetus associated with drinking and, to ensure that these risks are salient both during early pregnancy and at the time of conception. However, there is also a need for multi-component interventions that increase knowledge at a community level – this may include warning labels on alcohol products, as is the case in other countries, and working with the media to ensure women are provided with more consistent information about risks. Importantly, it appears that the social norm of not drinking during pregnancy is in direct conflict with the social norm of drinking at all other life stages. Thus, bringing about long-term and sustainable reductions in alcohol-related harm to future generations requires the same shift as that required to reduce alcohol-related harm among the current generation: that is, to move away from a cultural norm where abstinence from drinking is seen as an aberrant behaviour.

References

- Australian Broadcasting Commission [ABC] News (2007, December 3). Mums-to-be warned on alcohol danger. Available at <http://www.abc.net.au/news/stories/2007/12/03/2107685.htm?site=news> [Verified 10 September, 2010]
- Australian Institute of Health and Welfare [AIHW] (2007) "Statistics on drug use in Australia 2006." Available at <http://www.aihw.gov.au/publications/index.cfm/title/10393> [Verified 15 August, 2010]
- Best Start (2003) "Keys to a successful alcohol and pregnancy communication campaign. A manual by Best Start: Ontario's maternal, newborn and early child development resource centre." (Toronto, ON: Best Start)
- Centers for Disease Control and Prevention (2004) "Alcohol consumption among women who are pregnant or who might become pregnant - United States, 2002." *Morbidity and Mortality Weekly Report* **53**,1178-81.
- Cohn LD, Macfarlane S, Yanez C, Imai WK (1995) "Risk-perception: differences between adolescents and adults." *Health Psychology* **14**, 217-22.
- Colvin L, Payne J, Parsons D, Kurinczuk JJ, Bower C (2007). "Alcohol consumption during pregnancy in non-indigenous West Australian women." *Alcoholism-Clinical and Experimental Research* **31**, 276-284.
- de Jong-Potjer LC, Lieke C, de Bock GH, Zaadstra BM, de Jong OR, Verllove-Vanhorick SP, Springer MP (2003) "Women's interest in GP-initiated pre-conception counselling in The Netherlands." *Family Practice* **2**, 142-146.
- Elsinga J, Lieke C, de Jong-Potjer LC, van der Pal-de Bruin KM, le Cessie S, Assendelft WJ, Buitendijk SE (2008) "The effect of preconception counselling on lifestyle and other behaviour before and during pregnancy." *Women's Health Issues* **18**, S117-125.

- Environics Research Group (2003) "Awareness of the effects of alcohol use during pregnancy and fetal alcohol syndrome: Results of a national survey. Final Report." (Ottawa, ON: Health Canada)
- Floyd RL, Decouflé P, Hungerford DW (1999) "Alcohol use prior to pregnancy recognition." *American Journal of Preventive Medicine* **17**, 101-107.
- Giglia RC, Binns CW (2007) "Patterns of alcohol intake of pregnant and lactating women in Perth, Australia." *Drug and Alcohol Review* **26**, 493-500.
- Goransson M, Magnusson A, Bergman H, Rydberg U, Heilig M (2003) "Fetus at risk: prevalence of alcohol consumption during pregnancy estimated with a simple screening method in Swedish clinics." *Addiction* **98**, 1513-1520.
- Hahn,A, RennerB (1998). "Perception of health risks: How smoker status affects defensive optimism." *Anxiety Stress and Coping* **11**, 93-112.
- Koren G, Partuszak A (1990) "Prevention of unnecessary pregnancy terminations by counselling women on drug, chemical and radiation exposure during the first trimester." *Teratology* **41**, 657-661.
- Koren G, Koren T, Gladstone J (1996) "Mild maternal drinking and pregnancy outcome: perceived versus true risks." *Clinica Chimica Acta* **246**,155-162.
- Koren G, Nulman I, Chudley AE, Loocke C (2003) "Fetal alcohol spectrum disorder." *Canadian Medical Association Journal* **169**, 1181-1185.
- National Health and Medical Research Council [NHMRC] (2001) "Australian Alcohol Guidelines: Health Risks and Benefits". (Canberra: Commonwealth of Australia)
- National Health and Medical Research Council (2007) *Australian Alcohol Guidelines for Low Risk Drinking. Draft for Public Consultation*. Canberra: Commonwealth of Australia.

National Health and Medical Research Council (2009) *Australian Guidelines to Reduce Health Risks from Drinking Alcohol*. Canberra: Commonwealth of Australia.

The National Organisation for Fetal Alcohol Syndrome and Related Disorders

Incorporated [NOFASRD] (2008) "Alcohol and Pregnancy" Available at

http://www.nofasard.org.au/media/pdfs/alcohol_pregnancy_brochure/brochure1.pdf

(Verified 4 September, 2010)

O'Brien P (2007) "Is it all right for women to drink small amounts of alcohol in pregnancy? Yes." *British Medical Journal* **335**, 856.

O'Leary CM, Heuzenroeder L, Elliott EJ, Bower C (2007) "A review of policies on alcohol use during pregnancy in Australia and other English-speaking countries, 2006." [See comment]. *Medical Journal of Australia* **186**,466-71.

Public Health Agency of Canada (2004) "Fetal Alcohol Spectrum Disorder: Knowledge and attitudes of health professionals about Fetal Alcohol Syndrome". (Ottawa: Public Health Agency of Canada)

Royal College of Obstetricians and Gynaecologists (2006) "Alcohol Consumption and the Outcomes of Pregnancy Statement No. 5". (London: RCOG)

Schwarzer R (1994) "Optimism, vulnerability, and self-beliefs as health-related cognitions: A systematic overview." *Psychology & Health* **9**,161-180.

Simmonds A (2008, March 4) "Let's lose the dogma about mothers-to-be." *The Sydney Morning Herald*, p 11.

Stark J (2007, November 15) "Abortion fear on alcohol-in-pregnancy advice." *The Age*, p 4.

Testa M, Quigley B M, Das Eiden R (2003) “The effects of prenatal alcohol exposure on infant mental development: A meta-analytical review.” *Alcohol and Alcoholism* 38,295–304.