

2011

Creating persuasive messages to promote abstinence from alcohol during pregnancy

Kathryn France
Edith Cowan University

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Creating persuasive messages to promote
abstinence from alcohol during pregnancy

Kathryn France, BSc (Hons)

This thesis is presented for the degree of Doctor of Philosophy
Faculty of Business and Law, Edith Cowan University

November 2011

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Abstract

While the rates of Fetal Alcohol Spectrum Disorder within Australia are unknown, the rates of alcohol use during pregnancy and at-risk alcohol use by women of childbearing age highlight the need for universal prevention strategies addressing prenatal alcohol exposure. Though many awareness-raising campaigns for alcohol use during pregnancy have been conducted, predominantly in North America, they have rarely been developed using formative research nor have they been comprehensively evaluated (Saskatchewan Prevention Institute, 2009; Elliott et al., 2008). This lack of published information on the development and evaluation of campaigns makes it difficult to determine what communication elements are most credible and persuasive for the target audience.

This study conducted theory-based formative research to develop and test messages suitable for a mass media campaign targeting women who may consume low to moderate levels of alcohol during pregnancy. In alignment with the Australian national guidelines for alcohol use by pregnant women (National Health and Medical Research Council, 2009), the aim was to create messages that increased women's intentions to abstain from alcohol during pregnancy. An exploratory phase comprising four focus groups with pregnant women and women of childbearing age living in Perth, Western Australia identified motivators for behaviour change and provided insight into the theoretical constructs that could be used to guide the creation of persuasive messages. Positive motivations for abstinence, such as a desire to feel in control and gain social approval were identified, as were several negative motivations, such as wanting to be free of fear and worry, and to avoid possible poor pregnancy outcomes. Along with constructs from social cognition models such as Protection Motivation Theory (Maddux & Rogers, 1983; Rogers, 1983, 1975), these data underpinned the development of a series of communication objectives and communication materials, such as television concept executions, and copy and graphics for print media.

The communication materials were then tested through five focus groups with pregnant women, women of childbearing age and male partners to identify those that were most motivating, and to identify specific copy and execution elements that appeared to enhance the persuasiveness and credibility of messages. Two television concept executions, one a threat appeal based on fear and worry, and the other a positive

appeal based on self-efficacy, had particularly good potential to motivate behaviour change. These became the basis for five final concept executions that were tested against a control with 685 women (520 women of childbearing age and 165 pregnant women). Results showed the concept executions containing a threat appeal were significantly more effective at increasing women's intentions to abstain from alcohol during pregnancy, compared with the control and positive appeal.

This study provides evidence of messages effectively increasing women's intentions to abstain from alcohol during pregnancy. It demonstrates the value of using theory-based formative research with the target audience to inform the creation of messages that promote abstinence from alcohol during pregnancy. The results and recommendations have direct implications for the potential use of threat appeals and self-efficacy messages in mass media campaigns aimed at preventing prenatal alcohol exposure.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
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I also grant permission for the Library at Edith Cowan University to make duplicate copies of my thesis as required.

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Date: 25th November 2011

Acknowledgements

I am honoured to be a recipient of a National Health and Medical Research Council Public Health Postgraduate Scholarship and am very grateful for this support of my postgraduate training. I also acknowledge Healthway for the funding that enabled this study to be conducted, and thank them for their commitment to research in this area.

A great number of people have supported this PhD. It was support that emanated from a commitment to me personally, or to the prevention of Fetal Alcohol Spectrum Disorder or to rigorous academic inquiry - or a commitment to all three. I am deeply grateful for their contributions - contributions that extend well beyond what is acknowledged below. They have enriched this study and nurtured me.

To Rob Donovan, my mentor and principal supervisor. For not letting me fall when the road became rocky, for allowing me access to your conceptual brilliance and for giving me the freedom to find a bit of my own. It has been my pleasure and privilege to be guided by you.

To Nadine Henley, my first supervisor. For believing in me, encouraging me and for paving the first steps of this pathway.

To Marie Ryan, my associate supervisor. For being there when it counted and for helping me to navigate some of the tricky bits.

To Jan Payne and Carol Bower, my mentors and study Investigators. For your invaluable training and unconditional support.

To Heather D'Antoine, Anne Bartu, Elizabeth Elliott, Gary Kirby and Heather Monteiro, the study Investigators. For your insights, responsiveness and strong commitment to the study.

To Jocelyn Boylen, Kelly Jeffreys, Sheree Lawson, Josie Maxted, Stacy Maxted and Julie Whitlock, the Community Reference Group members. For your precious perspectives and for your belief in the value of this kind of research.

To those organisations and community groups that assisted with recruitment. For generously giving your time and resources so that this research could be conducted.

To the participants. For your precious time, honesty, insights and critique.

To the staff within the School of Marketing, Tourism and Leisure, and in particular Stephen Fanning and Bev Lurie. For your warmth, care and assistance.

To Lindsay France, Charles Watson, Juliana France, Carly France, Felicity France and Caroline Wright. For your understanding and relentless love.

To Brett Thomson. For lifting me high when I am low and higher than I ever thought I would go.

Dedication

This thesis and the work that it represents is dedicated to Anwen Williams.

To Anwen. For your unwavering and complete devotion to motherhood and all that it entails ... from conception, to birth and beyond.

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Chapter One: Study overview

1.1 Overview of the research problem

Alcohol is a teratogen: a substance that can disrupt the development of a fetus and cause malformation and functional deficits (Warkany & Wilson, 1972). Exposure to alcohol during pregnancy can result in significant and life-long effects for the individual exposed (Centers for Disease Control and Prevention, 2005; Chudley et al., 2005; Stratton et al., 1996). Fetal Alcohol Spectrum Disorder (FASD) encompasses the effects caused by prenatal alcohol exposure, and includes central nervous system dysfunction, complex neurobehavioural problems and birth defects (Riley et al., 2011; Koren et al., 2003). The conditions within FASD have been estimated to occur in between 2-5% of births in the USA and some Western European countries (May et al., 2009). In Australia, though the prevalence of FASD is unknown, alcohol use during pregnancy is common, with the majority of pregnant women consuming alcohol (Powers et al., 2010; Colvin et al., 2007). Thus, population-based strategies that prevent prenatal alcohol exposure and that target pregnant women and women of childbearing age are warranted.

It is widely understood that education and awareness-raising campaigns can play an important part in promoting healthy behaviours and preventing poor health outcomes (e.g. Bala et al., 2008; Elder et al., 2004). Subsequently, it can be proposed that persuasive messaging delivered through education and awareness-raising campaigns has the potential to contribute to reducing the number of pregnancies exposed to alcohol, and lowering the risk of individuals being born affected by FASD (Poole, 2008; Roberts & Nanson, 2000). Though a large number of communication campaigns addressing alcohol use during pregnancy have been conducted, predominantly in

North America, campaigns have rarely been evaluated beyond measures of campaign recall and general awareness of the topic (Saskatchewan Prevention Institute, 2009; Elliott et al., 2008). Furthermore, recommendations for messaging are seldom related to theory or based on formative research, and hence there is little evidence to inform the design of effective messages (Cismaru et al., 2010; Saskatchewan Prevention Institute, 2009). This lack of published information on the development and evaluation of campaigns makes it difficult to determine what communication elements could have the most credibility, persuasiveness and overall impact on the target audiences' behavioural intentions. In addition, other than a post hoc allusion to Protection Motivation Theory (Cismaru et al., 2010), a brief mention of a social norms approach to develop a campaign (Glik et al., 2008) and a recent experimental study investigating the effects of message framing (Yu et al., 2010), there is no evidence in the peer-reviewed literature of systematic use of theoretical frameworks to develop campaigns aimed at preventing prenatal alcohol exposure. As such, little is known about how to construct messaging such that it fulfils its preventative potential and contributes to healthy behaviour and facilitative social environments.

This study addresses the research problem of developing persuasive messaging to promote abstinence from alcohol during pregnancy and hence to contribute to the prevention of FASD. Within the context of a strategic communication plan, this study comprises the first phases of formative research to develop messages that are theoretically-based and informed by research with the target audience. The outcome of the study is several television concept executions that, delivered through a comprehensive campaign, have strong potential to be effective at promoting abstinence from alcohol during pregnancy, and hence contribute to the prevention of prenatal alcohol exposure and FASD.

1.2 The original contribution of the study

The original contribution of this study is both its application of formative research and social cognition models to the development of concepts for alcohol use during pregnancy, and its resulting recommendations for education and awareness-raising campaign messages. This study demonstrates the potential for messages to promote women's intentions to abstain from alcohol during pregnancy, and provides insight into how to construct messaging such that it is persuasive, credible and attuned to the target audience's needs and contexts.

Specifically, the original contributions of this study are three-fold. First, the findings from the exploratory research with Western Australian women of childbearing age provide new insights into beliefs and attitudes about alcohol use during pregnancy and motivations for behaviour change. Second, it provides evidence for the theoretical models that may be relevant to developing persuasive messaging to promote abstinence from alcohol during pregnancy, and indicates specific content and execution elements that have strong potential to increase the persuasiveness, relevance, appeal, and credibility of messages. Third, the quantitative results assessing the effectiveness of several concept executions in promoting the target audience's intentions to abstain from alcohol during pregnancy provide new insight into elements that have the potential to effectively facilitate behaviour change with regard to alcohol use during pregnancy.

1.3 The significance of the study

As recently as this year, public health practitioners and researchers working towards the prevention of FASD have highlighted the lack of evidence on how to develop effective messaging and campaigns, and have called for research on “how to promote alcohol abstinence among pregnant women” (Thurmeier et al., 2011, pg. 188). This study is an example of this necessary research. In Australia, on the 22nd June 2011, the Senate put through a motion calling on the Australian government to “institute a national awareness campaign to raise community awareness of the risks to the unborn child when alcohol is consumed in pregnancy and highlight the potential cognitive and developmental consequences for affected individuals as these pertain to service providers, law enforcement and justice, the community sector and education” (The Parliament of the Commonwealth of Australia, 2011, pg. 1074). Furthermore, in June 2011 a report on alcohol and measures to prevent harm was tabled in the Western Australian state parliament by the Education and Health Standing Committee. This report included as one of its recommendations that “The Minister for Health and the Minister for Mental Health provide funds in the 2012-13 budget so that the Drug and Alcohol Office can coordinate, in conjunction with the Telethon Institute for Child Health Research and public health social marketing experts, a media campaign on the dangers of consuming alcohol while pregnant” (Western Australia Legislative Assembly Education and Health Standing Committee, 2011, pg. lii). This study provides data from which a national campaign can be developed.

Message strategies developed in this study can be adopted, utilised and evaluated by agencies developing population-based education and awareness-raising campaigns to prevent prenatal alcohol exposure. Messages about alcohol and pregnancy that are underpinned by behaviour change theory and based on formative research with the target audience will benefit message recipients by ensuring that messages are relevant, credible and motivating. Alcohol use during pregnancy is a sensitive issue and health promotion in this area needs to be evidence-based and pre-tested to ensure that the messages are relevant for the target audience, do not trigger unintended and undesirable effects, and empower healthy choices with regard to alcohol use during pregnancy.

Furthermore, the results of this study can be used to underpin a comprehensive campaign strategy and inform the development of a further range of creative concepts that are theoretically-based and driven by research with the target audience. Lastly, the formative research methodology represents a rigorous application of communication development strategies (Donovan, 1995b; Roper, 1993) and demonstrates a synthesis of evidence-based literature, qualitative research with the target audience, and testing of concept prototypes with the target audience, prior to campaign launch and big budget expenditure.

1.4 Reasons for the study

This study is part of an ongoing program of research within Western Australia that addresses prenatal alcohol exposure

(see www.ichr.uwa.edu.au/alcoholandpregnancy/publications for publications resulting from this program of research). This study was chosen for a number of reasons. First, research shows that:

- almost 60% of Western Australian women consume alcohol during pregnancy, with most consuming low to moderate amounts (Colvin et al., 2007), and
- many lack specific knowledge about the potential consequences of prenatal alcohol exposure (Peadon et al., 2010; Peadon et al., 2007).

Second, an effective intervention had been conducted in Western Australia that supported health professionals' knowledge and practice with their clients with regard to alcohol use during pregnancy (Payne et al., 2011b; Payne et al., 2011c). Third, there have not been any mass media campaigns about alcohol and pregnancy targeting

women in Western Australia. Thus, there was an evident need for a population-based education and awareness-raising campaign addressing alcohol use during pregnancy.

Formative research was considered the necessary first step for creating persuasive, population-based messaging for the sensitive and complex issue of alcohol use during pregnancy. Its timeliness is evident in its success at attracting both a nationally competitive postgraduate scholarship as well as a state-funded research project grant. Details relevant to the funding, contributors and management of the study are provided in Appendix 1.1.

1.5 The scope of the study

The focus of this study is on the prevention of prenatal alcohol exposure using a universal, mass media approach to achieve attitude and behaviour change among women in the population with an ability and readiness to change. Given it is likely that women with clinically significant levels of alcohol use would require additional support in order to modify their behaviour, this study does not target women who consume alcohol at high risk prior to or during pregnancy. Neither did this study purposefully include Aboriginal or culturally and linguistically diverse populations as specific messages and strategies are likely to be required for these groups. The recruitment of participants was limited to those residing in the Perth metropolitan area in Western Australia, and the data reflect this sample.

1.6 Ethics approval

The study was approved in whole by the Edith Cowan University Human Research Ethics Committee. In addition, the quantitative concept testing was approved by the following services whose patients and clients were involved as participants:

- Government of Western Australia, Department of Health, Women and Newborns Health Service Ethics Committee;
- Government of Western Australia, Department of Health, South Metropolitan Allied Health Service Human Research Ethics Committee; and
- Mercycare Ethics Committee.

1.7 An overview of the methodology and chapters

Strategic communication planning and implementation requires adherence to a number of process steps that occur both sequentially and iteratively (Donovan, 1995b; Roper, 1993). This study represents the first six of these steps in developing communications to promote abstinence from alcohol during pregnancy. Each of the following steps is addressed in a chapter of this thesis:

1. A review of background information.
2. A statement of the broad goals.
3. Identification of the target audience and the specific behavioural change objectives required to meet the broad goals.
4. An analysis of the target audience in terms of their existing knowledge, beliefs, attitudes and behaviour, including identifying potential audience segments.
5. A definition of the communication objectives for each target audience (that is, what changes in knowledge, beliefs and attitudes are required in order to achieve the behavioural change objective/s) and development of message concepts.
6. Pre-testing the message concepts with each target audience.
(Donovan, 1995b; Roper, 1993)

Figure 1.1 (page 8) outlines these steps, their corresponding chapter/s and a description of the associated methodology or components. The first step was conducted through a review of existing research and literature and is contained within Chapters Two, Three and Four. Chapter Two describes the public health problem of FASD in Australia and internationally, its epidemiology and causal factors. Chapter Three reviews existing prevention activities with a focus on education and awareness-raising campaigns in order to provide insight into effective strategies and existing gaps in the evidence. Chapter Four presents a number of theoretical models and processes that may underpin development of campaign messages and that guided the methodology of the study. This background information informed the second and third steps: a definition of the broad goals, target audience and specific behaviour change objectives. These are presented at the beginning of Chapter Five. The fourth and fifth steps, that are covered in Chapter Five, involve exploratory research with pregnant women and women of childbearing age, a definition of the communication objectives and the development of message concept executions.

The sixth step of this study is represented in Chapters Six and Seven, which present a qualitative testing of a series of concept executions followed by quantitative testing of a selection of these concept executions. Chapter Eight concludes the thesis and this inquiry with a discussion of the results with reference to behaviour change theory and related literature, and provides recommendations for messaging to prevent prenatal alcohol exposure.

Chapter Two: Fetal Alcohol Spectrum Disorder and alcohol use during pregnancy

2.1 Introduction

This chapter introduces the public health problem central to the thesis: Fetal Alcohol Spectrum Disorder (FASD). The chapter then reviews what is known about FASD and alcohol use by pregnant women and women of childbearing age in Australia. This information is provided as background to the approach and rationale of the study, and serves to demonstrate the timeliness and appropriateness of this research for the prevention of prenatal alcohol exposure and FASD in Australia.

2.2 Fetal Alcohol Spectrum Disorder and Fetal Alcohol Syndrome

Alcohol is a teratogen and exposure during pregnancy poses a risk to the developing fetus. Pregnancy complications relating to prenatal alcohol exposure include preterm birth (Patra et al., 2011; Albertsen et al., 2004), stillbirth (Strandberg-Larsen et al., 2008a) and spontaneous abortion (Henriksen et al., 2004). Alcohol exposure during pregnancy is also related to a range of effects following birth. This was first formally recognised in 1973 with the description of Fetal Alcohol Syndrome (FAS) (Jones & Smith, 1973). Since this time a range of conditions have been described relating to prenatal alcohol exposure, including partial Fetal Alcohol Syndrome, Alcohol-related Neurodevelopmental Disorder and Alcohol-related Birth Defects. From 2000 these alcohol-related diagnoses and their effects have been collectively referred to as Fetal Alcohol Spectrum Disorder (Streissguth & O'Malley, 2000).

Common effects within FASD are central nervous system dysfunction, poor growth, microcephaly and other birth defects such as musculoskeletal abnormalities (Riley et al., 2011; Koren et al., 2003; Sokol, 2003). Developmentally these effects are related to outcomes such as low IQ, social and behavioural problems, poor executive functioning and inattentiveness (Streissguth, 2007). Diagnosis of these conditions is complex and often requires a multi-disciplinary team of health professionals (British Medical Association Board of Science, 2007; Chudley et al., 2005). FAS is characterised by specific and measurable malformations including of the face, hands and ears and as such is the easiest to identify and diagnose (Riley et al., 2011). The other diagnoses are more difficult; the effects are harder to measure as they may not have a physical aspect, and even if they do (as in the case of birth defects), may be attributed to other causalities as they are non-specific (Aase, 1994). Furthermore, accurate information about prenatal alcohol exposure is often unavailable or hard to obtain (British Medical Association Board of Science, 2007; Centers for Disease Control and Prevention, 2005). Given FAS was the first diagnosis to be described, and is relatively the easiest to identify, most of what is known about the epidemiology of the effects of prenatal alcohol exposure is based on knowledge about FAS. In terms of the full spectrum of disorders, the rates are largely unknown and estimates are likely to be underestimates (May, 2011).

Despite the difficulty of diagnosis, efforts to determine the prevalence of FASD have been mobilised, particularly over the last decade. Large population-based prevalence studies using active case ascertainment have been conducted in several countries representing different drinking patterns and with different historical and cultural significance for alcohol use: South Africa (May et al., 2007; Viljoen et al., 2005); Italy (May et al., 2006); Croatia (Petkovic & Barisic, 2010); and the United States of America (USA) (May, 2011; Poitra et al., 2003). From these studies the conditions within FASD have been estimated to occur in between 2-5% of births and FAS to occur in between 0.7-0.9% of births in the USA and some Western European countries (May et al., 2009). So while it is difficult to ascertain the true scale of the problem, current research suggests that “FASD may be the leading cause of mental deficiency in many societies” (May, 2011, pg. 21).

FASD represents significant disability for the affected individual and the effects are irreversible and life-long. The effects relating to cognitive and behavioural deficits, such

as attention deficit hyperactivity disorder, poor executive functioning and impulsivity, are known to impact the affected individual's capacity to engage effectively with many aspects necessary for effective schooling, employment and independence (Koren et al., 2003). Throughout childhood and adulthood, prenatal alcohol exposure is associated with a number of 'secondary disabilities', that is "conditions, behaviors or situations that develop after birth" (Brintnell et al., 2010, pg. 235). In children, secondary disabilities include disrupted schooling as a result of problems with "attention, arithmetic, spatial-visual memory, speed of information processing, and lower IQ scores" (Streissguth, 2007, pg. 97). In adulthood the deficits and associated problems include psychiatric disorders, unemployment, incarceration, drug and alcohol use, and dependent living (Spohr & Steinhausen, 2008; Streissguth, 2007). Together, the impact of FASD and its secondary disabilities represent a significant public health problem. Not accounting for the emotional, social and physical impact of living with FASD, or caring for those with FASD, recent economic estimates of the direct and indirect costs of FASD, for example in Canada per annum, are as high as CA\$5.3 billion overall or CA\$21,642 per case (Stade et al., 2009). While estimates such as this are scarce and not completely comprehensive (Popova et al., 2011) it is clear that FASD costs society, and while treatment, management and early identification can go some way to reduce the burden, prevention is the key to minimising the cost of FASD to individuals, families and communities.

2.2.1 The risk of Fetal Alcohol Spectrum Disorder

Not all prenatal alcohol exposure results in FASD. It is understood that the risk of alcohol to the fetus increases with increasing dose and frequency of alcohol exposure, and particularly when greater amounts of alcohol are consumed in one sitting, resulting in high maternal and fetal blood alcohol content (Sayal et al., 2009; Maier & West, 2001). Amounts as little as 20-30 grams of alcohol in one sitting at times during pregnancy have shown to be related to increased risk of poor birth outcomes (Jaddoe et al., 2007; Chiaffarino et al., 2006). On the other hand, some research has shown low levels of alcohol consumption to have a protective effect (Kesmodel et al., 2000). It is important to recognise that epidemiological studies on the risk of different levels of exposure are problematic due to a number of issues (Todorow et al., 2010). These include a lack of standardised recording of alcohol intake, reliance on poorly-understood standard drink sizes, participant recall bias and under-reporting, and

collated recording of alcohol amounts (O'Leary et al., 2010; Todorow et al., 2010; Alvik et al., 2006; Testa et al., 2003; Kaskutas, 2000).

The timing of exposure during pregnancy is also known to influence the expression of FASD, as well as the risk for particular outcomes as the effect of alcohol varies during different phases of the embryonic and fetal period (O'Leary et al., 2009; Little, 2007; Airens & Simonis 1974 cited in Ernhart et al., 1987). There are suggestions that the impact of alcohol on the development of the fetus is most deleterious during the early stages, given that this is when teratogen exposure is most likely to result in major morphological abnormalities (Selevan et al., 2000; Day et al., 1989). However it is recognised that alcohol affects the development of the central nervous system and the brain throughout pregnancy (Guerri et al., 2009).

Despite what research has shown, the likelihood of an individual being born affected, and how they may be affected cannot be clearly stated, and the evidence is inconclusive with regard to the risk of harm at low to moderate levels of exposure (Patra et al., 2011; Henderson et al., 2007). An array of other individual and environmental factors are involved in the likelihood of occurrence, expression and severity of FASD. These include age and nutritional status of the mother, parity, genetics of mother and child, socio-economic status and education (May et al., 2008; Kvigne et al., 2003; Jacobson et al., 1996). These factors appear to interact to protect or predispose the fetus to being affected, and the complexities of these interactions are such that it is unlikely that the relative risk and specific outcomes of FASD will ever be completely quantifiable.

2.3 Public health recommendations about alcohol use during pregnancy

Lack of definitive evidence about the risk of alcohol exposure to the fetus, particularly with regard to low levels of exposure has influenced public health recommendations relating to alcohol consumption during pregnancy. A review of policies on alcohol use during pregnancy in seven English-speaking countries showed that although most policies note that abstinence from alcohol is advised or presented as the 'safest' choice, they varied with regard to the information that was provided regarding small amounts of alcohol and risky patterns of use (O'Leary et al., 2007). Furthermore, inconsistencies between recommendations and the way information is framed are

shown to exist both between and within countries (Drabble et al., 2011). For example in the USA in 2005, a statement issued by the US Surgeon General said that “no amount of alcohol consumption can be considered safe during pregnancy” (Office of the Surgeon General, 2005, pg. 1) whereas the American College of Obstetricians and Gynecologists stated that “... small amounts of alcohol are unlikely to cause serious harm” (American College of Obstetricians and Gynecologists, 2005 cited in O’Leary et al., 2007, pg. 469). The British Royal College of Obstetricians and Gynaecologists state as one of their key points that “While the safest approach may be to avoid any alcohol intake during pregnancy, it remains the case that there is no evidence of harm from low levels of alcohol consumption, defined as no more than one or two units of alcohol once or twice a week” (Royal College of Obstetricians and Gynaecologists, 2006, pg. 1). Inconsistencies such as this in and between countries are of consequence when considering the impact and effectiveness of messages regarding alcohol consumption during pregnancy. As discussed in subsequent chapters, discrepant messages are likely to create confusion, or work to promote ambivalence with regard to alcohol consumption during pregnancy and rejection of recommendations for abstinence.

While more information and research has become available with regard to the effects of alcohol on the fetus, particularly in the past decade, the evidence about low amounts of alcohol is still inconclusive. So while there is inconsistency in public health recommendations, the majority acknowledge that a safe level of consumption of alcohol during pregnancy is not known, and thus recommend abstinence from alcohol as a prudent approach (O’Leary et al., 2007).

2.3.1 Public health recommendations in Australia

Over the past two decades there also has been inconsistency within Australian-based public health policy regarding alcohol use during pregnancy. In 2009 Australia came into line with public health recommendations from many other countries and now states that for women who are pregnant and planning pregnancy that “not drinking is the safest option” (National Health and Medical Research Council, 2009, pg. 5). This recommendation is based on the current evidence of the risk of harm of alcohol to the fetus during pregnancy (National Health and Medical Research Council, 2009). The previous national guideline current between 2001 and 2009 stated that pregnant woman “may consider not drinking at all; most importantly should never become intoxicated; if they choose to drink, over a week, they should have less than 7 standard

drinks AND on any one day, no more than 2 standard drinks (spread over two hours); should note that the risk is highest in the earliest stages of pregnancy including the time from conception until the first missed period” (National Health and Medical Research Council, 2001, pg. 16). Prior to 2001 the recommendation was that pregnant women abstain from alcohol (National Health and Medical Research Council, 1992). A review of Australian policies in 2006 evidences this lack of continuity between guidelines both over time and between different health organisations (O'Leary et al., 2007). Though many organisations deferred to the national recommendation, others provided information that emphasised particular points and deemphasised others. For example, the New South Wales Health Department stated that “binge drinking, particularly in the first trimester, is harmful” and that “even a small amount may be harmful”, whereas the Centre for Drug and Alcohol within the same Health Department stated that “moderate alcohol use may be harmful” and “heavy drinking is known to be dangerous” (New South Wales Department of Health, 2005 cited in O'Leary et al., 2007, pg. 467). Overall, this points to a level of inconsistency that has existed throughout Australia with regard to public health recommendations for alcohol consumption during pregnancy.

2.4 Fetal Alcohol Spectrum Disorder in Australia

The number of individuals born in Australia each year affected by prenatal alcohol exposure is unknown. Though there have been a couple of studies that have estimated rates of FAS, rates of other alcohol-related diagnoses are unknown. Accurate rates rely on diagnosis, and research in Western Australia shows that 47% of health professionals do not feel well prepared to make diagnoses of FAS (Payne et al., 2011c) and only 6% of paediatricians feel very well prepared (Payne et al., 2011a). While a diagnostic capacity for FASD is being developed in Australia (Telethon Institute for Child Health Research, 2011), currently there are no nationally-agreed criteria for diagnosis (Mutch et al., 2009). Research shows that this reluctance among health professionals may be related to a number of factors including lack of knowledge about FAS, the difficulty of making a diagnosis, and a belief that diagnosis may stigmatise a child or their family (Elliott et al., 2006; Payne et al., 2005).

Given the likelihood that FASD and FAS are under-diagnosed and under-recognised, information from other countries can provide insight into the possible scale of the problem in Australia. As previously mentioned, conservative rates from the USA and

some European countries suggest that FASD occurs in 2-5% of live births (May et al., 2009). The rates of alcohol consumption, by women of childbearing age in general and by pregnant women, in these countries are generally lower and of a lower-risk pattern than for Australia (Powers et al., 2010; Ethen et al., 2009; Colvin et al., 2007; Primatesta et al., 1993). For example, in the US rates of alcohol consumption during pregnancy are estimated to be around 12% (Centers for Disease Control and Prevention, 2009) and 11% of pregnant women in Canada report alcohol use during pregnancy (Public Health Agency of Canada, 2008). It has been suggested that for countries like Australia, where alcohol is consumed frequently at high risk levels for acute harm by many women of childbearing age, rates of FASD are likely to be higher than in those countries where this pattern of alcohol consumption is less frequent, and also perhaps, less socially acceptable (Roberts & Associates, 2007; Kyskan & Moore, 2005). Furthermore, a culture that validates frequent high risk drinking by women and has few social deterrents has been cited as a risk factor for FASD (May & Gossage, 2001).

2.4.1 Fetal Alcohol Syndrome in Australia

There are some epidemiological data on the prevalence of FAS in Australia. A recent study of reported cases from 2001-2004 shows a yearly rate of FAS to be 1.14 per 100,000 children under age of five years, although authors suggest that these rates are likely to be an underestimate due to the evident lack of knowledge and confidence amongst health professionals with regard to diagnosis and assessing children for FAS (Elliott et al., 2007). In Western Australia in 2000 the birth prevalence of FAS was estimated to be 0.18 per 1000 births (Bower et al., 2000). In both these studies the incidence of FAS was much higher among Aboriginal children than non-Aboriginal children (Elliott et al., 2007; Bower et al., 2000). This observed difference is likely to be due to a number of factors: first, while a smaller percentage of Aboriginal women drink alcohol during pregnancy than non-Aboriginal women (Powers et al., 2010; Colvin et al., 2007; Rimmer & de Costa, 2006; Zubrick et al., 2005; Eades, 2003), it is likely (though there are not any peer-reviewed data stating this) that the Aboriginal women that do drink alcohol are more likely to drink at levels of high risk, as this pattern is evident among Aboriginal women who are not pregnant (Australian Bureau of Statistics and Australian Institute of Health and Welfare, 2008). Secondly, there is a heightened awareness of alcohol-related problems among the Aboriginal population compared to the non-Aboriginal population, and it has been suggested that the issue of under-

diagnosis may be particularly relevant for non-Aboriginal children where there is less awareness (Bower et al., 2000). While the different levels of prevention will be discussed in the next chapter, it is important to acknowledge the insight that data such as these provide in terms of selecting appropriate interventions and strategies when seeking to prevent prenatal alcohol exposure. Higher rates of FAS and higher rates of at-risk alcohol consumption suggest that the Aboriginal population is one that warrants particular attention with regard to the prevention of alcohol use during pregnancy. Indeed, it is understood that alcohol consumption during pregnancy by Aboriginal women is often related to a number of complex factors including stress, alcohol consumption by partners and family members, complacency and intergenerational effects of drinking alcohol during pregnancy (D'Antoine et al., 2008). Thus, comprehensive and holistic interventions that adequately acknowledge and address the contextual factors associated with alcohol use during pregnancy by Aboriginal women would be necessary.

2.5 Alcohol use by pregnant women in Australia

While many women reduce or abstain from alcohol once they know they are pregnant, research shows that many Australian women continue to drink alcohol during pregnancy (Maloney et al., 2011; Powers et al., 2010; Colvin et al., 2007). A study of alcohol consumption during pregnancy by non-Indigenous women in Western Australia showed that 59% consumed alcohol during pregnancy and up to 19% drank alcohol in excess of the 2001 Australian Alcohol Guideline for pregnant women on a typical drinking occasion in pregnancy (Colvin et al., 2007). Furthermore, 15% of women drank alcohol at a moderate level during pregnancy (defined as greater than two and less than five standard drinks on any one day) (Colvin et al., 2007). In a more recent study of Australian women, as many as 83% consumed alcohol during their pregnancy, with 63% consuming low amounts (defined as up to two drinks per day and seven standard drinks a week), and 19% consuming moderate amounts (defined as seven to 14 drinks per week, or less than seven per week and more than two per day) (Powers et al., 2010). Another recent survey of Australian women showed that 24% intended to drink alcohol in a future pregnancy (Peadon et al., 2007). Other studies of various groups of Australian women have shown rates of alcohol use during pregnancy to range from 22% - 76% (Maloney et al., 2011; Humphrey, 2003; Northern Territory Perinatal Information Management Group, 2002; Henry & Crowther, 2000; Jonas et al., 2000; Powell & Dugdale, 1999), and research with Aboriginal women shows a lower

range, with rates between 23% - 44% (Rimmer & de Costa, 2006; Zubrick et al., 2005; Eades, 2003). These rates are comparatively high compared some other English speaking countries, such as Canada (11%) and the US (12%) (Public Health Agency of Canada, 2008; Centers for Disease Control and Prevention, 2009). While some of the variation between rates of alcohol consumption amongst pregnant women in different countries may be to sample differences and differences in measurement, it does indicate that there are social contexts that are also different between countries, and therefore requiring different strategies for prevention. As previously mentioned, it is likely that research into the rates of alcohol consumption during pregnancy are flawed by issues such as recall bias and underestimation, and thus it can be concluded that it is possible that some of these studies underestimate the extent of alcohol during pregnancy among their samples. In any case, these data indicate that alcohol consumption by pregnant women is prevalent in Australia and is not isolated to a group of women for whom alcohol addiction may be a factor.

In terms of the reasons for, and contexts of, alcohol use during pregnancy, research in Western Australia with pregnant women who reported drinking alcohol during pregnancy, showed that 80% of 124 participants noted some benefits of drinking alcohol during pregnancy (McBride et al., 2008). The benefits that were most frequently cited related to the relaxation and socialising functions of alcohol consumption, and its taste (McBride et al., 2008). In regard to the context of alcohol use, this research showed that women most frequently consumed alcohol with their partner and with friends, and the large majority consumed alcohol within a home setting (either their own or that of a friend) (McBride et al., 2008). In terms of potential barriers to consumption, 29% of 134 participants from this study noted that they had received negative comments or pressure from others regarding their alcohol consumption while pregnant (McBride et al., 2008).

2.5.1 Alcohol use by women of childbearing age in Australia and the risk of alcohol-exposed pregnancies

In Australia high social approval for regular alcohol consumption by adults is seen to have contributed to increasing rates of at-risk alcohol use (Australian Bureau of Statistics, 2006a; Roche & Deehan, 2002). Recent analyses have indicated a consistent increase in per capita consumption of alcohol in Australia over the past twenty years (Chikritzhs et al., 2010), and of concern are the changing rates and

patterns of alcohol use by women, and young women in particular. Consumption of alcohol at high risk levels (for the short-term) is defined as a pattern in which five or more standard drinks are consumed in one sitting (National Health and Medical Research Council, 2001). It is this pattern of consumption during pregnancy, often referred to as 'binge drinking', which has been shown to be of highest risk to the development of the fetus as it creates a high maternal and fetal blood-alcohol content (Strandberg-Larsen et al., 2008a; Maier & West, 2001; Jacobson et al., 1998). In 2001, 45% of Australian women aged 18-24 years reported consuming alcohol at these high risk levels for acute harm at least monthly (Chikritzhs et al., 2003). In the age group of 25-39 years, 21% of women reported consuming alcohol at high risk levels for acute harm at least monthly (Chikritzhs et al., 2003). Given fertility rates peak between the ages of 30 to 34 years with 125.8 births per 1,000 women (Australian Bureau of Statistics, 2006b), these data indicate that there is a considerable proportion of women of childbearing age who are frequently consuming alcohol at levels of high risk both for themselves, and in the case that they are pregnant, for their fetus. Given that 80.5% of Western Australian women consumed alcohol in the three months prior to pregnancy and that approximately half of all pregnancies are unplanned (Colvin et al., 2007), it is evident that many pregnancies will be exposed to alcohol before women know that they are pregnant. Furthermore, research shows that one of the biggest predictors of alcohol use during pregnancy is alcohol use prior to pregnancy (Powers et al., 2010; Ethen et al., 2009; Chang et al., 2006). Despite these data on the risk of alcohol-exposed pregnancies, the prevalence rates of FASD in Australia are unknown. As such, it is difficult to determine the basis from which effective intervention can be measured. Thus, research directed towards establishing more accurate estimates of the prevalence of FASD would both support the strategic prevention of FASD, and the ability to accurately evaluate impact on interventions.

2.6 Knowledge, beliefs and attitudes about alcohol use during pregnancy in Australia

There exists a lack of awareness and a state of confusion and misunderstanding among the Australian community and health professionals with regard to alcohol use during pregnancy (Payne et al., 2011c; Peadon et al., 2010). Among health professionals in Western Australia, only 28% agreed that health professionals are sufficiently aware of FAS, 47% reported that they did not feel well prepared to deal with FAS, and 54% said that information for clients would help in the diagnosis and

prevention of FAS (Payne et al., 2011c). Furthermore, only 46% of health professionals reported that they routinely ask pregnant women about their alcohol use and 32% routinely provided pregnant women with information on the potential consequences of consuming alcohol during pregnancy (Payne et al., 2011b).

Among Australian women, while many accept that alcohol should be minimised during pregnancy (Peadon et al., 2010), there exists a lack of knowledge about the effects of prenatal alcohol exposure. A survey of a random sample of 1103 Australian women of childbearing age in 2006 showed that only 61% had heard of any effects of drinking alcohol during pregnancy (Peadon et al., 2010). In terms of attitudes, while 80% agreed that women should not drink alcohol during pregnancy, 21% had a neutral or positive response to seeing a pregnant woman drink alcohol and 24% intended to consume alcohol during a future pregnancy (Peadon et al., 2010). It is evident that greater awareness and more information is wanted and needed, and there is support for this. Women strongly support further dissemination of information about alcohol use during pregnancy; research in Western Australia shows that 99% agree that information about the effects of alcohol use in pregnancy should be readily available to women and 97% approve of government-sponsored advertising warning about the effects of drinking alcohol during pregnancy (Payne et al., 2007). These kinds of data provide important insights that can assist in developing appropriate prevention interventions, as effective prevention relies on an understanding of the target audience, the context of their alcohol use, and the motivations, beliefs, attitudes and knowledge that relate to their behaviour.

2.7 Summary

Alcohol is a teratogen and consumption during pregnancy can result in a range of conditions collectively referred to as FASD. FASD is a significant public health problem that can have lifelong consequences for those individuals exposed, their families and their communities. Not all prenatal alcohol consumption results in FASD and the risk is related to the frequency, amount and timing of exposure. The evidence on the risk to the fetus from low levels of alcohol exposure is inconclusive, and, related to this, international and national public health recommendations for alcohol use during pregnancy have been inconsistent, though there is a trend towards recommending total abstinence from alcohol when pregnant and when planning pregnancy.

Though the rates of FASD within Australia are unknown, they are likely to be similar to (if not greater than) rates in other English-speaking countries, where estimates are around 2 - 5% of births. Data from Australian women show that the majority drink alcohol during pregnancy, and while there is a high level of acceptance that abstinence from alcohol during pregnancy is preferable, about one in five women report neutral or positive attitudes towards alcohol consumption and intentions to consume alcohol in a future pregnancy. There is a high level of support from Australian women for awareness-raising initiatives to inform women and to promote recommendations for alcohol use during pregnancy.

2.8 The contribution of this study

The potential risk of alcohol-exposed pregnancies in Australia necessitates the provision of information about alcohol use during pregnancy to women of childbearing age. The literature reviewed in this chapter suggest that there exists a substantial target audience of women who are at risk for low to moderate levels of alcohol consumption during pregnancy. These data serve to indicate that a universal approach to prevention of prenatal alcohol exposure and FASD (discussed in detail in the next chapter) is necessary and timely in Australia, given the following:

- relatively low awareness among the target population about the risks of alcohol use in pregnancy: over a third of Australian women are unaware of any effects of alcohol use in pregnancy (Peadon et al., 2010);
- relatively widespread use of alcohol by pregnant women: the majority of pregnant women continue to consume alcohol during pregnancy (Powers et al., 2010; Colvin et al., 2007) and a quarter of women of childbearing age report that they intend to consume alcohol in a future pregnancy (Peadon et al., 2007); and
- a culture permissible of at-risk alcohol consumption patterns by women of childbearing age.

Within a context such as this, a universal prevention strategy that aims to raise community awareness about the consequences of alcohol use on the fetus and to lower the social acceptability of alcohol use during pregnancy is appropriate (Sarkar et al., 2006). Many of these women may be amenable to reducing their alcohol consumption during pregnancy, given appropriate information and motivating factors conveyed through a communication campaign and within the context of a facilitative environment.

The literature within this chapter serves as the rationale for the study as well as providing information upon which to base a selection of the target audience and specific behavioural change objectives for this study (these are described in Chapter Five). The next chapter outlines approaches that have been used to prevent FASD and prenatal alcohol exposure, and the evidence for the potential effectiveness of awareness-raising and education campaigns.

Chapter Three: Approaches to prevention

3.1 Introduction

The previous chapter outlined the public health problem of FASD, and what is known about FASD and alcohol use during pregnancy in Australia. This chapter reviews the approaches that have been used to prevent FASD, and evidence¹ regarding the effectiveness of education and awareness-raising campaigns to prevent prenatal alcohol exposure. The chapter concludes with the original contribution that this study will make to the area of FASD prevention.

3.2 Approaches used to prevent Fetal Alcohol Spectrum Disorder

There have been many approaches addressing maternal alcohol use and the public health problem of FASD over the past 15 years as countries, states and regions began to acknowledge the presence and impact of FAS and FASD and to formulate strategies to prevent them. Documents outlining these approaches, many of which are not part of the peer-reviewed literature as they are produced by state health departments or similar organisations, differ in their focus and prioritisation of certain prevention activities (West Australian Department of Health, 2010; Floyd et al., 2009; Poole, 2008; Alcohol Healthwatch, 2007; Mengel et al., 2006; Floyd et al., 2005; Canadian

¹ In reading this review, please note the following points:

- to ensure academic and scientific integrity, when citing evidence and drawing conclusions from empirical research, only that which has been peer-reviewed is included; and
- the *prevention of FASD* is assumed within the more general *prevention of maternal alcohol use during pregnancy* (Elliott et al., 2008) and both are used interchangeably throughout the literature and within this review.

Paediatric Society, 2004; Hankin, 2002; McLeod et al., 1997). However most follow a framework of universal, selective and indicated prevention (Institute of Medicine, 1994; Gordon, 1983) and comprise the following main features:

- awareness-raising activities and broad population-based communication about the risks associated with prenatal alcohol exposure, along with recommendations for healthy behaviour (occurring at the *universal* level of prevention);
- identification and support of at-risk pregnant women and women of childbearing age in primary care through brief intervention by health professionals (occurring at the *selective* level of prevention); and
- provision of specialised, clinical support of women with alcohol-related problems, particularly during the period of pregnancy (occurring at the *indicated* level of prevention).

This framework of prevention originates from the area of preventive medicine that has dominated approaches to FASD prevention (Mengel et al., 2006; Floyd et al., 2005; Hankin, 2002; Stratton et al., 1996) and will be discussed at greater length in the next section.

Other approaches to FASD prevention include a clinical approach of identifying and diagnosing those affected by prenatal alcohol exposure in order to measure the scale of the problem, and thus advocate for prevention initiatives (Astley et al., 2000a). Such approaches also help to prevent subsequent pregnancies of the same mother being exposed to alcohol (Astley, 2004). Some communities have taken a broad universal prevention approach and have initiated community-wide alcohol restrictions in an effort to reduce alcohol-related harm, including harm related to prenatal alcohol exposure (Margolis et al., 2008; Bowerman, 1997). Contributions from the areas of sociology, gender and media studies (Poole, 2011; Connolly-Ahern & Broadway, 2008; Baxter et al., 2004; Poole & Issac, 2001), health economics (Stade et al., 2009; Thanh & Jonsson, 2009) and social marketing (Thurmeier et al., 2011; Deshpande et al., 2005) are also increasing as the focus moves away from a more clinical one of those affected by FAS and women who drink at high risk levels, towards an acknowledgement of a full spectrum of alcohol-related disorders and the potential harm of lower levels of exposure. This increasing scope acknowledges the potential for alcohol use during pregnancy to be a much broader issue within the general population that is influenced by social interactions and norms, structural environments and legislation.

The prevalent values within a society or community can also influence the approaches to prevention (Drabble et al., 2011). For example, punitive approaches (such as criminal prosecution of pregnant women) (National Institute on Alcohol Abuse and Alcoholism, 2011) have been seen in the past in parts of North America and have received criticism for putting the responsibility for health or harm of the fetus solely on the pregnant woman (Armstrong, 2005; DeVille & Kopelman, 1998). In contrast, North American Indigenous communities appear to have led the way in developing holistic approaches that include the role of the family and community as part of supporting women to abstain from or reduce alcohol consumption during pregnancy (French, 2004; McLeod et al., 1997). In the past decade, approaches to the prevention of FASD have increasingly acknowledged the environmental, historical and socioeconomic factors that influence alcohol use by pregnant women, and researchers have called for approaches that acknowledge and address the social determinants of health (Poole, 2011; Rutman, 2011; Canada Northwest FASD Research Network, 2010; Lucas et al., 2003). Poverty, low levels of education, poor mental health, experience of abuse, loss of culture, racism, inequitable access to care, and disability resulting from FASD have all been related to risky alcohol use and a high risk for FASD (Poole, 2011; Meschke et al., 2008; Astley et al., 2000b; Kvigne et al., 1998). Related to this, much of the focus for prevention in the past has been at the indicated level that focuses on women who consume alcohol at chronic or high risk levels, who have a range of co-morbid conditions, and who experience economic and social deprivation (Elliott et al., 2008).

With the description of a spectrum of alcohol-related disorders in 2000 (Streissguth & O'Malley, 2000), and with increasing evidence of the negative impact of moderate levels of exposure (as opposed to frequent, high levels of exposure), the amount of prevention activity and research that focuses beyond pregnant women whose alcohol use is clinically problematic has increased (Tough et al., 2006; Chang et al., 2005; Kennedy et al., 2004). Furthermore, some research on the characteristics of women who consume alcohol during pregnancy indicate that women who have not been the focus of prevention interventions in the past, such as non-Indigenous women, and women who are educated and employed, may be more likely overall to consume alcohol during pregnancy (Ethen et al., 2009; Colvin et al., 2007; Tough et al., 2006; Zubrick et al., 2004; Eades, 2003; Centers for Disease Control and Prevention, 2002). Thus, the expanding evidence on the impact of moderate levels of alcohol, and an

understanding of the characteristics of women who drink alcohol during pregnancy has increased the scope of approaches to FASD prevention to include the provision of prevention and intervention activities which are targeted to the women considered at low to moderate risk.

Though the scope of approaches to prevent FASD is broadening it is still limited. There are only some recent instances where an agenda of FASD prevention has been incorporated within national strategies and policies that address alcohol misuse and alcohol related-harm in the general population (National Preventative Health Taskforce, 2009b; Department of Health, 2007). For the first time in 2011 the World Health Organization has included FAS and pre-term birth complications as a “major disease and injury category causally linked to alcohol” within their *Global status report on alcohol and health* (World Health Organization, 2011, pg. 22). The approaches used to prevent alcohol use during pregnancy are rarely extended to include those that are gaining attention for the prevention of alcohol-related harm in the general population, such as using socio-political ‘upstream’ (Donovan & Henley, 2003) mechanisms and interventions including alcohol taxation, regulation of alcohol advertising and promotion, minimum drinking-age policies, and restricted licensing of outlets selling alcohol and public venues where alcohol is consumed (Babor et al., 2010; Floyd et al., 2009; Kyskan & Moore, 2005). Furthermore, initiatives targeting Indigenous women notwithstanding, the cultural influences on women’s consumption of alcohol, including during the time of pregnancy appeared to have received little attention.

Reviews of the literature pertaining to the prevention of FASD show that the focus is predominantly on the period of pregnancy and altering the pregnant women’s behaviour with regard to alcohol consumption (Elliott et al., 2008; Parkes et al., 2008). While this may seem logical, this focus on a specific behaviour (alcohol use) during the specific period of pregnancy, may limit the effectiveness of activities aimed at preventing FASD. This is particularly so when it is considered that alcohol is one of a number of often co-occurring risk factors for pregnancy (Gilligan et al., 2009) and that one of the most significant predictors of prenatal alcohol consumption is alcohol consumption patterns prior to pregnancy (Powers et al., 2010; Ethen et al., 2009; Bobo et al., 2006; Chang et al., 2006), and one of the largest predictors of an individual being born with FAS is a sibling who has received a diagnosis (Abel, 1988). The prevention of prenatal alcohol exposure has rarely been related to the prevention of other risk

factors such as poor mental health or tobacco use, or named as a possible outcome of broader community-based interventions and demand-reduction strategies, or linked to the ongoing support of women of childbearing age who have alcohol-related problems. It is likely that this relatively narrow focus reflects the history of FAS and FASD as a clinically-based issue affecting a minority of alcohol-dependent women and their offspring.

3.2.1 Prevention frameworks

Universal, selective and indicated levels of prevention

As mentioned previously, the framework of universal, selective and indicated levels of prevention first proposed by Gordon (1983) and adapted by the Institute of Medicine in 1994, has been applied to the prevention of prenatal alcohol exposure, and is useful for describing the groups and individuals that can be targeted to prevent FASD (Floyd et al., 2009; Hankin, 2002; Stratton et al., 1996). Some literature refers instead to the primary, secondary and tertiary classifications of disease prevention (e.g. Roberts & Nanson, 2000). However, for reasons outlined by Gordon (1982) the definitions of universal, selective and indicated levels of prevention better define the population for whom activities are targeted. This was reiterated by Stratton (1996) who suggested that the Institute of Medicine's classification was more appropriate for application to the prevention of FAS (and FASD).

Universal prevention attempts to promote the health and well-being of all individuals in society or of a particular community, as distinct from a population group identified on the basis of individual risk (Stratton et al., 1996; Gordon, 1983). Aligning with Rose's (1992) theory of preventive medicine, the aim at this level is to 'shift' the population mean towards lower risk, thus reducing the potential prevalence of poor health outcomes. In terms of the prevention of prenatal alcohol exposure, universal prevention interventions may be delivered to all pregnant women or all women of childbearing age (Hankin, 2002; Stratton et al., 1996), or the community or population in which they exist. Activities at this level include awareness-raising and education initiatives such as media campaigns, community and school educational programs, government mandates for warning labels on alcoholic beverages, and warning signs at venues where alcohol is consumed and served. Activities aimed at this level of prevention have the potential to influence individuals across the spectrum of risk, not just those at low to

moderate risk, as they can work to support facilitative environments that also can support those at high-risk.

Selective prevention interventions are delivered to individuals or a subgroup of the population whose risk of developing the condition is considered above average risk by virtue of belonging to that subgroup (Stratton et al., 1996; Gordon, 1983). In terms of prenatal alcohol exposure and FASD, women who are of childbearing age or who are pregnant and who consume alcohol are such a subgroup. Interventions at this level of prevention include screening for alcohol use within primary-care settings and providing a brief intervention to modify alcohol consumption or contraceptive practices (Hankin, 2002; Stratton et al., 1996).

Indicated prevention involves identifying and intervening with individuals at high risk for the poor health condition. The focus is on mitigating the risk of manifestation of the condition and, in contrast to selective prevention, the activities are more individualised, intensive and designed for those who are at high risk (Hankin, 2002; Stratton et al., 1996). Examples of indicated prevention interventions are the counselling and social-support services provided by specialised prenatal clinics that cater for women with alcohol-related problems. The prevention framework also includes dimensions of treatment and maintenance, which are relevant to the prevention of prenatal alcohol exposure (Stratton et al., 1996). Treatment of alcohol addiction, follow-up and after-care of women identified as at-risk of having an alcohol-exposed pregnancy or who give birth to an affected child can work to support women and the development of their children, as well as help to prevent alcohol exposure for any subsequent pregnancies (Poole, 2008).

The Four-Part Model of FASD Prevention

Deviating slightly from the Institute of Medicine's prevention framework, Poole (2008) has proposed the Four-Part Model specifically for the prevention of FASD. This model features distinct levels with an emphasis on the importance of the comprehensiveness of activities at each level and their mutual reinforcement. The four levels are "broad awareness building and health promotion efforts", "discussion of alcohol use and related risks with all women in their childbearing years and their support networks", "specialized, holistic support of pregnant women with alcohol and other health/ social problems" and "post-partum support for new mothers assisting them to maintain/

initiate changes in their health and social networks and to support the development of their children” (Poole, 2008, pg. 3). With regard to the Institute of Medicine’s prevention framework, Poole’s level one and two are the universal level of prevention, levels three and four are at the indicated and selective levels of prevention. This model uses a woman-centred approach and is useful as it details the prevention activities at each level, with women characterised not only by their risk but also by their reproductive stage, which is a unique feature with respect to models of prevention for prenatal alcohol exposure. However, what it does not acknowledge is the value of harm minimisation strategies that can support FASD prevention and which seek to influence the broader context and environment of alcohol use in the population.

Domains of prevention: educational, legal, community development and marketing

Another prevention framework that has been applied to FASD draws from a marketing perspective. Deshpande and colleagues (2005) extended Rothschild’s *Conceptual Framework for the Management of Public Health and Social Issue Behaviours* (1999) and described population-based FASD prevention activities as existing within the following domains: educational; legal; community development; and marketing. They describe these activities as appropriate for different groups at different times depending on their ability and readiness to adopt healthy behaviour change (Deshpande et al., 2005). Educational activities can be effective for those who only require information in order to initiate change, and assume that “such individuals have the motivation, opportunity, and ability to behave in the desired direction” (Deshpande et al., 2005, pg. 50). Legal activities use coercion as motivational leverage and a marketing approach focuses on offering something of value in exchange for positive behaviour change (Deshpande et al., 2005). Lastly, community development activities provide more comprehensive support when there are multiple influences determining the probability of behavioural change (Deshpande et al., 2005). This framework is useful as it nuances the activities that are most likely to create social and behavioural change given the context and needs of the target audience, subgroup or population.

Whichever framework is used, their value is in the distinction that they make between the different levels or domains; that is that each level or domain serves a different purpose, targets a different range of individuals or groups who are characterised by their risk or readiness and ability to change, and prevents unhealthy or maladaptive behaviour using different activities or interventions. These levels work to both define

the target audience or intended recipients of the prevention intervention, and the activities involved. The other important aspect emphasised within these frameworks is that prevention exists along a continuum, and its effectiveness is greatest when activities at each level are both comprehensive and reinforcing of activities at other levels (Poole, 2008; Deshpande et al., 2005; Hankin, 2002; Stratton et al., 1996).

Given the popularity, scope and utility of the Institute of Medicine's prevention framework (Floyd et al., 2009; Hankin, 2002; Stratton et al., 1996), and its relevance to both the prevention of prenatal alcohol exposure and the prevention of other poor health outcomes, this study assumed the framework and terminology of universal, selective and indicated prevention. The focus of subsequent sections of this chapter is universal prevention as this is where education and awareness-raising campaigns fit as a prevention strategy for reducing population risk exposure and promoting supportive environments. For reasons of brevity and thesis relevance, the other frameworks are not attended to, nor are the selective and indicated levels of the Institute of Medicine's framework discussed further. However, it is important to note that this omission is not to discount their importance in the prevention of prenatal alcohol exposure, nor their part or relevance to promoting the continuum of care across the intervention spectrum.

3.3 Universal prevention of Fetal Alcohol Spectrum Disorder

3.3.1 The purpose

To reiterate, universal prevention operates at a population level and targets the precursors to higher risk. While ultimately the aim is to alter individual behaviour, the measures of success at the universal level are population based and the specific benefits to individuals may be small or indirect (Rose, 1992). Historically, the purpose of universal prevention activities targeting alcohol use during pregnancy has been to build awareness and knowledge. Recently however, the recognition of the potential function of such activities to create and reinforce healthy attitudes and social norms, and to help build facilitative environments that support low-risk alcohol use and abstinence from alcohol by pregnant women, has been recognised (Poole, 2008). Thus, the purposes of universal prevention interventions are to:

- promote and support healthy behaviour through providing people with information regarding the benefits of the healthy behaviour and consequences of unhealthy behaviour, and information on where to seek help;

- create or reinforce healthy social norms and a social willingness to adopt the healthy behaviour and participate in activities that support it;
- advocate for structural change that will support the healthy behaviour; and
- enhance community readiness to accept more targeted interventions (Thurmeier et al., 2011; Donovan & Henley, 2003; Offard, 2000; Egger et al., 1993).

Measures of individual behaviour are often used to evaluate the effectiveness of universal prevention activities (e.g. Bowerman, 1997; Hankin et al., 1993b), but these are limited as they do not account for the function that these activities can serve in promoting social, physical and political environments that are supportive of and conducive to healthy behaviour. While individual health-related behavioural outcomes are important, the less measureable and indirect impact of universal prevention on social norms, individual attitudes, beliefs and knowledge, and related behaviours could be considered as equally important outcomes of population-based prevention.

3.3.2 The recipients of universal intervention

The prevention of prenatal alcohol exposure and FASD requires the prevention of maternal alcohol consumption during pregnancy. By definition, the target of the behaviour change are women who are pregnant, or who may become pregnant. Also by definition, universal interventions are delivered to whole populations or groups, not just those characterised by increased risk. So while universal prevention activities may target women who are pregnant and who drink alcohol, these activities are not delivered exclusively to them. A brief intervention administered by a health professional with a pregnant woman identified as consuming alcohol is an example of selective prevention, whereas information provided by a health professional to a group of pregnant women (who may or may not drink alcohol) during an antenatal care class about alcohol use during pregnancy is a universal prevention activity. Furthermore, because of the mechanisms through which it operates, such as awareness-raising and education, this prevention level targets those who have the ability to alter their behaviour given the right information and/or motivation (Thurmeier et al., 2011). These distinctions regarding the recipients and types of activities are particularly relevant when seeking to alter behaviours that are addictive. Women who consume alcohol at high risk or chronic levels may require intensive intervention and support to alter their behaviour. As such, at a universal level of prevention (and when recommendations are

abstinence-based) it is most appropriate to target pregnant women and women of childbearing age whose alcohol use is at a level below clinical significance (Kaskutas, 2000; Hankin et al., 1996). That said, it is essential that population-based prevention activities are developed such that they are mindful of those who are at higher risk and are tested to ensure that they do not have unintended effects on these individuals. For example, messages in mass media designed to persuade the target audience that the risks of alcohol use during pregnancy are severe may be effective among those at low risk and who can make an unassisted choice to abstain from alcohol during pregnancy. However, the same messages could potentially create unresolvable feelings of guilt and shame among those women who cannot consider abstinence (Kaskutas, 2000), and this could work to exacerbate alcohol consumption or undermine help seeking behaviour. Thus, while it is necessary to select and target recipients appropriate for the level of prevention, it is also important that prevention activities at one level align with and reinforce activities at other levels and do not create maladaptive or counter-productive responses among other groups who may be exposed to the intervention activities.

Segmentation

Within the broad target audience of 'women who are pregnant or of childbearing age and who drink alcohol at a level below clinical significance', there may be segments that are relevant when developing effective strategies. Segmentation "refers to the process of dividing a population into distinct segments based on characteristics that influence their responsiveness to marketing intervention ... the underlying premise in audience segmentation is that health educators cannot appeal to all "consumers" in the same way" (Forthofer & Bryant, 2000, pg. 36 & 37). Defining audience segments is important when developing targeted strategies as different segments are, by definition, likely to vary in terms of key experiences, motivations, beliefs, attitudes and values, and thus are likely to be persuaded in different ways and respond differently to communications (Donovan & Henley, 2010; Deshpande et al., 2005). Thus, different communication strategies are required for different segments. Research on women who drink alcohol during pregnancy indicates some groups are more likely to drink alcohol during pregnancy or to have a more positive attitude to alcohol consumption during pregnancy. These groups may be considered as potential segments relevant for initiatives that target women who are pregnant or of childbearing age. For example, research in some populations has shown higher education (Chang et al., 2007; Centers

for Disease Control and Prevention, 2002) and higher income (Chang et al., 2006) to be related to prenatal alcohol consumption or that non-Indigenous or Caucasian women are more likely to drink alcohol during pregnancy than Indigenous women (Colvin et al., 2007; Zubrick et al., 2005; Eades, 2003; Centers for Disease Control and Prevention, 2002). Furthermore, depending on the population studied, some research has indicated that older women are more likely to continue to drink alcohol during pregnancy (Maloney et al., 2011; Meschke et al., 2008; O'Connor & Whaley, 2006; Tough et al., 2006), while other research shows that younger women may be more likely to drink during pregnancy (Gladstone et al., 1997). In Australia, women who reported their intentions to consume alcohol during a future pregnancy were more likely to be nulliparous and report currently drinking at risky levels, and those reporting a neutral or positive attitude towards alcohol consumption during pregnancy were more likely to be smokers and to have given birth previously (Peadon et al., 2010). Another study showed that women who drank alcohol late in pregnancy were more likely to be smokers, aged 30 years or older, have a higher income, be married, of Caucasian descent and report other drug use (Colvin et al., 2007).

Social norms for alcohol use among specific cultural groups, as well as different cultural meanings of mothering may also warrant segmentation based on cultural or ethnic background (Tenkku et al., 2009; Morris et al., 2008). Furthermore, women may be segmented by their stage of reproduction (Deshpande et al., 2005). Research indicates that potential segments here are women of childbearing age who consume alcohol and do not use effective contraception (Floyd et al., 2007; Walker et al., 2005), women who are planning pregnancy (Tough et al., 2006), women who may consume alcohol before they recognised their pregnancy (Strandberg-Larsen et al., 2008b; Deshpande et al., 2005), women in the early stages of pregnancy (Flynn et al., 2003), women who are in their first pregnancy (Strandberg-Larsen et al., 2008b), and women in a pregnancy subsequent to their first (Peadon et al., 2010; Hankin et al., 1996; Testa & Reifman, 1996). The above data are from different countries, and serve to indicate that in any country or region, the characteristics of women who drink during pregnancy may be different, as will the contexts and reasons for their consumption.

In assessing potential segments it is important to note that it is only necessary to define segments if it is expected that they will respond differently to the campaign or intervention stimuli, and research should be conducted to determine this (Donovan et

al., 1999). For example, if women in the earlier stages of pregnancy are more likely than those in later pregnancy to drink alcohol, this does not mean that strategies need to be designed separately for women at these reproductive stages *unless* it is shown that they will respond differently to messages. Otherwise, strategies can target a broader group, and build in nuances that relate specifically to subgroups.

While the focus may be on pregnant women and women of childbearing age who drink alcohol, the universal level of prevention can promote behaviour change not only through influencing individual knowledge, attitudes and beliefs but also through promoting social and environmental contexts that are conducive to positive behaviour change (Stratton et al., 1996). Thus, universal prevention can seek to influence the behaviour of pregnant women who drink alcohol through a number of strategies. First, strategies that reduce alcohol misuse within the general population will reduce alcohol use by women of childbearing age (Floyd et al., 2009). Second, alcohol consumption is often a social behaviour, and supporting alcohol-free social environments among friends and significant others within the social network of pregnant women is an option at the universal level of prevention (Testa & Leonard, 1995). There is also evidence on the influence of male partners and their alcohol consumption on alcohol consumption by pregnant women's behaviour (Bakhireva et al., 2011; Wiemann & Berenson, 1998), and male partners are another potential target audience (Deshpande et al., 2005). To extend the universal level of prevention to its function in shaping healthy public policy, and social and structural environments such that they are conducive to healthy behaviour, other target audiences could include health professionals (Deshpande et al., 2005), teachers, politicians and bureaucrats, as their awareness, endorsement and support is likely to contribute to prevention at a population level.

3.3.3 The interventions

The most recognisable universal prevention activities addressing FASD are those that focus on raising awareness about the risks associated with prenatal alcohol exposure and providing recommendations for healthy behaviour. Arguably the most frequent strategies used for this are mass media campaigns, broad health promotion initiatives such as public policy for alcohol use during pregnancy, and labelling of alcoholic beverages with warning messages (O'Leary et al., 2007; Kyskan & Moore, 2005). Others that are less frequently related to an FASD prevention agenda and that have received little evaluation or research with regard to impact on prenatal alcohol

exposure are school-based education programs (LaChausse, 2006; Ma et al., 1998), and programs such as prenatal education provided to all pregnant women through hospitals and pregnancy clinics (Waterson & Murray-Lyon, 1990).

3.4 Universal prevention of Fetal Alcohol Spectrum Disorder: evidence of effectiveness

In the last decade, there have been several publications outlining recommendations for strategies and messages for universal prevention of prenatal alcohol exposure and FASD (Thurmeier et al., 2011; Saskatchewan Prevention Institute, 2009; Deshpande et al., 2005; Ontario's Maternal Newborn and Early Childhood Development Resource Centre, 2005; Best Start, 2003; Roberts & Nanson, 2000). These publications highlight some of the important considerations when developing communication and population-based strategies in this area. However, for the most part, the recommendations within these publications are based on unpublished formative and evaluation data, ad hoc or practice-based evidence and insights from research into behavioural change for other behaviours. There is a dearth of peer-reviewed publications reporting the development or evaluation of universal prevention strategies for prenatal alcohol exposure, and thus, there is a considerable lack of evidence available to inform the design of effective campaign strategies and messages.

Two recent publications have documented the range and effectiveness of universal prevention interventions to prevent prenatal alcohol exposure at the universal level of prevention (Saskatchewan Prevention Institute, 2009; Elliott et al., 2008). The Health Services Assessment Collaboration in New Zealand conducted a review of peer-reviewed international literature relating to the prevention, diagnosis and management of FASD that included population-based strategies (Elliott et al., 2008). The Saskatchewan Prevention Institute reviewed campaigns and resource material distributed within the Canadian northwest region to raise community knowledge and awareness about prenatal alcohol exposure (Saskatchewan Prevention Institute, 2009). Though these publications are not peer-reviewed systematic reviews, they provide important insight into the current evidence of effectiveness of universal prevention strategies aimed at preventing prenatal alcohol exposure and FASD.

The review by Elliott and colleagues (2008) searched a broad range of journal databases and identified five peer-reviewed papers reporting on three evaluated

interventions: “three papers evaluated the effect of warning labels on alcohol bottles, one evaluated the effect of an educational campaign and one evaluated the effect of an alcohol ban”. (Elliott et al., 2008, pg. vi). An evaluation of sources of information (alcohol labelling, point-of-sale advertising and personal conversations) was also included (Kaskutas et al., 1998). In the three evaluated interventions the primary measure of effectiveness was a reduction in self-reported prenatal alcohol use (Bowerman, 1997; Hankin et al., 1996; Hankin et al., 1993a; Olsen et al., 1989), and, according to the review authors, only the community alcohol ban intervention achieved changes in maternal alcohol consumption of a magnitude that would result in a reduction in children born with FASD (Elliott et al., 2008). There was no change detected as a result of the educational campaign, though it was limited in its strategies as it only sought to raise awareness about alcohol use during pregnancy through the provision of a pamphlet to pregnant women (Olsen et al., 1989).

The Saskatchewan Prevention Institute contacted organisations that had produced resources and enquired about any campaign or resource evaluation. Four campaign evaluations were identified (Saskatchewan Prevention Institute, 2009). Only one of these, a public-awareness campaign, originating from an area outside the region studied, had results published in the peer-reviewed literature (Burgoyne et al., 2006). This campaign achieved significant increases in awareness and beliefs, with a greater percentage of recall for the recommendation for abstinence from alcohol during pregnancy and a significant reduction in the number of alcoholic drinks believed to be safe during pregnancy (Burgoyne et al., 2006). The authors emphasised the value of a multi-level approach in achieving campaign success.

Eleven peer-reviewed studies not included within (or published after) the aforementioned reviews were identified in preparing this literature review. Two of these studies were school-based education programs with teenagers (LaChausse, 2006; Ma et al., 1998); one was a community capacity building and education program that trained local members to deliver information to school prenatal and community groups (May & Hymbaugh, 1989); two were campaigns aimed at specific segments of the target audience (Glik et al., 2008; Glik et al., 2001); two were media campaigns aimed at women of childbearing age (Awopetu et al., 2008; Mengel et al., 2005); one study looked at the provision of written information, personalised advice and video-based information to all pregnant women during their first antenatal visit (Waterson & Murray-

Lyon, 1990); one compared the effectiveness of written health education materials provided to pregnant women in an antenatal setting (Calabro et al., 1996); one looked at the impact of a multi-media campaign on pregnant women attending antenatal appointments (Lowe et al., 2010) and one evaluated “the impact of a television public awareness campaign on knowledge of the dangers of drinking alcohol during pregnancy” (Casiro et al., 1994, pg. 23).

Overall, 15 peer-reviewed published interventions addressing prenatal alcohol exposure at the universal level of prevention were identified. Of these, 13 were awareness-raising and education campaigns. Appendix 3.1 summarises these interventions and outlines their strategies, their measures and any evidence of their effectiveness. The majority of these studies measured knowledge and/ or perceptions of risk regarding alcohol use during pregnancy and showed some success at increasing knowledge among the intervention groups. Not accounting for the different measures used in each of the studies, eight reported success in increasing the target audience’s knowledge (Lowe et al., 2010; Burgoyne et al., 2006; LaChausse, 2006; Glik et al., 2001; Ma et al., 1998; Calabro et al., 1996; Casiro et al., 1994; May & Hymbaugh, 1989), three reported a desired change in beliefs and attitudes towards alcohol use during pregnancy (Burgoyne et al., 2006; Ma et al., 1998; Calabro et al., 1996), one reported an increase in information-seeking behaviour regarding FAS (Awopetu et al., 2008), and one reported an increase in pregnant women having conversations with their friends about alcohol use during pregnancy (Lowe et al., 2010). Only two measured behavioural intentions (LaChausse, 2006; Calabro et al., 1996), and neither showed any significant increase in women’s intentions to abstain from alcohol during pregnancy.

The varied results and differing levels of effectiveness and impact point to the importance of comprehensive campaigns that seek to support behaviour change through a number of strategies. For the most part, the published interventions addressing prenatal alcohol exposure at the universal level of prevention have two significant limitations in common: they are ‘stand-alone’ initiatives aimed at altering behaviour through increasing knowledge and supportive attitudes, and they are conducted on a limited scale. Other than the multi-level campaign published by Burgoyne and colleagues (2006) (which was arguably evidenced the greatest and most wide-spread impact on the target audience) the initiatives were not related or linked in

any way to other strategies at other levels of prevention, such as health professionals identification and intervention with pregnant women and women at high-risk. Furthermore, these initiatives do not reference any strategies that are likely to promote a facilitative context that supports women to consume alcohol at levels of no or low risk throughout their childbearing years e.g. general alcohol policy (such as national guidelines), minimisation of alcohol advertising and limiting access through licensing. The other main wide-spread limitation which is likely to relate to budget is that of scale, duration and intensity. In some cases, the intervention 'dose' was not included and in others it is a high possibility that the results reflect the limited duration or intensity of the intervention. As shown in the area of tobacco control, intervention 'dose' and duration are significant for long-term, population-based effects on people's awareness, attitudes and subsequent behaviour (Friend & Tevy, 2002). Thus, it is noted that future studies should both reference these aspects, as well as endeavour to investigate the varying impact of different doses.

3.4.1 Relevant gaps in the evidence

Although there is a considerable history of universal prevention and education and awareness-raising activities, particularly in North America, as evidenced in Appendix 3.1, very few have been evaluated and published in the peer-reviewed literature. Furthermore, although there is some evidence that these interventions can increase knowledge and promote healthy beliefs and attitudes with regard to alcohol use during pregnancy, there is very little evidence on what specific program or campaign elements make this positive impact on the target audience more likely.

There is also a lack of process description and reporting of formative research results that would assist in modelling and adapting successful programs and campaigns. Only one study (Burgoyne et al., 2006) provided insights into why the intervention may have been successful and one referenced a theoretically-based social norms approach that guided the development of the intervention (Glik et al., 2008). Furthermore, only three of the reviewed studies published results from the formative research with the target audience that was used to develop the intervention strategy (Lowe et al., 2010; Glik et al., 2008; Mengel et al., 2005; Baxter et al., 2004).

Relevant gaps in the evidence: Australia

In Australia, there has been minimal prevention activity addressing prenatal alcohol exposure and FASD (Kyskan & Moore, 2005). The only peer-reviewed publications to report on the conduct or evaluation of a universal prevention intervention relate to an intervention conducted in Western Australia that preceded this study. The intervention aimed to increase health professionals knowledge, awareness and practice with their clients with regard to alcohol use during pregnancy (Payne et al., 2011b; Payne et al., 2005). While a number of universal prevention resources (such as pamphlets and posters) on alcohol use during pregnancy have been distributed in Australia, mainly through antenatal sites, they have not been evaluated, and most have been sporadic and have not been a part of a comprehensive campaign (Payne et al., 2011b).

Alcohol use in pregnancy has recently been acknowledged as an important issue within a broad preventative strategy to address harm related to alcohol use, tobacco and obesity (National Preventative Health Taskforce, 2009a). Within this plan, education and persuasion strategies particularly public service messages and mass media campaigns are prioritised (National Preventative Health Taskforce, 2009b). However there have been no national or Western Australian mass media campaigns that address alcohol use during pregnancy, evaluated or otherwise.

3.5 Summary

The Institute of Medicine prevention intervention framework is useful when describing and strategically developing prevention initiatives targeting prenatal alcohol exposure. This framework describes three levels of prevention: universal; selective; and indicated. Universal strategies are those that are delivered to broad populations or groups that are not assessed for risk and the objectives reach beyond individual behaviour change and include changes in knowledge, attitudes and beliefs, and social norms and environments. Target audiences for universal prevention activities may be segmented if it is considered that there will be different responses to the intervention from different subgroups.

There is very little evidence of the efficacy of universal prevention strategies for the prevention of prenatal alcohol exposure and FASD, and the potential impact that they may have on promoting healthy behavioural, social and structural change. Despite many awareness-raising and education campaigns being conducted that address alcohol use during pregnancy, there is a lack of evidence about how to effectively construct these

activities and the components that are important for their effectiveness. Thus it is largely unknown what campaign elements can be used to motivate behaviour change and promote change in knowledge, attitudes, beliefs and social norms.

3.6 The contribution of this study

Education and awareness-raising campaigns represent one component of a comprehensive prevention strategy to prevent alcohol exposed pregnancies and FASD. The findings of this study provide an important and unique insight into the components that enhance the persuasiveness, relevance and credibility of messages aimed at preventing prenatal alcohol exposure. Within a framework of behavioural theory, this study contributes to knowledge in this area by determining message concepts that, when included as part of a comprehensive program, have demonstrated potential to increase the target audiences' intentions to abstain from alcohol during pregnancy.

Chapter Four: Developing effective messages

4.1 Introduction

The previous chapter described approaches to FASD prevention with a focus on universal prevention. This chapter outlines recommendations for effective message development, in particular the theoretical constructs relevant to motivating behaviour change with regard to alcohol use during pregnancy. The literature reviewed in this chapter underpins the strategic approach and methodology of the study.

4.2 Social cognition models

The potential effectiveness of communication campaigns is enhanced if message strategies are underpinned by behavioural theory (Maibach & Parrott, 1995). Social cognition models such as the Health Belief Model (Becker, 1974; Rosenstock, 1974), Social Cognitive Theory (Bandura, 1986, 1977), Protection Motivation Theory (Rogers, 1983, 1975) and the Theory of Reasoned Action (Fishbein & Ajzen, 1975) describe constructs as the predictors of intentions to behave in a particular way. These models and their constructs are widely used in guiding the development of health communications that seek to persuade individuals to adopt healthy, recommended behaviours (Connor & Norman, 2005).

The focus of social cognition models is on the influence of an individual's beliefs and attitudes on behavioural intentions and behaviour change. However there is also recognition of the influence of environmental and social factors on these beliefs and attitudes, and in mediating behaviour change (Bandura, 2004). By profiling the context of the behaviour, and the knowledge, attitudes, beliefs, expectancies and motivations of the target audience in terms of theoretical constructs, the effectiveness of message

strategies may be strengthened. Furthermore, as shown in Chapters Five and Seven, message or intervention components can be mapped against theoretical constructs from social cognition models in order to develop a framework for developing, critiquing and testing the effectiveness of messages (Donovan, 2011).

In seeking to create persuasive communication and instigate changes in behavioural intentions and behaviour, it is important to determine which constructs and processes are relevant to the target audience, are predictive of the behaviour in question, and can be enhanced or minimised in order to promote the desired behaviour change (Donovan & Henley, 2010). In order to do this, it is useful to outline the key constructs that are present in some of the most utilised social cognition models. The following section introduces the main constructs within the Health Belief Model, Protection Motivation Theory and the similar Extended Parallel Process Model, Social Cognitive Theory, Theory of Reasoned Action and Theory of Planned Behaviour. These models have been chosen because they are used frequently to underpin health promotion and communication strategies and they represent a broad scope of predictors of behaviour change (Bandura, 2004). Given considerable overlap of the constructs in these models (Bandura, 2004), the descriptions provided in the following sections focus on the constructs or contribution that each model makes that distinguish it from the others. The purpose of this review is not to critique these models, but rather to describe the constructs that can be used to develop, critique and test messages. Furthermore, the purpose of this study was not to determine which model fits best for the target audience in terms of altering alcohol consumption during pregnancy, but rather to determine those constructs that may be important for modifying alcohol use during pregnancy and that, either alone or in combination can be used to underpin the design of persuasive messaging.

Health Belief Model

The Health Belief Model (Becker, 1974; Rosenstock, 1974) proposes that the key determinants of health behaviour change are an individual's perception of the health threat: to what extent it is perceived to be severe and to what extent they feel susceptible to it. In addition, an evaluation of the benefits of changing versus the costs of maintaining the behaviour influences the likelihood of initiating change. Other aspects that can increase the probability of behaviour change initiation are cues to action and an individual's health motivation, or the value that they place on their health

(Becker, 1974; Rosenstock, 1974). For example, constructs within the Health Belief Model may emphasise the following kinds of information to promote abstinence from alcohol use during pregnancy:

- the short and/ or long term consequences of prenatal alcohol exposure for the fetus and child, or the life-long and untreatable nature of the effects (that is, the severity of the threat);
- the likelihood of alcohol use, or particular patterns of consumption such as binge drinking, to threaten the pregnancy or development of the fetus and child (that is, susceptibility to the threat);
- personal or social benefits of abstinence such as increased self-esteem or reduction of fear and worry (that is, the benefits of changing); and
- that if you are planning a pregnancy, it is important to abstain from alcohol (that is, a cue to action)

(Becker, 1974; Rosenstock, 1974).

Protection Motivation Theory

The Protection Motivation Theory developed by Rogers (Rogers, 1983, 1975) focuses on the potential influence that fear of poor health outcomes can have on initiating behaviour change (in order to avert the fear). This is a major theory underpinning the use of fear appeals in persuasive communications. A fear appeal is a communication in which a source presents a negative outcome contingent on a particular behaviour (Donovan & Henley, 1997). The Protection Motivation Theory proposes that a fear appeal comprises several distinct constructs that each result in specific cognitive processes that in combination result in intentions to adopt the recommended behaviour. These cognitive processes are grouped into two types of appraisal: threat appraisal and coping appraisal.

The Protection Motivation Theory stipulates that an individual's appraisal of a threat comprises:

- their perception of how severe the threat is (that is, the construct of severity); and
- their perception of how susceptible they are to the threat if they do not adopt the recommended behaviour (that is, the construct of susceptibility).

The coping appraisal comprises:

- the individual's perception of the effectiveness of the recommended behaviour in averting or reducing the likelihood of the threat occurring (that is, the construct of response efficacy); and
- their perception that they are capable of adopting the recommended behaviour (that is, the construct of self-efficacy)
(Maddux & Rogers, 1983; Rogers, 1983, 1975).

Hence, there are three possible response outcomes resulting from a fear appeal. First, there will be no response when there is insufficient perceived threat. Second, a process of protection motivation is initiated when threat and response efficacy are perceived, and there is adequate perceived self-efficacy for avoiding the threat. In this case, the outcome is an intention to adopt the recommended behaviour (an adaptive response). Third, is when the individual perceives a high severity of and susceptibility to the threat, and thus experiences fear, but does not perceive that they can perform the recommended behaviour (that is, they have low self-efficacy) or do not perceive that the recommended behaviour will effectively avert or reduce the possibility of the threat occurring (that is, there is low response efficacy). In this case a defensive motivation process is initiated.

Extended Parallel Processing Model

Based on the Protection Motivation Theory, the Extended Parallel Processing Model includes the constructs of perceived severity, perceived susceptibility, perceived self-efficacy and perceived response efficacy (Witte, 1992). The value of this model is that it draws attention to message components as external stimuli that initiate the threat and coping appraisal. For those seeking to develop persuasive messaging, the Extended Parallel Process Model highlights the fact that messages can be designed such that they promote a type of appraisal to promote change. For example, a target audience may perceive that they are susceptible to a threat and that they can perform the

recommended behaviour however they do not perceive that the threat is severe. In this case, the threat appraisal is too low to initiate protective motivation. Thus, messaging should focus on increasing perceptions that a threat is severe.

The other main contribution of the Extended Parallel Process Model is that it elaborates on the potential for defensive motivation and subsequent unintended outcomes that may occur if the threat appraisal is high and the coping appraisal is inadequate. Figure 4.1 shows the Extended Parallel Process Model and delineates the external stimuli of the message components, the subsequent appraisals and processes and outcomes that can result. With defensive motivation the individual is motivated to control or minimise the fear as they perceive that they are unable to avert the threat (Witte, 1992). Maladaptive changes related to defensive motivation include rejection of the message through counter-argument, and continuation or exacerbation of the maladaptive behaviour. Overall, “the Extended Parallel Process Model suggests that perceived threat motivates action, and the perceived efficacy determines the nature of that action” (Cho & Witte, 2005, pg. 483).

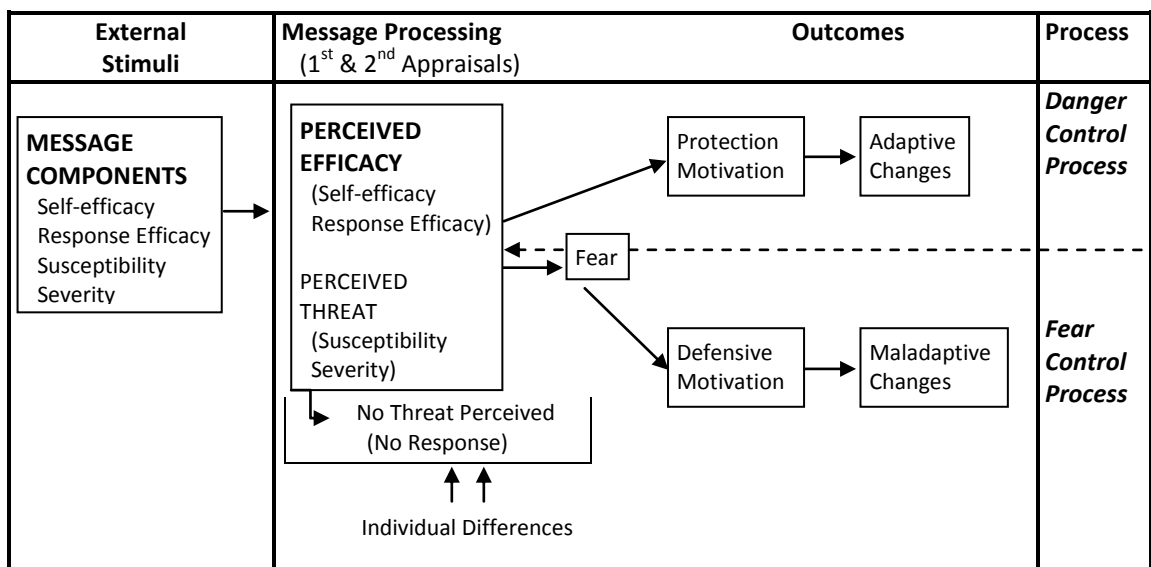


Figure 4.1: The Extended Parallel Process Model (Witte 1992, pg. 338)

A limitation of the Extended Parallel Process Model and other fear-based models is that the only emotional outcome considered is fear and that fear is only one of a range of emotional outcomes that could result from threat (Donovan & Henley, 2000). For example, other emotions (and possible energising mechanisms towards behaviour

change) relevant to a threat appeal² about alcohol and pregnancy could be guilt or shame.

Social Cognitive Theory

Social Cognitive Theory (which originated as and was built from Social Learning Theory) proposed by Bandura (1986, 1977) predicts that behavioural intentions are driven by expectancies and incentives with regard to performing the behaviour. In comparison to the Health Belief Model, two additional determinants of behaviour are proposed by Social Cognitive Theory. First, expectancies and incentives are created and understood through a process of reciprocal interaction of an individual, an individual's behaviour, and the environment. Second, that self-efficacy, or one's beliefs about their ability to perform the necessary behaviour, is integral to the initiation of the behaviour or intentions to perform the behaviour (Bandura, 1986), including "people's confidence in their ability to regulate their motivation, thought processes, emotional states, and their physical and social environment to attain their behavioural goals" (Maibach & Cotton, 1995, pg. 47). The concept of self-efficacy is said to be Bandura's major contribution to behaviour change theory, and it has been shown to be a major determinant of behaviour change, and of particular importance for addictive behaviours (Donovan, 2011).

Bandura (1986) also brought attention to observational learning and modelling of behaviour as functions through which expectancies are developed and behaviour learnt. Not only is modelling relevant as a construct in terms of behaviour change, but also as an execution element that can be employed to enhance the audience's engagement with a message, and promote uptake of a behaviour. 'Models' can be used as an "instructors, inhibitors, disinhibitors, facilitators, stimulus enhancers, and emotional arousers" (Bandura, 1986, pg. 50). Modelling the possible incentives or positive outcomes that can be achieved from a desired behaviour, or disincentives resulting from maladaptive behaviour is a tool that can be used in the creation of persuasive communication.

² Traditionally, the term 'fear appeal' has been used by theorists to describe this kind of appeal. However, for reasons outlined by Donovan and Henley (1997), the term 'threat appeal' is more accurate as the threat is a stimulus can result in a number of emotional responses which include, but are not limited to, fear. As such, 'threat appeal' is used in subsequent sections when describing the methodology and results of this study.

Theory of Reasoned Action and Theory of Planned Behaviour

The Theory of Reasoned Action (Fishbein & Ajzen, 1975) proposes that behavioural intentions predict behaviour, and behavioural intentions are driven by an individual's attitude towards performing a specific behaviour and the individual's perceived subjective norm for that behaviour. Attitude toward the behaviour is determined by:

- beliefs about the behavioural consequences (both in terms of adopting the recommended behaviour and continuing with the existing behaviour) and
- an evaluation of each behavioural consequence.

Subjective norm is determined by:

- beliefs about others with respect to performing the behaviour and
- motivation to comply with these others

(Fishbein & Ajzen, 1975).

An important aspect of this theory is that it distinguishes between attitudes towards a particular behaviour and attitudes towards performing the behaviour. For example, a woman can have a positive attitude towards abstinence from alcohol during pregnancy in general, but also have a negative attitude towards herself abstaining when she is pregnant because she enjoys drinking alcohol and does not believe that the amount that she drinks will have a deleterious effect on the fetus. The Theory of Planned Behaviour adds one more determinant to those outlined in the Theory of Reasoned Action: perceived behavioural control, that is, the extent to which the recommended behaviour is under volitional control (Ajzen, 1988).

4.3 The application of social cognition models to alcohol use during pregnancy

As outlined in Chapter Three, few education and awareness-raising campaigns addressing alcohol and pregnancy have been evaluated and published in peer-reviewed literature. Furthermore, there is little evidence of the use of formative research to develop campaigns or the use of behaviour change theory to develop strategies and messages. However, recent content analysis of campaign material originating from four English-speaking countries showed that, whether purposefully or not, most acknowledged constructs related to threat appeals (Cismaru et al., 2010). Of the 20 campaigns identified in this review, 95% included messages related to the constructs of severity and susceptibility (Cismaru et al., 2010), by communicating

information about the severity of the potential consequences of prenatal alcohol exposure, as well as information pertaining to the fetus's susceptibility to be affected. In terms of other constructs, 75% of campaigns included information on response efficacy, but only 55% included a self-efficacy component and only 45% emphasised that the costs involved in adopting the adaptive behaviour were small (Cismaru et al., 2010). The review highlighted the frequent application of threat appraisal constructs to promote abstinence from alcohol during pregnancy, but also highlighted under-use of the self-efficacy component to support the effectiveness and persuasiveness of messaging.

As emphasised within the Extended Parallel Process Model, if there is a focus on threat components without adequate attention to self-efficacy and response efficacy there is a risk of promoting defensive responses that reject the message and promote maladaptive behaviours (Witte, 1992). Thus, not only is it important to convince the audience that the outcomes for the fetus are severe and that babies are susceptible to poor outcomes with alcohol exposure, but it is also important to convince them that abstinence effectively avoids the risk and that the audience can, if they want to, abstain from alcohol.

With regard to published formative research, Glik and colleagues identified four audience segments based on ethnicity for their campaign conducted in Southern California (2008). They conducted formative research with each to "assess social and psychological correlates of drinking behaviours and concerns linked to pregnancy" (Glik et al., 2008, pg. 95). This formative research identified several barriers to abstaining from alcohol during pregnancy, including being told by health providers that it is safe to consume alcohol while pregnant, and beliefs that there was little or no risk associated with low amounts and some types of alcohol. Though some participants felt that threat-based messages were important, in pre-testing, messages that took a "social norms" approach modelling abstinence as "socially-desirable and good" (Glik et al., 2008, pg. 96) were the most effective. Glik's (2008) research was not specifically related to any behaviour change model. However, the development of concepts that focused on modelling 'good' behaviour is consistent with constructs of normative beliefs and socially-situated facilitators in promoting behaviour change.

4.4 Motivations for behaviour change

Creating persuasive health communication is about motivating individuals to adopt or maintain a healthy behaviour. Millar and Rollnick (1991) argue that for those wanting to support behaviour change in others, the question to ask is not “why isn’t this person motivated?” (pg. 18), but rather ‘what would motivate this person?’. Consistent with Fishbein and Ajzen (1975) they state that a person’s expectancies about the likely outcome of their behaviour are strongly related to their willingness to take a course of action. Hence, it is important to identify goals that are relevant to behaviour change; “sometimes a behavioural course adjustment does not occur until people perceive that change is relevant to achieving or preserving something that is truly important or dear to them” (Miller & Rollnick, 1991, pg. 19). Thus identifying potential motivations for behaviour change are necessary to promote and energise behavioural intentions and behaviour in the recommended direction. Rossiter and Percy (1987) proposed a model (for motivations underpinning consumer buying behaviour) that defines motivations for behaviour change as either positive or negative, and that may be used as a model for health behaviour. This model is discussed in the next section.

4.4.1 Negative and positive motivation

According to Rossiter and Percy (1987) there are eight types of motives that underpin behavior and these can be categorized into either negative or positive based on the original state of the consumer. For positive motivation the goal is to instigate, maintain or increase a ‘state’ above equilibrium (logically a positive or rewarding emotion or experience as it is one that is desired). For negative motivation, the goal is to avoid or remove a problem or ‘state’ below equilibrium (logically a negative emotion or experience as it is one that is undesired) (Rossiter & Percy, 1987). Much of health communication focuses on negative motivation, such as the removal of a threat or fear. An example of negative motivation regarding alcohol use during pregnancy is the avoidance of causing harm to the fetus by drinking alcohol and hence eliminating fear or anticipated guilt. Alternatively, a positive motivation could seek self- or social approval related to doing everything that could be done to support the health of the fetus and pregnancy. As such, messages that focus on the use of positive motivation may model states that are desirable to the target audience and seek to create “emotional states that exemplify the emotional, psychological, or experiential benefits of complying with a campaign” (Monahan, 1995, pg. 83). The list of eight motivations was extended to ten by Donovan (1995a) to include two positive motivations: personal

values and social conformity. Table 4.1 shows the ten motivations for behaviour change and the goal direction (as adapted by Donovan and Henley, 2003, pg. 105), and some of the relevant emotional states (Rossiter & Percy, 1987, pg. 213).

Table 4.1: Negative and positive motivations, the goal direction and some typical associated emotional states (Donovan & Henley, 2003; Rossiter & Percy, 1987)

Energising mechanism	Goal direction	Typical emotional states
<i>Negative or aversive origin</i>		
Problem removal	Solve problem (removal or escape)	Anger → relief
Problem avoidance	Prevent problem (avoidance)	Fear → relaxation
Incomplete satisfaction	Continued search	Disappointment → optimism
Mixed approach-avoidance	Reduce conflict	Guilt → peace of mind
<i>Mildly negative origin</i>		
Normal depletion	Maintain stable state	Mild annoyance → convenience
<i>Positive or appetitive origin</i>		
Sensory gratification	Enjoy	Dull → elated
Intellectual stimulation	Explore, master	Bored → excited
Social approval	Achieve personal recognition, status	Apprehensive → flattered
Personal values*	Act consistent with personal values	<i>Not described</i>
Social conformity*	Affiliate	<i>Not described</i>

4.5 Synthesising the models

Donovan and Henley (2003) point to the value of using a “pragmatic, eclectic approach” (pg. 117) to applying behaviour change models in the development of persuasive communication. Essentially they advocate the use of formative research to profile the target audience in terms of their existing knowledge, attitudes and beliefs with regard to the behaviour and behaviour change, as well describing the context of the behaviour. It is from these kinds of data that insights into the important constructs for behaviour change can be suggested and used in communication to promote intentions to change behaviour. For example, formative research may reveal that a target audience of women of childbearing age may have a negative attitude towards alcohol consumption during pregnancy. However they may also believe that negative consequences of prenatal alcohol exposure only happens to babies born to ‘alcoholics’ and that most of their female friends condone some alcohol use during pregnancy. In a case such as this, communication may focus on the constructs of ‘subjective norms’

and 'susceptibility'. Furthermore, communications could emphasise information about the risks of moderate alcohol consumption on the development of the child and position 'good friends' as those who support pregnant women to abstain from alcohol. This PhD study follows the recommendation by Donovan and Henley (2003) to use relevant constructs from various models, as identified through formative research, rather than attempting to apply just one model.

4.6 The value of formative research

Formative research "assess(es) the beliefs, perceptions, and behaviours of a particular group. The resulting data allow for the development of an intervention that is tailored to the group's needs and preferences" (Vastine et al., 2005, pg. 57). It should also explore the social context as well as any environmental barriers or facilitators of change (Donovan & Henley, 2010). Formative research is necessary for developing persuasive, population-based messaging for a sensitive and complex issue such as alcohol use during pregnancy: "a contextually based social experience" (Badrey, 2007, pg. 88) that is related to varied reasons and a complex array of influencers. Formative research can also identify execution elements that inhibit acceptance of the message, as well as potential unintended messages that could lead to maladaptive responses among the target audience or others exposed to the campaign material (Kaskutas, 2000). Hence, compared with messages developed without the use of audience-centred strategies, messages underpinned by formative research are more likely to align with the lived experience of the target audience, and be more attuned to their beliefs, motivations and needs.

It is important that messages and information about alcohol use in pregnancy are developed using formative research for a number of reasons. First, alcohol use during pregnancy is a sensitive issue which may relate to feelings of guilt and shame for pregnant women who consume alcohol and stigmatisation of pregnant women and children affected by prenatal alcohol exposure (Kaskutas, 2000; Finkelstein, 1994). Second, many pregnancies are likely to be exposed to alcohol before women know that they are pregnant and it is important that messages acknowledge this potential and do not create unnecessary anxiety for women (Thurmeier et al., 2011), and do not increase the possibility of women considering pregnancy termination. Third, the evidence of risk to the fetus is inconclusive; it is hard to predict risk, and therefore difficult to communicate the risk of alcohol exposure to a fetus. Thus, messages about

alcohol use in pregnancy suitable for a communication campaign need to be formatively developed and tested with the target audience to ensure that they are sensitive, credible, appropriately pitched, and likely to motivate healthy decisions and behaviour with regard to alcohol use at conception and during pregnancy.

4.7 Phases of formative research

The processes and methods involved in conducting formative research can vary. For example, formative research may entail a relatively simple process of pre-testing materials with a group of the target audience to ensure the communication objectives are met (McCormack Brown et al., 2008). On the other hand, it may involve a detailed and comprehensive process of qualitative and quantitative research with the target audience to generate concept ideas, test concepts and then test executions and copy (Coyle et al., 1989). In this study, four distinct phases of formative research were used to develop and evaluate messages suitable for an awareness-raising and education campaign to prevent prenatal alcohol exposure. These phases are situated within the broader steps for communication planning (Donovan, 1995b; Roper, 1993) and were carried out through an iterative process whereby ideas and concepts were generated, refined and tested based on results and insights from previous phases (Donovan & Henley, 2003). An exploratory phase followed a review of background information and identification of broad goals and target audiences. Using qualitative research methods, the exploratory phase elucidated the knowledge, beliefs, attitudes and practices of the intended message recipients with regard to their behaviour, along with perceived and actual barriers and facilitators of positive behaviour change (Eitel & Delaney, 2004). Furthermore, it provided insight into the individual and social contexts into which the messages would be delivered and received. Subsequently, communication objectives articulating the changes in knowledge, beliefs and attitudes necessary to promote the behavioural objectives were generated. Exploratory data were also used to develop the concept ideas, that is, to 'get the right message' (Egger et al., 1993). A qualitative concept testing phase was then conducted to confirm the potential of the concept executions, and identify specific content and execution elements that promoted the credibility, relevance and appeal of the message (Salmon & Atkin, 2003), that is, to 'get the message right' (Egger et al., 1993). Prior to the next phase of testing, the concepts executions were refined, and then exposed to a further sample of the target audience to determine their effectiveness at meeting the communication objectives and at promoting the desired change.

4.8 Evidence from existing formative research

Only three peer-reviewed papers were found that reported formative research with the target audience to develop campaign strategy and messages. In developing a campaign targeting African-American women of childbearing age in St. Louis, USA, Mengel and colleagues (2005) conducted focus groups with women to gain insight into existing knowledge about FASD and alcohol use during pregnancy. The research was used to determine effective message content and execution and to test for appropriateness and relevance. The formative research rejected concepts that depicted children who had been affected by prenatal alcohol exposure and found that concepts demonstrating women's choice to drink or abstain from alcohol, and emphasising that women could still enjoy social situations without consuming alcohol, were potentially most effective. Though no behaviour change models were referred to, the authors reported that the materials sought to focus on empowering women's choice, respecting cultural values and beliefs, and appealing to a sense of collectivism (Mengel et al., 2005).

Glik and colleagues (2008) used community advisory groups to determine audience segmentation, followed by formative research with women of different ethnic backgrounds to develop the strategy and materials for a narrow-casting campaign. Six focus groups were conducted with Caucasian, African American and Latina women. The research highlighted the inconsistency of existing recommendations regarding alcohol use during pregnancy, including from health professionals. The focus groups also showed that women did not consider that a message that pregnant women should abstain from alcohol during pregnancy involved small amounts of alcohol or certain types of alcohol. Participants supported clear and specific messages that utilised strong phrasing, colours and imagery. Participants favoured a 'social norms approach' over fear appeals, and responded best to messages that depicted "what 'idealized' women should do if they were pregnant or thought that they were pregnant" (Glik et al., 2008, pg. 96).

In 2010, Lowe and colleagues published the results of a multi-media campaign delivered to pregnant women in antenatal settings. The campaign strategy, behaviour change objectives and materials were based on formative research published previously (Baxter et al., 2004). The campaign was successful in achieving its goals of increasing pregnant women's discussion of alcohol use during pregnancy within their

social networks and of increasing their knowledge about alcohol use during pregnancy. The formative research focused on the discourses related to alcohol use by pregnant women, and provided at least two important insights that informed the campaign:

- In most cases, social codes dictate that conversations about alcohol use during pregnancy can only be initiated by pregnant women (as opposed to people within a pregnant woman's network initiating conversations about her alcohol consumption). Exceptions to this are when "the relationship with the other person was characterised by family-like closeness and when the drinking was deemed problematic" (Baxter et al., 2004, pg. 243) in which case, it was more socially acceptable for a pregnant woman's alcohol consumption to be raised by another.
- Two contrary but intertwined discourses about alcohol use during pregnancy were identified. The authors named these 'discourse of individualism' and a 'discourse of responsible motherhood.' The 'discourse of individualism' is "grounded in a belief that it is a pregnant woman's private choice whether to drink and others should not interfere in her business" (Baxter et al., 2004, pg. 242). Contrary to this is the 'discourse of responsible motherhood', which is grounded in the belief that "the pregnant woman assumes the obligations and responsibilities of motherhood ... is morally accountable for her actions, and a pregnant woman who drinks is ... selfish, irresponsible, and a bad mother" (Baxter et al., 2004, pg. 243).

The authors point to the importance of framing messages regarding alcohol use during pregnancy around both discourses. They suggest messages that strengthen a woman's internalised identity of 'mother', and specifically communicate that "good mothering involves making wise choices" (Baxter et al., 2004, pg. 244). Furthermore, the authors highlight the importance of demonstrating the role of female friends in speaking to a pregnant woman about her alcohol consumption (Baxter et al., 2004).

Two other studies cite formative research regarding alcohol use during pregnancy, though these were not used to develop campaign strategy or messages. Branco and Kaskutas (2001) conducted focus groups with 11 pregnant and post-partum Native American and African American women to develop questions for a quantitative survey for assessing alcohol use during pregnancy. This research supported the relevance and potential utility of the constructs of severity and susceptibility. Women felt more susceptible and the consequences of alcohol use during pregnancy were more salient if they knew of someone with FAS. They also referred to the fact that some women with

children with developmental problems did not drink alcohol during pregnancy. Also, the consequences of drug use during pregnancy were viewed as more severe than those related to alcohol use. Related to this, some messages were perceived as overstating the risks associated with alcohol use during pregnancy, or sensationalising the consequences. As with the participants in Glik et al.'s (2008) study, these women also perceived certain types of alcohol to be more harmful to consume during pregnancy than others. Women reported that abstinence from alcohol during pregnancy would put them in the social position of being the only person who did not drink alcohol, and cited this as an important barrier to abstinence (Branco & Kaskutas, 2001).

A recent paper by Yu and colleagues (2010) reported an experimental design to test the impact of specific types of messages on attitudes, affective responses and behavioural intentions with regard to alcohol use during pregnancy (Yu et al., 2010). Based on Prospect Theory (Tversky & Kahneman, 1981), this study tested a number of messages with 213 female undergraduate students to compare the impact of 'gain frames', 'loss frames', 'exemplar appeals' and 'statistics appeals'. In question was how individuals would respond differently to messages that emphasised either the positives of avoiding the risks (gain frames) or the negatives of taking the risk (loss frames). Furthermore, they compared the effectiveness of exemplar appeals (in which the message focuses on the characterisation of someone with whom the target audience would relate to themselves) compared with statistics appeals (one that uses statistics to deliver the message). The outcomes measured were attitudes, beliefs (such as perceived severity, perceived self-efficacy) and behavioural intentions (such as "taking measures to prevent FASD") (Yu et al., 2010, pg. 695). Results showed that participants exposed to a gain frame were significantly more likely to take measures to prevent FASD. This was particularly so when combined with a statistics appeal rather than an exemplar appeal. On the other hand the loss frames significantly increased perceived severity and increased fear, particularly when presented as an exemplar appeal rather than a statistics appeal (Yu et al., 2010).

Overall, the findings of these formative research studies addressing alcohol use during pregnancy provide some important insights and possible directions for creating persuasive messages. While they provide specific insights that could be used by those seeking to develop persuasive communication (such as how to build perceived severity regarding prenatal alcohol exposure), they also point to the potential value of formative

research in creating messages that are attuned to the target audience. First, they demonstrate the value that formative research can provide in developing appropriate communication objectives that will promote the overall goal. Second, they highlight that different content and execution elements can result in different responses to the message from the target audience, with some elements promoting the desired outcomes more than others. While there were mixed results with regard to the effectiveness of messages that were framed 'positively' versus those that were framed 'negatively', the results suggest that different message frames or motivations can be effectively used within communications for alcohol and pregnancy, and should be assessed for potential within any given strategy and with any different target audience.

4.9 Pregnancy: a special time for behaviour change

Pregnancy is a known "window of opportunity" (DiClemente et al., 2000, pg. iii16) for behaviour change given the intrinsic motivation of having a healthy baby. Many changes occur for a woman when she becomes pregnant. First, a woman's own desire to be healthy may increase and attitudes towards behaviour change may alter as she contemplates the health of the pregnancy and child (Lindgren, 2001). Second, a pregnant woman may experience more pressure from others to be healthy, and as a result of this and increased engagement with health services, she may also experience more social support for positive behaviour change (Schaffer & Lia Hoagberg, 1997; Giblin et al., 1990; Aaronson, 1989). Not only does the motivation for behaviour change become something less individualised as the focus extends beyond individual health and wellbeing to the health and wellbeing of the baby, but social and cultural inhibitors and facilitators alter. Physical changes during pregnancy can also influence desires to behave in a particular way. Thus, pregnancy presents a unique opportunity for behaviour change.

Being pregnant and planning to get pregnant could be said to be 'cues to action' as described by the Health Belief Model (Becker, 1974; Rosenstock, 1974). For example, readiness or willingness to change behaviour, or attitudes towards behaviour change when a woman is planning pregnancy may be different from when she has confirmed her pregnancy. Furthermore, the physical display of pregnancy that occurs in the second and third trimesters may mean that social sanctions are stronger than when a woman is in her first trimesters of pregnancy. It is also important to recognise that positive behaviour change during pregnancy can be carried forward, and that while

pregnancy is a special time for behaviour change specific to the pregnancy, it is also an opportunity for longer-term healthy lifestyle changes that could continue into the post-partum period (Poole, 2008).

4.10 Summary

Message development can be enhanced with the incorporation of two types of information. First, theoretical models of behaviour change, such as social cognition models, provide an evidence-based framework for message development, critiquing and testing. Second, formative research with the target audience can enhance the relevance, credibility and persuasiveness of messages as they are more likely to align with the lived experience of the message recipients and be attuned to their needs, attitudes and motivations. There is little evidence of behaviour change theory or formative research being conducted to develop communications addressing alcohol use during pregnancy, and those examples that have been published offer limited insights into the content and execution elements that may support message effectiveness. There are only three published examples of formative research being used to develop campaigns addressing alcohol use during pregnancy (Glik et al., 2008; Mengel et al., 2005; Baxter et al., 2004), though it is not clear from these what elements are important for message effectiveness. Pregnancy can be an opportunistic time to target behaviour change given the inherent motivation of wanting to support a healthy pregnancy and baby. That said, motivation for behaviour change during this time is not just related to the health of the fetus and it is important that formative research be conducted to determine the underlying motivations that are relevant for women during pregnancy, and how these relate to alcohol consumption and abstinence.

This chapter concludes the background review of literature that informed the broad goals, target audience and specific behaviour change objectives of the study. The next chapter first articulates these parameters of the study and then describes the methods and results of the exploratory research with a sample of the target audience.

Chapter Five: Exploratory research and concept development

5.1 Introduction

The previous three chapters comprise a review of background information as a necessary first step in communication planning (Donovan, 1995b; Roper, 1993). This chapter begins by articulating the broad goals, target audiences and specific behaviour change objectives of the study (the second and third steps of communication planning) (see Figure 1.1, page 8). The chapter then outlines the methodology and results of the fourth step: exploratory research with pregnant women and women of childbearing age. Based on these qualitative data and social cognition models, implications for messaging are outlined. The final section of the chapter comprises step five and describes the communication objectives and concept executions appropriate for television and print media that were subsequently developed.

5.2 Broad goals

Following a review of background information, the second step of communication planning is to state the “program’s broad goals, the specific outcome objectives and the behavioural outcome objectives” (Donovan, 1995b, pg. 215). The broad goal of this study is to contribute to reducing the identified public health problem; that is to reduce the potential for individuals being born with FASD. As mentioned in Chapter Two, given that the incidence of FASD in Australia is unknown, the achievement of this can be assumed through reducing the number of women who consume alcohol during pregnancy. As many women may consume alcohol before they realise that they are pregnant, another broad goal is to reduce the number of women who consume alcohol

when they are trying to get pregnant, in order to prevent alcohol exposure during the first weeks of pregnancy.

5.3 Target audience and specific behaviour change objectives

As outlined in Chapter One, the scope of the study was defined upfront as a universal, mass media approach to prevention with a focus on promoting change among those that are amenable to change. Thus, the primary target audiences for this study are (i) women who are pregnant and (ii) women who are trying to get pregnant. Given that these target audiences are defined by their reproductive phase, it is reasonable to expand the scope of these target audiences to include all women of childbearing age. The review of background information also provided insight into those women who consume alcohol and how they consume alcohol during pregnancy in Australia (see Chapter Two). This information suggests that a broad, universal prevention campaign may best target women who consume low to moderate amounts of alcohol before and during pregnancy, and when planning a pregnancy, which may include episodic binge drinking; as well as women who lower their alcohol intake when they find out they are pregnant. When talking about the target audience it is possible that if a campaign only reached those drinking at low levels it may not impact on the prevalence of FASD. Thus, it is important to note that it is anticipated that any messaging will impact on women drinking at higher-risk and sensitize them to be more amenable to support and intervention. To ensure messages are relevant for a broad target audience, it was decided that messages would be designed to target women aged 30-34 years (at a time when fertility rates peak) (Australian Bureau of Statistics, 2006b), of middle-socioeconomic status and who are well-educated³.

³ As with any universally-delivered intervention, individuals who are not part of the target audience will inevitably be exposed to messages and activities. Thus, it is important to note that if implemented through a campaign, women who consume alcohol at levels of higher risk, and women who do not fall within this target audience based on other characteristics will also be exposed to the messages developed through this study. So, while it is beyond the scope of this study, it is recommended that messages resulting from this research are tested with other groups prior to adoption to ensure that there are no unintended or maladaptive effects of messaging for women who were not the target audience.

In alignment with the Australian national recommendation for alcohol consumption during pregnancy (National Health and Medical Research Council, 2009), the behaviour change objective is women's abstinence from alcohol during pregnancy and when planning a pregnancy. A reduction in alcohol consumption is also desirable, is complementary to an abstinence-based recommendation (Gray et al., 2010; Lenton & Midford, 1996), and is appropriate for a universal public health strategy with the objective of harm minimisation. However abstinence is the overarching goal and is the basis for any recommendations that are included within the message.

To reiterate, the targeted behaviour is alcohol use that is at a level below clinical significance, which may also be described as low to moderate alcohol consumption that includes infrequent binge drinking. A specific definition of 'low to moderate' alcohol use for the period of pregnancy is difficult given that the risk of exposure to the fetus relies on both amount and frequency of alcohol consumption. Recent literature reviews on the risks associated with particular levels of exposure equate 'low to moderate' alcohol use as "one alcoholic drink at most per day" (Patra et al., 2011, pg. 2) or as "an average of 0.3 to 1.7 oz of absolute alcohol per day" (Todorow et al., 2010, pg. e323). For the purposes of defining a target behaviour for this formative research for a universal prevention strategy, any alcohol use that is at a level below clinical significance was chosen, given it is women who consume alcohol at these levels who, with appropriate information, adequate motivation and facilitative environments, may be amenable to change.

5.4 Exploratory research

5.4.1 Aim

The aim of the exploratory research was to explore the motivations, beliefs, attitudes, and contexts that impact on women's intentions to abstain from or reduce alcohol during pregnancy and when trying to get pregnant.

5.4.2 Research questions

The focus groups sought to explore a series of broad research questions that related to behaviour change theoretical constructs. The focus group topic guides (Appendix 5.1) were designed to be appropriate for the reproductive stage of the participants in each focus group, that is, participants who were pregnant within the previous three years, participants currently pregnant, and participants who did not have children but thought

that they might in the future. As is appropriate for qualitative exploratory research, focus groups commenced with general questions to allow issues to emerge primarily from the participants, and for them to identify the importance and priority of issues without prompting (Patton, 2002). It was considered important for the moderator (the PhD candidate) to have as little influence on the discussion as possible while keeping the discussion within the parameters of the overall research topic. Following the initial broad questions, specific questions on alcohol use during pregnancy were raised, with the moderator further exploring points of potential importance to the research questions.

Within this flexible structure, the exploratory research sought to investigate the following research questions:

1. What motivates women to change their behaviour during pregnancy?
2. What are women's fears regarding pregnancy and having a child?
3. What child health/ development factors are salient for women?
4. What are women's beliefs and attitudes regarding alcohol use during pregnancy?
5. What do women know about the risks associated with drinking alcohol during pregnancy?
6. What are the risks that concern women the most?
7. What are the risks that surprise women?
8. What motivates women to abstain from alcohol during pregnancy?
9. What are the barriers to abstaining from alcohol during pregnancy?
10. What facilitates abstinence from alcohol during pregnancy?

5.4.3 Sample

In order to elucidate a range of experiences about behaviour change during pregnancy, and motivations, attitudes and beliefs with regard to alcohol use during pregnancy, focus groups were conducted with women who were at different reproductive stages and from different socioeconomic backgrounds. This purposive sampling strategy draws from a method described by Patton (2002) as maximum variation (heterogeneity) sampling. The method of sampling identifies distinct and diverse characteristics upon which to stratify focus groups, and seeks to gain insights into a broad range of perspectives and experiences (Patton, 2002). The strength of this sampling strategy is that it captures the "central ... shared dimensions of a

phenomenon” (Patton, 2002, pg. 235), and may also indicate potential areas in which different samples vary from each other. This sampling strategy was chosen as it has the potential to pick up themes that are relevant to a range of audiences, while elucidating those beliefs, attitudes and contexts that may be relevant only to particular audience segments.

In line with the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007), and responsive to the corresponding standards of the Edith Cowan University Human Research Ethics Committee (Edith Cowan University, 1996), the exploratory research only involved pregnant women who reported that they had stopped drinking alcohol completely. Pregnant women are classified as a population whose participation in research warrants special ethical considerations (National Health and Medical Research Council, 2007). The stated criteria for the participation of pregnant women in this phase of research sought to mitigate the potential risk of harm or discomfort to them that may be experienced while participating in unstructured and exploratory research regarding alcohol use during pregnancy.

The overall sample was stratified using specific criteria (as indicated below) in order to ensure a degree of commonality among participants in each group. Stratification based on achieving a level of homogeneity within a group can work to support the participants’ level of comfort and can contribute to a depth of data as fundamental differences do not have to be explained, and participants are less likely to feel judged. Importantly, stratification can also be used to establish heterogeneity between groups and facilitate comparison between groups based on differing demographics and experiences (Babour, 2005) (for example, whether or not you have a child). The purpose of using focus groups as a methodology was to “to understand, not to generalise but to determine the range, and not to make statements about the population but to provide insights about how people in the groups perceive a situation” (Krueger & Casey, 2000, pg. 65).

The sampling criteria and rationale for each focus group were:

Focus group 1

Sampling criteria: Women aged 18-45 years who consume alcohol, have a child who is aged three years or younger, are of middle socioeconomic status, and who, when they were pregnant, made little or no change to their alcohol use.

Rationale: These women have had a recent pregnancy, and when they were pregnant may have been ambivalent about alcohol change or may already have been consuming little, so did not consider it necessary to change. These women may provide insight into perspectives of those not necessarily motivated to change, and their perceived barriers to changing alcohol consumption.

Focus group 2

Sampling criteria: Pregnant women aged 18-45 years who have stopped drinking alcohol.

Rationale: These women have assumed the desired behaviour and may provide insight into what motivated and supported the decision to abstain from alcohol.

Focus group 3

Sampling criteria: Women aged 18-45 years who do not have a child but see that they will have children sometime in the future, who consume alcohol and who are low of socioeconomic status.

Rationale: These women feel that pregnancy is something that they may experience in the future and they may or may not be purposefully planning. These women may provide insight into the thoughts relevant to those who have consumed alcohol and find out they are pregnant, or those who may soon be planning a pregnancy, and their thoughts and behaviours associated with this.

Focus group 4

Sampling criteria: Women aged 18-45 years who consume alcohol, have a child who is aged three years or younger, are of middle socioeconomic status, and who, when they were pregnant made a substantial change to their alcohol use.

Rationale: These women have had a recent pregnancy and when they were pregnant may have had to confront the personal and social implications of making a substantial change to their alcohol use. These women may provide insight into the

emotions and motivators associated with this behaviour change, and facilitators and barriers to changing alcohol consumption.

Recruitment

Mothers and pregnant women were recruited by the PhD candidate and a research assistant from community-based settings across Perth, Western Australia. These settings included: City of Fremantle Arts Festival, City of Joondalup Annual Festival, Bellies and Babes Community Group, Community Midwives Women's Group, Kids Fun Event Fremantle, an antenatal yoga group, an antenatal aqua-aerobics group and several community-based events held during school holidays. The opportunity to be involved in the research was promoted through flyers (Appendix 5.2) which were handed out to potential participants. The PhD candidate or research assistant also provided a short verbal overview of the project.

A brief description of the project and an invitation to participate was also included in the Playgroup Western Australia fortnightly electronic newsletter, which was distributed to over 10,000 members. Women interested in participating followed a link contained within the newsletter and provided their contact details for follow-up, or contacted the researcher directly by phone or email to register their interest in being involved.

A market research company (www.synovate.com) was contracted to recruit women without children. These women were part of a company-owned database of people interested in participating in market research. The market research company called potentially eligible women to inform them of the project and invite them to participate. Women who expressed an interest in participating underwent the screening process described below, administered by an employee of the market research company.

Interested people identified from the community-based settings were called by the PhD candidate who used screening questionnaires (Appendix 5.3) to recruit eligible participants based on the sampling criteria. Questions regarding women's current alcohol use and alcohol use during pregnancy were disguised among a range of health behaviour questions so as not to alert participants prematurely to the topic of interest, or to make women feel as if they had been denied participation based on any particular answer. Women were ineligible if they were a health professional or a school teacher, given their potential to have professional experience with FASD and the possibility that

their professional viewpoint may overly influence the focus group discussion. Socioeconomic status was determined through residential postcodes that were related to an Australian Bureau of Statistics Socio-Economic Indexes of Areas (SEIFA) (Australian Bureau of Statistics, 2006c). Permission was sought from women who were ineligible or unavailable to attend during designated times to retain their contact details for possible recruitment during subsequent phases of the study. A maximum of ten women were recruited for each group, with the aim of achieving six to eight participants per group (Patton, 2002). Prior to attending the focus group, participants were both emailed and posted an Information Sheet (Appendix 5.4 – non-pregnant participants and Appendix 5.5 – pregnant participants) and a map with directions to the venue and parking.

Participants

Table 5.1 indicates the stratification and number of participants achieved for each focus group.

Table 5.1: Stratification and number of participants for each focus group

Focus group number	Reproductive stage	Alcohol consumption	Socioeconomic status	Number of participants
1	Have (at least one) child who is 3 years or younger	In previous pregnancy, cut down on alcohol 'a bit'	Middle	3
2	Pregnant	Have stopped drinking alcohol	Any	6
3	Do not have children	Have drunk more than two standard drinks in one session in past month	Low	8
4	Have (at least one) child who is 3 years or younger	In previous pregnancy, cut down on alcohol 'a lot'	Middle	6
Total				23

Participants completed a demographic questionnaire prior to participating. Table 5.2 indicates the age ranges, education levels and marital status of the participants.

Table 5.2: Participant demographics

	Number of participants
Age (years)	
18-24	3
25-29	9
30-34	3
35-39	7
40-45	1
Highest education level	
Year 10 or 11	1
Year 12	2
Trade certificate	2
Non-trade certificate	3
Associate diploma	1
Undergraduate diploma	2
Bachelor degree	8
Master's degree, Postgraduate degree or Postgraduate diploma	4
Marital status	
Never married	5
Divorced	1
Married	17

Approximately half of the participants were less than 30 years and the remainder 30 years of age or older. A majority of participants had a tertiary qualification and were married. The participants who were not married were all within the focus group for women without children.

5.4.4 Group procedure

Except for the pregnant participants, the specific topic of interest was not disclosed to people prior to their participation. Non-pregnant participants were advised that the research concerned health promotion for women with particular reference to the period of pregnancy. This limited disclosure whereby the primary topic of interest was not made explicit to participants was done in order to prevent the 'priming' of participants. In the exploratory research it was of interest to see if, and how, the topic of interest was raised within the group discussion. If the participants were aware of the primary topic of interest this would not have been possible. Furthermore, if some participants knew the topic of interest they may have sought out further information on the topic prior to attending the focus group and this would affect the usefulness of the data collected and the formative research process. For pregnant women, in line with the National

Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007) and as approved by the Edith Cowan University Human Research Ethics Committee, the topic was fully disclosed prior to gaining their informed consent to participate.

Focus groups were held at the centrally located office of the market research company. This company provided the room (which included an adjacent observation room), hosting, catering and audio-taping facilities. Upon arrival, participants received a further copy of the Information Sheet (Appendices 5.4 & 5.5) and were given the opportunity to ask any questions of the moderator prior to reading and signing the consent form (Appendix 5.6). At this time participants also individually completed a brief demographic questionnaire (Appendix 5.7). The PhD candidate, as an experienced moderator (France et al., 2010; Wood et al., 2008), moderated all focus groups to ensure reliability and consistency of the data, while a second researcher remained within the observation room as an observer and note-taker (Kidd & Parshall, 2000). At the conclusion of each focus group participants were given a brief overview of the project and offered an information pack that included an information sheet of women's health service providers (Appendix 5.8) as referral for further information and support. Participants were provided with \$60 as reimbursement to cover their costs in attending the group. The focus groups were conducted for approximately one-and-a-half hours.

Data collection and preparation

Each focus group was digitally audio-taped with participants' permission. In addition, immediately following each group, the PhD candidate and observing researcher discussed their top-of-mind reflections on the group dynamics, key themes and insights. Reflections were recorded and were added to field notes that the PhD candidate produced within 24 hours of each focus group. Reflections were grouped under the headings 'key issues raised', 'key issues which were not raised', 'how alcohol was discussed', 'implications for messaging', 'implications for target audience' and 'issues to check/watch out for'.

The audio-tapes of each group were transcribed by a professional transcriber and forwarded to the PhD candidate within a week. The PhD candidate reviewed each transcript for accuracy and nuances, using the original audio-recording, within two weeks of the focus group. All transcripts were reviewed twice and for accuracy, which

reinforced the PhD candidate's familiarity with the data. Reviewed transcripts and field notes were imported into NVIVO 8 (QSR International Pty Ltd, 2008) for analysis.

Analysis

Data analysis began with a coding sheet developed by the PhD candidate based on the research questions and themes identified in the literature and from social cognition models (Appendix 5.9). Focus groups were reviewed in chronological order and relevant codes emerging from the data were added to the coding sheet. Once the coding sheet represented all four focus groups, the complete coding sheet (with the full range of themes and categories) was then used to re-code all focus groups using the NVIVO 8 coding function. This content analysis was performed separately by the PhD candidate and her original principal supervisor (Professor Nadine Henley) to enhance reliability (through a process of triangulation through multiple analysts) (Patton, 1999). Interpretations of the results were discussed between them and where they differed, were discussed with reference to the raw data before they were synthesised or differentiated accordingly.

The PhD candidate then performed a process of deductive and inductive thematic analysis whereby the results of the synthesised content analysis were described in terms of relationships between themes and categories as well as with reference to constructs from social cognition models (Fereday & Muir-Cochrane, 2006). These results are reported in the following section.

5.4.5 Results

The results from the exploratory research are presented as themes that loosely respond to the research questions (page 61). Sub-themes are included within the relevant theme and results pertinent to the overall inquiry but outside the scope of the research questions are also reported. During the analysis, potential motivational goals and implications for messaging emerged. These are reported in 5.6 Concept development. This extrapolation of the data was essential given the overall aim of the formative research was to develop a series of advertising concepts that aligned with the beliefs, attitudes, motivations and experiences of the target audience.

Behaviour change during pregnancy

Except for the focus groups with pregnant women, participants did not know at the outset that the topic of interest was alcohol use during pregnancy. Focus group discussions began with broad questions about motherhood and pregnancy, and it was of interest to see when and how the topic of alcohol would be raised, as an indication of the relative salience of alcohol consumption as a behaviour change for pregnancy.

Alcohol consumption in relation to pregnancy was raised spontaneously in all groups. However, even for the pregnant women (who knew that alcohol use during pregnancy was the topic of interest), it was not the first behaviour change mentioned. In general, the first behaviour change discussed, particularly for women who were pregnant or who had had recent pregnancies, was the avoidance of particular foods deemed a risk for listeria (e.g. soft cheeses, processed meats). Smoking cessation was also salient, and was often linked to abstinence from alcohol, despite very few of the participants being current smokers (shown through the recruitment screening process). Taking pregnancy vitamins or folic acid was also mentioned for the pre-conception period as well as the early stages of pregnancy.

Motivations for behaviour change

Women mostly described motivations for behaviour change in terms of emotions or feelings. In analysing these data, the themes are first described and then related specifically to an apparent motivational goal. As there were often no clear distinctions between motivations for modifying alcohol use and motivations for behaviour change in general during pregnancy, all are presented together. Some may be more relevant to modifying alcohol consumption, but this was not conclusive in the analysis of the data.

i. Fear and worry

Women described the effect of fear or worry on their behaviour change as being “*paranoid*” (FG 2 & 4). Their ‘paranoia’ motivated them to make choices around their health behaviour in an attempt to lower the risk to the pregnancy. Paranoia was mostly spoken about in terms of avoiding foods, but underpinned much of behaviour modification during pregnancy. Outcomes that women feared were mostly short-term and pregnancy-related, such as miscarriage, stillbirth and malformation that was expressed as wanting a child to have “*five toes on each foot, you know, everything ... in the right place*” (FG 4). Paranoia and fear were described as being highest during a

woman's first pregnancy and decreasing with subsequent pregnancies. Women also spoke of their fear being momentarily placated by the feeling of the fetus moving and kicking during the second and third trimesters, as the kicking action is an indicator that the fetus is alive and well: "*and as soon as he kicks, you're like, okay, good ... and then again later in the day you're like, oh haven't felt (the baby move) and again as soon as he kicks again you're like, keep on going and you really get anxious sometimes*" (FG 2).

Potential motivational goal identified

To reduce fear and worry by avoiding poor pregnancy and fetal outcomes.

ii. Peace of mind

Having 'peace of mind' was a particularly strong theme among women who did not have children and was related to the knowledge that 'you were doing all that you could' to promote the health of the pregnancy and baby. It was also equated to reducing worry.

Potential motivational goal identified

To reduce worry by avoiding 'avoidable' poor pregnancy and fetal outcomes, and thus have peace of mind.

iii. Guilt and responsibility for pregnancy outcome

Being motivated to reduce feeling guilty was particularly salient among non-pregnant women who did not have children. Responsibility was framed negatively, that is, 'I want to avoid feeling responsible (and thus, guilty) for creating a negative outcome for the fetus or the pregnancy' (versus 'I am responsible for this child and therefore I choose to do this'). Participants spoke of potentially experiencing guilt if something went wrong with the pregnancy, or the child was born with poor outcomes, and they knew that they had done something wrong during pregnancy: "*imagine the guilt you would feel if it was through your own carelessness or selfishness that your child now has to deal with that for the rest of their life*" (FG 3).

Potential motivational goal identified

Avoid feeling responsible for poor pregnancy or fetal outcomes and thus avoid guilt.

iv. Being in control and doing the best that one can

Some women saw abstaining from alcohol as a way that they could do the best that they could for their child: “*you want to give your baby the best start, because as soon as they are out in the world there’s all sorts of things that come in and influence them if you like, you want to make sure that while you are in control and you can do what you can, you want to make sure that they’ve got the best*” (FG 1). Within this it was acknowledged that pregnancy is a time when things can go wrong that you have no control over, but there are some things that you can do to promote the health of the pregnancy and avoid negative outcomes.

Potential motivational goal identified

Avoid ‘avoidable’ poor pregnancy or fetus outcomes, and thus feel in control.

v. Negative social perceptions

Women spoke of being negatively perceived by others within their social environment if they were drinking while they were pregnant. Women assumed that people would think negatively about them (although there were no accounts from these four groups of anyone receiving verbalised disapproval, suggesting that the disapproval would be covert and assumed): “*you don’t want to be overly judgmental about people but I was really like ‘oh, she’s pregnant! (and she is drinking alcohol)’*” (FG 3). There was some reference within the groups to women who did not modify their alcohol consumption and cigarette smoking during pregnancy as being perceived as “*selfish*” (FG 2 & 3).

Potential motivational goal identified

Avoid (covert) social disapproval.

vi. Fit in with the social norm

Related to the above motivation, women felt that there was a strong expectation from others that they would abstain from alcohol if they were pregnant, and that by abstaining they were doing what was expected and fitting in with the social norm: “*people just automatically assume that you’re not (drinking alcohol)*” (FG 2).

Potential motivational goal identified

Gain social acceptance and belonging by conforming with social expectations.

vii. Compliance

Women spoke of the reassurance of complying with the advice and recommendations of health professionals, in particular the advice of obstetricians, though general practitioners and midwives were also mentioned as health professionals who influenced women's decision making: "*Yeah I would do ... whatever the doctor says.*" (FG 3). Among some participants there was also a sense of 'lacking ownership' about behaviour change for pregnancy, in that it was dictated to them, and thus externally rather than internally driven.

Potential motivational goal identified

Follow the advice of those in positions of authority and experience and be perceived to be doing the 'right' thing.

Knowledge, attitudes and beliefs about alcohol use during pregnancy

A reduction in alcohol consumption during pregnancy was a salient behaviour change among these participants, including those who had not been pregnant. Women knew that abstinence from alcohol during pregnancy is recommended even though they might not accept that wholeheartedly: "*a lot ... say none is best but an occasional one is not so bad*" (FG 4). Women also knew that binge drinking and being drunk (getting "*plastered*" [FG 3]) are harmful during pregnancy indicating an understanding between risk and the quantity and pattern of consumption of alcohol. However there was scepticism and confusion regarding the risk related to low or moderate alcohol use, such as "*a glass here and there*" (FG 2).

Though the majority of participants had a high level of education, there was little specific knowledge regarding the potential risk or consequences for the fetus of alcohol use during pregnancy. Few women mentioned specific effects such as FAS or other disabilities and deficiencies related to FASD. There was infrequent mention of any effects of drinking alcohol during pregnancy being life-long and pervasive. In particular, long-term consequences of alcohol use during pregnancy were not salient among these groups. Overall, while women understood that it was recommended to drink minimally or not at all during pregnancy, it was evident that the rationale behind this recommendation was not salient.

Several participants spoke about a lack of evidence about the risk of small amounts of alcohol. For some women this lack of evidence was reason to err on the side of caution: “*they don’t have the research so just avoid it. Just don’t do it*” (FG 2). However it was also said that without proof “*that terribly devastating things were to happen if you did have one or two drinks during the pregnancy*” (FG 1) then you could not “*dictate*” (FG 4) an abstinence-based message to people.

Response efficacy is the perception of the effectiveness of the recommended behaviour (abstinence from alcohol) in averting or reducing the likelihood of the negative outcome (Maddux & Rogers, 1983; Rogers, 1983). However, while most agreed that “*none is best*” (FG 4), the following beliefs were also held relating to the construct of response efficacy:

- even if you do everything right, including abstaining from alcohol, then things can still go wrong; and
- if you do drink alcohol during pregnancy you can still have a healthy baby.

These women understood that pregnancy is a time when a lot of things can go wrong, and that as a pregnant woman the approach to behaviour change is not ‘don’t do it because this will happen’, but rather “*give it the best chance by doing as much right as you can and hope for the best*” (FG 3). That is, given there are no guarantees that nothing will go wrong, or proof that something will definitely go wrong, ‘response efficacy’ is not certain when it comes to behaviour change for pregnancy.

Barriers to abstinence from alcohol during pregnancy

Some women spoke about consuming alcohol during pregnancy, their reasons for this and barriers to abstinence. Some participants suggested that they initially thought they would not drink alcohol during their pregnancy, but for various reasons this intention decreased as pregnancy progressed. While not all of the barriers below may be able to be addressed through messaging, they are important for knowing and acknowledging the context within which messages will be received. The barriers that women spoke of were:

i. Social pressure to drink alcohol

Some women reported experiencing pressure to drink alcohol in a social situation where other people were consuming alcohol. It was suggested that others who were drinking alcohol were uncomfortable around those who did not drink alcohol, and thus

put pressure on them: *“I sometimes felt pressured into it sometimes, you know, (they say) ‘it is OK to have one’...”* (FG 1).

ii. Health professionals’ advice and conflicting advice

Participants reported being told by an obstetrician or general practitioner that it was all right to drink a bit of alcohol during pregnancy: *“he was quite happy to say that a glass of wine a night was not a problem”* (FG 4) and that they trusted this advice: *“so for me I am hearing the person in immediate authority for me in my pregnancy is saying one a day was fine, so I think I probably convinced myself then”* (FG 4).

Furthermore, women often spoke of receiving conflicting information about what they should and should not be doing during pregnancy, and that this worked to undermine decisions like abstaining from alcohol. Some women’s response to receiving conflicting advice was to reject the advice or *“just take on board what you want and what sounds right to you”* (FG 4). Women also spoke of resorting to using their *“intuition”* (FG 2) about what and what not to do, rather than listening to sometimes ‘overwhelming’ amounts of conflicting advice from others.

iii. Laxness in late pregnancy and subsequent pregnancies

Women indicated that there was a perception that it is all right to drink alcohol during the later stages of pregnancy because *“everything was done and dusted by then”* (FG 2) in terms of the development of the fetus. Similarly, women spoke of becoming *“a bit more lax”* (FG 4) about behaviour changes in their second pregnancy *“because you realise that you have brought a healthy baby into the world”* (FG 4) and *“that paranoia isn’t there as much with the second one”* (FG 4).

iv. Needing alcohol to relax

Although it was not a frequent theme, some women spoke of using alcohol during pregnancy in order to relax, *“it was my sanity for me”* (FG 4). One participant spoke of drinking alcohol particularly during her second pregnancy when other opportunities for relaxation were not as accessible, given the time involved in caring for an older child.

Related to the notion that alcohol aids relaxation, was the view that if a state of relaxation is good for the pregnancy, and *“if it (alcohol) helps you relax it is going to be beneficial to the baby as well”* (FG 4). This indicates that there may be a perception that it is better to drink alcohol and be relaxed during pregnancy, than to abstain and be

stressed. However this may be a post-hoc rationalisation as this theme was not fully explored in these groups.

v. *The amount drunk is not harmful*

A barrier to total abstinence from alcohol during pregnancy was the perception that small to moderate amounts were not harmful, “*I wasn’t going out and getting hammered or anything like that*” (FG 1). Some held the belief that only ‘alcoholics’ were really at risk of having a child affected by prenatal alcohol exposure. Given that these participants viewed themselves as low to moderate drinkers, they believed that the amount they were drinking, or had drunk during pregnancy was not likely to be harmful.

vi. *Not ready to let others know about the pregnancy*

For some women, it is important to avoid disclosing pregnancy during the early stages, for fear of something happening to the baby and having to cope with the additional stress of telling people. For this reason, women did not want to indicate to others that they were pregnant by abstaining from alcohol. While none mentioned drinking alcohol in order to avoid disclosing a pregnancy, they did talk about being ‘found out’ before they were ready to tell others because they chose to abstain. “*I wasn’t going to tell anyone at six weeks but it was so obvious because they knew I was a drinker*” (FG 4).

vii. *Alcohol as an integral part of socialising*

One woman mentioned the important role that alcohol played within her social scene, and that for her this made it very difficult to abstain from alcohol: “*but I think it is hard, for me it was particularly hard because my husband and I were very social beforehand ... it got to the point where our whole social scene was revolving around (alcohol) ... so cigarettes and alcohol were a big part of our social scene, and so that was really hard for me to stop the alcohol*” (FG 4). Other women spoke of “*just avoiding those situations*” (FG 1) where they would be expected to drink, or of having a ‘life-style change’ during pregnancy in which they do not socialise as frequently or in the same ways as prior to pregnancy.

viii. *Lack of evidence about the risk of harm*

Women described anecdotal evidence contradicting the harm of alcohol use and spoke of other women who drank alcohol during pregnancy with no apparent effect on their children: “*nothing wrong with their children*” (FG 4). Some also reflected on themselves

as children, noting that their mother drank alcohol during pregnancy and “*it never did me any harm*” (FG 3).

Facilitators of abstinence from alcohol during pregnancy

Other than the factors which facilitated abstinence from alcohol during pregnancy listed under ‘Motivations for behaviour change’, there were few factors mentioned that made it easier to abstain or reduce alcohol during pregnancy. Contextual factors and social influences that might support or facilitate abstinence, such as having a partner who also abstains from alcohol, or having a special non-alcoholic drink, were not raised in these focus groups, but have arisen in other research (McBride et al., 2008). However the following facilitator of abstinence from alcohol during pregnancy was mentioned:

i. Why bother with such a small amount?

One participant mentioned that as she does not get the effects that she desires from alcohol with only one or two glasses of wine, she would not bother drinking at all, and particularly if this level could pose a risk. That is, if she did not experience the benefits of consumption, why risk the costs: “*I like to have a few and one drink doesn’t really do anything for me ... it’s still a risk so it’s not worth it. Like the joy of having one glass of wine is outweighed by the threats to the baby in my opinion ... I just wouldn’t bother*” (FG 3).

Woman-centric motivations

An insight from the above motivations is that they while the health or risk to the fetus may be the core reason underlying the behaviour change, the motivations are situated with the mother and are frequently about how the mother will feel and how people will respond to her if she did or did not change her behaviour. This insight suggests that while it is important to acknowledge the health of the fetus within communication, it is also important to acknowledge those motivations that are situated in the experience of the pregnant women. Interestingly, and perhaps related to this, only a couple of participants spoke about their fetus as an individual, independent developing human being per se. Rather, the pregnancy and fetus were more described as an extension of the woman herself. For example, others concern for the fetus or baby is often seen solely as concern for the woman herself: “*everybody gets really, really protective of pregnant women. You walk into a room and everyone kind of like makes sure that they’re out of the way and there’s no danger and it’s just if something happens everybody’s looking out for you and making sure that you’re okay and you know double*

checking everything and carrying things for you and making sure that you're getting good rest" (FG 2).

Events as cues to action

While not a focus of the research questions, one important theme that emerged was that there are particular points in time which are key times for behaviour change. These could be used as 'cues for action' to target women at a time when there is heightened readiness to receive messages about alcohol use during pregnancy. These events or times are:

i. Finding out you are pregnant, with the cue for behaviour change being a positive pregnancy test.

The time following a positive pregnancy test appears to be a key time that women consider behaviour change for pregnancy and seek information about what they should be doing to support the health of their pregnancy: "as soon as you know you are pregnant then you start making those changes" (FG 1). It is important to recall that during this time an important barrier to abstinence from alcohol becomes relevant; in this early stage of pregnancy many women are conscious that if they abstain from alcohol in a social situation then this may indicate to others that they are pregnant, before they are ready for others to know.

ii. Trying to get pregnant, with the cue to behaviour change being ceasing contraceptive practices.

It did not appear salient for these women that a woman would abstain from alcohol if she was trying to get pregnant. However, there were other behaviour changes that were salient for this time, "like I started taking the pregnancy vitamins" (FG 1). Therefore, there could be value in linking cessation of contraceptive practices to cessation of alcohol consumption.

iii. Telling people you are pregnant or being visibly pregnant.

Social expectations and norms come into play as important and strong motivators for behaviour and once women tell their friends and family that they are pregnant and when pregnancy is physically evident in the second and third trimesters. For example, this participant describes the experience of purchasing alcohol: "I can't hardly carry (the carton of beer) because I'm pregnant and they (the shop assistants) kind of look at you like, and you feel a bit guilty actually going into the bottle shop. You want to just say, "Oh it's actually for my husband, it's not for me" (FG 2).

Sources of information about alcohol use in pregnancy

Several sources of information were frequently mentioned:

i. Obstetricians and other health professionals

As expected, health professionals, and obstetricians in particular, were frequently mentioned as sources of information and advice about alcohol use during pregnancy. The advice that women receive from health professionals is tailored, and considered to be authoritative.

ii. Friends and family

The women who had been pregnant and were currently pregnant spoke about being inundated with information about what they should and should not do during pregnancy by others in their social network (friends, family, work colleagues etc). This information appears to be listened to by the pregnant woman but ultimately her willingness to accept the information or recommendation depends on her existing values and beliefs and whether or not the information is confirmed by a health professional.

iii. The older generation

While several participants spoke of seeking and receiving advice from people from an older generation (mothers, aunts), there was a strong sense that information and advice given by older people was outdated and lacking in relevance. Furthermore, 'older' people were frequently discussed as undermining or rejecting recommendations not to drink alcohol during pregnancy.

iv. Antenatal classes

It was expected by women that antenatal classes would be a key source of information about health promoting behaviours for pregnancy. However these women reported that in their experience antenatal classes were very much geared towards preparing women for the birth, with little attention given to the provision of health promotion information for pregnancy.

Feelings towards the fetus

There was a sense among both the pregnant participants and women who had recently been pregnant that the connection with their child forms after birth, when it can be an instant or a gradual process. That is, "love" (FG 1) towards the child and "feeling like a mother" (FG 1) came after birth. Feelings directed towards the fetus were more "worry"

(FG 1 & 4) and “*protective*” (FG 2). Nevertheless, a woman’s feeling of connection with her fetus was facilitated through pregnancy scans and ultrasound photos, and by the kicking of the fetus in the second and third trimesters.

Themes expected to be (more) salient or that did not show up

i. Long-term effects of prenatal alcohol exposure

While some short-term effects were mentioned, such as still birth and miscarriage, there were few references to any potential long-term effects of prenatal alcohol exposure. Long-term effects of prenatal alcohol exposure were not salient for these women.

ii. The positive effects of alcohol

While the relaxing effect of alcohol was briefly mentioned, overall women did not speak about the positive effects of alcohol as a key barrier to abstinence. It could be that women did not feel comfortable about expressing a desire to drink alcohol, or that they did not want to disclose that they missed the effects of alcohol when they were pregnant. That is, it may be socially undesirable to express these benefits within a context of pregnancy and motherhood that positions women to be nurturers and caregivers.

iii. The influence of the partner

While not specifically asked within the groups, it did not come up spontaneously that it is difficult to abstain from alcohol when your partner continues to drink as usual. The influence of the partner was mentioned in terms of the partner who continues to drink and the pregnant women becoming the “*sober driver*” (FG 2 & 4) or the partner staying out late partying and drinking while the woman chooses to stay at home (due to the effects of pregnancy as well as to stay away from a social environment in which people are drinking alcohol). However, it should be noted that other research has shown that the partner’s alcohol consumption is a key influencing factor on a woman’s alcohol consumption during pregnancy (Bakhireva et al., 2011; Wiemann & Berenson, 1998), and while it did not emerge as a salient theme in these groups, neither did the group process specifically explore the role of the partner around women’s consumption or abstinence during pregnancy.

5.4.6 Summary

The exploratory research involved 23 participants in four focus groups and provided several insights that are potentially useful in the development of messaging for alcohol use during pregnancy:

- there are a number of motivations for abstinence from alcohol that go beyond 'doing it for the health of the baby' that may be appealed to through messaging;
- there is a lack of specific knowledge about the risk and consequences of prenatal alcohol exposure and messaging that provides information about this may increase the perceived severity of the threat among the target audience;
- there is scepticism with regard to the risk to the fetus of low to moderate alcohol exposure, and messaging that addresses this may be perceived by the target audience to be relevant to them, may increase their perception of their susceptibility to the risk and may also decrease their ambivalence towards consuming low to moderate amounts of alcohol;
- there are specific events that could be used as 'cues to action' in a communication strategy to target women in different stages of reproduction, and promote thoughts about behaviour change; and
- there are a number of barriers to alcohol abstinence which can be addressed through a communication campaign.

5.5 The target audience

Though a target audience of pregnant women and women of childbearing age was determined at the beginning of the study, a more detailed profile of the target audience was built from the background research and insights gained from the exploratory research. This profile describes the target audience, their attitudes, knowledge and characteristics and its specificity helps to ensure that the communication objectives align with the reality of the audience, their needs and their ability to change.

Who they are:

- they are pregnant, trying to get pregnant, or women of childbearing age;
- they are non-Indigenous; and
- they are well educated.

How they drink now:

- they drink low to moderate amounts before and during pregnancy, and when planning a pregnancy, and this may include episodic binge drinking; and

- they are likely to lower their alcohol intake when they find out they are pregnant.

What they know:

- that abstinence from alcohol during pregnancy is recommended; and
- that high levels of alcohol are harmful to the pregnancy and the fetus; however
- they lack awareness of the specific effects of prenatal alcohol exposure, and their nature (long-term and irreversible).

What they think:

- they are sceptical about whether their pattern of alcohol consumption is harmful and poses a significant risk to the pregnancy and fetus.

5.6 Concept development

5.6.1 Aims

The aims of the concept development were to:

1. articulate implications for messaging based on insights gained from the exploratory research;
2. develop a set of communication objectives based on the themes of the exploratory research and insights from the literature review;
3. develop a series of concept executions suitable for television;
4. develop factual statements that could be used to support the main message within print media;
5. develop a list of effects of prenatal alcohol exposure that may be salient for the target audience and that could be used to support the main messages; and
6. develop several graphical representations of main messages that could be used within print media.

The subsequent sections describe the outcomes associated with each of the above aims.

5.6.2 Implications for messaging

A number of implications for messaging were developed from the results of the exploratory phase and with reference to constructs from social cognition models. These implications were divided into two sets: first, those that related to women's knowledge, attitudes and beliefs regarding alcohol use during pregnancy, and the perceived barriers and facilitators of abstinence from alcohol (Table 5.3); and second, those specifically related to the motivational goals identified in the exploratory data (Table 5.4).

Rossiter and Percy's (1987) eight basic motivations (that were extended by Donovan [1995] to ten) were used as a framework to classify the motivational goals. The framework classifies motivations as either negative or positive, as defined by the direction of the motivating process. That is, for negative motivations the process of change is initiated to remove or avoid a situation, feeling or emotion. For positive motivations the process of change is initiated in order to achieve, seek or gain a positive situation, feeling or emotion. This framework is useful as it includes feelings and emotions that are associated with the motivation (Rossiter & Percy, 1987). Given that participants often described their motivation as a feeling or emotion, this further enabled the classification of motivations for behaviour change around alcohol use during pregnancy.

Table 5.3: Key themes from the exploratory research and implications for messaging

Theme	Implications for messaging
A reduction in alcohol consumption during pregnancy is a salient behaviour change and abstinence from alcohol during pregnancy is known to be recommended.	Messaging can go beyond a 'do not drink alcohol in pregnancy' communication objective as this is already known among the target audience.
Binge drinking and getting drunk is understood to pose a risk to pregnancy and the unborn child, however there is confusion and scepticism about the risk of low to moderate exposure, and therefore scepticism about whether the risk applies to the pattern of drinking that the target audience engages in.	<p>Messaging should focus on decreasing the ambiguity surrounding the risk of low to moderate patterns of drinking alcohol during pregnancy.</p> <p>Messaging should address a drinking pattern that the target audience sees as relevant to them, such as 'a couple of drinks every now and then'.</p> <p>Messaging that addresses the risk to the fetus of low to moderate alcohol exposure may work to increase the target audience's perceived susceptibility to the threats associated with prenatal alcohol exposure.</p>
The specific effects of prenatal alcohol exposure on the fetus are not salient.	<p>There may be the potential to fill a knowledge gap and strengthen the rationale for an abstinence message through the provision of information regarding the potential effects of alcohol on the fetus.</p> <p>Messaging that includes information about the specific effects of prenatal alcohol exposure on the fetus may work to increase the target audience's perceived severity of the threats associated with prenatal alcohol exposure.</p>
Women perceive a lack of evidence for the risk of harm to the fetus associated with low to moderate alcohol consumption.	<p>Use a lack of evidence of the risk of harm associated with low levels of exposure as a rationale for abstinence rather than a reason for consumption of alcohol during pregnancy.</p> <p>Emphasise that any amount of alcohol constitutes some level of risk to the fetus.</p>
A change in alcohol consumption is one of a range of behaviour changes that women make during pregnancy. Other behaviour changes include diet, exercise and tobacco use.	Increase the salience of altering alcohol use for pregnancy by linking to other behaviour changes that are regularly adopted.

Theme	Implications for messaging
<p>There are specific 'cues to action' that occur for behaviour change during pregnancy: 1) when a woman begins to try to get pregnant (signified by the cessation of contraceptive practices); 2) when a woman finds out that she is pregnant (signified by a positive pregnancy test result); 3) when a woman is known by others to be pregnant (signified by a willingness to disclose pregnancy to others).</p>	<p>These 'cues to action' could be used within messaging to strengthen the link between these times, and positive behaviour change.</p> <p>Messaging could be used to increase women's identification of themselves as 'pregnancy planners', and link behaviour change to this identity. E.g. Stopping the pill linked to stopping alcohol consumption.</p>
<p>Women may be more lax about behaviour change in the latter stages of pregnancy and in pregnancies subsequent to their first.</p>	<p>Messaging could specifically model or address those women later in pregnancy and women in pregnancies subsequent to their first and reiterate the importance of continuing abstinence from alcohol.</p>
<p>A barrier to abstinence from alcohol is advice from health professionals that it is all right to drink some alcohol during pregnancy.</p>	<p>Health professionals' advice has the potential to undermine a population-based abstinence message.</p> <p>Use a health professional within messaging and position them as an unquestionable expert who has the most current information.</p>
<p>Women often consume alcohol in order to relax, and this is a barrier to abstinence.</p>	<p>Use messaging to promote and demonstrate alternative ways of achieving relaxation during pregnancy.</p>
<p>Women may become lax about decision to abstain from alcohol when they are in the latter stages of their pregnancy, or when they have already had a pregnancy.</p>	<p>Target messages to women who are in the later stages of pregnancy, or in a pregnancy that is subsequent to their first and reiterate the importance of abstaining from alcohol during these times.</p>
<p>Women often do not want to disclose their pregnancy in the early stages, and this is a barrier to abstinence from alcohol during social situations.</p>	<p>Providing strategies for avoiding alcohol during social situations, without disclosing pregnancy, may be useful.</p>
<p>Health professionals are a respected source of information during pregnancy.</p>	<p>Messaging could use a health professional as an expert source to deliver information.</p>

Table 5.4: Negative and positive motivations* for modifying alcohol consumption for pregnancy, associated feelings and the implications for messaging

Motivation	Defined as*	Associated feelings	Implications for messaging
Negative			
Reduce fear and worry Avoid poor pregnancy and fetal outcomes	Problem avoidance	Fear, worry and “being paranoid”	Emphasise that these negative outcomes, experiences and feelings can be <i>reduced or avoided</i> if women abstain from alcohol during pregnancy.
Avoid feeling responsible for poor pregnancy or fetal outcomes	Problem avoidance	Guilt and regret	
Avoid social disapproval	Problem avoidance	Shame and embarrassment	
Positive			
Feel efficacious by avoiding threats that are within personal control	Intellectual stimulation/ mastery	Feeling “in control” and having “peace of mind”	Emphasise that these positive experiences and feelings can be <i>obtained or maintained</i> if women abstain from alcohol during pregnancy.
Gain self-approval	Self-approval	Feeling that you are “doing the best that you can”	
Gain social approval	Social approval	Pride and respect	
Feel socially accepted	Conformity	Belonging and “fitting in”	
Feel doing “the right thing” by complying with professional advice	Conformity and self-approval	Virtuous and good	

* drawing from Rossiter and Percy’s hypothesised relationship linking emotions to motivations in advertising (1987), and Donovan’s (1995) extension of this model

5.6.3 Communication and modelling objectives

The communication objectives were based on the results of the exploratory research and evidence from the literature about alcohol and pregnancy. Given that the concepts were to be developed primarily for television advertisements, modelling objectives are also delineated. As outlined in Chapter Four, Social Cognitive Theory (Bandura, 1977) indicates that such techniques can be effective in facilitating behaviour change. Table 5.5 shows the communication and modelling objectives.

Table 5.5: Communication and modelling objectives

<p>Communication objectives</p> <p>To create and reinforce the beliefs that:</p> <ul style="list-style-type: none"> • if you are pregnant you should reduce your alcohol intake, with abstinence as the primary goal; • alcohol consumption is something that (most) pregnant women can control and that reduction or abstinence from alcohol will support the health of the pregnancy and baby; • no alcohol during pregnancy is the safest option; • challenge the belief that ‘a couple of drinks every now and then’ are risk-free; • the risk to the fetus increases with increasing amount and increasing frequency and there is risk even when a woman is not ‘drunk’; and • alcohol consumption is related to short-term and long-term negative effects for the pregnancy and fetus. <p>Modelling objectives</p> <p>To:</p> <ul style="list-style-type: none"> • link abstaining from alcohol to other positive behaviour changes for pregnancy such as ‘being on a health-kick’, eating healthy foods, or taking folic acid; • show a significant person (such as a partner or friend) supporting a woman to modify her alcohol consumption when pregnant; • demonstrate a way of dealing with social situations when women want to abstain from alcohol but do not want others to know that they are trying to get pregnant or are pregnant.

5.6.4 Concept ideas and executions

A total of 11 concept executions suitable for television were developed based on appealing to either positive or negative motivations identified from the exploratory research (Table 5.4). Specific executions were designed by the PhD candidate and her principal supervisor who has extensive experience in the development of campaigns

and advertising concepts. While the development of concepts and their executions is a creative process, the aims were to ensure that all executions:

1. addressed a number of the communication and modelling objectives;
2. aligned with specific theoretical constructs; and
3. were based on insights gained from the exploratory research.

Pregnancy concept executions

Three different appeals were used to construct the concept executions depicting the time of pregnancy. These three appeals were:

1. a threat appeal based on fear and worry;
2. a positive appeal based on social norms and self-efficacy; and
3. a positive appeal based on self-approval and self-efficacy.

A threat appeal based on fear and worry

The concept execution based on a threat appeal, named *Obstetrician* sought to increase the audience's perceived severity of the effects of prenatal alcohol exposure and focused on the negative motivation of avoiding fear and worry. The communication objectives were to challenge the belief that 'a couple of drinks every now and then' are risk free and emphasise abstinence from alcohol during pregnancy as the safest option. *Obstetrician* was developed into two variations: *Obstetrician – effects* (Figure 5.1) and *Obstetrician – risk* (Figure 5.2) in order to gauge whether threat was better conveyed through enhancing perceptions of the severity of the risk or perceptions of susceptibility to the risk. The variations differed in content only and specifically:

- *Obstetrician – effects* sought to enhance the audience's perception that the effects of prenatal alcohol exposure are *severe* by communicating the short-term and long-term negative affects related to alcohol consumption during pregnancy; and
- *Obstetrician – risk* sought to enhance the audience's perception that they were *susceptible* to the effects of prenatal alcohol exposure by emphasising that the risk to the fetus increases with increasing amount and increasing frequency and that there is risk even when a woman is not 'drunk'.

By definition, threat appeals have as part of them, a source (Donovan & Henley, 1997). In the exploratory phase health professionals were identified as having a high level of

influence and authority during the period of pregnancy and thus, an obstetrician was used as an expert source within this execution.



Scene One

A woman (who is not visibly pregnant) and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that he has been looking at.

The obstetrician says, “So you are doing really well, everything is looking very good. Is there anything else you would like to ask?”

The woman says, “And how about alcohol? I’ve heard different things.”

The obstetrician says, “Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows. We recommend that you don’t drink any alcohol during pregnancy.”

The woman asks, “Is a glass of wine every now and then OK?”

The obstetrician says, “We just don’t know how much alcohol it takes to do damage. It is different for different women and different babies. And that is why we say no alcohol is the safest choice.”

Figure 5.1: *Pregnancy/ Obstetrician - effects*



Scene One

A woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that he has been looking at.

The obstetrician says, “So you are doing really well, everything is looking very good. Is there anything else you would like to ask?”

The woman says, “And how about alcohol? I’ve heard different things.”

The obstetrician says, “We recommend that you don’t drink any alcohol during pregnancy. If you do drink alcohol, the more you drink, and the more often you drink, the greater the risk that your baby could be harmed.”

The woman asks, “Is a couple of glasses of wine every now and then OK?”

The obstetrician says, “We just don’t know how much alcohol it takes to do damage. No amount of alcohol has been proven safe for the fetus. No alcohol is the safest choice.”

Figure 5.2: *Pregnancy/ Obstetrician - risk*

A positive appeal based on social norms and self-efficacy

Two concept executions were developed as positive appeals focusing on the motivations of gaining social approval and feeling efficacious. *Best friend* (Figure 5.3) and *Partner* (Figure 5.4) sought to show a significant person supporting a woman to modify her alcohol consumption when pregnant and demonstrate a way of dealing with social situations when women want to abstain from alcohol but do not want others to know that they are pregnant. The exploratory research identified the positive motivations of gaining or maintaining social acceptance and approval, and existing literature identified friends and male partners as important influences on a woman's alcohol consumption during pregnancy. These executions were defined as separate, rather than variations of one concept as they differed in both content and execution factors.



Scene One

A woman aged approximately 30 years walking along the beach with her friend.

The woman says with a smile, “Can you keep a secret?”

Her friend replies, “Of course I can! Why?” She slows down her walk.

The woman says, “You have to promise you won’t tell anyone, yet ...”

The friend stops walking, nods, and looks at her with excitement.

The woman stops walking and says “I’m pregnant!”

They scream and laugh and the friend gives the woman a big hug.



Scene Two

It is a ‘girls’ night out’ party scene and the same woman and her friend are arriving together.

The woman gets offered a glass of wine by the host, and the woman says “No thanks, just an orange juice for me.”

The host says “What? That’s not like you!”

The friend is standing next to the woman and says “Oh, we are on a health-kick, I’ll have an OJ too.”

The host says with a roll of her eyes “Good on you, I should be too!”

The woman and her friend smile at each other while the host turns away to get them the drinks.

Figure 5.3: Best Friend



Scene One

A woman aged approximately 30 years comes out of the bathroom, she is holding a pregnancy test stick. She says to her partner “Two lines. I think we are pregnant!”

He says, “Are you sure?”

She says, “I think so!”

They look at each other with excitement as the news ‘sinks in’.



Scene Two

A party scene, and the same couple have just arrived.

The woman is offered a glass of wine by a host, and she shakes her head.

She says, “No thanks, just two orange juices, we’re on a health-kick”.

Her partner is standing next to her and he holds up a bottle of orange juice that they have brought with them.

The host says, “Good on ya, I should be too.”

The woman looks at her partner and they smile at each other.

Figure 5.4: Partner

A positive appeal based on self-approval and self-efficacy

One concept execution was developed as a positive appeal that focused on the motivation of gaining self-approval and feeling efficacious. This execution also drew on findings from previous formative research that recommended that messages should seek to build a pregnant woman's internalised identity of 'mother' and communicate that "good mothering involves making wise choices" (Baxter et al., 2004, pg. 244). *Woman* (Figure 5.5) sought to demonstrate a way of dealing with social situations when women want to abstain from alcohol but do not want others to know that they are pregnant. Other communication objectives were to emphasise that alcohol consumption is something that (most) pregnant women can control and that reduction or abstinence from alcohol will support the health of the pregnancy and baby.



Scene One

A woman aged approximately 30 years is gazing down at a take-home pregnancy test stick.

There is a voice-over of her thoughts. She says to herself, “Two lines. I’m pregnant!” (Happy, excited).

She pokes out her tummy in the mirror and laughs at herself.

She then rubs her stomach gazing down with a look of love and nurturing.



Scene Two

The same woman is at a work function and standing with a small group of colleagues.

One of her colleagues finishes off a sentence, he says “... so while there are many things you can’t control, there are some things you can do to lower the risk and put yourself in the best position.”

A waiter approaches and offers the group drinks. There are glasses of red wine, white wine, water and orange juice.

The woman picks up an orange juice.

There is a voice-over of her thoughts “Just an OJ for me thanks. I’m doing what I can to lower the risk and put myself in the best position to have a healthy pregnancy!”

Figure 5.5: *Woman*

Preconception and Second (pre)Pregnancy concept executions

In addition to the four concept executions that were developed depicting the period of pregnancy, four similar executions were developed depicting preconception, and three developed depicting a woman in her second pregnancy or planning a second pregnancy. These were developed as possible ‘supporting’ advertisements that could be used as part of a campaign. These executions sought to appeal to the same motivations as the *Pregnancy* concept executions and had similar communication objectives, however the scenarios were altered in order to capture the particular time of pregnancy and reproduction. No execution was developed that represented the *Obstetrician* execution depicting a woman in her second pregnancy, as it was determined that the content would be too similar to that of the main *Obstetrician* concept execution (described previously) to warrant separate development and testing.

To summarise, Table 5.6 shows the 11 concept executions including the two *Pregnancy/ Obstetrician* variations.

Table 5.6: Concept executions for television

	REPRODUCTIVE STAGE		
	Pregnancy	Preconception	Second Pregnancy
CONCEPT			
Obstetrician	<i>Pregnancy/ Obstetrician-effects/ Obstetrician-risk</i>	<i>Preconception/ Obstetrician</i>	-
Best friend	<i>Pregnancy/ Best Friend</i>	<i>Preconception/ Best Friend</i>	<i>Second (pre)Pregnancy/ Best Friend</i>
Partner	<i>Pregnancy/ Partner</i>	<i>Preconception/ Partner</i>	<i>Second (pre)Pregnancy/ Partner</i>
Woman	<i>Pregnancy/ Woman</i>	<i>Preconception/ Woman</i>	<i>Second Pregnancy/ Woman</i>

The executions depicting the time of preconception and a woman in her second pregnancy or planning a second pregnancy are shown in Appendices 5.10 - 5.16.

5.6.5 Supporting copy and graphics

In addition to the concept executions for television, several types of supporting copy and some graphics were developed. Specifically these were:

1. five categories of factual statements were developed to support the main message within print media;
2. seven short-term and long-term effects of prenatal alcohol exposure were generated to determine which of these women would most want to avoid as outcomes for their offspring; and
3. three graphical representations of the risk of prenatal alcohol exposure were developed for print media, such as newspaper advertisements and posters.

Factual statements for print media

The five categories of factual statements for print media were:

- FASD in the population;
- effects of prenatal alcohol exposure;
- prevention of FASD;
- nature and risk of FASD; and
- alcohol pregnancy in Australia.

Each category comprised four or five evidence-based statements that were derived from the literature (Appendix 5.17 lists this literature). The statements were designed to have an impact on participants with respect to making them see alcohol use during pregnancy as a serious issue, making them want to find out more information and increasing their intentions to abstain from or reduce alcohol consumption during pregnancy. The factual statements within each category are shown in Table 5.7 - Table 5.11.

Table 5.7: FASD in the population

FACTS:

- Alcohol use during pregnancy is a leading cause of preventable birth defects and intellectual disability.
- In the USA, Fetal Alcohol Spectrum Disorder is thought to affect up to 5% of children born.
- It is not known how many people in Australia are affected by Fetal Alcohol Spectrum Disorder.
- Fetal Alcohol Spectrum Disorder is under-diagnosed in Australia.

Table 5.8: Effects of prenatal alcohol exposure

FACTS:

- The effects of alcohol use during pregnancy range from barely detectible consequences to severe consequences.
- Alcohol use during pregnancy damages the fetus's cells.
- Alcohol use during pregnancy increases the risk of miscarriage.
- Alcohol use during pregnancy can cause brain damage.
- The effects of alcohol use during pregnancy cannot be reversed and are life-long.

Table 5.9: Prevention of FASD

FACTS:

- One of the best things a woman can do when she is pregnant is avoid alcohol.
- If a woman stops drinking before she gets pregnant, she can avoid exposing her fetus to alcohol in the early stages of pregnancy.
- Fetal Alcohol Spectrum Disorder is 100% preventable, no alcohol equals no risk.
- Stopping drinking alcohol at any time during pregnancy will reduce the risk to the fetus.

Table 5.10: Nature and risk of FASD

<p>FACTS:</p> <ul style="list-style-type: none">• The more alcohol consumed and the more often that alcohol is consumed, the greater the risk to the fetus.• No amount of alcohol during pregnancy has been determined as safe for the fetus.• Drinking five or more standard drinks on one occasion poses a high risk to the fetus.• You don't have to be an alcoholic to have a child affected by alcohol exposure during pregnancy.
--

Table 5.11: Alcohol and pregnancy in Australia

<p>FACTS:</p> <ul style="list-style-type: none">• 88% of Western Australian women agree that pregnant women should not drink alcohol.• 98% of Western Australian health professionals advise pregnant women not to drink at all, or that no alcohol is the safest choice.• Women with higher levels of education are more likely to intend to drink alcohol during pregnancy.• A greater proportion of non-Aboriginal women drink alcohol during pregnancy than Aboriginal women.

Effects of prenatal alcohol exposure

Seven short-term and long-term effects of prenatal alcohol exposure were identified for potential use within print media. The effects were selected as a range of potentially salient consequences for the fetus that the target audience would be motivated to avoid. These were:

- delayed development;
- brain damage;
- cell damage;
- birth defects;
- low IQ;
- poor growth; and
- behavioural problems.

Risk graphics

Three *risk graphics* (Figure 5.6 - Figure 5.8) were developed to convey the message that increased amount and frequency of alcohol consumption are associated with an increased risk of harm to the fetus. The communication objectives of the *risk graphics* were to:

- challenge the belief that 'a couple of drinks every now and then' is risk-free; and
- to communicate that risk to the fetus increases with increasing amount and increasing frequency and there is risk even when a woman is not 'drunk'.

Alcohol use during pregnancy







Is it really worth the risk?	Standard drinks
DEFINITELY NOT WORTH THE RISK	
REALLY NOT WORTH THE RISK	
NOT WORTH THE RISK	
IS IT REALLY WORTH THE RISK?	
HARDLY WORTH THE RISK	
NO RISK	 I'll have an OJ thanks!

Figure 5.6: Risk graphic 1

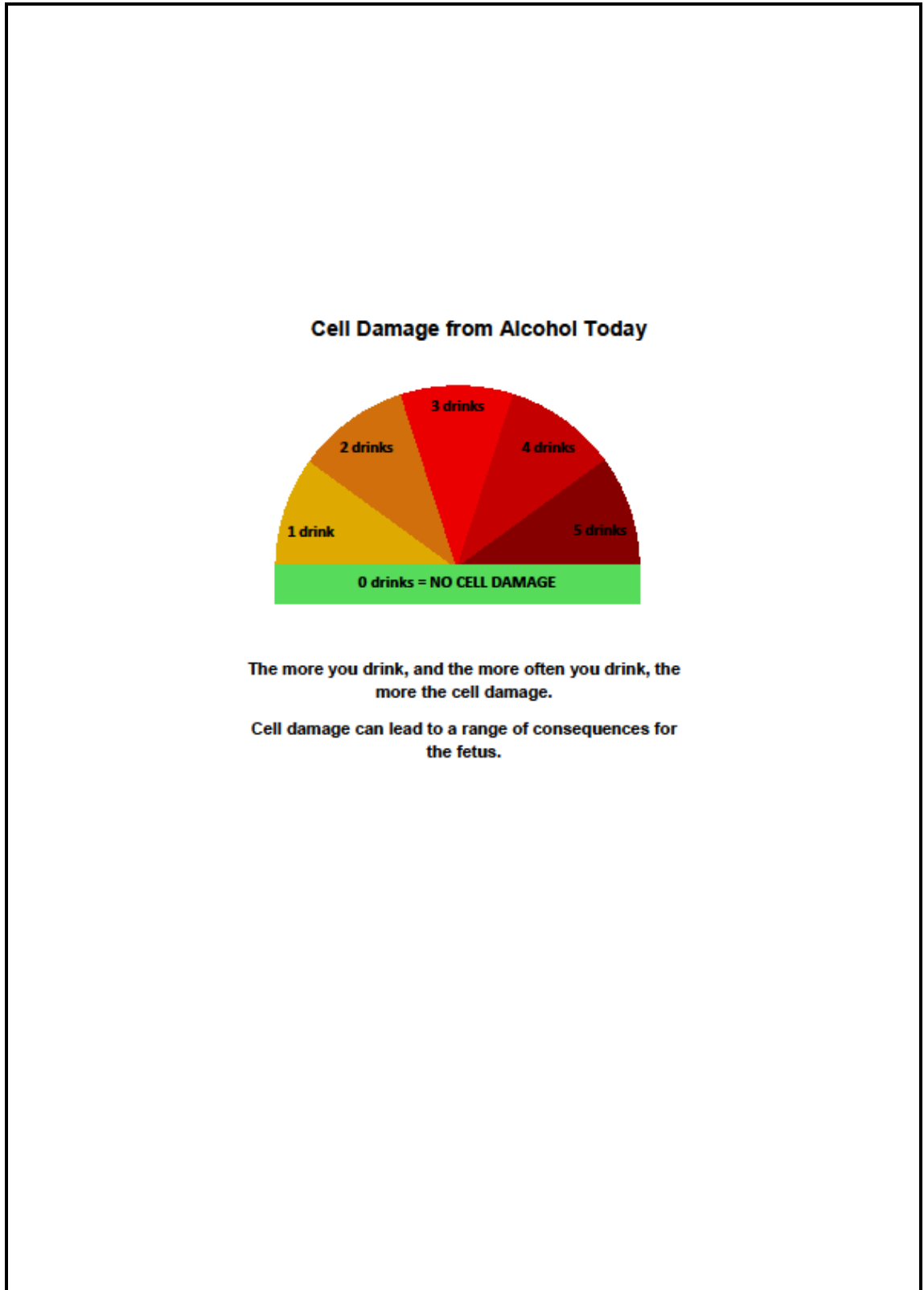


Figure 5.7: Risk graphic 2

There is lots to think about when you are pregnant
or planning a pregnancy.

Give yourself less to worry about.



No alcohol



No cigarettes



Take folic acid

And give your baby the best start.

Figure 5.8: Risk graphic 3

5.6.6 Summary

Implications for persuasive messaging were drawn from the exploratory research with pregnant women and women of childbearing age. Insights into women's knowledge, attitudes and beliefs with regard to alcohol use during pregnancy, motivations for behaviour change during pregnancy and constructs from social cognition models served as the basis for the development of communication objectives and concept executions.

Overall 11 concept executions suitable for television were developed built on one of three types of appeals: a threat appeal based on fear and worry; a positive appeal based on social norms and self-efficacy; and a positive appeal based on self-approval and self-efficacy. A range of supporting copy and graphics were also developed to impact the target audience and support the communication objectives. The following chapter outlines the methodology and results of the qualitative testing of these concept executions and supporting copy and graphics.

Chapter Six: Qualitative concept testing

6.1 Introduction

The television advertising concepts and accompanying copy and graphics were tested with a sample of the target audience through five focus groups. This chapter outlines the methodology and results of this qualitative concept testing. Figure 1.1 (page 8) shows the position of this phase of data collection within the whole project and with reference to the steps of communication planning.

6.2 Aims

The aims of the qualitative concept testing were to:

- assess the 11 television concept executions in terms of communicating the communication objectives and promoting the behavioural objectives;
- determine which of the categories of factual statement had the greatest impact on the target audience;
- determine which of the prenatal alcohol exposure effects were most relevant to the target audience; and
- determine which of the risk graphics were most effective at promoting the behavioural objectives.

6.3 Research questions

The research questions were as follows.

Television concept executions

1. What are the main messages perceived in the executions? Do these align with the communication objectives?
2. Which executions are most persuasive?
3. Which executions prompt participants to think about the issue of alcohol use during pregnancy?
4. Which executions do participants find most believable?
5. Which executions do participants find most relevant?
6. Which executions do participants like?
7. Which content and execution elements do participants most relate to?
8. Which content and execution elements most attract participants' attention?
9. Which executions have the most impact on motivating participants to drink less or not at all during pregnancy? Why are these concept executions the most motivating?

Factual statements for print media

10. Which categories of factual statements have the most impact on participants' intentions to avoid alcohol during pregnancy?
11. Which categories of factual statements motivate participants to want to find out more about alcohol use during pregnancy?
12. Which categories of information increase participants' perception that alcohol use during pregnancy is a serious issue?
13. Which categories of factual statements contain 'new' information?
14. Which categories of facts and statements have the greatest impact on participants, and why?

Effects of prenatal alcohol exposure

15. Which effects of prenatal alcohol exposure would women most want to avoid, and why?

Risk graphics for print media

16. Which risk graphic has the most impact on motivating participants to want to drink less or not at all during pregnancy, and why?

6.4 Sample

The same sampling strategy outlined for the initial exploratory research was used to obtain women at different reproductive stages for the qualitative concept testing phase. In addition, male partners of women who had been recently pregnant were included to gain insight into their perspectives, particularly given that one of the television concept executions focused on the influence of the male partner in supporting a pregnant woman to abstain from alcohol. As the executions had not been tested, it was considered that the risk of harm or discomfort to pregnant women who were still consuming alcohol was considered to be at an unacceptable level. Thus, for ethical reasons (as with the exploratory research), pregnant women were only eligible if they reported during the screening process that they had stopped drinking alcohol completely.

The sampling criteria and rationales were:

Focus group one

Sampling criteria: Women aged 18-45 years who consume alcohol, are of middle socioeconomic status, are in a current relationship and do not have any children, but have not ruled out having a child in the next five years.

Rationale: These women are a potential primary audience. With this audience the aim is to increase intentions to reduce or abstain from alcohol if they are planning a pregnancy, as well as if they found out they were pregnant unexpectedly.

Focus group two

Sampling criteria: Women aged 18-45 years who consume alcohol, are of middle socioeconomic status, and have a child who is five years of age or younger.

Rationale: This is another potential primary audience. With this audience it is important to reaffirm their intention to abstain in a future pregnancy, given that women are more likely to intend to drink in pregnancy if they have already had a child.

Focus group three

Sampling criteria: Men aged 18-45 years who consume alcohol, and have a partner who was pregnant in the past five years.

Rationale: This is a secondary audience, and the role of the male partner in supporting a pregnant woman is the primary focus of the *Partner* executions. It is important to assess the responses from this group to the proposed concept given that the message includes them and their behaviour in the goal of abstinence from alcohol when their partner is pregnant or planning a pregnancy.

Focus group four

Sampling criteria: Pregnant women who are in their first pregnancy and have stopped drinking alcohol.

Rationale: This is a primary target audience. Pregnant women were selected as the exploratory phase indicated that women can think and behave differently in their first pregnancy versus subsequent pregnancies with regard to their health behaviour. For ethical reasons, only pregnant women who reported that they had stopped drinking alcohol were included in order to minimise the risk of harm and discomfort as a result of participating.

Focus group five

Sampling criteria: Pregnant women who are in a pregnancy subsequent to their first and have stopped drinking alcohol.

Rationale: As per focus group four. Also, for these women there may be considerations that are relevant to the fact that they have already had a pregnancy.

6.4.1 Recruitment

Pregnant women and women with children were recruited during the recruitment of participants for the exploratory research phase, which yielded enough interest to fill the focus groups for this phase. Male partners were recruited through women who had indicated their interest in participating or who had participated in the exploratory research phase. Women without children were recruited from public spaces such as shopping malls and using a 'snowballing' technique' whereby interested people were invited to pass on the information about the opportunity to be involved to friends or family who may be eligible. As for the initial exploratory focus groups, the opportunity to

be involved in the research was advertised through flyers (Appendix 5.2) which were handed out to potential participants.

Interested people were called by the PhD candidate and screening questionnaires (Appendix 6.1) were used to recruit participants based on the sampling criteria. As with the exploratory research phase, people were ineligible if they were a health professional or a school teacher. Permission was sought from those who were ineligible (including pregnant women who had not stopped drinking alcohol completely) to retain their contact details for possible recruitment into the next testing phase. A maximum of ten people were recruited for each group with an aim of achieving six to eight participants per group. Prior to attending the focus group, participants were both emailed and posted an Information Sheet (Appendix 6.2 – non-pregnant participants and Appendix 6.3 – pregnant participants) and a map with directions to the venue and parking.

6.4.2 Participants

Participants completed a socio-demographic questionnaire (Appendix 5.7) prior to participating. This was modified slightly for the male participants to accommodate their gender status. Table 6.1 indicates the stratification and number of participants for each focus group and shows the age ranges, education levels and marital status of the participants.

Table 6.1: Stratification and number participants for each focus group

Focus group number	Reproductive stage	Alcohol consumption	Socioeconomic status	Number of participants
1	Do not have children, are currently in a relationship and see that they may have children in the next five years.	Have drunk two or more standard alcoholic drinks in one session in the past month	Middle	4
2	Mother of (at least one) child who is five years or younger	Have drunk two or more standard alcoholic drinks in one session in the past month	Middle	7
3	Father of (at least one) child who is five years or younger	Have drunk more than two standard drinks in one session in past month	Middle	8
4	Pregnant and do not have children	Have stopped drinking alcohol	Any	5
5	Pregnant and have at least one child	Have stopped drinking alcohol	Any	7
Total				31

Table 6.2: Participant demographics⁴

Age (years)	Number of participants
18-24	3
25-29	4
30-34	13
35-39	7
40-45	3
Highest education level	
Year 10 or 11	3
Year 12	4
Trade certificate	2
Associate diploma	3
Bachelor degree	10
Master's degree, Postgraduate degree or Postgraduate diploma	8
Marital status	
Married, including de-facto	30

⁴ One participant did not complete a socio-demographic questionnaire. The total number of respondents is 30.

The majority of participants were 30 years of age or older and had a tertiary qualification. All participants were married or in a de-facto relationship. Of the 12 pregnant participants, one participant was in her first trimester of pregnancy, six were in the second trimester, and five were in the third trimester of pregnancy. Nine of the 12 pregnant participants reported that their pregnancy was planned.

6.5 Group procedure

The logistics of the focus groups in terms of venue, time of day, and the information and consent process were the same as for the exploratory research phase. As with the exploratory research, the topic of interest was fully disclosed to pregnant participants prior to participation. Non-pregnant participants were not informed of the topic of interest prior to participating and were advised that the research concerned health promotion with particular reference to the period of pregnancy. The focus groups were moderated by the PhD candidate and supported by a research assistant, and ran for approximately two hours. Participants were reimbursed \$80 to cover their costs of attending.

6.6 Focus group exercises

6.6.1 Television concept executions

As the pregnancy concept executions were the primary executions of interest, all participants first received *Pregnancy/ Best Friend*, *Pregnancy/ Partner*, *Pregnancy/ Woman* and either *Pregnancy/ Obstetrician - risk* or *Pregnancy/ Obstetrician - effects* (half the participants received one variation, the other half the other variation). Focus groups began with participants responding to these concept executions through an individual self-completion pen-and-paper exercise. This was done in order to gain independent responses to the concepts prior to the group discussion (Kidd & Parshall, 2000). The concepts were presented to participants in individual booklets in rotating order and identified with a letter R-U to counter order and naming effects respectively. Figure 6.1 shows the layout of the concept execution in story-board format with the related questions on the opposite page. Participants were instructed to “read through each advertisement and imagine it is on television” and then respond to the questions before going onto the next execution. The questionnaire contained one open-ended question about the main message, “What is the ad trying to tell you or tell you to do?”

and five closed-ended questions with respect to the following items using a five-point scale ranging from 'not at all' to 'great amount':

- persuasiveness
 “To what extent does the Advertisement make you want to drink less alcohol or not at all during pregnancy?”;
- engagement with issue
 “To what extent does the Advertisement make you think about alcohol use during pregnancy?”;
- believability
 “How believable is the situation shown in the Advertisement?”;
- relevance
 “How relevant is the Advertisement to you personally?”; and
- appeal
 “How much do you like the Advertisement?”

Once participants had independently completed the booklet and responded to all four concept executions, they were asked to identify the two that “most (made) you want to try to drink less or not at all during pregnancy” (or for the males “most (made) you want to do things to help your partner avoid alcohol”). In order to stimulate later group discussion about motivating elements within each execution, participants were also asked to “circle any words or phrases that catch your attention or that you relate to in particular”. Following this, participants were asked to discuss and elaborate on their reasons for choosing the ‘most motivating’ execution, and any particular elements that were effective. The individual booklets were collected from participants at the end of each discussion for later analysis. This procedure comprising individual self-completion exercises followed by a group discussion was also adhered to for the testing of the *Preconception* and *Second pregnancy* concept executions, and the copy and graphics.

U

ADVERTISEMENT



Scene One

A woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that he has been looking at.

The obstetrician says, “So you are doing really well, everything is looking very good. Is there anything else you would like to ask?”

The woman says, “And how about alcohol? I’ve heard different things.”

The obstetrician says, “We recommend that you don’t drink any alcohol during pregnancy. If you do drink alcohol, the more you drink, and the more often you drink, the greater the risk that your baby could be harmed.”

The woman asks, “Is a couple of glasses of wine every now and then OK?”

The obstetrician says, “We just don’t know how much alcohol it takes to do damage. No amount of alcohol has been proven safe for the fetus. No alcohol is the safest choice.”

Questions for U

1. What is this ad trying to tell you, or tell you to do? *(Please write in full what you think. If the ad is telling you more than one thing, please write down all the things that it is telling you)*

2. To what extent does the Advertisement make you think about alcohol use during pregnancy? *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. To what extent does the Advertisement make you want to drink less alcohol or not at all during pregnancy? *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How relevant is the Advertisement to you personally? *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. How believable is the situation shown in the Advertisement? *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How much do you like the Advertisement? *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 6.1: Example of concept execution (opposite page) with related questions

So as not to overload participants with too many different concept executions, each focus group was shown only two executions from the *Preconception* and *Second Pregnancy* range. Those shown to each focus group were purposefully selected based on best fit of the group with the intended target audience of the concept and only tested on the measures of main message and relevance. Table 6.3 indicates the focus groups that were exposed to each execution.

Table 6.3: Focus groups exposed to each concept execution

CONCEPT	REPRODUCTIVE STAGE		
	Pregnancy	Preconception	Second Pregnancy
Obstetrician	All groups- half (risk)/ half (effects)	Focus group 1	-
Best Friend	All groups	Focus group 4	Focus groups 2 & 5
Partner	All groups	Focus group 3	Focus groups 2 & 3
Woman	All groups	Focus groups 1 & 4	Focus group 4

6.6.2 Factual statements for print media

To test the factual statements for print media participants received individual booklets for self-completion (Figure 6.2 shows one category of statements). Categories of statements were presented in rotating order and identified with the letters K-O to counter order and naming effects respectively. Following Carter and colleagues (2002) participants were asked to read through the list of individual statements and then answer four questions: “How much of this information is new to you?”; “Having read the above, is alcohol use during pregnancy more or less serious than you previously thought?”; “To what extent does the above information make you want to find out more about alcohol and pregnancy?” and “To what extent does this information make you want to do things to avoid drinking alcohol during pregnancy?” A range of five response options were given for each question. After responding to the questions for the five categories of factual statements, participants were asked to nominate the category that had the most impact on them, and rank the remainder in terms of impact. They were also asked to tick any statements that caught their attention or had an impact on them, and cross any that were unclear or confusing. Following this, participants discussed and elaborated on the reasons for their rankings.

Fact-sheet K

FACTS:

- Alcohol use during pregnancy is a leading cause of preventable birth defects and intellectual disability.
- In the USA, Fetal Alcohol Spectrum Disorder is thought to affect up to 5% of children born.
- It is not known how many people in Australian are affected by Fetal Alcohol Spectrum Disorder.
- Fetal Alcohol Spectrum Disorder is under-diagnosed in Australia.

1. **How much of this information is new to you?** *(Please tick one box)*

none of it	some of it	much of it	most of it	all of it
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. **Having read the above, is alcohol use during pregnancy more or less serious than you previously thought?** *(Please tick one box)*

much less	less	about the same	more	much more
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. **To what extent does the above information make you want to find out more about alcohol and pregnancy?** *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. **To what extent does this information make you want to do things to avoid drinking alcohol during pregnancy?** *(Please tick one box)*

not at all	only a little	small amount	fair amount	great amount
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 6.2: Example of factual statements and related questions

6.6.3 Effects of prenatal alcohol exposure

Each participant received a sheet with seven short and long-term effects of prenatal alcohol exposure listed in rotating order to counter order effects. Participants were asked to rank these in terms making them want to “drink less or not at all during pregnancy”. A rank of one was given to the effect that would most make them try to adopt the recommended behaviour change, through to seven for the effect that had the least influence on their desire to adopt the recommended behaviour change. After individually ranking the effects, participants were asked to discuss their reasons for choosing their top rankings.

6.6.4 Risk graphics

The three risk graphics were presented in a booklet to each participant in rotating order to counter against order effects. Women were asked to rank the graphics from one to three in terms of which would “most make them try to drink less alcohol or not at all if you were pregnant/ during pregnancy?” Men were asked to rank them in terms of which would “most make them make you want to do things to help your partner avoid drinking alcohol during pregnancy?” Participants then discussed the reasons for their ranking.

6.7 Analysis

The analysis of the closed-ended written response data are described separately for each exercise and are included as part of the following results. For the analysis of the closed-ended written response data to the *Pregnancy* concept executions, the results for the two *Obstetrician* variations were combined to enable comparison between the four concepts. Open-ended written data and discussion data from all groups were combined and analysed thematically with regard to message content and execution elements that were effective. For analysis of these data, *Obstetrician – risk* and *Obstetrician – effects* were kept separate in order to elucidate any differences resulting from the content variations. Themes relevant to one focus group only were noted, otherwise themes occurred across groups. For each concept a summary was developed into a table showing all the themes, including any secondary themes.

6.8 Results

6.8.1 *Pregnancy concept executions*

Main messages

The open-ended written responses on the perceived main messages were analysed thematically and grouped. Table 6.4 - Table 6.8 show the perceived main messages and the frequency with which the messages were noted. If two or more perceived main messages were very similar they were grouped, and a breakdown of the frequency of each is included.

Overall, all of the concepts communicated the desired main message: 'don't drink alcohol when you are pregnant'. Desired secondary messages were also communicated, such as 'be supportive of your friend or partner when they choose not to drink during pregnancy' for *Best Friend* and *Partner*. While the different executions resulted in some differences in terms of the main messages perceived, none of these opposed or undermined the desired communication objectives.

As shown in Table 6.4 and Table 6.5, the *Obstetrician* variations generated more elaboration than the other executions with respect to the rationale for abstinence from alcohol: abstinence is the 'safest choice'; any amount of alcohol poses a risk to the fetus; and it is just not known how much alcohol it takes to do damage to the fetus.

Table 6.4: Main messages for *Obstetrician - risk* and frequency with which they were noted

Main message	Frequency (n)
Don't drink alcohol when you are pregnant.	8
Drinking alcohol isn't worth the risk during pregnancy/ you avoid risk if you avoid alcohol.	2
Avoid alcohol, there is not enough information to know whether safe.	1
No amount of alcohol is safe/ the safest option is no alcohol.	4
Any alcohol is harmful to the baby.	3
No matter how much you drink, it isn't OK/ even a small amount is a risk.	3
The doctor makes the woman feel like she should be guilty if she drinks.	1
Communicate with your doctor if you have any questions.	1
Social situations are the hardest.	1
It's not themselves that women should consider, it's their unborn child.	1

The top main message for *Obstetrician – risk* was ‘don’t drink alcohol when you are pregnant.’ Two messages elaborated on this ‘don’t drink’ message: ‘drinking alcohol isn’t worth the risk during pregnancy’ and ‘you should avoid alcohol (because) there is not enough information to know whether it is safe.’ The second main message related to amount consumed; that ‘no amount of alcohol is safe’, ‘any alcohol is harmful to the baby’ and ‘even a small amount is a risk.’

Table 6.5: Main messages for *Obstetrician - effects* and frequency with which they were noted

Main message	Frequency (n)
The safest choice is no alcohol at all.	7
Any alcohol is harmful/ poses a risk to the baby.	4
Alcohol can disturb development of the fetus.	2
Don't drink alcohol when you are pregnant.	6
Recommended by a doctor that you don't.	1
We don't know how much alcohol it takes to disturb development of the fetus.	4
There is not research done about the amount of alcohol that can cause damage.	3
If you do drink, be moderate.	1
Promoting caution is best.	1
The effects of alcohol on a baby might not be evident for some time.	1
Ask your obstetrician any questions about this topic to be sure.	1

Obstetrician – effects variation was the only one that had a top main message different from 'don't drink alcohol during pregnancy.' *Obstetrician – effects* conveyed the main messages about amount of alcohol, and alcohol's effect on the fetus: 'The safest choice is no alcohol at all' and 'any alcohol is harmful' and 'poses a risk to the baby/ disturbs the development of the fetus'. The second main message was 'don't drink alcohol when you are pregnant'. This execution conveyed the rationale that you should avoid alcohol (because) it is not known how much alcohol it takes to disturb the development of the fetus.

Table 6.6: Main messages for *Best Friend* and frequency with which they were noted

Main message	Frequency (n)
Don't drink alcohol when you are pregnant.	20
Drink OJ instead of alcohol when pregnant/ choose healthy alternatives during pregnancy.	2
Be aware of what you consume while pregnant.	1
Drinking during pregnancy is not the done thing.	1
Be supportive of friends who are pregnant and choose not to drink.	11
Share the responsibility of not drinking when pregnant/ abstain together.	3
Let others know you are pregnant so that you can act responsibly.	1
Take people out with you that you think will support your decision.	1
Friends can be supportive/ friendship is important during pregnancy (<u>not specific to alcohol</u>).	9
Drinking during pregnancy is harmful to your baby.	2
Share the excitement of pregnancy.	2
There are sneaky ways not to let other know that you are pregnant.	2
Keeping pregnancy secret.	1
Don't be pressured to drink.	1
It is the woman's choice not to drink.	1
Peer pressure can affect whether you drink or not.	1
People find it unacceptable when someone doesn't drink (host rolling eyes).	1
Orange juice is a health drink.	1
Keep fit and healthy.	1

The top main message for *Best Friend* was 'don't drink alcohol when you are pregnant'. The second main message related to the display of support by a friend: 'be supportive of friends who are pregnant and choose not to drink'. Related to this were the general messages that 'friends can be supportive' and that 'friendship is important during pregnancy'.

Table 6.7: Main messages for *Partner* and frequency with which they were noted

Main message	Frequency (n)
Don't drink alcohol when you are pregnant.	13
Don't drink alcohol even if you are not sure that you are pregnant.	2
Choose other drinks other than alcohol during pregnancy.	2
Support your partner while she is pregnant and not drinking alcohol.	7
Both parents shouldn't drink alcohol and support one another.	2
She is bossy, if she can't drink, neither can he.	1
Partner is supportive of pregnant woman/ it is important to get support from family and friends while pregnant (<u>not specific to alcohol</u>).	5
Share the responsibility of being pregnant.	2
Make healthy choices while pregnant/ trying to get pregnant.	4
As soon as you are pregnant you need to be responsible and make responsible choices for the child growing within.	1
Drink orange juice to be healthy.	2
Have a prepared way/ there are ways of avoiding alcohol when you are pregnant (and don't want others to know).	4
Don't feel social pressure to drink just because it's too early to announce pregnancy.	2
Alcohol is harmful to your baby during pregnancy/ bad during pregnancy.	2
She is happy to be pregnant/ be excited about pregnancy.	2

The top main message for *Partner* was 'don't drink alcohol when you are pregnant'. The second main message related to the display of support by the male partner: 'support your partner while she is pregnant and not drinking alcohol'. Related to this were the general messages that 'the partner is supportive of the pregnant woman' and 'it is important to get support from family and friends while pregnant'.

Table 6.8: Main messages for *Woman* and frequency with which they were noted

Main message	Frequency (n)
Don't drink alcohol when you are pregnant.	11
I have choices about my alcohol intake during pregnancy and I control them.	4
Take care what you consume during pregnancy.	1
There is risk to the baby with drinking alcohol and risk is lowered if you avoid alcohol.	11
Avoiding alcohol during pregnancy gives your baby best chance of healthy life.	3
Responsibility of new mother to unborn child and there are lifestyle choices to be made.	2
Look after your health during pregnancy.	1
Be happy and excited when you are pregnant.	3
Put your body and its health first.	2
Health is more important than social appearance.	1
Provide a choice of non-alcoholic drinks.	2
It is OK to refuse alcohol in social situations.	1
Orange juice is best for your pregnancy and socially acceptable drink.	1
It was probably a planned pregnancy.	1

One of two top main messages of *Woman* was 'don't drink alcohol when you are pregnant'. Related to this was the notion of choice and control: that women have choices about their alcohol intake during pregnancy and they control them. The other main message conveyed in *Woman* related to risk: 'there is risk to the baby with drinking alcohol and the risk is lowered if you avoid alcohol'.

Message impact and diagnostics

For the analysis of the message impact and diagnostics the top two responses ('fair amount' and 'great amount') were combined to form an overall positive response measure. Figure 6.3 - Figure 6.7 show for each concept the percentage of participants who nominated a fair or great amount on each measure. The contribution of 'great amount' responses (dark blue) and 'fair amount' responses (light blue) are shown separately.

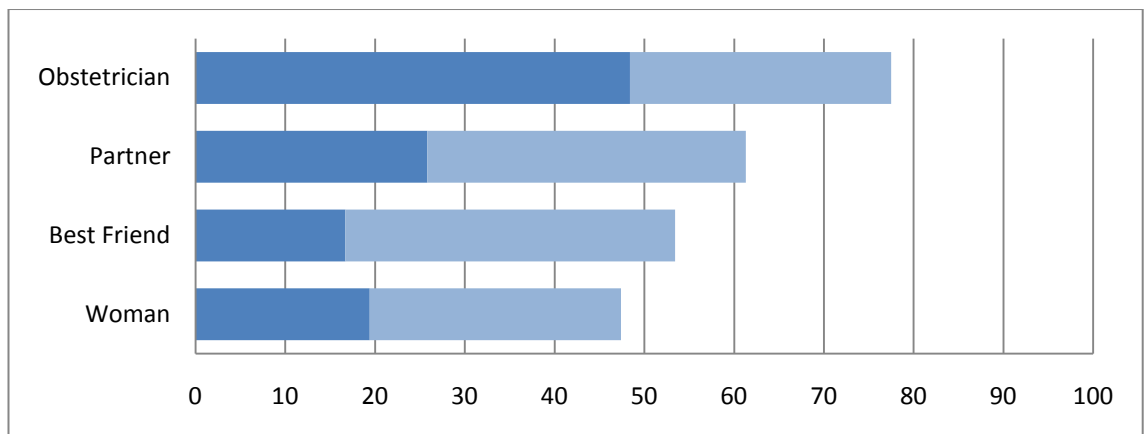


Figure 6.3: Persuasiveness - percentage of participants who nominated a positive response for each *Pregnancy* concept execution (n=31)

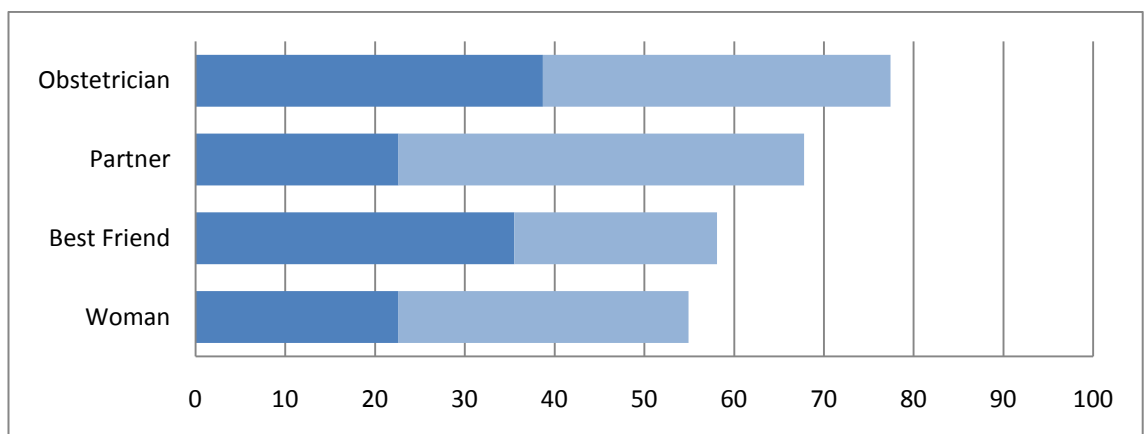


Figure 6.4: Engagement with issue - percentage of participants who nominated a positive response for each *Pregnancy* concept execution (n=31)

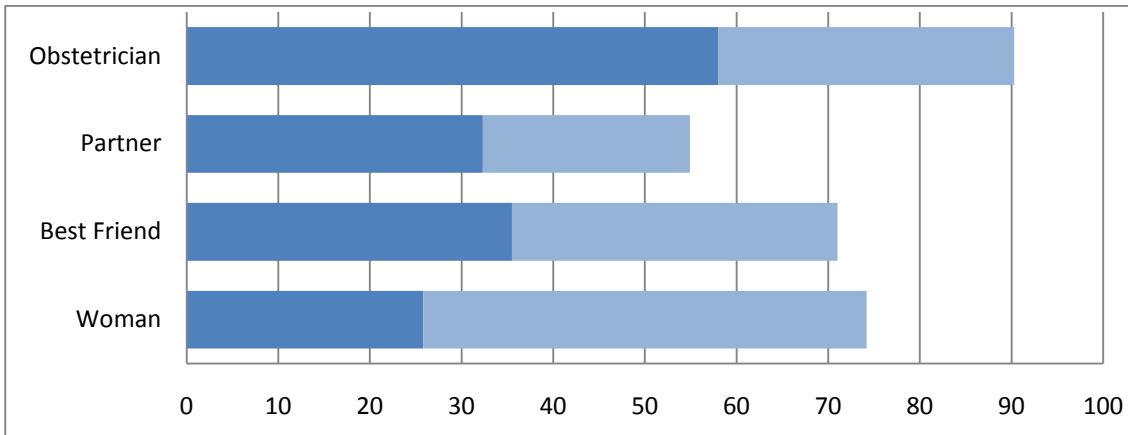


Figure 6.5: Believability - percentage of participants who nominated a positive response for each *Pregnancy* concept execution (n=31)

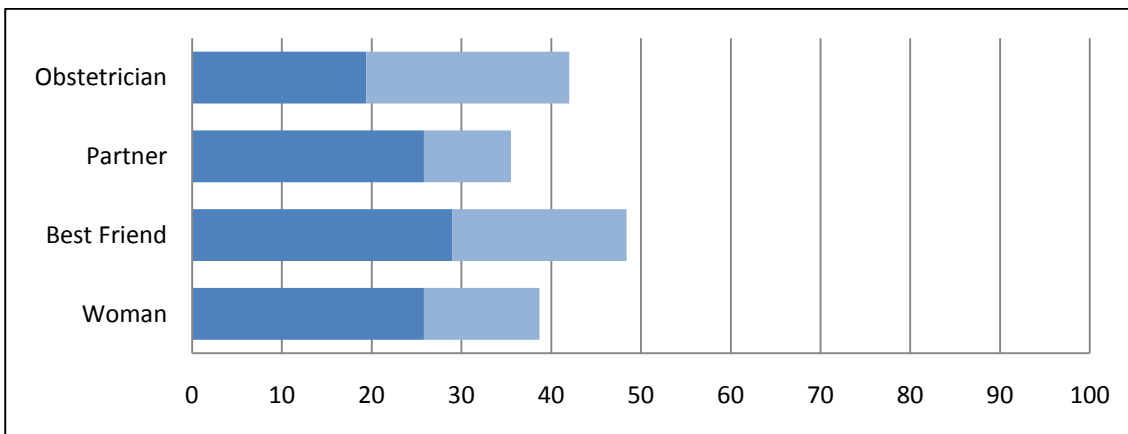


Figure 6.6: Relevance - percentage of participants who nominated a positive response for each *Pregnancy* concept execution (n=31)

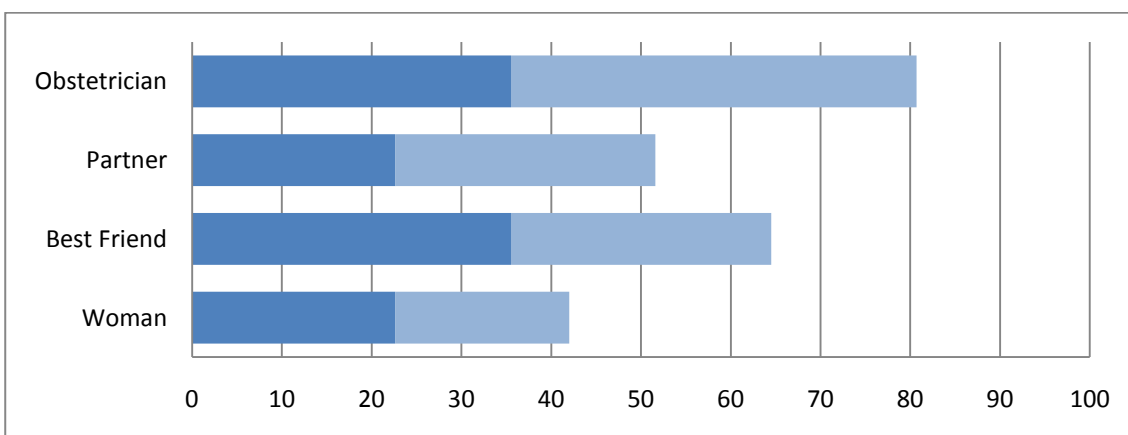


Figure 6.7: Appeal - percentage of participants who nominated a positive response for each *Pregnancy* concept execution (n=31)

The above figures show that for all measures except relevance, the *Obstetrician* concept was most effective. Over 70% of participants exposed to *Obstetrician* nominated a positive response for persuasiveness, engagement with the issue, believability and appeal.

In terms of persuasiveness, all except *Woman* had a majority of participants giving a positive response. On the measures of engagement with the issue and believability, all concepts rated highly, with the majority of participants giving a positive response. However *Partner* was the least believable and the discussion indicated that this was because it depicted a male partner abstaining from alcohol. All concepts were rated lower in terms of relevance, however discussion revealed that this was due to the participants taking the question ‘How relevant is the advertisement to you personally?’ literally, with those who were not pregnant responding negatively. With regard to liking the advertisements, all concepts except *Woman* had a majority of participants giving a positive response.

In terms of the concept that performed best overall after *Obstetrician*, the positive response results are inconclusive. However, when the proportion of participants who nominated ‘great amount’ (shown in dark blue) is considered, *Best Friend* consistently performed better than *Partner* and *Woman* on all measures except persuasiveness. Participants were not asked specifically to discuss the reasons for these ratings, although group discussion results (presented below) provide some insight into this.

Most motivating

After individually responding to all concept executions, participants were asked to indicate the most motivating in terms of the behavioural objective: “which advertisement most made you want to try to drink less or not at all if you were pregnant?” (for women) and “which made you want to do things to help your partner avoid alcohol if she was pregnant?” (for men). Figure 6.8 indicates the percentage of participants that chose each execution as the most motivating.

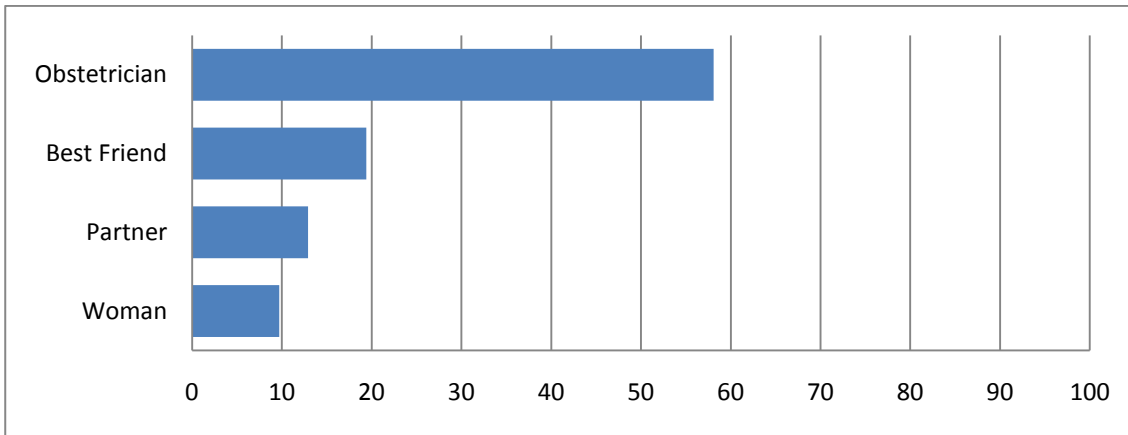


Figure 6.8: Most motivating *Pregnancy* concept execution - percentage of participants that chose each concept (n=31)

It was clear that *Obstetrician* was the most motivating execution with 58% of participants nominating one or other version, compared with less than 20% of participants nominating each of the other concepts. The analysis was also performed on just the response of the 12 pregnant participants with the same result.

Overall *Obstetrician – effects* consistently had a greater proportion of participants nominating a positive response to the impact and diagnostic measures than *Obstetrician – risk* (data not shown). Results also indicated that *Obstetrician – effects* was also the most motivating variation, 69% of participants who saw this variation nominated it as the most motivating compared with 47% of those who saw *Obstetrician - risk* (data not shown).

Following their completion of the written exercises, participants were asked to discuss the reasons for their ranking of the most motivating advertisement. Appendix 6.4 shows all themes that were conveyed for each concept. Below is a summary of the main themes for each concept.

Obstetrician – risk

There were several motivating aspects of the *Obstetrician – risk* concept identified by participants. Participants felt this advertisement was ‘stronger hitting’ than the others and provided information that they wanted to know. In terms of execution, the fact that the information and advice was delivered by an obstetrician was a motivating factor. In terms of content, participants appreciated that the advertisement provided the reason

for the abstinence-based advice, that is, 'there is not enough information to know whether it is safe' and that this supported the main message of 'don't drink alcohol during pregnancy'. The question posed within the concept 'Is a couple of glasses of wine every now and then OK?', was well received by participants as it addressed the question most often posed socially of whether or not low-moderate consumption is acceptable or safe. The honesty of the obstetrician's response to this question was also a motivating content element.

Obstetrician – effects

The strongest motivating aspect of *Obstetrician - effects* was the nature of the information that it provided. The content was perceived to be factual and scientific and gave participants information about the effects of alcohol use during pregnancy. Similar to the results for *Obstetrician – risk*, the reason for the recommendation of 'don't drink alcohol when you are pregnant' was provided and it addressed the question of one or two drinks. Furthermore, the information was clear and was delivered by a health professional. In comparison with the other advertisements, participants felt that the message and issue was clearer and relied less on an understanding of the scenario.

Partner

The strongest motivating aspect of the *Partner* execution was the display of support of the pregnant woman by her partner. It is important to note though, that while this was seen as positive by participants, both the women and men felt that it was unrealistic to expect a partner to give up alcohol to support a pregnant woman (and this resulted in lower believability ratings for this concept as shown in Figure 6.5). Participants acknowledged that abstinence from alcohol can be a social indicator of pregnancy and appreciated the suggested way to avoid disclosing pregnancy early in pregnancy. They indicated that the 'health-kick' excuse was a readily adopted tactic that could be effective at avoiding pregnancy disclosure.

Best Friend

The strongest motivating aspect of the *Best Friend* execution was with regard to showing the friendship and support of the pregnant woman by her friend. Participants responded positively to the way in which the advertisement showed a way of not disclosing pregnancy and using the excuse of being on a health-kick.

Woman

The strongest motivating aspect of the *Woman* execution was that it showed the woman making a choice about her alcohol consumption for herself and her baby. Participants appreciated the information about lowering the risk by not drinking alcohol during pregnancy.

Summary

Main message

- For all concept executions, the main messages perceived by participants were largely congruent with the communication objectives. While some neutral unintended main messages were perceived (e.g. orange juice is a health drink) there were no undesirable messages or messages that undermined the communication objectives.
- The communication objective of reducing alcohol intake during pregnancy, with abstinence as the final goal, was the most prevalent key message perceived for all of the concepts.
- The *Obstetrician* concept execution was effective at going beyond a 'don't drink alcohol during pregnancy' message, and several different key messages (all supporting the behavioural objective) were also perceived in each variation, such as risk and consequences for the fetus/ baby and information about low to moderate intake.

Persuasiveness

- The majority of participants reported that the *Partner*, *Best Friend* and *Obstetrician* concept executions made them want to drink less during pregnancy.
- The *Obstetrician* concept execution was the most persuasive.

Engagement with issue

- The majority of participants reported that the advertisements made them think about alcohol use during pregnancy, for all concepts.
- The *Obstetrician* concept execution engaged participants in the issue the most.

Believability

- The majority of participants reported that each of the concept executions were believable.
- The *Obstetrician* concept execution was the most believable.

Relevance

- For each of the concept executions a majority of participants reported that the execution was not highly relevant to them personally.

Appeal

- The majority of participants liked the *Partner*, *Best Friend* and *Obstetrician* concept executions.
- The *Obstetrician* concept execution was the most liked.

Most motivating

- *Obstetrician* was the most motivating execution among the whole sample. Participants appreciated the strong, clear recommendation for behaviour supported by a rationale delivered by an expert source.
- *Best Friend* was rated second most motivating. Participants responded to the display of support and friendship, and appreciated the provision of a strategy for avoiding alcohol during the early stages of pregnancy, without disclosing pregnancy.

Overall

The *Obstetrician* execution (a threat appeal based on fear and worry) was found to be the most effective on the majority of measures. The key motivating elements within this concept execution were:

- the provision of explicit information on the risk of harm and negative consequences for the fetus;
- an acknowledgment of lack of definitive evidence about risk of low consumption, as the rationale for the advice; and
- the information was seen to be honest.

The key motivating content and execution elements were:

- an expert source delivered the information;
- scientific and factual language was used; and
- the scenario explicitly focused on alcohol use during the time of pregnancy.

The *Best Friend* execution (a positive appeal based on social norms and self-efficacy) was found to be the next most effective. The key motivating content and execution elements within the *Best Friend* concept were:

- the demonstration of support for a pregnant woman to avoid alcohol by her friend;
- the provision of a strategy for not disclosing pregnancy status early in pregnancy during social situations; and

- the scenario that is positive and evokes pleasant feelings such as joy.

6.8.2 Preconception and Second Pregnancy concept executions

Each focus group was shown two television concept executions from the *Preconception* and *Second Pregnancy* range. As the number of participants exposed to each variation was small, only results pertaining to the main messages and motivating elements have been included.

Main messages perceived and motivating elements

Appendix 6.5 show the main messages perceived for each of the *Preconception* and *Second Pregnancy* concept executions and Appendix 6.6 show the motivating elements described by participants for each. A summary of these results is provided below.

Preconception/ Obstetrician

The top main messages for *Preconception/ Obstetrician* were ‘don’t drink alcohol when you are trying to get pregnant’, ‘plan your pregnancy’ and ‘there are precautions you can take to make sure you have a healthy baby’.

In terms of content, participants appreciated the clear message to avoid alcohol if you are trying to get pregnant, and the rationale for this recommendation; that is, alcohol can do harm from conception onwards.

Preconception/ Best Friend

The top main message for *Best Friend* was ‘don’t drink alcohol if you are trying to get pregnant’. Participants thought that the party scene was realistic and they could relate to the scenario of feeling pressure to drink alcohol within a social situation.

Preconception/ Partner

The top main message for *Preconception/ Partner* was ‘don’t drink alcohol if you are trying to get pregnant’ and this message extended to include the male partner. In terms of execution, participants did not feel that this scenario was realistic or believable; that is, that a partner would abstain from alcohol when the couple were trying to get pregnant.

Preconception/ Woman

The top main message for *Preconception/ Woman* was ‘don’t drink alcohol if you are trying to get pregnant.’ Participants thought that this showed that you could be pregnant and not know it, and therefore it is best not to drink alcohol if you are trying to conceive.

Second (pre)Pregnancy/ Best Friend

The top main message for *Second (pre)Pregnancy/ Best Friend* was ‘alcohol consumption in the second pregnancy is worse for the child than in the first’. The participants appreciated the display of support by the friend.

Second (pre)Pregnancy/ Partner

The top main message for *Second (pre) Pregnancy/ Partner* was ‘don’t drink alcohol if you are trying to get pregnant’. Participants appreciated that the woman and her partner were thinking about and discussing stopping drinking before they got pregnant.

Second Pregnancy/ Woman

The top main messages for *Second Pregnancy/ Woman* were ‘don’t drink alcohol during pregnancy even when you are stressed/ craving’ and ‘the risks of drinking alcohol are not worth the end result’. Participants related to the scenario portrayed in this advertisement and appreciated that it reinforced the message that the consequences are not worth an alcoholic drink even during times of feeling stressed.

Summary

For the most part, the executions that depicted preconception or a woman in a pregnancy subsequent to her first resulted in the same main messages as those perceived in the *Pregnancy* executions. However, there were several responses that are worthwhile noting. First, many considered that the notion of a woman and her partner abstaining from alcohol during the preconception stage is not realistic, particularly with regard to the partner abstaining. Second, participants related strongly to the scenario of a woman feeling stressed at a particular time of day, and feeling like having an alcoholic drink, but choosing not to. Third, the information on the increased risk in subsequent pregnancies attracted considerable attention and surprised many participants. There is the potential to further explore these content and execution elements should they be considered for a campaign.

6.8.3 Factual statements for print media

Responses to the categories of factual statements for print media were measured on a five-point scale. Figure 6.9 - Figure 6.13 show the percentage of participants who nominated one of the top two positive responses for each measure.⁵ The percentages of participants nominating the top and second top response options are shown in dark blue and light blue respectively.

Impact on intentions to avoid alcohol during pregnancy

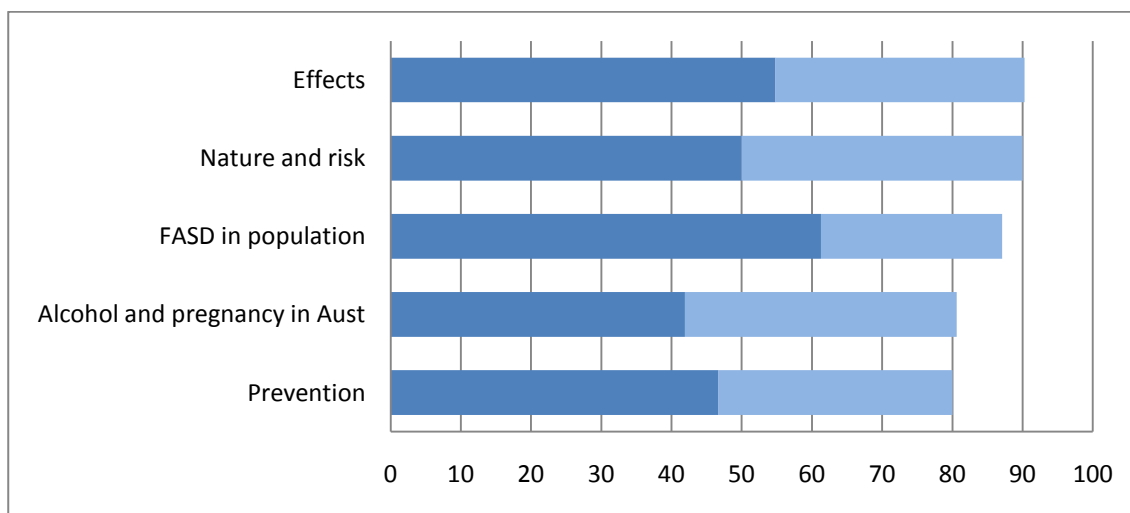


Figure 6.9: Impact of each statement category on intentions to avoid alcohol during pregnancy - percentage of participants nominating the top two response options for each statement category

The categories with statements pertaining to the 'Effects of prenatal alcohol exposure' and 'Nature and risk of Fetal Alcohol Spectrum Disorder' were rated as persuasive by the greatest percentage of participants. However, all statement categories had considerable impact, with over 80% of participants for each reporting that it made them want to do things to avoid drinking alcohol use during pregnancy either a 'great amount' or a 'fair amount'..

⁵ Two participants did not cover one of the fact-sheets. For 'Prevention of FASD' and 'Nature and Risk of FASD' n = 30.

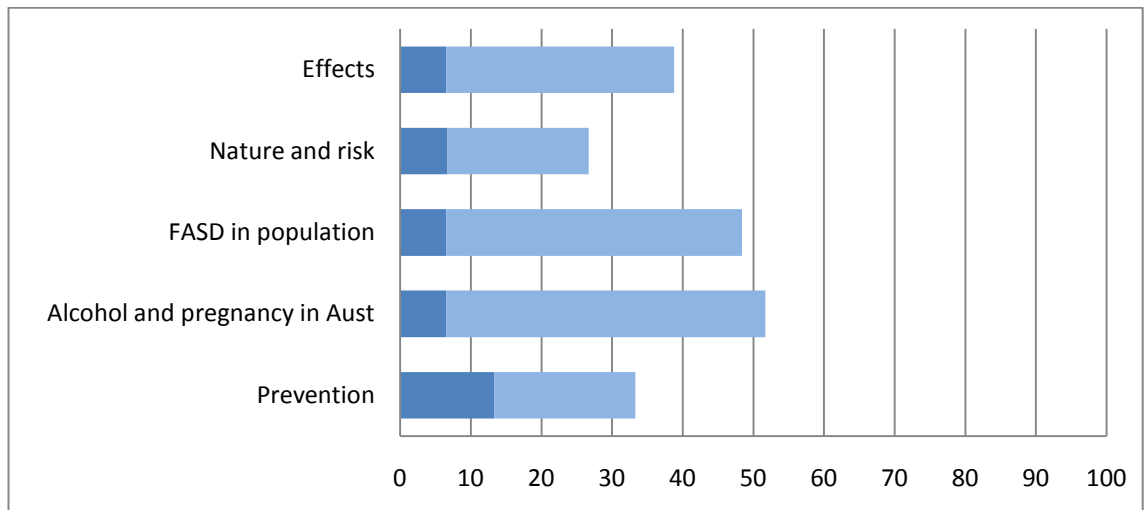
Impact on motivating the participants to find out more

Figure 6.10: Impact of each statement category on motivation to find out more - percentage of participants nominating top two response options for each statement category

Categories with statements pertaining to 'Alcohol and pregnancy in Australia' and 'FASD in the population' had approximately half the participants nominating that they wanted to find out more a 'great amount' or a 'fair amount', while statements within the categories of 'Nature and risk' of FASD were the least motivating for seeking further information.

Impact on participants' perception that alcohol use during pregnancy is a serious issue

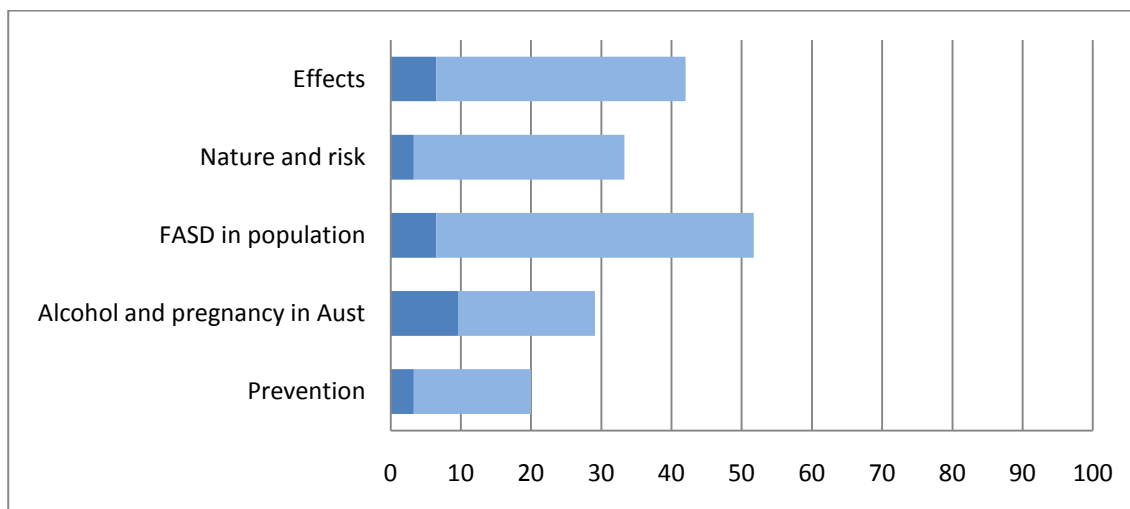


Figure 6.11: Impact of each statement category on participants' perception that alcohol use during pregnancy is a serious issue - percentage of participants nominating top two response options for each statement category

In terms of increasing participants' perceptions of the seriousness of the issue, the statement category 'Fetal Alcohol Spectrum Disorder in the population' was most effective with over 50% of participants indicating that the statements within it made them think alcohol use during pregnancy was 'much more' or 'more' serious than they previously thought.

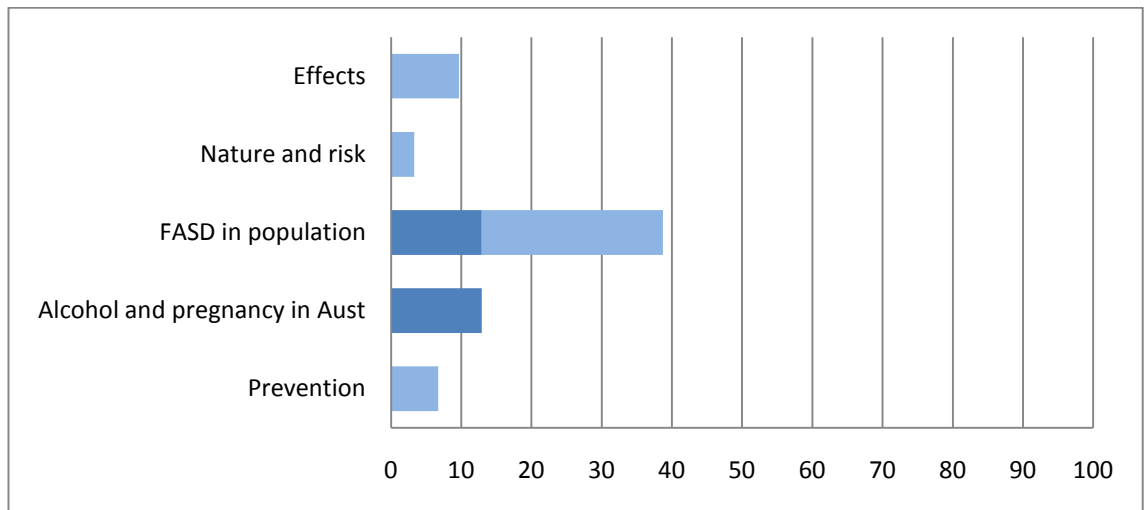
Novelty of information

Figure 6.12: Novelty of information - percentage of participants nominating top two response options for each statement category

Overall, most of the information provided within the statement categories of 'Effects', 'Nature and risk', 'Alcohol and pregnancy in Australia' and 'Prevention' was not new to participants, with less than 15% of participants saying that 'most' or 'all' of the statements were novel. However about 40% of participants nominated that all or most of the statements within the category 'FASD in the population' were novel.

Most impact

Participants were asked to rank the statement categories in terms of impact. Figure 6.13 indicates the percentage of participants who ranked each of the statement categories as having the most impact on them (shown in dark blue), or the second most impact (shown in light blue).

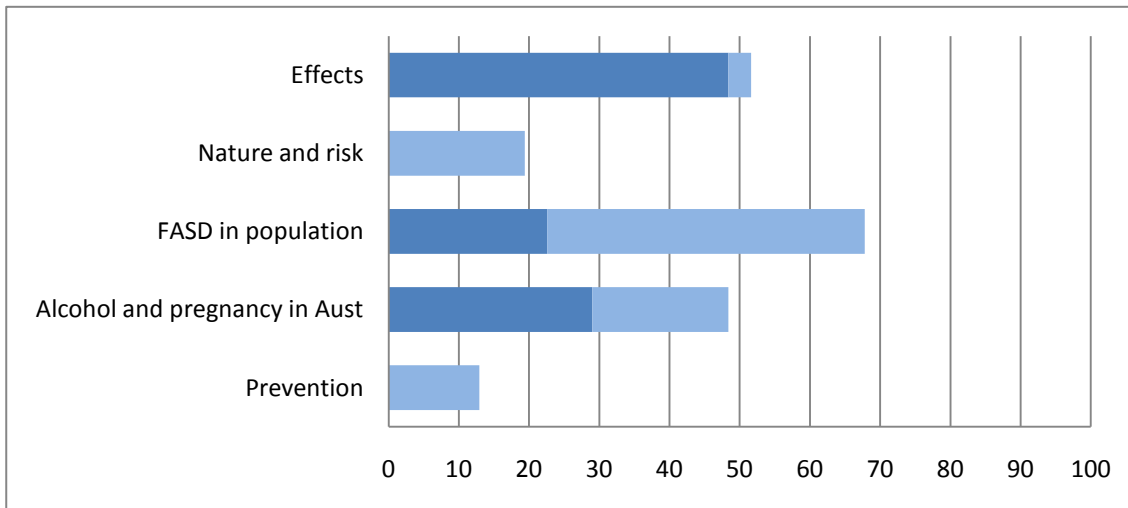


Figure 6.13: Percentage of participants who ranked each statement category as having the most or second most impact

‘Effects of prenatal alcohol exposure’ was nominated as having most impact by the greatest percentage of participants. It is important to note that this impact may have been mediated and lessened by the fact that half the participants had received similar information through the *Obstetrician – effects* concept execution. Along with statements within the category ‘Effects’, statements that provided statistical-type information (i.e. within the categories ‘FASD in the population’ and ‘Alcohol and pregnancy in Australia), were rated the most or second highest in impact.

Participants were asked to discuss the reasons why they ranked a statement category as having most impact with reference to the individual statements. The results, shown in Table 6.9, were grouped into themes in terms of individual statements that attracted participants’ attention, those that increased their perception of the severity of alcohol use during pregnancy, statements that increased their perception of how susceptible they might be to the consequences of prenatal alcohol exposure, and statements that increased the personal relevance of the message.

Table 6.9: Individual statements that had impact

<p>Individual statements that attracted participants' attention</p> <ul style="list-style-type: none"> • Novel pieces of information which subvert people's assumptions e.g. women with higher levels of education are more likely to intend to drink alcohol. <p>Individual statements that increased perceived risk - severity</p> <ul style="list-style-type: none"> • The consequences of prenatal alcohol exposure, including increased risk of miscarriage, in conjunction with a statement that the effects are life-long and cannot be reversed. • Data on percentage of children who are thought to be born affected (this influenced participants' perception of the scale of the problem). <p>Individual statements that increased perceived risk - susceptibility</p> <ul style="list-style-type: none"> • Risk associated with low-moderate patterns of drinking e.g. you don't have to be an alcoholic to have a child affected by alcohol exposure during pregnancy. • The degree of 'unknown' i.e. 'FASD is under-diagnosed in Australia' 'we don't know how many people are affected'. <p>Individual statements that increase personal salience/ relevance of message</p> <ul style="list-style-type: none"> • Data showing that women of higher education are more likely to intend to drink.

In order to identify individual statements that had high impact, participants were asked to tick any individual statements that caught their attention or had an impact on them. Table 6.10 shows the percentage of participants who ticked each individual statement ranked in order of attracting participants' attention.

Table 6.10: Number and percentage of participants who ticked each individual statement and the related statement category

Individual statement	Statement category	Participants n (%)
Women with higher levels of education are more likely to intend to drink alcohol during pregnancy.	Alcohol and preg. in Aust.	22 (71.0)
The effects of alcohol use during pregnancy cannot be reversed and are life- long.	Effects	14 (45.2)
Alcohol use during pregnancy is the leading cause of preventable birth defects and intellectual disability.	FASD in the population	12 (38.7)
Fetal Alcohol Spectrum Disorder is under-diagnosed in Australia.	FASD in the population	12 (38.7)
Alcohol use during pregnancy increases the risk of miscarriage.	Effects	11 (35.5)
A greater proportion of non-Aboriginal women drink alcohol during pregnancy than Aboriginal women.	Alcohol and preg. in Aust.	11 (35.5)
Alcohol use during pregnancy damages the fetus' cells.	Effects	10 (32.3)
The effects of alcohol use during pregnancy range from barely detectible consequences to severe consequences.	Effects	9 (29.0)
Alcohol use during pregnancy can cause brain damage.	Effects	9 (29.0)
If a woman stops drinking before she gets pregnant, she can avoid exposing her fetus to alcohol in the early stages of pregnancy.	Prevention	9 (29.0)
You don't have to be an alcoholic to have a child affected by alcohol exposure during pregnancy.	Nature and risk	8 (25.8)
In the USA, Fetal Alcohol Spectrum Disorder is thought to affect up to 5% of children born.	FASD in the population	7 (22.6)
It is not known how many people in Australia are affected by Fetal Alcohol Spectrum Disorder.	FASD in the population	7 (22.6)
Drinking 5 or more standard drinks on one occasion poses a high risk to the fetus.	Nature and risk	7 (22.6)
Fetal Alcohol Spectrum Disorder is 100% preventable, no alcohol equals no risk.	Prevention	6 (19.4)
No amount of alcohol during pregnancy has been determined as safe for the fetus.	Nature and risk	5 (16.1)
Stopping drinking alcohol at any time during pregnancy will reduce the risk to the fetus.	Prevention	4 (12.9)
The more alcohol consumed and the more often that alcohol is consumed, the greater the risk to the fetus.	Nature and risk	4 (9.7)
One of the best things a woman can do when she is pregnant is avoid alcohol.	Prevention	2 (6.5)
98% of Western Australian health professionals advise pregnant women not to drink at all, or than no alcohol is the safest choice.	Alcohol and preg. in Aust.	2 (6.5)
88% of Western Australian women agree that pregnant women should not drink alcohol.	Alcohol and preg. in Aust.	2 (6.5)

This delineation of the individual statements evidences those that were most influential on the impact and diagnostic measures for each statement category. In terms of overall impact, statements within the category of 'FASD in the population' had the most impact on participants, and the above results indicate that the individual statements 'alcohol use during pregnancy is the leading cause of preventable birth defects and intellectual disability' and 'Fetal Alcohol Spectrum Disorder is under-diagnosed in Australia' had the most impact within this category. The individual statement 'women with higher levels of education are more likely to intend to drink alcohol during pregnancy' was nominated by 71% of participants, compared to 45.2% or less for all of the other individual statements. The second most nominated individual statement (45.2%) was 'the effects of alcohol use during pregnancy cannot be reversed and are life- long'.

Summary

Individual statements within the categories of 'Effects of prenatal alcohol exposure' and 'FASD in the population' such as 'alcohol use during pregnancy is the leading cause of preventable birth defects and intellectual disability' and 'Fetal Alcohol Spectrum Disorder is under-diagnosed in Australia' were the most effective with respect to motivating adoption of the recommended behaviour, along with increasing participants' perception of the seriousness of alcohol use during pregnancy. These statements, as well as individual statements about alcohol use during pregnancy in Australia, were most effective at encouraging information seeking behaviour.

Overall, the individual statement 'women with higher levels of education or more likely to intend to drink alcohol during pregnancy' was nominated by the greatest percentage of participants, and discussion indicated that this was because this information was novel and surprised the participants.

6.8.4 Effects of prenatal alcohol exposure

Seven potential effects of prenatal alcohol exposure on the fetus were listed and participants were asked to rank them from one to seven in terms of motivating them to avoid alcohol during pregnancy. For analysis, the first and second rankings were combined and these are shown in Figure 6.14. Participants discussed the rationale for their top rankings and these data were thematically analysed. Table 6.11 presents the themes for the four effects that had the most impact.

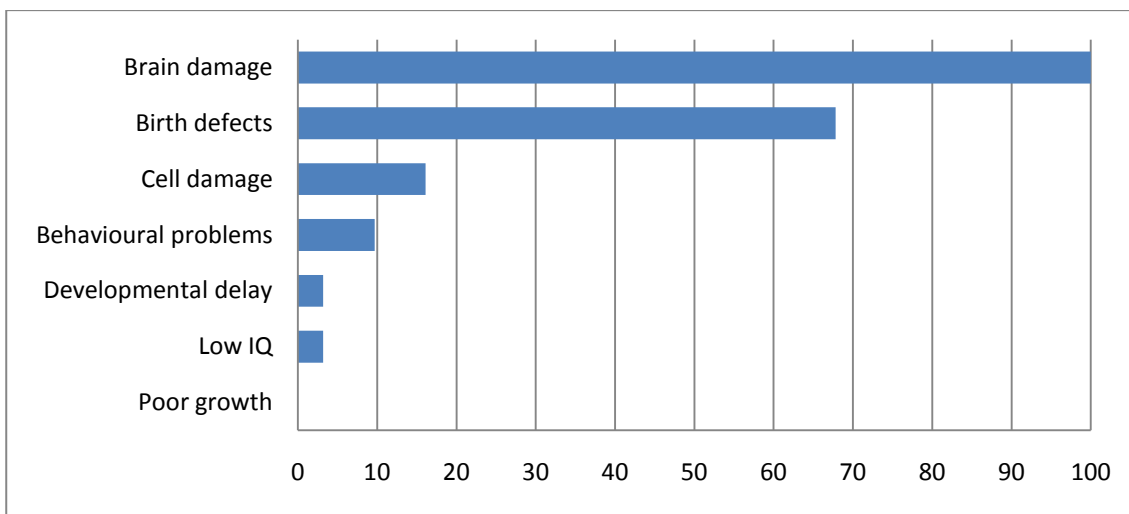


Figure 6.14: Impact on participants' motivation to avoid alcohol during pregnancy - percentage of participants ranking the 'effect' as first or second in terms of impact

Table 6.11: Rationales for giving a first or second ranking to each of the top four effects

<p>Brain damage</p> <ul style="list-style-type: none"> • It is life-long, impacts on someone throughout their life. • It would impact on the child's quality of life. • It encompasses a lot of the other consequences. • You can't do anything about it, it is permanent, irreversible. Some of the other consequences you could do something about. • They wouldn't be able to intellectually interact or communicate. • This is a possible consequence for me given the little amount that I drink. <p>Birth defects</p> <ul style="list-style-type: none"> • It covers a whole range of things. • You can visualise this consequence/ it might be a facial, cosmetic thing. • It would also have a social impact on the child which would be difficult. • It would be hard for the mother also to look after the child. • It would impact on the rest of the family. • The word 'defect'. <p>Cell damage</p> <ul style="list-style-type: none"> • It could be the root cause of any other consequences. • You don't know what it will affect, and how it will develop on from there. • This is a possible consequence for me given the little amount that I drink. <p>Behavioural problems</p> <ul style="list-style-type: none"> • This would be hard to parent, it wouldn't just affect the child. • Children with behavioural problems are socially unaccepted.

'Brain damage' and 'birth defects' were the effects that had the most impact on participants' intentions. All participants ranked 'brain damage' as first or second and 67% of participants ranked 'birth defects' first or second. 'Poor growth' had the least impact with no participants giving it a top or second ranking. Discussion indicated the rationale that brain damage is permanent, encompasses a number of disabilities and difficulties, and affects an individual throughout their life. 'Birth defects' was ranked as first or second by the majority of participants as it also encompasses a number of disabilities and difficulties, and it has physical and social implications as well as possible repercussions for family members who may have to provide care.

6.8.5 Risk graphics

Participants were shown three risk graphics and asked to nominate the one that most made them to want to avoid alcohol during pregnancy. *Risk graphic 3* was nominated by over 67% of participants as making them most want to drink less or not at all during pregnancy (or do things to help their partner avoid alcohol during pregnancy) (Figure 6.15). Discussion indicated that this graphic was most persuasive because the message was direct, easy to digest and was not ambiguous. Participants also discussed the reasons for their nomination and these data are summarised in Table 6.12.

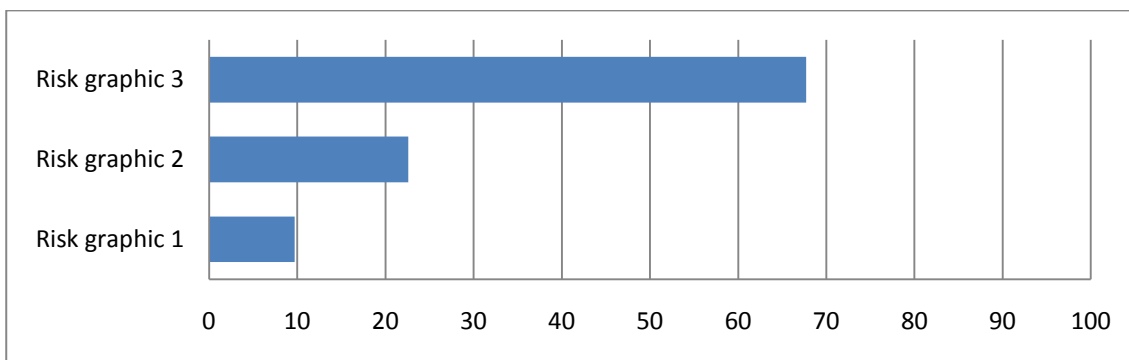


Figure 6.15: Impact on intention to avoid alcohol during pregnancy - percentage of participants nominating each risk graphic as having the most impact

Table 6.12: Reasons for nominating a risk graphic as having the most impact**Risk graphic 3**

- It is direct and straight to the point.
- It is simple, easy to digest and you get the message.
- There are no options, you just don't drink alcohol.
- There is no ambiguity,.
- It covers 'if you are planning pregnancy' also.
- It makes reference to 'your baby'.
- It is positive.
- It makes it look simpler – tick, tick, tick.

Risk graphic 2

- It reminded me of the fire danger sign.
- Gives you information about the amounts, once you start drinking, the risk goes up, it is best not to drink at all.
- Green has good connotations, stay in the green zone and you are all good.
- Zero drinks means no cell damage.

Risk graphic 1

- It gave the message that no amount is good.
- It asked the question 'is it really worth the risk?'
- Gave me information that I didn't know.
- The colour stood out for me.

6.9 Summary

Thirty-one participants participated in five focus groups to qualitatively assess a range of television concept executions, and supporting copy and graphics. In general, all the television concepts rated well on most measures. However those television concept executions based on the constructs of threat and self-efficacy were most persuasive and also did consistently better on the majority of diagnostic measures. Several content and execution elements appear to support the credibility and persuasiveness of these concept executions. For example, credibility of the message was enhanced by an acknowledgement of the uncertainty with regard to the risk of low levels of alcohol exposure to the fetus. Rather than undermine an abstinence-based message, this information served as a rationale for the recommendation. An honest and scientific framing of the message and delivery by an expert source were also shown to minimise

counter-argument and strengthen the message's persuasiveness. Furthermore, displays of social support and acceptance for a pregnant women abstaining from alcohol were well received by participants, as were specific strategies for avoiding alcohol during social situations.

In terms of supporting copy and graphics, several statement categories, individual statements and specific effects of prenatal alcohol exposure were identified as having a high and potentially motivating impact on participants. Statements that appear to increase the participants' perception of the severity of the effects of prenatal alcohol exposure, as well as their potential susceptibility to the effects, were rated highly. These data provide insight into the types of information and messages that can be used within campaigns to support the key messages and primary advertisements.

6.10 The next phase of concept testing

Two concept executions, *Obstetrician* and *Best Friend*, were selected as the basis for further testing. The rationale for this was that these concept executions demonstrated the best potential for motivating behaviour change with regard to alcohol use during pregnancy. Furthermore, as a threat appeal based on fear and worry, and a positive appeal based on self-efficacy and social norms, these concept executions allow for some theoretically relevant comparisons to be made. As background to this, an elaboration on the concept executions is provided below.

However, prior to proceeding further, these concept executions were shown to two general practitioners and two obstetricians. It was considered prudent to establish whether there were any elements that health professionals would be likely to oppose within the concept executions given the importance of aligning messages with antenatal care efforts. It was also important to establish that the messages would be perceived as realistic by the professional group portrayed. The health professionals provided feedback on the realism of the scenarios portrayed, and in particular, that of the *Obstetrician* execution. Following their feedback, the gender of the obstetrician was altered to female, and instead of using a more general "we", the obstetrician instead uses the word "I" when advising the woman, as it was considered that there may be a risk with portraying the obstetrician as if they were speaking for all obstetricians. The executions were also modified slightly following discussions between the PhD

candidate and study investigators. First, the question “Is a couple of glasses of wine every now and then OK?” was selected for inclusion in the *Obstetrician* execution instead of “Is a glass of wine every now and then OK?” as it was considered that “a couple of glasses” was more consistent with the language and behaviour of the target audience. Second, effective statements from *Obstetrician – effects* and *Obstetrician – risk* were combined to expand on the rationale to abstain from alcohol (to read “We just don’t know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe”). Third, a tag-line of ‘No alcohol in pregnancy is the safest choice’ was added to both concept executions, as is appropriate for television concept executions.

Obstetrician as a threat appeal based on fear and worry

The *Obstetrician* concept relies on the threat of poor fetal outcomes as the motivating elements. It uses a source to present a negative outcome contingent on a behaviour, and thus can be classified as a threat appeal (Donovan & Henley, 2000). The concept testing indicated that the *Obstetrician* concept execution was more motivating than those executions that focused solely on modelling positive behaviour and appealing to positive motivations. The results show that the *Obstetrician - effects* variation in particular was most effective on the key measures of impact. Given the strength of these results, the *Obstetrician - effects* concept was chosen as a focus for the subsequent quantitative concept testing phase. From a theoretical perspective, *Obstetrician - effects* included both a severity component and a susceptibility component. Severity of the threat was conveyed through the provision of information about the effects on the fetus of prenatal alcohol exposure. Susceptibility was addressed through the question posed by the pregnant woman, “Is a couple of glasses of wine every now and then OK?”, and the obstetrician’s response, “We just don’t know how much alcohol it takes to do damage. It is different for different women and different babies.”

Best Friend as a positive appeal based on social norms and self-efficacy

The results of the qualitative concept testing phase showed that *Best Friend* was rated well by participants, and was effective at modelling the desired behaviour, social support and providing a strategy for avoiding alcohol during pregnancy. Thus, *Best Friend* was considered for its potential to represent a self-efficacy message component.

Constructs from the Protection Motivation Theory and the Extended Parallel Process Model

The Protection Motivation Theory (Maddux & Rogers, 1983; Rogers, 1983, 1975) and Extended Parallel Process Model (Witte, 1992) (reviewed in Chapter Four) outline four key constructs as predictors of behaviour change that can be enhanced through communication: perceived severity of the threat, perceived susceptibility of the threat, self-efficacy and response-efficacy. Furthermore, the Extended Parallel Process Model stipulates two potential processes that result in either adaptive or maladaptive behaviour change. In order to promote *protective motivation* and *adaptive behaviour* it is important to both build perceived threat as well as to build self-efficacy. In addition, the model proposes that as perceived threat increases, the importance of the self-efficacy component becomes increasingly important to avoid initiating a defensive motivation process, whereby the communication is rejected and maladaptive behaviour may result.

Thus for the next phase, it was proposed to evaluate the influence of a 'threat only message', as represented by the *Obstetrician* concept execution, a 'self-efficacy only message', as represented by the *Best Friend* concept execution, and a combined 'threat/ self-efficacy' message. Furthermore, the influence of increasing the threat was also of interest. As the risk data are inconclusive and complex, susceptibility components are hard to manipulate within communication regarding alcohol use during pregnancy. Given these issues, only the influence of increasing the severity of the threat within a message was assessed in the next phase. The experimental design for this next phase is outlined in the following chapter.

First, however, it was deemed necessary to confirm that the constructs of threat and self-efficacy were indeed present within the concept executions, and to develop executions that communicated different levels of severity of the threat. The next chapter begins with the results of the manipulation check that addressed these questions and then presents the methodology and results of the quantitative testing of the selected concept executions.

Chapter Seven: Quantitative concept testing

7.1 Introduction

The previous chapter outlined the development and qualitative testing of a range of concept executions. This resulted in two overall approaches, a threat appeal and a positive appeal, being chosen for further testing. These two approaches were developed in five concept executions:

- *Self-efficacy only;*
- *Moderate threat;*
- *High threat;*
- *Moderate threat/ self-efficacy;* and
- *High threat/ self-efficacy.*

This chapter describes the methodology and results of the quantitative testing of these five final executions. Figure 1.1 (page 8) outlines the position of this phase of data collection within that of the whole study and with reference to the steps of communication planning.

This phase comprised two steps. First, a manipulation check confirmed the presence or absence of the two constructs self-efficacy and threat within the concept executions, and confirmed a lower level of threat in the execution designed as a moderate threat appeal, compared to the concept designed as a higher threat appeal. Second, these five final executions were tested against a control with 685 women to determine their relative effectiveness in promoting the desired behavioural intentions.

7.2 Manipulation check

As stated above, two executions based on the theoretical constructs of threat and self-efficacy were selected as the basis of the quantitative testing: *Obstetrician - effects* as a threat appeal based on fear and worry and *Best Friend* as a positive appeal based on social norms and self-efficacy. For the manipulation check, *Obstetrician - effects* was further developed into two executions, one that aimed to convey a greater level of threat and enhance emotional arousal through the provision of an image of a fetus (*Obstetrician – effects, high threat*) (Appendix 7.1) and the other, which aimed to convey less threat (*Obstetrician – effects, moderate threat*) (Appendix 7.2).

As well as confirming the presence or absence of ‘self-efficacy’, and the presence or absence and level of ‘threat’ within these concepts, the manipulation check also trialled several questions planned for the quantitative concept testing questionnaire.

7.2.1 Research questions

The manipulation check sought to answer the following research questions:

1. Is self-efficacy perceived within the *Best Friend* concept execution?
Measured by respondents’ perceptions that the advertisement implies that reducing or stopping drinking during a social situation could be easier than participants thought.
2. Is threat perceived within the *Obstetrician – effects, moderate threat* and *Obstetrician – effects, high threat* concept executions?
Measured by the respondents’ perceptions that the advertisement implies that alcohol has an impact on the unborn baby.
3. Is a greater level of threat perceived in the *Obstetrician – effects, high threat* concept execution than in the *Obstetrician – effects, moderate threat* concept execution?
Measured by a comparison between the respondents’ perceptions of the level of impact on the unborn baby (mild, moderate or severe) implied by each concept execution.

7.2.2 Sample

The sampling criteria were: women of childbearing age (18-45 years inclusive), living within the Perth metropolitan area and not currently pregnant. Men were not included as they were not central to the scenarios depicted within the concept executions chosen for quantitative testing.

Recruitment

A sample of at least 40 respondents was sought. Sixty-two women who had previously provided their contact details to the study were invited to participate. These women had either participated in a focus group during the exploratory research (in which case, they had not yet been exposed to any of the concepts), or they had indicated their interest in participating in the study during a previous recruitment phase.

All invitees were called by phone within a week prior to the manipulation check to advise them that they would be receiving the manipulation check questionnaire through an emailed link that would be inviting them to respond. After receiving the first email with the manipulation check link, non-responding invitees were given two email reminders about the questionnaire within a week of the initial email.

Participants

Forty-five of the 62 invitees clicked into the questionnaire through the emailed link (response rate of 72.5%). Nine participants were ineligible to complete the questionnaire and two did not progress through to completion. In total, 33 questionnaires were completed. Of these, seven respondents (21.2%) had participated in one of the initial focus groups and 26 (78.8%) were new participants to the study. Thirty participants (90.0%) had given birth to at least one child.

7.2.3 Procedure

The manipulation check was conducted online and participants were invited to participate through an email containing a link to the questionnaire (Appendix 7.3). An opportunity to go into a draw to win one of five \$100 gift vouchers was offered to participants as a token of appreciation for their time participating.

All participants were shown *Best Friend* and either *Obstetrician – effects, moderate threat* or *Obstetrician – effects, high threat*. Following exposure to a concept execution,

participants completed a series of open and closed-ended questions. To counter ordering effects, half the participants were exposed to *Best Friend* first, and the other half to one of the *Obstetrician* threat executions. The questionnaire was designed to assess the perceived content of each execution, and in particular, whether self-efficacy and threat were perceived. The presence of self-efficacy was measured by the question, “Did the advertisement imply or suggest that reducing or stopping drinking during a social situation could be easier than you thought?” The presence and level of threat was measured by the question: “Did the advertisement imply or suggest that if you drank alcohol during pregnancy the impact on the baby could be mild, moderate or severe, or did it not imply or suggest anything about this at all?”

7.2.4 Results

Table 7.1 shows the number of participants (n) and percentage of participants (%) who perceived self-efficacy and threat in each of the concept executions.

Table 7.1: Number and percentage of participants who perceived self-efficacy and threat in the concept executions

Perceived content	Concept execution		
	<i>Best Friend</i> n (%)	<i>Obstetrician – effects moderate threat</i> n (%)	<i>Obstetrician – effects high threat</i> n (%)
Perceived self-efficacy	25 (75.7)	1 (5.9)	0 (0.0)
Perceived threat	6 (15.2)	15 (88.2)	15 (93.7)

Twenty-five of the 33 participants (75.8%) perceived self-efficacy in the *Best Friend* concept execution. Fifteen of the 17 participants (88.2%) who saw *Obstetrician – effects, moderate threat* perceived threat within it, and 15 of the 16 participants (93.7%) exposed to *High threat* perceived threat within it. Table 7.2 shows the number of participants who perceived each level of threat in the two threat executions.

Table 7.2: Number and percentage of participants who perceived mild, moderate and severe threat in the threat executions

Perceived level of threat	Threat execution	
	<i>Obstetrician – effects moderate threat</i> n (%)	<i>Obstetrician – effects high threat</i> n (%)
None	2 (11.8)	1 (6.2)
Mild	0 (0.0)	2 (12.5)
Moderate	1 (5.9)	2 (12.5)
Severe	14 (82.3)	11 (68.7)
Total	17 (100.0)	16 (100.0)

Of the participants who saw *Obstetrician – effects, moderate threat*, one (5.9%) perceived that the advertisement implied the effect on the fetus could be moderate and 14 (82.3%) thought the advertisement implied a severe effect. Of those who saw *Obstetrician – effects, high threat*, two (12.5%) perceived that the advertisement implied the effect on the fetus could be mild, two (12.5%) perceived an implied moderate effect, and 11 (68.7%) thought the advertisement implied a severe effect.

7.2.5 Summary

Thirty-three women completed the manipulation check questionnaire. In regard to the research questions, the following results were found:

- self-efficacy was perceived in the *Best Friend* concept execution, with 75.7% of participants agreeing that the advertisement implied or suggested that if you were pregnant and trying to stop drinking in social situations that it could be easier than thought;
- threat was perceived in the *Obstetrician – effects, moderate threat* and *Obstetrician – effects, high threat* concept executions, with 88.2% and 93.7% of participants respectively agreeing that the advertisement implied that there would be an impact on the unborn baby if a woman consumed alcohol during pregnancy; and
- there was no clear difference found between the level of threat perceived within the *Obstetrician – effects, moderate threat* and *Obstetrician – effects, high threat* executions.

Given that the impact on the fetus was perceived as 'severe' by 82.3% of participants who saw *Obstetrician – effects, moderate threat*, this suggests that the level of threat for this concept needs to be lowered, rather than threat within the *Obstetrician – effects, high threat* execution increased.

7.3 Manipulation check follow-up

As a result of the manipulation check, a modified version of *Obstetrician – effects, moderate threat* (Appendix 7.4) was developed for further testing. These modifications were based on discussions with the study Investigators, and research on message elements that attract the audience's attention, and that can increase message elaboration and emotional response (Strahan et al., 2002; Rossiter & Percy, 1987). This modified version attempted to imply a lower level of threat in two ways:

1. removal of the graphic image of a fetus; and
2. removal of the specific information on the potential consequences of prenatal alcohol exposure for the fetus, and instead, a generalised statement of potential harm. That is, the statement "Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows" was replaced with the statement "Alcohol can disturb the development of the fetus which could lead to problems later on".

Seven respondents (recruited as above) were exposed to this modified version using the same procedure described above. Three of the seven participants (42.8%) did not perceive any threat in the modified *Obstetrician - effects, moderate threat* and one perceived that the advertisement implied the effect on the fetus could be mild (14.3%). It was concluded from this result that the modified *Obstetrician - effects, moderate threat* portrayed a sufficiently lower level of threat and was appropriate for use in the quantitative concept testing to examine the impact of threat level on concept impact. The subsequent quantitative test confirmed this manipulation with 74.7% perceiving threat in *Obstetrician – effects, moderate threat* and 90.2% perceiving threat in *Obstetrician – effects, high threat* (with respective sample sizes of 82 and 83). This is further described in Chapter Seven.

7.4 Aims

The aim of the quantitative testing was to confirm the potential effectiveness of the final concept executions on a larger sample in order to draw reliable conclusions. A further aim was to assess the relative impact on the audience by level of threat, and presence or absence of self-efficacy within the concept executions.

7.5 Research questions

The quantitative concept testing investigated the following research questions.

Perceived main messages

1. What are the main messages perceived for each of the concept executions? Do these align with the communication objectives?

(Appendix 7.5, Screen 14 and 15.)

Believability and relevance

2. Are the concept executions perceived as believable and relevant?

(Appendix 7.5, Screen 16 and 25.)

Behavioural intentions following exposure to a concept execution

3. Do the concept executions increase women's intentions to abstain from or reduce alcohol in a future or current pregnancy, as compared with the control?

(Appendix 7.5, Screen 19.)

4. Do the concept executions increase women's intentions to abstain from or reduce alcohol if they were trying to get pregnant, as compared with the control?

(Appendix 7.5, Screen 21.)

5. Do the concept executions increase women's intentions to modify their social behaviour to support other pregnant women's abstinence from alcohol, as compared with the control?

(Appendix 7.5, Screen 20.)

6. What are the differences in behavioural intentions as a function of threat and threat level?

(Appendix 7.5, Screens 19-21.)

7. What are the differences in behavioural intentions as a function of self-efficacy?
(Appendix 7.5, Screens 19-21.)

Confidence to modify behaviour following exposure to a concept execution

8. Do the concept executions increase women's confidence to abstain from or reduce alcohol in a future or current pregnancy, as compared with the control?
(Appendix 7.5, Screen 22.)

9. What are the differences in confidence in abstaining from or reducing alcohol during pregnancy as a function of threat and threat level?
(Appendix 7.5, Screen 22.)

10. What are the differences in confidence in abstaining from or reducing alcohol during pregnancy as a function of self-efficacy?
(Appendix 7.5, Screen 22.)

Beliefs and attitudes about alcohol use during pregnancy following exposure to a concept execution

11. Do the concept executions alter women's beliefs and attitudes with regard to alcohol consumption during pregnancy and when planning pregnancy, as compared with the control?
(Appendix 7.5, Screens 30 and 31.)

Message diagnostics, emotional arousal, defensive responses and potential unintended effects

12. What are the differences in message diagnostics, emotional arousal, defensive responses and potential unintended effects stimulated by the experimental concepts?
(Appendix 7.5, Screens 13, 24, 25, 28 and 33.)

7.6 Experimental design

The experimental design was post-design; it measured participants' responses after exposure to a concept. This ensured that participants were not 'primed' to the topic of alcohol use during pregnancy prior to viewing the concept (with the exception of pregnant participants in the antenatal settings with whom the topic was fully disclosed). Respondents were randomly assigned to concept conditions, with the exception of pregnant participants in the online questionnaire who were automatically assigned to the control.

Five experimental concepts and one control concept were developed to assess the potential effectiveness of the concept executions and their impact as a function of presence and level of threat and presence of self-efficacy within the execution. For the purpose of the quantitative testing, the concepts are identified as per their theoretical composition, that is, the presence and level of threat, the presence or absence of self-efficacy, and the control. The concept executions are shown in Figure 7.1- Figure 7.6.

Specifically, the concepts were:

Control (Figure 7.1)

Control is a 'drink-safe' advertising concept that does not include any reference to, or information about, the period of pregnancy. This concept promotes a 'drink less – you'll feel better for it' message.

Self-efficacy only (Figure 7.2)

Self-efficacy only depicts a woman confiding in her friend that she is pregnant. The friend then supports the woman's avoidance of alcohol by abstaining from alcohol herself at a social function. The woman uses the excuse of being on a 'health kick' in order to avoid unwanted disclosure or questions about pregnancy. *Self-efficacy only* focuses on modelling positive behaviour and social belonging and acceptance. It promotes a sense of self-efficacy in support of behaviour change by using the influence of a significant other to support a woman's abstinence from alcohol during pregnancy. The concept execution promotes a 'no alcohol in pregnancy is the safest choice' message.

Moderate threat (Figure 7.3)

Moderate threat depicts a woman in the early stages of pregnancy in a clinical setting. The woman asks her obstetrician about alcohol, and the obstetrician provides information and advice regarding alcohol use during pregnancy. The concept execution focuses on a generalised threat and risk of alcohol use during pregnancy as the motivation for behaviour change. It promotes a 'no alcohol in pregnancy is the safest choice' message.

High threat (Figure 7.4)

High threat depicts the same scenario as *Moderate threat*, but provides explicit information on the potential consequences for the fetus of prenatal alcohol exposure as well as a graphic image of a developing fetus. The concept execution focuses on specific potential consequences of alcohol use during pregnancy as the motivation for behaviour change. It promotes a 'no alcohol in pregnancy is the safest choice' message.

Moderate threat/ self-efficacy (Figure 7.5)

This concept execution combines the scenarios of *Moderate threat* and *Self-efficacy only*.

High threat/ self-efficacy (Figure 7.6)

This concept execution combines the scenarios of *High threat* and *Self-efficacy only*.

Please read the advertisement.



Scene One

A woman is walking along the beach with her friend. The woman says, "It's so good to be getting out for a walk, I've been feeling run down lately." The friend replies, "Me too. I haven't been sleeping very well. I think I need to cut back on the wine. Before we were only having a couple of glasses at the end of the week or when we were going out, but now it's every night."

The woman nods in agreement and says, "How about we go on a bit of a health-kick?"

The friend puts her arm around the woman and says, "That sounds great. This can be the start!"



Scene Two

It is a 'girls' night out' party scene and the same woman and her friend are arriving together.

The woman gets offered a glass of wine by the host, and the woman says "No thanks, just an OJ for me." The host says, "What? That's not like you!" The friend is standing next to the woman and says "Oh, we're both on a health-kick, I'll have a water." The host says "Good on you!"

The woman and her friend smile at each other while the host turns away to get them the drinks.

A final message is displayed on the screen and a voice says:

Drink less – you'll feel better for it.

Figure 7.1: Control

Please read the advertisement.



Scene One

A woman is walking along the beach with her friend. The woman says with a smile, "Can you keep a secret?"

The friend replies, "Of course I can! Why?"

The woman says, "You have to promise you won't tell anyone, yet ..."

The friend stops walking, nods, and looks at the woman with excitement.

The woman says "I'm pregnant!"

They scream and laugh and the friend gives the woman a big hug.



Scene Two

It is a 'girls' night out' party scene and the same woman and her friend are arriving together. The woman gets offered a glass of wine by the host, and the woman says "No thanks, just an OJ for me."

The host says, "What? That's not like you!"

The friend is standing next to the woman and says "Oh, we're both on a health-kick, I'll have a water."

The host says "Good on you!"

The woman and her friend smile at each other while the host turns away to get them the drinks.

A final message is displayed on the screen and a voice says:

No alcohol during pregnancy is the safest choice.

Figure 7.2: *Self-efficacy only*

Please read the advertisement.



Scene One

A woman and her partner arrive at a health clinic. The woman is not obviously pregnant, though there are some women in the later stages of pregnancy sitting in the waiting room. She approaches the counter and you see her talk to the receptionist.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus which could lead to problems later on."

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe.

That is why I say no alcohol is the safest choice."

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Figure 7.3: *Moderate threat*

Please read the advertisement.



Scene One

A woman and her partner arrive at a health clinic. The woman is not obviously pregnant, though there are some women in the later stages of pregnancy sitting in the waiting room. She approaches the counter and you see her talk to the receptionist.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows."

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe.

That is why I say no alcohol is the safest choice."

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.



Figure 7.4: *High threat*

Please read the advertisement.



Scene One

A woman is walking along the beach with her friend. The woman says with a smile, “Can you keep a secret?”

The friend replies, “Of course I can! Why?”

The woman says, “You have to promise you won’t tell anyone, yet ...”

The friend stops walking, nods, and looks at the woman with excitement.

The woman says “I’m pregnant!”

They scream and laugh and the friend gives the woman a big hug.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, “So you are doing really well, everything is looking very good. Is there anything else you would like to ask?”

The woman says, “And how about alcohol? I’ve heard different things.”

The obstetrician says, “I recommend that you don’t drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus which could lead to problems later on.”

The woman asks, “Is a couple of glasses of wine every now and then OK?”

The obstetrician says, “We just don’t know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe. That is why I say no alcohol is the safest choice.”



Scene Three

It is a ‘girls’ night out’ party scene and the same woman and her friend are arriving together. The woman gets offered a glass of wine by the host, and the woman says “No thanks, just an OJ for me.”

The host says, “What? That’s not like you!”

The friend is standing next to the woman and says “Oh, we’re both on a health-kick, I’ll have a water.”

The host says “Good on you!”

The woman and her friend smile at each other while the host turns away to get them the drinks.

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Figure 7.5: Moderate threat/ self-efficacy

Please read the advertisement.



Scene One

A woman is walking along the beach with her friend. The woman says with a smile, "Can you keep a secret?"

The friend replies, "Of course I can! Why?"

The woman says, "You have to promise you won't tell anyone, yet ..."

The friend stops walking, nods, and looks at the woman with excitement.

The woman says "I'm pregnant!"

They scream and laugh and the friend gives the woman a big hug.

Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows."

As the obstetrician talks a graphic image of a fetus appears on the screen. We then see the woman and the obstetrician again.

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe.

That is why I say no alcohol is the safest choice."

Scene Three

It is a 'girls' night out' party scene and the same woman and her friend are arriving together. The woman gets offered a glass of wine by the host, and the woman says "No thanks, just an OJ for me."

The host says, "What? That's not like you!"

The friend is standing next to the woman and says "Oh, we're both on a health-kick, I'll have a water."

The host says "Good on you!"

The woman and her friend smile at each other while the host turns away to get them the drinks.

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Figure 7.6: High threat/ self-efficacy

Table 7.3 situates the five experimental concept executions and one control concept execution within a matrix to show the experimental design.

Table 7.3: Concepts matrix

	Threat		
Self-efficacy	Absent	Moderate	High
Absent	<i>Control</i>	<i>Moderate threat</i>	<i>High threat</i>
Present	<i>Self-efficacy only</i>	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>

7.7 Sample

The sample comprised two groups: non-pregnant women and pregnant women. The desired sample size was 76 per concept execution. This has 0.08 power to detect significance mean scale differences of 0.5 at the 0.05 level of significance for a standard deviation of 1.1, and mean scale differences was one of two types of significance testing that was conducted. However, given the difficulties of achieving a sample of this size of pregnant women, the sample of pregnant women was used to simply identify any potential differences to the larger sample of non-pregnant women and hence that may require further pre-testing. Thus, a sample size of 76 or more non-pregnant women was sought for each of the six concept executions.

To be eligible to participate, non-pregnant women had to be aged 18-45 years (inclusive), currently residing in Perth, and report that they drink alcohol. Pregnant participants had to be aged 18-45 years (inclusive) and currently residing in Perth. Though data were collected regarding alcohol consumption, it was not one of the criteria for eligibility for pregnant women. Hence those currently abstaining from alcohol as well as those consuming alcohol were eligible to participate. Ethics approval was granted to include pregnant women who consumed alcohol in this phase, as it was a structured set of questions and the concepts had been developed and screened with other groups of the target audience. The risk of harm or discomfort to pregnant women resulting from participation was judged to be minimal, and the involvement of these women was necessary prior to recommending any concepts for use in a communication campaign. Furthermore, a face-to-face recruitment and consent

process (described below) was developed for pregnant women to further mitigate the risk of harm and discomfort.

7.8 Recruitment

The testing was conducted online and within antenatal settings. Pregnant women recruited in antenatal settings completed a laptop-based questionnaire. The questionnaires were conducted in these settings to ensure a comprehensive informed consent and duty of care process. Women who identified as pregnant online were automatically assigned to the control. Non-pregnant participants completed an online questionnaire. The recruitment of participants for these two formats is described separately and is displayed diagrammatically in Appendix 7.6.

7.8.1 Online questionnaire

Participants were recruited for the online questionnaire either using a database of interested people developed during previous phases of the study or a database of interested people owned by a market research company.

Database from previous phases

A database of 157 'interested people' had been developed through the recruitment of participants for the previous phases of the study. This list included women who had been invited to participate but were not eligible or available to participate. These 'interested people' were called by phone in the two weeks prior to emailing the invitation with the questionnaire link to advise them that they would be invited to participate. Email addresses were also checked and confirmed during the phone-call. These calls also identified six women who were either not able or not eligible to participate and these individuals were removed from the invitation list.

In addition to the database of self-nominated interested people, the email addresses of 25 women were forwarded to the PhD candidate by participants in the manipulation check. This was in response to a request to participants at the conclusion of the manipulation check to provide the name and email of any friends or family who they felt might be interested in participating.

In total, 176 women whose details were within the database were invited to participate in the online questionnaire through an email that contained a link to the questionnaire

(Appendix 7.7). One hundred and three (58%) of these women participated. Invitees were also asked to forward the invitation and questionnaire link to anyone they knew who might be interested in participating (see Appendix 7.6). This resulted in a further 57 respondents and a total of 160 participants recruited using this database.

In order to avoid priming participants about the topic of interest, the invitation specified that the aim of the study was to develop 'effective health promotion messages for women', and that the questionnaire aimed to test an advertisement. As a token of appreciation for their time, participants were given the opportunity to enter a draw for one of five \$100 shopping gift vouchers. Consent to participate was implied by accessing the questionnaire through the online link. After the initial invitation email, non-responding invitees were emailed up to two reminders within a week of the initial invitation.

Database from market research company

In order to achieve the desired sample, a market research company (www.myopinions.com/research/Panel) was contracted to send the questionnaire invitation to eligible members of their research panel to achieve a target of 400 completed questionnaires. (The invitation was a modified version of the email comprising Appendix 7.7 without the preamble, snowball recruitment request, or information on a gift voucher draw). The market research company provided participants who completed or who were screened out of questionnaires with 'reward points', which can be redeemed for cash, gift vouchers or charitable donations, as well as prize draws (MyOpinions Pty Ltd, 2009). Questionnaire invitations were sent to 2798 research panel members to achieve 400 completed questionnaires. No reminder emails were sent.

7.8.2 Antenatal setting questionnaire

Due to ethical and duty of care considerations, pregnant women were recruited face-to-face from seven antenatal settings: King Edward Memorial Hospital (Western Australia's only women and newborn tertiary public hospital); Kaleeya Hospital (private and public); Mercy Hospital (private); Armadale Hospital (public); Community Midwives Western Australia (specialising in home-births); Beatty Park Leisure Centre (antenatal aqua class); and Fremantle Leisure Centre (antenatal aqua class). In order to keep the

administration of the questionnaire the same as the online questionnaire, pregnant participants completed the questionnaire on a laptop provided by the study.

A research assistant liaised with antenatal service coordinators to determine appropriate times to attend the service, when to invite pregnant women to participate and where to arrange an appropriate space for women to be seated at a laptop. Prior to consenting to participate, pregnant women were provided with an Information Sheet (Appendix 7.8) which explicitly stated that the questionnaire would ‘seek their responses to an advertisement about alcohol use during pregnancy’. They were also given the opportunity to ask any questions, and asked to read and sign a consent form (Appendix 7.9). Participants were provided with a \$20 shopping gift voucher to acknowledge their time and associated costs of participating (such as parking and childcare).

As noted earlier, for ethical reasons, participants in the online questionnaire who identified themselves as pregnant were automatically assigned to the control concept execution. This was to ensure that pregnant women would not be exposed to an advertisement about alcohol and pregnancy without a comprehensive informed consent and duty-of-care process, such as that provided through the face-to-face recruitment and consent process employed within the antenatal settings.

7.9 Participants

Overall, 685 women (520 non-pregnant and 165 pregnant women) participated in the quantitative concept testing. Table 7.4 shows the number of non-pregnant and pregnant participants that saw and responded to each concept.

Table 7.4: Number of participants that saw and responded to each concept execution as per the concept matrix

Self-efficacy	Threat		
	Absent	Moderate	High
Absent	<i>Control</i>	<i>Moderate threat</i>	<i>High threat</i>
	Non-pregnant n = 58 Pregnant n= 40 Total = 98	Non-pregnant n = 83 Pregnant n = 25 Total = 108	Non-pregnant n = 82 Pregnant n = 24 Total = 106
Present	<i>Self-efficacy only</i>	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>

	Non-pregnant n = 132 Pregnant n = 26 Total = 158	Non-pregnant n = 81 Pregnant n = 25 Total = 106	Non-pregnant n = 84 Pregnant n = 25 Total = 109
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The target samples of 76 non-pregnant participants were achieved for four of the concept executions. For the control, though 98 were exposed overall, only 58 of these participants were non-pregnant and thus the desired sample for the control was under-achieved with regard to testing for significant mean scale differences. It was considered prudent to increase the target sample for *Self-efficacy only* to provide a more robust comparisons with the threat concept executions: 132 non-pregnant women responded to this concept execution.

Table 7.5 and Table 7.6 shows the demographic and health behaviour profiles of the non-pregnant and pregnant samples. The majority of participants were married and 30 years of age or older. Among the non-pregnant participants, almost a third (32.2%) reported that they thought that they might become pregnant in the next two years, and a further 21.7% reported that they were unsure if they would become pregnant within this time-frame.

Based on the AUDIT-C alcohol screening tool (Bradley et al., 2007), 8.1% of the non-pregnant and 1.2% of the pregnant samples consumed alcohol at levels that would rate as risky or harmful and possible dependence (within the non-pregnant population) in a clinical context. Alcohol consumption was an eligibility criterion for non-pregnant women, and among this sample 15.0% drank alcohol 4 or more times a week and 25.6% reported drinking six or more alcoholic drinks on one occasion on at least a monthly basis.

Among the pregnant sample, 38.2% reported drinking alcohol currently and of this proportion, 79.3% reported drinking less frequently than before they got pregnant. In terms of amount of alcohol consumed on a typical occasion, of those pregnant women currently consuming alcohol, 18.6% were drinking more than two drinks on a typical occasion, and 81.4% were drinking two or less. In terms of binge drinking patterns, overall 15.7% of pregnant women reported drinking six or more drinks on one occasion (though this may include a time period prior to conception as it includes those women who reported that they consumed this amount of alcohol less than monthly).

Only 10.9% of the pregnant participants reported smoking cigarettes, compared with 20.8% of the non-pregnant participants. Frequency of multivitamin use was greater among pregnant participants with 64.2% reporting multivitamin consumption four or more times per week compared with 31.9% of non-pregnant participants.

Table 7.5: Sample characteristics: demographic

Demographic measure	Sample	
	Non-pregnant (n = 520) n (%)	Pregnant (n = 165) n (%)
Age		
18-24 yrs	80 (15.4)	21 (12.7)
25-29 yrs	118 (22.7)	51 (30.9)
30-34 yrs	109 (21.0)	58 (35.2)
35-39 yrs	124 (23.8)	28 (17.0)
40-45 yrs	89 (17.1)	7 (4.2)
Education – highest level		
Yr 9 or below	2 (0.4)	1 (0.6)
Yr 10 or 11	56 (10.8)	20 (12.1)
Yr 12	91 (17.5)	34 (20.6)
Trade certificate	36 (6.9)	9 (5.5)
Non-trade certificate	49 (9.4)	6 (3.6)
Assoc./ undergrad dip.	57 (11.0)	19 (11.5)
Bachelor degree	141 (27.1)	48 (29.1)
Post-graduate degree	88 (16.9)	28 (17.0)
Marital status		
Never married	116 (22.3)	17 (10.3)
Widowed	3 (0.6)	1 (0.6)
Divorced	24 (4.6)	1 (0.6)
Separated	11 (2.1)	0 (0.0)
Married/ de-facto	366 (70.4)	146 (88.5)
SES – ABS state percentiles of advantage/disadvantage	Mean = 66.95	Mean = 65.01
Live in suburb ≤ 50%	130 (25.8)	44 (27.2)
Live in suburb 51-84 %	183 (36.3)	73 (45.0)
Live in suburb ≥ 85%	207 (37.9)	48 (27.7)
Personal self-efficacy score from 5-40 higher score = higher self- efficacy	Mean = 31.63, 65.6% got 32 or less	Mean = 32.1 68.5% got 32 or less
Children		
Have children	281 (54.0)	78 (47.3)
Do not have children	239 (46.0)	87 (52.7)
Parity - those with children:		
1 child	98 (34.8)	48 (61.5)
2 children	121 (43.1)	21 (26.9)
3 children	46 (16.4)	3 (3.8)
4 children	12 (4.3)	4 (5.1)
5 or more	4 (1.4)	2 (2.6)
Might become pregnant in next 2 years		
Yes	168 (32.3)	N/A
No	239 (46.0)	
Unsure	113 (21.7)	


Table 7.6: Sample characteristics: health behaviours

Health behaviours	Sample				
	Non-pregnant (n = 520) n (%)	Pregnant (n = 165) n (%)			
Alcohol - overall risk (AUDIT-C - would rate as risky or harmful drinking including possible dependency within a clinical context).	42 (8.1)	2 (1.2)	(For pregnant participants) Is this more, less or the same as before you got pregnant? (n=165)		
			More n (%)	Less n (%)	Same n (%)
Alcohol - how often have a drink containing alcohol					
4 or more times/week	78 (15.0)	2 (1.2)	0 (0.0)	2 (100)	0 (0.0)
2-3 times/week	154 (29.6)	3 (1.8)	1 (33.7)	2 (66.7)	0 (0.0)
2-4 times/month	180 (34.6)	15 (9.1)	2 (13.3)	11 (73.3)	2 (13.3)
monthly or less	108 (20.8)	43 (26.1)	0 (0.0)	35 (86.4)	8 (18.6)
never	N/A (not eligible)	102 (61.8)	2 (2.0)	85 (83.3)	15 (14.7)
Alcohol - how many drinks on a typical occasion					
10 or more	9 (1.7)	1 (0.06)	0 (0.0)	1 (100)	0 (0.0)
7, 8 or 9	23 (4.4)	2 (1.2)	0 (0.0)	2 (100)	0 (0.0)
5 or 6	63 (12.1)	5 (3.0)	2 (40.0)	2 (40.0)	1 (20.0)
3 or 4	126 (24.2)	5 (3.0)	2 (40.0)	2 (40.0)	1 (20.0)
1 or 2	284 (54.6)	57 (34.5)	8 (14.0)	33 (57.9)	16 (28.1)
None	15 (2.9)	95 (57.6)	2 (2.1)	70 (73.7)	23 (24.2)
Alcohol - how often 6 or more drinks on one occasion					
Daily or almost daily					
Weekly	5 (1.0)	1 (0.6)	0 (0.0)	1 (100.0)	0 (0.0)
Monthly	50 (9.6)	1 (0.6)	0 (0.0)	1 (100.0)	0 (0.0)
Less than monthly	78 (15.0)	7 (4.2)	4 (57.1)	3 (42.9)	0 (0.0)
Never	227 (43.7)	17 (10.3)	3 (17.6)	6 (35.3)	8 (47.1)
	160 (30.8)	139 (84.2)	1 (0.7)	65 (46.8)	73 (52.5)
Cigarettes - how often smoke					
4 or more times/week	68 (13.1)	11 (6.7)	0 (0.0)	5 (45.5)	6 (54.5)
2-3 times/week	7 (1.3)	1 (0.6)	0 (0.0)	1 (100.0)	0 (0.0)
2-4 times/month	7 (1.3)	2 (1.2)	0 (0.0)	1 (50.0)	1 (50.0)
monthly or less	26 (5.0)	4 (2.4)	0 (0.0)	4 (100.0)	0 (0.0)
never	412 (79.2)	147 (89.1)	1 (.07)	25 (7.0)	121 (82.3)
Exercise - how often exercise for 30mins +					
4 or more times/week	103 (19.8)	38 (23.0)			
2-3 times/week	235 (45.2)	73 (44.2)			
2-4 times/month	102 (19.6)	31 (18.8)			
Monthly or less	61 (11.7)	18 (10.9)			
Never	19 (3.7)	5 (3.0)			
Multivitamins - how often take					
4 or more times/week	166 (31.9)	106 (64.2)			
2-3 times/week	50 (45.2)	14 (8.5)			
2-4 times/month	22 (19.6)	5 (3.0)			
Monthly less	124 (11.7)	11 (6.7)			
Never	158 (3.7)	29 (17.6)			

7.10 Questionnaire

The questionnaires (Appendix 7.5 shows the non-pregnant version) were identical online and on the laptop. Wording of some items on the questionnaire for pregnant participants differed where necessary to reflect their pregnancy status. Questionnaires were completed independently by participants and comprised mainly 'radio-button' response options and boxes to accommodate a large amount of text for the open-ended questions (see Figure 7.9 for an example screen shot). Questions were grouped on screen to facilitate speed and ease of completion, and participants moved from screen to screen using a 'next' button. Participants were not able to return to previous screens or view the concept execution once they had moved on.

#Buttons #NextButton, .Skin #Buttons #PreviousButton, .Skin #Buttons button { float:none;




How many drinks containing alcohol do you have on a typical day when you are drinking?
Please select one.

- 10 or more
- 7, 8 or 9
- 5 or 6
- 3 or 4
- 1 or 2
- 0

How often do you have 6 or more drinks on one occasion?
Please select one.

- Daily or almost daily
- Weekly
- Monthly
- Less than monthly
- Never



[http://new.qualtrics.com/SE/?SID=SV_emTYwXMH6ANjQ44&Preview=Survey&BrandID=ecupsych\[29/09/2010 12:30:16 PM\]](http://new.qualtrics.com/SE/?SID=SV_emTYwXMH6ANjQ44&Preview=Survey&BrandID=ecupsych[29/09/2010 12:30:16 PM])

Figure 7.9 Example screen shot of questionnaire

7.10.1 Questionnaire items

Screening questions

The initial questions were used to determine participants' eligibility in terms of place of residence, gender, age, pregnancy status and alcohol consumption (Appendix 7.5, Screens 2-6). Questions regarding alcohol use were embedded among questions relating to other health behaviour such as vitamin consumption, tobacco use and exercise, so as not to prime participants with the topic of interest. Alcohol-related questions (Appendix 7.5, Screens 5 and 6) were used both to screen participants and to profile them in terms of alcohol consumption. Ineligible participants were shown a screen that ended the questionnaire and thanked them for their interest in the research.

Demographic and profiling questions

With the exception of the New General Self-efficacy Scale (Chen et al., 2001) (Appendix 7.5, Screen 7), the demographic and profiling questions that did not comprise part of the screening were asked at the conclusion of the questionnaire. This was done so as not to weigh the beginning of the questionnaire with too many personal demographic questions, and to keep participants' interest by showing them the advertisement early on. At the end of the questionnaire, participants were asked questions regarding parity, their highest level of education, marital status, suburb of residence and whether they thought they might become pregnant in the next two years (non-pregnant sample only) (Appendix 7.5, Screens 34-37).

Manipulation check

While the constructs of 'threat' and 'self-efficacy' within the concepts had been subject to a prior manipulation check, the same questions were included as an additional manipulation check with the larger sample. To test for the presence of 'self-efficacy' and 'threat' within the concepts, participants were asked if the concept they saw had implied or suggested the following:

- that if you were pregnant and trying to stop drinking alcohol during social situations it could be easier than you thought ;
- that if you drank alcohol during pregnancy the impact on the unborn baby could be mild, moderate or severe

(Appendix 7.5, Screens 17 & 18).

Main messages

In order to determine whether the communication and modelling objectives were effectively met, participants were asked “What do you think is the main message in this advertisement? What is it telling people?” and “What else is the advertisement saying?” (Appendix 7.5, Screens 14 & 15).

Believability and relevance

Participants were asked how believable the main message was and how relevant the advertisement was to women in general as measures necessary but not sufficient for message effectiveness (Appendix 7.5, Screens 16 & 25).

Behavioural intentions following exposure to a concept execution

Participants were asked about several behavioural intentions relevant to the study’s behavioural objectives. Specifically, participants were asked about their intentions to try to reduce and abstain from alcohol during pregnancy and to try to reduce and abstain from alcohol if planning for a pregnancy. They were also asked about social behaviour that may support abstinence from alcohol during pregnancy, that is, their intentions to recommend to others who are pregnant not to consume alcohol, and to abstain from alcohol when around pregnant friends (Appendix 7.5, Screens 19-21). Participants were asked to indicate their intentions to *try* to initiate the behaviour, rather their intentions to initiate the behaviour. This is consistent with the Theory of Trying (Bagozzi & Warshaw, 1990) that stipulates that promoting the *trial* of behaviour change is the important first step, and often a better predictor of an individual’s attitude towards behaviour change, or intent because it does not confound the goal of behaviour change with situational factors that may influence its actual achievement.

Confidence to modify behaviour following exposure to a concept execution

Participants were asked about their confidence in abstaining from or reducing alcohol use during pregnancy (Appendix 7.5, Screen 22).

Beliefs and attitudes about alcohol use during pregnancy following exposure to a concept execution

Several questions were used to assess participants’ beliefs and attitudes to determine if there were any differences between the concept groups which could indicate that an

advertising concept, or the information it provided, had an impact on normally held beliefs and attitudes (Appendix 7.5, Screens 23, 31 & 32). These included questions such as ‘do you believe that pregnant women should stop drinking alcohol completely during pregnancy?’

Message diagnostics

Participants were asked how much they liked or disliked the advertisement and whether there was anything they found confusing. In addition, they were asked to nominate whether the advertisement made them think about the topic in a new way, whether it provided important information, and whether it was interesting and convincing (Appendix 7.5, Screens 24, 25 & 27).

Emotional arousal

Participants were asked if they experienced any of eight feelings while reading the advertisement. Responses to this question may be indicative of the motivation underlying intentions to change behaviour (Rossiter & Percy, 1987). Participants were asked to nominate whether or not they experienced each feeling, and if so, to what degree (a little, somewhat, a lot) (Appendix 7.5, Screen 13).

Defensive responses and potential unintended effects

Participants were asked if they thought any of the following while they were reading the advertisement: ‘I don’t want to think about what the advertisement is saying’; ‘the information in this advertisement is false’; ‘the advertisement exaggerates the issue’; and ‘the advertisement is misleading (Appendix 7.5, Screen 24). Participants were also asked how ‘worried’ they thought a pregnant woman would be if she saw the concept execution and had been consuming alcohol with various amounts and frequencies. The aim of these questions was to determine whether women thought the advertisement would have a negative impact on women consuming alcohol during pregnancy or had consumed alcohol before they knew they were pregnant (Appendix 7.5, Screen 28).

To measure the potential for the advertisements to promote unintended counterproductive responses, participants were asked what they would do if they had drunk alcohol as usual in the early stages before they knew they were pregnant. Participants were given a range of options including ‘I would talk to a health

professional about options for terminating a pregnancy' and 'I would drink the same amount of alcohol as usual for the rest of the pregnancy' (Appendix 7.5, Screen 33).

7.11 Pilot

The questionnaire was piloted with a convenience sample of 12 women of childbearing age. The pilot sought feedback from participants in terms of comprehension, errors, general comments on the experience of a participant, time for completion, clarity of questions and flow of the questionnaire, as well as ensuring that the online links and technology worked. The total time taken for completions was recorded and averaged as an estimate of completion time (this information was used within the subsequent invitations to participate). Many of the main questions had been trialled previously as part of the manipulation check. Following the pilot, the questionnaire remained largely unchanged though one set of questions was slightly altered to better distinguish between different response options.

7.12 Analysis

The primary data analysis considered the differences between the five concept executions on all of the major measures versus the control where relevant (for example, the perceived main messages of the concept executions were not compared with the control as this was not an appropriate comparison to make given the content differences). The impact of the concepts on behavioural intentions and confidence was then analysed as a function of presence and level of threat, and presence or absence of self-efficacy.

The data from the non-pregnant and pregnant samples were analysed and are reported separately for all measures. As mentioned previously, the responses from the non-pregnant sample comprise the main results, with those from the pregnant sample used to confirm the main findings and to highlight any potential differences that may be significant.

As a secondary analysis, women's responses to the concept executions were cross-referenced with some defining characteristics to determine if different women were responding differently to the executions, and to highlight any potential audience segments that may need to be considered. To allow for sufficient sample sizes to

detect significant differences, these comparisons were made on the threat and self-efficacy groupings of the concept executions (see Table 7.7 and Table 7.8). These analyses were conducted to compare the responses of women:

- who drank alcohol more frequently (twice or more per week) and less frequently (less than twice per week);
- of lower socioeconomic status (living in a suburb in lowest third percentile) and higher socioeconomic status (living in a suburb in highest third percentile);
- women with a higher level of education (associate degree or higher) and women with a lower level of education; and
- women with children and women without children.

7.12.1 Analysis of main messages

Content analysis was conducted on the main messages perceived by participants for each concept execution. Up to two themes were coded per participant. Themes across all executions noted by five percent or more of participants for any concept execution are reported.

7.12.2 Analysis of rating scales and dichotomous responses alternatives

For response data collected on a five-point scale, the mean responses (\bar{x}) were calculated along with the percentage of participants who nominated the top box (% t.b). For example, for the question, *Having read the advertisement, are you more or less likely to try to stop drinking alcohol completely during a future pregnancy?* The response options and their respective values were:

- Much more likely to try to stop (1) - (t.b. = top box)
- More likely to try to stop (2)
- No different (3)
- Less likely to try to stop (4)
- Much less likely to try to stop (5)

In this example, the top box response is 'Much more likely to try to stop' and the measure is the percentage of participants who nominated this box. It is considered that comparisons of the top box percentages provides a better indication of the relative impact of the concept executions based on the data with respect to translating intentions into behaviour. Donovan and Henley (2010) and Urban and colleagues

(1987) note that within consumer research, different weightings are given to each box on a five-point scale that measures intentions with the top box being given the weighting of 0.7. Hence, simply analysing the mean response is likely to underestimate the extent of the relative impact of the concept execution on intentions.

Dichotomous response data (yes or no) are reported and analysed by the percentage of participants who nominated the affirmative response (yes %). Significant differences in 'top box' percentages and positive response percentages for each concept execution were explored using Chi-Square testing.

Analysis of variance and the Scheffe post-hoc tests (Hair et al., 2006) were conducted to determine whether there were any significant differences between the mean responses. Significance at the value of $p=0.05$ is indicated in the results tables with bold type and symbols (the symbol key is shown below each table). Analyses were conducted using PASW Statistics 18 (SPSS Inc., 2010).

7.12.3 Analysis of impact as a function of threat and self-efficacy

Table 7.7 shows that the responses are combined within the threat conditions to test for presence and level of threat.

Table 7.7: Groupings for analysis of impact as a function of threat

	Threat		
Self-efficacy	Absent	Moderate	High
Absent		Moderate threat	High threat
Present	Self-efficacy only	Moderate threat/ self-efficacy	High threat/ self-efficacy

Self-efficacy only	Moderate threat	High threat
--------------------	-----------------	-------------

Table 7.8 shows that the threat levels are combined across self-efficacy present and absent to test for self-efficacy only, threat only and threat plus self-efficacy.

Table 7.8: Groupings for analysis of impact as a function of threat only or threat and self-efficacy combined.

		Threat			
		Absent	Moderate	High	
Self-efficacy	Absent		Moderate threat	High threat	Threat only
	Present	Self-efficacy only	Moderate threat/ self-efficacy	High threat/ self-efficacy	

Self-efficacy only

7.13 Results

The majority of the results tables for the non-pregnant sample are presented within this section. The same tables showing the results from the pregnant sample are provided where relevant as appendices.

The results of the manipulation check for the constructs of self-efficacy and threat are presented first, followed by results for the first two research questions pertaining to the main messages perceived, and the believability and relevance of the concept executions. These data support the validity of the experimental design, and the general effectiveness of the concept executions in achieving the communication and modelling objectives.

The results for the main analyses of behavioural intentions and confidence following exposure to a concept execution, message diagnostics and other responses are then presented in order as per the research questions (page 157). Any specific differences in these results from the pregnant sample are then described, and any differences in responses by age, socioeconomic status, number of children or education are outlined.

7.13.1 Manipulation check

The results of the manipulation check with the non-pregnant sample are shown in Table 7.9 for each concept execution. The results show the percentage of participants who:

1. perceived self-efficacy within the execution;
2. perceived threat within the execution; and
3. perceived mild, moderate or severe threat within the execution.

Table 7.9: Percentage of participants who perceived self-efficacy and threat, and the level of threat perceived within each concept execution - non-pregnant women n=520

Self-efficacy	Threat					
	Absent		Moderate		High	
Absent	<i>Control</i>		<i>Moderate threat</i>		<i>High threat</i>	
	N/A		Self-efficacy	12.0%	Self-efficacy	13.4%
			Threat	74.7%	Threat	90.2%
			mild	6.0%	mild	0%
			moderate	21.7%	moderate	9.8%
			severe	47.0%	severe	80.5%
Present	<i>Self-efficacy only</i>		<i>Moderate threat/ self-efficacy</i>		<i>High threat/ self-efficacy</i>	
	Self-efficacy	85.6%	Self-efficacy	75.3%	Self-efficacy	61.9%
	Threat	41.7%	Threat	82.7%	Threat	94.0%
	mild	11.4%	mild	1.2%	mild	4.8%
	moderate	10.6%	moderate	25.9%	moderate	22.6%
	severe	19.7%	severe	55.6%	severe	66.7%

Self-efficacy presence

The percentages of participants perceiving self-efficacy in *Self-efficacy only*, *Moderate threat/ self-efficacy* and *High threat/ self-efficacy* were 85.6%, 75.3% and 61.9% respectively, versus only 12.0% in *Moderate threat* and 13.4% in *High threat*. This confirmed that the concepts designed to contain a self-efficacy message were effective at communicating this, and were appropriate for representing the construct 'self-efficacy' within the experimental design.

Threat presence

The percentages of participants perceiving a threat in the four threat concept executions (*Moderate threat*, *High threat*, *Moderate threat/ self-efficacy* and *High threat/ self-efficacy*) were 74.7%, 90.2%, 82.7% and 94.0% respectively. These percentages are all substantially greater than for *Self-efficacy only* (41.7%). This confirmed that the concepts designed to contain a threat appeal were effective at communicating this, and were appropriate for representing the construct of 'threat' within the experimental design. It is of interest that 41.7% of those exposed to the *Self-efficacy only* concept perceived a threat within the message. This is clearly an 'implied' threat and reflects that many women have an 'automatic' association between alcohol use during pregnancy and a negative effect on the fetus.

Level of threat

More participants perceived threat within *High threat* and *High threat/ self-efficacy* (90.2% and 94.0% respectively) compared to *Moderate threat* and *Moderate threat/ self-efficacy* (74.7% and 82.7% respectively). Furthermore, severe threat was perceived by a greater percentage of participants exposed to *High threat* (80.5%) and *High threat/ self-efficacy* (66.7%), than *Moderate threat* (47.0%) and *Moderate threat/ self-efficacy* (55.6%). This indicated that the concepts designed to contain a higher threat appeal were effective at communicating a higher level of threat.

7.13.2 Main messages

Twenty-one main message themes were coded overall for the non-pregnant participants responses to the five experimental concept executions (Appendix 7.10). However, as Table 7.10 shows, only several of these were noted by 5% or more of participants.

Results show that all of the concept executions are effective at communicating at least one of the following main messages that directly aligned with the communication objectives:

- do not drink alcohol during pregnancy;
- no amount of alcohol is safe during pregnancy;
- you can damage your baby if you drink alcohol during pregnancy;
- no alcohol is the safest option during pregnancy; and
- drinking alcohol during pregnancy is risky.

The 'primary' message of 'do not drink alcohol during pregnancy' was perceived by over 45% participants exposed to each of the concept executions. The 'secondary' main messages tended to be informational messages supporting this behavioural recommendation, and these were most prevalent within the threat executions.

These results show that the broad communication objectives were achieved, and there were no perceived messages that may work to undermine the communication objectives. Only one negative unintended message was perceived by one participant who perceived the message as condescending and encouraging negative attitudes towards pregnant women who drink alcohol (see Appendix 7.10).

Table 7.10: Main messages reported by at least 5% of participants exposed to one concept execution (control excluded) - non-pregnant women (n=462)

Main messages	Concept execution				
	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/self-efficacy</i>
	n=132	n=83	n=82	n=81	n=84
	%	%	%	%	%
Do not drink alcohol during pregnancy	71.2	55.4	50.0	50.6	46.4
They aren't sure how much alcohol will damage a baby so best not to drink at all	0.0	15.7	19.5	16.0	13.1
No amount of alcohol is safe during pregnancy	5.3	10.8	11.0	9.9	14.3
You can damage your baby if you drink alcohol during pregnancy	4.5	8.4	11.0	14.8	16.7
No alcohol is the safest option during pregnancy	4.5	6.0	3.6	8.6	8.3
Alcohol in moderation	11.4	0.0	3.6	3.7	5.9
Drinking alcohol during pregnancy is risky	2.3	3.6	8.5	2.5	1.2

Table 7.11: Believability and relevance of the concept executions - non-pregnant women (n=520)

Measure	Concept execution											
	<i>Control</i>		<i>Self-efficacy only</i>		<i>Moderate threat</i>		<i>High threat</i>		<i>Moderate threat/self-efficacy</i>		<i>High threat/self-efficacy</i>	
	n=58	n=132	n=83	n=82	n=81	n=84						
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Believability	20.7	2.24	53.0[#]	1.62*	55.4[#]	1.64 *	53.7[#]	1.62*	54.3[#]	1.53*	57.1[#]	1.52*
Relevance to women in general	24.1	2.07	58.3	1.63	56.6	1.53	63.4	1.54	61.7	1.53	58.3	1.52

[#]Top box percentage significantly different from *Control* at p=0.05.

*Mean score significantly different from *Control* at p=0.05.

7.13.3 Believability and relevance

The results pertaining to the believability and relevance of the concept executions for the non-pregnant sample are shown in Table 7.11. All concept executions were rated well in terms of believability and relevance to women in general. All five of the experimental concept executions were equally believable and significantly more believable than the control concept. Just over half (53.0% - 57.1%) of non-pregnant participants indicated that the execution they saw was “very believable”.

Similarly, the five concept executions were more relevant than the control concept execution, though not significantly so. Around 60% (56.6% - 63.4%) of participants exposed to an experimental concept execution indicated that the execution that they saw was “very relevant” to women in general. Furthermore, excluding the results for *Control*, only 1.9% said the execution that they saw was “not believable” or “not at all believable” and 1.7% said that the execution that they saw was “not relevant” or “not at all relevant”.

7.13.4 Behavioural intentions following exposure to a concept execution

The results for the non-pregnant sample pertaining to behavioural intentions are presented in detail in Table 7.12. The percentages of women indicating that they were much more likely to try to abstain from and to reduce alcohol consumption in a future pregnancy are shown graphically in Figure 7.7 and Figure 7.8. Table 7.13 and Table 7.14 show the results based on the groupings of presence and level of threat, and presence or absence of self-efficacy respectively.

All of experimental concept executions had most impact on the behavioural intention of abstaining from alcohol during pregnancy. The intentions to abstain were generally greater than intentions to reduce alcohol consumption during pregnancy, however this was reversed for intentions to reduce and abstain from alcohol when trying to get pregnant. Intentions with regard to modifying social behaviour were not as strong as intentions to alter drinking behaviour. All of the experimental concept executions with threat increased participants’ confidence to reduce and abstain from alcohol during pregnancy compared to the control concept execution, though not all significantly so. Overall, the concept executions with threat were all significantly more effective than the control on the majority of measures, and many were also significantly more effective

than *Self-efficacy only*. The *High threat* and *Moderate threat/ self-efficacy* concept executions were effective on the most measures, with *Moderate threat/ self-efficacy* most effective overall.

Intentions to try to abstain from alcohol in a future pregnancy

The percentage of participants who indicated that they were “much more likely to try to stop” drinking was significantly higher for the experimental concept executions (t.b. = 29.5% - 48.2%) than for *Control* (t.b. = 19.0%, $p \leq 0.05$). In addition, the executions with a threat appeal (t.b. = 46.4% - 48.2%) had a significantly higher percentage of participants who indicated that they were “much more likely to try to stop” drinking during a future pregnancy than those who saw *Self-efficacy only* (t.b. = 29.5%, $p \leq 0.05$). With regard to the mean values, all of the executions with a threat appeal (*Moderate threat* \bar{x} = 1.88, *High threat* \bar{x} = 2.00, *Moderate threat/ self-efficacy* \bar{x} = 1.99, *High threat/ self-efficacy* \bar{x} = 1.92) significantly increased non-pregnant participants’ intentions to try to *abstain* from alcohol in a future pregnancy compared to *Control* (\bar{x} = 2.62, $p \leq 0.05$).

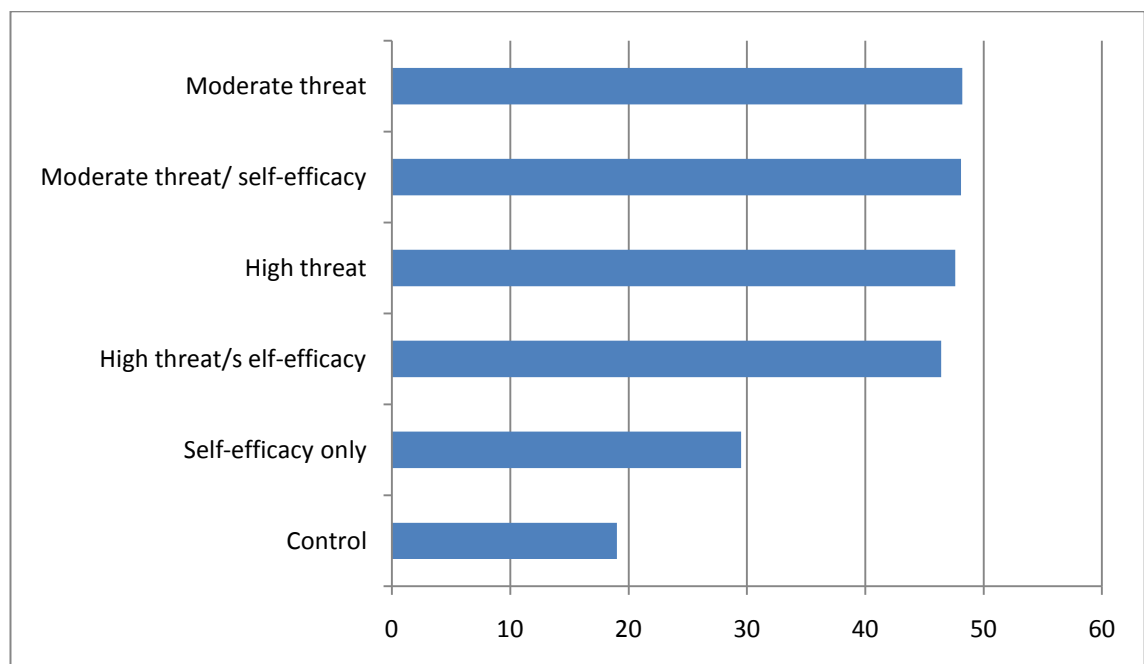


Figure 7.7: Percentage of participants who indicated that they were much more likely to try to stop drinking in a future pregnancy following exposure to a concept execution - non-pregnant women (n=520)

Intentions to try to reduce alcohol in a future pregnancy

The executions with a threat appeal had a significantly higher percentage of participants who indicated that they were “much more likely to try to reduce” drinking (t.b. = 35.7% - 44.4%) than *Control* (t.b. = 17.2%, $p \leq 0.05$) or *Self-efficacy only* (t.b. = 23.5%, $p \leq 0.05$) execution. However there was no significant difference between *Self-efficacy only* and *Control*. With regard to the mean values, *Moderate threat* ($\bar{x} = 1.9$) significantly increased non-pregnant participants’ intentions to try to reduce alcohol intake in a future pregnancy when compared with *Control* ($\bar{x} = 2.52$, $p \leq 0.05$). There were no significant differences between the mean values of the five experimental concept executions.

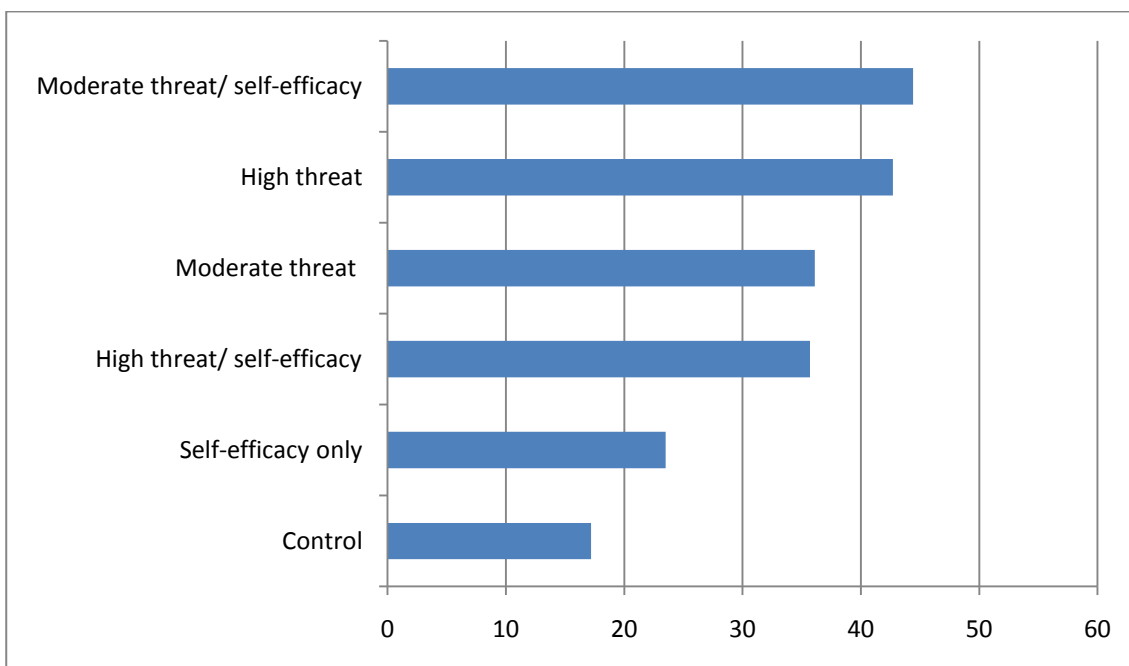


Figure 7.8: Percentage of participants who indicated that they were much more likely to try to reduce alcohol consumption in a future pregnancy following exposure to a concept execution - non-pregnant women (n=520)

Table 7.12: Behavioural intentions and confidence to modify behaviour by each concept - non-pregnant women (n=520)

Measure	Concept execution											
	Control		Self-efficacy only		Moderate threat		High threat		Moderate threat/ self-efficacy		High threat/ self-efficacy	
	n=58	n=132	n=83	n=82	n=81	n=84						
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Intentions to try to ABSTAIN in future pregnancy	19.0 s	19.0	29.5[#]	2.23	48.2^{#^}	1.88*	47.6^{#^}	2.00*	48.1^{#^}	1.99*	46.4^{#^}	1.92*
Intentions to try to REDUCE in future pregnancy	17.2	2.52	23.5	2.3	36.1^{#^}	1.9*	42.7^{#^}	2.1	44.4^{#^}	2.02	35.7^{#^}	2.02
Intentions to try to ABSTAIN if trying to get pregnant	17.2	2.48	25.0[#]	2.33	31.3[#]	2.13	36.6^{#^}	2.02	38.3^{#^}	2.06	28.6[#]	2.20
Intentions to try to REDUCE if trying to get pregnant	17.2	2.47	23.5	2.26	36.1^{#^}	2.02	42.7^{#^}	1.90*	44.4^{#^}	1.93*	35.7^{#^}	2.04
Intentions to suggest to others not to drink	20.7	2.40	23.5	2.26	33.7^{#^}	2.11	39.0^{#^}	1.98	42.0^{#^}	1.96	36.9^{#^}	1.99
Intentions to stop drinking around pregnant friends	15.5	2.59	16.7	2.36	18.1	2.47	24.4[#]	2.32	28.4^{#^~}	2.17	22.6	2.23
CONFIDENCE to ABSTAIN in future pregnancy	29.5	2.40	27.3	2.24	42.2^{#^}	2.04	40.2^{#^}	2.02	44.4^{#^}	1.99	34.5	2.10
CONFIDENCE to REDUCE in future pregnancy	20.7	2.52	25.8 x	25.8	38.6^{#^}	2.10	42.7^{#^}	2.02*	45.7^{#^}	1.89*	38.1^{#^}	2.07

[#]Top box percentage significantly different from *Control* at p=0.05.

[^]Top box percentage significantly different from *Self-efficacy only* at p = 0.05.

[~]Top box percentage significantly different from *Moderate threat* at p=0.05.

^{*}Mean score significantly different from *Control* at p=0.05.

Table 7.13: Behavioural intentions and confidence as a function of threat presence and level - non-pregnant women (n= 462)

Measure	Concept grouping					
	<i>Self-efficacy only</i> n=132		<i>Moderate threat</i> n= 164		<i>High threat</i> n=166	
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Intentions to try to ABSTAIN in future pregnancy	29.5	2.23	48.2[#]	1.93*	47.0[#]	1.96
Intentions to try to REDUCE in future pregnancy	28.8	2.30	47.6[#]	1.96*	44.0[#]	2.06
Intentions to try to ABSTAIN if trying to get pregnant	25.0	2.33	34.8[#]	2.10	32.5[#]	2.11
Intentions to try to REDUCE if trying to get pregnant	23.5	2.26	40.2[#]	1.98*	39.2[#]	1.97*
Intentions to suggest to others not to drink	23.5	2.26	37.8[#]	2.04	38.0[#]	1.98*
Intentions to stop drinking around pregnant friends	16.7	2.36	23.2[#]	2.32	23.5[#]	2.27
CONFIDENCE to ABSTAIN in future pregnancy	27.3	2.21	43.3[#]	2.04	37.3[#]	2.06
CONFIDENCE to REDUCE in future pregnancy	25.8	2.28	42.1[#]	1.99*	40.0[#]	2.05

[#] Top box percentage is significantly different from *Self-efficacy only* at p=0.05.

*Mean score is significantly different from *Self-efficacy only* at p=0.05.

Table 7.14: Behavioural intentions as a function of self-efficacy - non-pregnant women (n= 462)

Measure	Concept grouping					
	<i>Self-efficacy only</i> n=132		<i>Threat only</i> n= 165		<i>Threat/ self-efficacy</i> n=165	
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Intentions to try to ABSTAIN in future pregnancy	29.5	2.23	47.9[#]	1.94*	47.3[#]	1.95*
Intentions to try to REDUCE in future pregnancy	28.8	2.3	47.3[#]	2.0	44.2[#]	2.02
Intentions to try to ABSTAIN if trying to get pregnant	25.0	2.3	33.9[#]	2.08	33.3[#]	2.13
Intentions to try to REDUCE if trying to get pregnant	23.5	2.26	39.4[#]	1.96*	40.0[#]	1.98*
Intentions to suggest to others not to drink	23.5	2.26	36.4[#]	2.04	39.4[#]	1.98*
Intentions to stop drinking around pregnant friends	16.7	2.36	21.2	2.39	25.5[#]	2.20
CONFIDENCE to ABSTAIN in future pregnancy	27.3	2.24	41.2[#]	2.03	39.4[#]	2.04
CONFIDENCE to REDUCE in future pregnancy	25.8	2.28	40.6[#]	2.06	41.8[#]	1.98*

[#]Top box percentage is significantly different from *Self-efficacy only* at p=0.05.

*Mean score is significantly different from *Self-efficacy only* at p=0.05.

Intentions to try to abstain from alcohol if trying to get pregnant

A significantly greater percentage of participants who saw an experimental concept (t.b. = 25.0% - 38.3%) indicated that they were “much more likely to try to stop” drinking alcohol completely if they were trying to get pregnant than those who saw *Control* (t.b. = 17.2%, $p \leq 0.05$). In addition, a significantly greater percentage of participants who saw *High threat* (t.b. = 36.6%) and *Moderate threat/ self-efficacy* (t.b. = 38.3%) nominated that they were “much more likely to try to stop” drinking alcohol if they were trying to get pregnant than of those who saw *Self-efficacy only* (t.b. = 25.0%, $p \leq 0.05$). There were no significant differences between the experimental concept execution and the *Control* on the mean response values.

Intentions to try to reduce alcohol consumption if trying to get pregnant

A significantly greater percentage of participants who saw a concept with a threat appeal (t.b. = 35.7% - 44.4%) indicated that they were “*much more likely to try to reduce*” their alcohol intake if trying to get pregnant than for *Control* (t.b. = 17.2%, $p \leq 0.05$) or *Self-efficacy only* (t.b. = 23.5%, $p \leq 0.05$). In terms of mean values, *High threat* ($\bar{x} = 1.90$) and *Moderate threat/self-efficacy* ($\bar{x} = 1.93$) significantly increased non-pregnant participants’ intentions to *reduce* alcohol intake if they were *trying* to get pregnant compared to *Control* ($\bar{x} = 2.47$, $p \leq 0.05$).

Intentions to modify social behaviour to support pregnant women’s abstinence from alcohol

A significantly greater percentage of participants who saw a concept with a threat appeal (t.b. = 33.7% - 42.0%) indicated they were “*much more likely to suggest*” to anyone they know who is pregnant not to drink alcohol, than those who saw *Control* (t.b. = 20.7%, $p \leq 0.05$) or *Self-efficacy only* (t.b. = 23.5%, $p \leq 0.05$). *Moderate threat/ self-efficacy* (t.b. = 28.4%) had a significantly greater percentage of participants who indicated that they were “*much more likely to stop drinking*” around pregnant friends, than for *Control* (t.b. = 15.5%, $p \leq 0.05$), *Self-efficacy only* (t.b. = 16.7%, $p \leq 0.05$) or *Moderate threat* (t.b. = 18.1%, $p \leq 0.05$). There were no significant differences among the mean responses from non-pregnant participants on their intentions suggest to other pregnant women not to drink alcohol, or intentions to stop drinking around pregnant friends. It is worth

noting that the mean values indicate that participants were more likely to nominate that they would suggest to others not to drink alcohol, than they would be to abstain from alcohol themselves in support of pregnant women. The differences were not significant.

Intentions to modify behaviour as a function of threat and self-efficacy

Table 7.13 shows that threat significantly increased participants' intentions to abstain from and reduce alcohol during pregnancy. On the top box measure, all of the behavioural intentions were significantly higher among those who saw a threat execution, compared to those who saw *Self-efficacy only*. With regard to threat level, there were no significant differences found between the *Moderate threat* and *High threat* groupings.

In terms of intentions to abstain from or reduce alcohol during pregnancy as a function of presence or absence of self-efficacy, Table 7.14 shows no significant differences between the *Threat only* and *Threat/ Self-efficacy* groupings.

Summary: behavioural intentions

These results show that the experimental concepts were significantly more effective at increasing women's intentions to abstain from or reduce alcohol in a current or future pregnancy compared to the control execution. In general, concept executions with a threat appeal were significantly more effective than *Self-efficacy only*. Overall, the data show a consistent pattern of the experimental concepts being more effective at increasing intentions to behave in alignment with the behavioural objectives.

Table 7.15 shows, as a summary, the two most effective concept executions (with regard to their top-box values) for the non-pregnant sample for each of the behavioural intentions. This table indicates that *Moderate threat/ self-efficacy* and *High threat* are the executions that are most effective at increasing non-pregnant women's behavioural intentions.

Table 7.15: Most effective concept executions for increasing behavioural intentions - non-pregnant women

Behavioural intentions	Most effective	Second most effective
Intentions to try to ABSTAIN in future pregnancy	<i>Moderate threat</i>	<i>Moderate threat/ self-efficacy</i>
Intentions to try to REDUCE in future pregnancy	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to try to ABSTAIN if trying to get pregnant	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to try to REDUCE if trying to get pregnant	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to suggest to others not to drink	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to stop drinking around pregnant friends	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>

7.13.5 Confidence to modify behaviour following exposure to a concept execution

The results from the non-pregnant sample pertaining to confidence to modify behaviour following exposure to a concept execution are shown in Table 7.12. Table 7.13 and Table 7.14 show the results based on the groupings of presence and level of threat, and presence or absence of self-efficacy.

Confidence to abstain from alcohol in a future pregnancy

A significantly greater percentage of participants who saw *Moderate threat* (t.b. = 42.2%), *High threat* (t.b. = 40.2%) and *Moderate threat/ self-efficacy* (t.b. = 44.4%) indicated they were “*much more confident*” that they could stop drinking alcohol completely, than for *Control* (t.b. = 29.5%, $p \leq 0.05$) or *Self-efficacy only* (t.b. = 27.3%, $p \leq 0.05$). Mean values for all of the experimental concepts were lower than for *Control* though not significantly so, indicating an effect towards increased confidence for the experimental concepts.

Confidence to reduce alcohol consumption in a future pregnancy

A significantly greater percentage of participants who saw a concept with a threat appeal (t.b. = 38.1% - 45.7%) indicated that they were “*much more confident*” they could reduce the amount of alcohol they drank if they were pregnant, than for *Control* (t.b. = 20.7%, $p \leq 0.05$) and *Self-efficacy only* (t.b. = 25.8%, $p \leq 0.05$). *High threat* ($\bar{x} = 2.02$) and *Moderate threat/ self-efficacy* ($\bar{x} = 1.89$) both

significantly increased participants' confidence with regard to reducing their alcohol intake in a future pregnancy, compared with *Control* ($\bar{x} = 2.52$, $p \leq 0.05$).

In terms of confidence to abstain from or reduce alcohol during pregnancy as a function of threat and self-efficacy, the top-box responses in Table 7.13 and Table 7.14 show that threat significantly increases participants' confidence. With regard to threat level, there were no significant differences found between the *Moderate threat* and *High threat* groupings, and there is no significant difference when a self-efficacy message is added to the threat appeal.

Summary: confidence in modifying behaviour

With regard to confidence in abstaining from and reducing alcohol consumption during pregnancy, it appears that threat enhances confidence with or without self-efficacy. Table 7.16 shows the two most effective concept executions (with regard to their top-box values) for the non-pregnant sample for each of the confidence measures.

Table 7.16: Most effective concept executions for increasing confidence to abstain and reduce alcohol consumption in a future pregnancy - non-pregnant women

Confidence	Most effective	Second most effective
CONFIDENCE to ABSTAIN in future pregnancy	<i>Moderate threat/ self-efficacy</i>	<i>Moderate threat</i>
CONFIDENCE to REDUCE in future pregnancy	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>

As with the behavioural intention measures, *Moderate threat/ self-efficacy* is the most effective.

7.13.6 Beliefs and attitudes about alcohol use during pregnancy following exposure to a concept execution

Overall, women's beliefs and attitudes regarding reducing or abstaining from alcohol during pregnancy were largely constant across participants exposed to all concept executions including the control (Table 7.17). The exploratory research indicated that women accepted that alcohol consumption during pregnancy should be minimised with abstinence as the final goal, and these data support this finding: 80.7% - 90.1% of participants agreed that women should stop

drinking alcohol completely during pregnancy, and 97.6% - 100% agreed that women should reduce the amount of alcohol that they drink during pregnancy. However, there were some significant differences with regard to participants' beliefs that women should modify their alcohol consumption in the preconception phase. Women exposed to the experimental concept executions were significantly more likely to agree that women should reduce the amount of alcohol that they drink when trying to get pregnant (88.1% - 95.1%) compared with those who saw *Control* (77.6%, $p \leq 0.05$). Furthermore, several of the experimental concept executions significantly increased women's belief that women should stop drinking alcohol completely when trying to get pregnant, despite the executions not specifically addressing alcohol consumption during the preconception phase. This suggests targeting women's beliefs regarding alcohol consumption when they are planning pregnancy.

Summary: beliefs and attitudes

With regard to beliefs and attitudes following exposure to a concept execution, results showed that a substantial majority of participants within the control group already believe that women should abstain from and reduce alcohol consumption during pregnancy, and the concept executions therefore did not significantly alter these beliefs. However, a significantly greater percentage of participants exposed to an experimental concept execution agreed that women should abstain from and reduce alcohol when they are trying to get pregnant, compared with those who saw *Control*.

Table 7.17: Beliefs and attitudes following exposure to a concept execution - non-pregnant women (n=520)

Beliefs and attitudes	Concept execution					
	<i>Control</i>	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>
	n=58 yes %	n=132 yes %	n=83 yes %	n=82 yes %	n=81 yes %	n=84 yes %
Your chances of having a healthy child would increase if you drank no alcohol during pregnancy	93.1	93.9	96.4	93.9	97.5	96.4
Your chances of having a child with brain damage or birth defects would increase if you drank any alcohol during pregnancy	94.8	93.2	94.0	98.8	97.5	95.2
Women should STOP drinking alcohol completely during pregnancy	84.5	82.5	80.7	85.4	90.1[~]	85.7
Women should REDUCE the amount of alcohol they drink during pregnancy	98.3	99.2	97.6	98.8	100	98.8
Women should stop drinking alcohol completely when TRYING to get pregnant	46.6	57.5[#]	56.6	59.8[#]	60.5[#]	53.6
Women should reduce the amount of alcohol they drink when TRYING to get pregnant	77.6	90.9[#]	91.6[#]	93.9[#]	95.1[#]	88.1[#]

[#]Affirmative answer percentage significantly different from *Control* at p=0.05

[~]Affirmative answer percentage significantly different from *Moderate threat* at p=0.05

7.13.7 Message diagnostics, emotional arousal, defensive responses and potential unintended effects

Results for the non-pregnant sample are shown in Table 7.18 -Table 7.20.

Message diagnostics

All the experimental concepts were rated as likeable on average, with the mean values ranging from 2.19-2.45, and with 22.0–28.8% of participants saying that they liked the concept that they saw “*a lot*”. Substantial majorities considered the experimental concept execution that they saw to be interesting (68.7% - 77.8%), convincing (68.7% - 85.4%), and providing important information (84.1-96.3%).

A significantly greater percentage of participants who saw *High threat* (85.4%) and *Moderate threat/ self-efficacy* (84.0%) indicated that they thought “*the advertisement is convincing*”, compared with *Self-efficacy only* (74.2%, $p \leq 0.05$) and *Moderate threat* (68.7%, $p \leq 0.05$).

When asked if they thought that the advertisement made them “*think about the topic in a new way*”, a significantly greater percentage of participants who saw *Moderate threat/ self-efficacy* (50.6%), *High threat/ self-efficacy* (41.7%) and *Self-efficacy only* (40.2%) indicated “*yes*”, compared with *High threat* (29.3%, $p \leq 0.05$). A significantly greater percentage of participants who saw *Moderate threat* (92.8%) and *High threat* (96.3%) indicated that they thought that the advertisement “*provides important information*”, compared with *Self-efficacy only* (84.1%, $p \leq 0.05$).

It is worthwhile noting that in comparison to *Control*, the experimental concept executions performed significantly better on all of the message diagnostics, except for making participants “*think about the topic in a new way*”.

Table 7.18: Message diagnostics - non-pregnant women (n=520)

Message diagnostics	Concept execution											
	<i>Control</i>		<i>Self-efficacy only</i>		<i>Moderate threat</i>		<i>High threat</i>		<i>Moderate threat/self-efficacy</i> n=81		<i>High threat/ self-efficacy</i> n=84	
	n=58		n=132		n=83		n=82					
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Likeability	8.6	2.72	28.8[#]	2.20[*]	22.9[#]	2.42[*]	22.0[#]	2.45[*]	22.2[#]	2.19[*]	22.6[#]	2.31[*]
	yes %		yes %		yes %		yes %		yes %		yes %	
Interesting	51.7		74.2[#]		68.7[#]		72.0[#]		77.8[#]		71.4[#]	
Convincing	56.9		74.2[#]		68.7[#]		85.4^{#^~}		84.0^{#^~}		77.4[#]	
Makes me think about the topic in new way	25.9		40.2^{#&}		33.7		29.3		50.6^{#~&}		41.7^{#&}	
Provides important information	65.5		84.1[#]		92.8^{#^}		96.3^{#^}		91.4[#]		91.7[#]	

[#]Top box/ affirmative answer percentage significantly different from *Control* at p=0.05.

[^] Top box/ affirmative answer significantly different from *Self-efficacy only* at p = 0.05.

[~] Top box/ affirmative answer significantly different from *Moderate threat* at p=0.05.

[&] Top box/ affirmative answer significantly different from *High threat* at p = 0.05.

^{*}Mean score significantly different from *Control* at p=0.05.

Table 7.19: Emotional arousal - non-pregnant women (n=520)

Emotional measure	Concept execution					
	<i>Control</i>	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/ self-efficacy</i>
	n=58 yes %	n=132 yes %	n=83 yes %	n=82 yes %	n=81 yes %	n=84 yes %
worried (negative)	17.2	12.9	27.7 ^{#^}	25.6 [^]	23.5 [^]	31.0 ^{#^}
anxious (negative)	10.3	9.8	20.5 ^{#^}	22.0 ^{#^}	17.3 [^]	23.8 ^{#^}
guilty (negative)	29.3 ^{^~&\$\$@}	4.5	15.7 [^]	14.6 [^]	13.6 [^]	15.5 [^]
regretful (negative)	17.2 ^{^~\$}	3.8	6.0	14.6 ^{^~\$}	7.4	13.1 ^{^~\$}
ashamed (negative)	12.1 ^{^\$}	1.5	8.4 [^]	14.6 ^{^~\$}	6.2 [^]	10.1 ^{^\$}
surprised (neutral)	13.8	26.5 ^{#&@}	20.5	15.9	28.4 ^{#&@}	17.9
relieved (positive)	12.1	39.4 ^{~&}	26.5 [#]	25.6 [#]	42.0 ^{~&}	34.5 [#]
proud of myself (positive)	41.4	53.8 ^{#@}	56.6 ^{#@}	48.8	53.1 ^{#@}	40.5
happy (positive)	48.3 ^{&}	77.3 ^{#~&\$\$@}	37.3	32.9	63.0 ^{~&}	54.8 ^{&}

[#] Affirmative answer percentage significantly different from *Control* at p=0.05.

[^] Affirmative answer percentage significantly different from *Self-efficacy only* at p = 0.05.

[~] Affirmative answer percentage significantly different from *Moderate threat* at p=0.05.

[&] Affirmative answer percentage significantly different from *High threat* at p = 0.05.

^{\$} Affirmative answer percentage significantly different from *Moderate threat/ self-efficacy* at p=0.05.

[@] Affirmative answer percentage significantly different from *High threat/ self-efficacy* at p=0.05.

Table 7.20: Defensive responses and potential unintended effects - non-pregnant women (n=520)

	Concept execution					
	<i>Control</i> n=58	<i>Self-efficacy only</i> n=132	<i>Moderate threat</i> n=83	<i>High threat</i> n=82	<i>Moderate threat/self-efficacy</i> n=81	<i>High threat/self-efficacy</i> n=84
Defensive responses	yes %	yes %	yes %	yes %	yes %	yes %
I don't want to think about what the advertisement is saying	8.6^{^^}	3.0	3.6	9.8^{^^}	8.6^{^^}	8.3^{^^}
The information in this advertisement is false	5.2^{~\$}	3.0	1.2	4.9^{~\$}	1.2	3.6^{~\$}
The advertisement exaggerates the issue	12.1	7.6	13.3	14.6[^]	9.9	10.7
The advertisement is misleading	6.9[@]	6.1[@]	4.8	11.0^{~\$@}	3.7	2.4
Would a woman be worried if she saw this advertisement and...						
was drunk when she conceived	60.4	80.3[#]	78.3[#]	81.7[#]	82.7[#]	79.7[#]
drank 2 per day before found out she was pregnant	79.3	89.4[#]	85.6	93.9[#]	93.8[#]	92.8[#]
got drunk on 2 occasions before she found out she was pregnant	82.8	87.2	89.2	87.8	90.1	88.1
drank 4 drinks on 2 occasions before she found out she was pregnant	75.9	84.2[#]	85.6[#]	84.9[#]	90.1[#]	88.1[#]
been drinking 1 per day during the first 6 months of pregnancy	74.2	91.7[#]	91.6[#]	93.9[#]	93.8[#]	94.0[#]
drank 1 drink on 2 'special' occasions in first 6 months pregnancy	50.0	64.4	65.1[#]	69.5[#]	71.6[#]	72.6[#]
Potential unintended effects						
Talk to a health professional about options for terminating the pregnancy	6.7	6.0	3.6	7.3	7.4	5.8
Drink the same amount of alcohol as usual for the rest of the pregnancy	1.7	0.0	1.2	3.7^{^^\$@}	0.0	0.0

[#] Affirmative answer percentage significantly different from *Control* at p=0.05.

[^] Affirmative answer percentage significantly different from *Self-efficacy only* at p = 0.05.

[~] Affirmative answer percentage significantly different from *Moderate threat* at p=0.05.

^{\$} Affirmative answer percentage significantly different from *Moderate threat/self-efficacy* at p=0.05.

[@] Affirmative answer percentage significantly different from *High threat/self-efficacy* at p=0.05.

Emotional arousal

Overall, negative emotional arousal was generally low with less than a third of participants exposed to any of the experimental concepts feeling worried or anxious, and less than a sixth of participants experiencing guilt, regret or shame following exposure (Table 7.19). Positive emotional arousal was higher with approximately a third to a half of participants exposed to any of the experimental concepts feeling relieved, proud of themselves or happy.

Worry and anxiety were aroused most by the threat appeals with 17.3% - 31.0% of participants feeling worried and anxious following exposure, compared to 9.8% - 12.9% of those who saw *Self-efficacy only*. The addition of a self-efficacy message to the threat appeal did not reduce the percentage of participants experiencing these negative emotions, as opposed to the threat only appeals.

A smaller percentage of participants (13.6% - 15.7%) felt guilt after seeing a threat appeal, though this was significantly greater than for those exposed to *Self-efficacy only* (4.5%, $p \leq 0.05$). *Control* aroused guilt amongst a significantly greater percentage of participants, relative to the experimental concept executions. Regret appears related to the level of threat: a significantly greater percentage of participants who saw *High threat* (14.6%) and *High threat/ self-efficacy* (13.1%), experienced regret, compared with those who saw *Moderate threat* (6.0%, $p \leq 0.05$) and *Moderate threat/ self-efficacy* (7.4%, $p \leq 0.05$). Similarly for shame, those executions with high threat aroused more shame than those with moderate threat and *Self-efficacy only*, though a self-efficacy message may mediate this slightly as *High threat/ self-efficacy* only had 10.1% of participants experience shame, compared with 14.6% of participants exposed to *High threat*.

Two concept executions aroused surprise among a significantly greater percentage of participants: *Self-efficacy only* (yes = 26.5%, $p \leq 0.05$) and *Moderate threat/ self-efficacy* (yes = 28.4%, $p \leq 0.05$). *Self-efficacy only* and *Moderate threat/ self-efficacy* promoted a feeling of relief and happiness among a significantly greater percentage of participants than those concept executions with threat alone. A self-efficacy message in particular appears to arouse happiness, with a significantly greater percentage of participants who saw a threat appeal combined with self-efficacy experiencing

happiness compared with those exposed to a threat appeal only. In terms of feeling pride in oneself, a high threat appeal significantly lowers the effect of a self-efficacy message, with *High threat /self-efficacy* making a significantly smaller percentage of participants feel proud of themselves, compared with *Self-efficacy only*. This effect is not significant when the threat is moderate.

Defensive responses and potential unintended effects

Table 7.20 shows that the concept executions avoid promoting defensive responses and hence raising the potential for unintended effects.

The executions with a threat appeal generated more rejection of the message and counter-argument than *Self-efficacy only* and this appears highest with a higher level of threat. With respect generating worry in the women exposed to these concepts, in general, a significantly greater percentage of participants exposed to one of the experimental concept executions thought that women who had consumed alcohol during pregnancy would be worried after seeing the advertisement, compared with those who saw *Control* (which was a general drink-safe advertisement). Given a significantly greater percentage of those exposed to *Self-efficacy only* also thought that it would arouse worry (relative to *Control*), it is reasonable to conclude that simply putting forward a message 'no alcohol in pregnancy is the safest choice' is related to an increase in perceived worry for women who consume alcohol during pregnancy.

A very small but significantly greater percentage of participants who saw *High threat* nominated that they "would continue drinking as normal for the rest of pregnancy" once they found out they were pregnant. However, when this was cross-referenced with the level at which participants were currently drinking alcohol, results showed that none of the participants who nominated this response in any of the concept executions were drinking at levels of high risk for short-term harm as per the AUDIT-C screening tool (data not shown).

Summary: message diagnostics, emotional arousal, defensive responses and potential unintended effects

In terms of diagnostics, the results show that *Moderate threat/ self-efficacy* was rated as interesting, convincing and as making the participant think about the topic in a new way by a greater percentage of participants than any of the other concept executions,

and all of the concept executions rated well in terms of providing important information, particularly those with threat.

Some distinct differences were found between the concept executions on the measures of emotional arousal. In terms of emotional arousal, the threat appeals generate a small but not unreasonable level of worry, anxiety and guilt. These do not appear to alter with the addition of a self-efficacy message to the threat appeal. With regard to regret and shame, the level of threat appears to be important, with the moderate threat appeals generating less than the high threat appeals. The addition of a self-efficacy message appears to reduce this. The positive feelings are lowered by a threat appeal and in general are highest with those messages that include a self-efficacy message. In particular, happiness and relief are aroused with the inclusion of a self-efficacy message.

Only low percentages of participants experienced any defensive responses as measured by the four responses evidencing rejection of the message. *High threat* consistently aroused the greatest percentage of defensive response. A very low percentage of participants indicated a potential for experiencing unintended effects following exposure to one of the experimental concept executions.

Table 7.21 summarises the two most effective concept executions (with regard to their top-box values) for the non-pregnant sample for the above data.

Table 7.21: Most effective concept executions in terms of message diagnostics, emotional arousal in the desired direction, and limited defensive responses and unintended effects - non-pregnant women

Measure	Most effective	Second most effective
Message diagnostics	<i>Moderate threat/ self-efficacy</i>	<i>Self-efficacy and High threat</i>
(Least) negative emotional arousal	<i>Self-efficacy</i>	<i>Moderate threat/ self-efficacy</i>
(Most) positive emotional arousal	<i>Self-efficacy</i>	<i>Moderate threat/ self-efficacy</i>
(Least) defensive responses and unintended effects	<i>Self-efficacy</i>	<i>Moderate threat</i>

7.13.8 Results from pregnant women

The results for the 165 pregnant women all of the above measures are shown in Appendices 7.11 - 7.17. Overall, the results do not indicate any substantial differences between pregnant women's responses to the concept executions compared with the non-pregnant women. As the pregnant sample was used to explore any differences that may be relevant for pregnant women, rather than to explore statistically significant results, it can be concluded that the results and recommendations based on the non-pregnant sample are likely to be similar to, and appropriate for, a pregnant sample also.

Not accounting for the limitations associated with drawing conclusions from a small sample, Table 7.22 summarises the two most effective concept executions (with regard to their top-box values) for the pregnant sample for each of the main messages. This shows that as with the non-pregnant sample, *Moderate threat/ self-efficacy* was overall the most effective in terms of supporting behavioural intentions and confidence, and in terms of the message responses.

Table 7.22: Most effective concept executions on all measures - pregnant women

Measure	Most effective	Second most effective
Intentions to try to ABSTAIN in current pregnancy	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to try to REDUCE in current pregnancy	<i>Moderate threat/ self-efficacy</i>	<i>High threat</i>
Intentions to try to ABSTAIN if trying to get pregnant	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>
Intentions to try to REDUCE if trying to get pregnant	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>
Intentions to suggest to others not to drink	<i>Moderate threat/ self-efficacy</i>	<i>Moderate threat</i>
Intentions to stop drinking around pregnant friends	<i>Moderate threat/ self-efficacy</i>	<i>High threat/ self-efficacy</i>
CONFIDENCE to ABSTAIN in current pregnancy	<i>Moderate threat</i>	<i>High threat</i>
CONFIDENCE to REDUCE in current pregnancy	<i>Moderate threat</i>	<i>High threat</i>
Message diagnostics	<i>High threat</i>	<i>High threat/ self-efficacy</i>
(Least) negative emotional arousal	<i>Self-efficacy only</i>	<i>Moderate threat</i>
(Most) positive emotional arousal	<i>Self-efficacy only</i>	<i>High threat/ self-efficacy</i>
(Least) defensive responses and unintended effects	<i>Moderate threat</i>	<i>Self-efficacy only</i>

7.13.9 Results from women with different characteristics

The non-pregnant sample was divided into two groups on the following characteristics: alcohol consumption; socioeconomic status; level of education; and whether they had children. Analyses were conducted with reference to any differences as a function of self-efficacy, threat and threat level. There were no significant differences between the groups in terms of their responses to the executions as a function of level of threat, or the addition of a self-efficacy message to the threat appeal.

7.14 Summary

With regard to the research questions, the following results were found:

1. The main messages perceived for each of the concept executions aligned with the communication objectives.
2. The concept executions were each perceived to be very believable and very relevant by the majority of participants.
3. The concept executions increased women's intentions to abstain from alcohol in a future pregnancy, and those with threat also increased women's intentions to reduce alcohol use in a future pregnancy as compared to the control.
4. The concept executions increased women's intentions to abstain from alcohol when planning a pregnancy, and those with threat also increased women's intentions to reduce alcohol when planning a pregnancy as compared to the control.
5. The concept executions with threat increased women's intentions to suggest to others not to drink alcohol during pregnancy, as compared to the control. Two concept executions, *High threat* and *Moderate threat/ self-efficacy*, also increased participants' intentions to stop drinking around pregnant friends as compared to the control.
6. Behavioural intentions to modify behaviour increased when participants were exposed to a threat appeal compared to a positive appeal based on self-efficacy. Behavioural intentions did not differ based on the level of threat (moderate or high).
7. Overall, behavioural intentions did not alter with the addition of self-efficacy to a threat appeal.
8. Three of the concept executions, *Moderate threat*, *High threat* and *Moderate threat/ self-efficacy* increased participants' confidence in abstaining from alcohol during pregnancy compared to the control. The concept executions with threat

increased women's confidence to reduce alcohol during pregnancy compared to the control.

9. Confidence to modify behaviour increased when participants were exposed to a threat appeal, compared to a positive appeal based on self-efficacy. Confidence to modify behaviour did not differ alter based on the level of threat (moderate or high).
10. Confidence to modify behaviour did not alter with the addition of self-efficacy to a threat appeal.
11. Overall, the concept executions did not alter women's underlying beliefs with regard to alcohol use during pregnancy. The exception to this is that the concept executions enhanced the belief that women should reduce the amount of alcohol that they drink when trying to get pregnant compared to the control, and *Self-efficacy only*, *High threat* and *Moderate threat/ self-efficacy* also enhanced the belief that women should stop drinking alcohol completely when trying to get pregnant, compared to the control.
12. In terms of message diagnostics, *Moderate threat/ self-efficacy* was consistently rated highly, though all of the concept executions performed well and significantly better than the control. With regard to emotional arousal, those concept executions with threat aroused more negative emotional responses, and *Self-efficacy only* aroused more positive emotional responses. The addition of a self-efficacy message to a threat appeal aroused more positive emotional response than the threat appeal alone. In terms of defensive responses, only *High threat* showed a potential to raise a range of defensive responses. Generally, women thought that all of the concept executions would result in worry for women who drank alcohol during pregnancy compared to the control. The potential unintended effects measured were very low for the concept executions, with no clear differences between them.

The next chapter discusses the results of the study and their implications for messaging in campaigns aimed at promoting abstinence from alcohol during pregnancy and preventing prenatal alcohol exposure.

Chapter Eight: Discussion

8.1 Introduction

This study constructed and tested messages for a campaign aimed at promoting abstinence from alcohol during pregnancy among pregnant women and women of childbearing age. It is the first study to provide empirical evidence of the effectiveness of messaging to increase behavioural intentions to abstain from and reduce alcohol consumption during pregnancy.

Messages were developed through a strategic process comprising background research and formative research with the target audience, underpinned by social cognition models. First, exploratory research with pregnant women and women of childbearing age provided insight into women's knowledge, attitudes and beliefs with regard to alcohol use during pregnancy, and motivations for behaviour change during pregnancy. These data were analysed with regard to their implications for message strategy, and were used to define the behaviour change objectives, articulate the profile of the target audience, and to draft a series of television concept executions and a selection of supporting copy and graphics. Second, these initial concept executions were assessed qualitatively with pregnant women, women of childbearing age and male partners to determine those that had good potential to be persuasive and achieve the communication objectives. Based on these data, two constructs were chosen as the basis for the experimental design of the quantitative testing. Five final concept executions were then tested against a control in a quantitative test with 685 women (520 non-pregnant and 165 pregnant). Effectiveness was measured via impact on the audience's intentions to abstain from or reduce alcohol intake in a current or future pregnancy, as well as on several other behavioural intention measures, messages

diagnostics and potential unintended effects. Experimental concept executions were compared with the control and each other to determine which execution was most effective in order to provide recommendations for future campaigns.

The quantitative testing showed that exposure to all of the experimental concept executions addressing alcohol use during pregnancy significantly increased women's intentions to abstain from alcohol during pregnancy and when planning a pregnancy relative to the control (that promoted a reduction in alcohol consumption for general health reasons). Furthermore, the four executions containing a threat appeal were significantly more effective than the execution containing a positive appeal based on self-efficacy. The *Moderate threat/ self-efficacy* concept execution was most effective overall among both the non-pregnant and pregnant samples and there were no unintended, undesirable effects.

These findings represent a unique contribution to the literature. The impact of advertising concepts on women's intentions to abstain from alcohol during pregnancy has not before been published in the literature. Furthermore, this study provides specific insights into the content and execution factors that work to support the credibility and persuasiveness of messages promoting abstinence from alcohol during pregnancy. The results of this study highlight the value of using theoretical frameworks and formative research with the target audience to develop messages.

The discussion that follows attends to the research questions and situates the results within existing theory and literature. Recommendations for messaging as key outcomes of the study represent the main original contribution of the thesis to FASD prevention. In conclusion, the strengths and limitations of the study and its findings are discussed, and suggestions for future research are presented.

8.2 Effective message strategies: insights from the exploratory research and qualitative concept testing

The participants in this study were generally aware that abstinence from alcohol was recommended during pregnancy, but were sceptical about the risk to the fetus associated with low to moderate levels of consumption. Previous qualitative research among women in the USA suggested that a similar disconnection exists there between

messages that promote abstinence from alcohol during pregnancy and low levels of alcohol consumption (Glik et al., 2008). Data from this study indicated a prevalent belief that recommendations regarding alcohol and pregnancy, or the risks of alcohol use during pregnancy, are only relevant for pregnant women who consume alcohol at chronic or high risk levels. As further evidence of this, among the highly educated sample of women who participated in the qualitative concept testing, the statement 'women with higher levels of education are more likely to intend to drink alcohol during pregnancy' had an impact on a greater number of participants than any other statements tested, possibly indicating a prior assumption on their part that alcohol use during pregnancy is an issue for 'other' women. Some studies on the impact of warning labels have shown possibly related findings for this 'cognitive dissonance' where frequent alcohol drinkers are less likely to perceive warning labels as believable (Andrews, 1991). Given the potential lack of personal relevance for alcohol and pregnancy messages among some women, coupled with a disassociation between abstinence-based recommendations and their own alcohol consumption, this study shows that messaging in Western Australia can go beyond a simple 'do not drink alcohol during pregnancy' communication objective. It is recommended that messaging clearly addresses low to moderate levels of alcohol consumption and includes targeting of educated women of middle socioeconomic status.

Insights gained through the exploratory research about women's knowledge with regard to alcohol use during pregnancy are consistent with Australian population-based data. A representative survey of Australian women showed that while 78.2% identified "cutting down or stopping alcohol use during pregnancy as a measure to increase the likelihood of having a healthy baby", far less (61.5%) were aware of any effects of prenatal alcohol exposure (Peadon et al., 2007). Similarly, participants in this study had low salience for the consequences and nature of effects of prenatal alcohol exposure. While the provision of information alone is understood to be insufficient to promote behaviour change, and while knowledge about alcohol use during pregnancy and FASD does not necessarily equate with attitudes or behaviour (Peadon et al., 2010; Tough et al., 2006; Kesmodel & Kesmodel, 2002), an important predictor of behaviour change is the belief that the negative outcomes of a behaviour are severe (Rogers, 1975; Becker, 1974). Thus, communication of the specific negative consequences of prenatal alcohol use and their long-term, pervasive and irreversible nature can strengthen the rationale to abstain from alcohol during pregnancy (Donovan & Henley,

2000). This identified knowledge gap among the target audience lends itself to a recommended communication objective: to increase the salience of the effects of prenatal alcohol exposure, their severity, and perhaps even their relative seriousness compared with the effects of other health behaviours during pregnancy that appear to have greater salience (such as poor diet or cigarette smoking).

Given the low salience of the effects of prenatal alcohol exposure among participants, this study focused mainly on the construct of severity within messages to build perceived threat among the target audience. The qualitative concept testing assessed two variations of a threat appeal: one focusing on conveying severity through provision of information on the effects of prenatal alcohol exposure, and one that sought to convey susceptibility through the provision of information on the risk of prenatal alcohol exposure. Qualitative feedback indicated that the variation based on the negative effects of prenatal alcohol exposure was more effective for participants. The qualitative concept testing gave insight into specific effects that had high impact on participants: of a list of seven known effects of prenatal alcohol exposure. 'Brain damage' and 'birth defects' were the two effects that most made participants want to adopt the recommended behaviour change. Furthermore, these effects were within the audience's 'latitude of acceptance' (Sherif et al., 1965); they were considered to be acceptable and plausible, and were not rejected as sensationalising or fear-mongering. Subsequently 'brain damage' and 'birth defects' were used as informational content in one of the executions that were quantitatively tested (and found to be effective at increasing the target audience's intentions to abstain from alcohol during pregnancy). It is important to note that an increased risk of miscarriage may also be considered a top-ranking effect of prenatal alcohol exposure given the impact of the statement 'increased risk of miscarriage' in the *Factual statements for print media* exercise.

One tactic used to increase the acceptance of messages by the target audience is to "link the desired belief to an already accepted belief" (Donovan & Henley, 2003, pg. 69). The exploratory data indicated that women believed that abstinence from alcohol during pregnancy was optimal, but were sceptical about the risk associated with low to moderate amounts of alcohol consumption during pregnancy. In this study, rather than positioning a message against this scepticism and risk promoting counter-argument, the scepticism was acknowledged and instead became the rationale for, and link to, a desired belief that 'a couple of drinks every now and then' are not risk-free. Results

from the qualitative testing of the *Obstetrician* execution indicated that the statements, “We just don’t know how much alcohol it takes to do damage. It is different for different women and different babies. No amount of alcohol has been proven safe for the fetus” worked to strengthen rather than undermine the recommendation for abstinence from alcohol during pregnancy. This tactic supports the desired behaviour by explicitly confronting the belief that it is all right to consume a couple of drinks during pregnancy. It acknowledges that the evidence of risk to the fetus from low alcohol exposure is inconclusive, and then positions this lack of evidence as rationale for abstinence. That is, if a woman desires a risk-free pregnancy in terms of the effects of alcohol exposure, then the only option is to abstain from alcohol.

An execution element that supported the strategy of acknowledging uncertainty with regard to the risk of exposure from small amounts of alcohol was the use of an expert source to deliver the message. The use of an obstetrician to deliver the information enhanced the credibility of the message as it was perceived by participants to be honest and scientific. An establishment of trust and credibility is known to be an important part of communicating risk in a persuasive way (Peters et al., 1997), and the use of an expert, or authoritarian source minimises the potential for counter-argument (Donovan & Henley, 2003). In this study, advice from health professionals and a desire to comply with this advice were reported by participants as a motivating factor for behaviour change during pregnancy, and obstetricians were identified as the health professional whose knowledge and individualised care during pregnancy was most respected. This is consistent with data showing that advice from a physician within the clinical-care setting reduces the risk of alcohol exposed pregnancies (Jones-Webb et al., 1999). Thus, it is recommended that a health professional be considered for use as an expert source in messages promoting abstinence from alcohol during pregnancy.

It is important to note that participants in this study also mentioned that advice from health professionals could work to undermine decisions to abstain from alcohol during pregnancy. This should be considered when using a health professional as an authoritarian or expert source, so that the message is not just seen as another opinion that could add to confusion among women and ambiguity with regard to abstinence from alcohol during pregnancy. Executions should be tested to ensure that the health professional’s advice does not add to perceived inconsistency in recommendations. To build credibility it is important that the health professional is positioned as having the

most current scientific evidence (knowledgeable), and is perceived to be honest and displaying care (Peters et al., 1997). Alternatively a deliberate refutational approach (Rossiter & Percy, 1987) may be considered in which the health professional definitively refutes advice from other health professionals that there is any safe amount of alcohol to consume during pregnancy. Health professionals should be acknowledged and supported for the important role that they play in the prevention of alcohol exposed pregnancies, so any strategies using a refutational approach should also be tested with them and assessed for potential unintended effects.

The likelihood of harm resulting from a behaviour relates to the construct of susceptibility, or “the conditional probability that the event will occur provided that no adaptive behaviour is performed or there is no modification of an existing behavioural disposition” (Rogers, 1975, pg. 97). In communication about alcohol use during pregnancy, the construct of susceptibility is problematic as the risk data are unclear; there is no certainty with regard to if and how prenatal alcohol exposure may affect an individual. As probability or risk cannot be presented in a concrete way, a different approach is needed to communicate one’s (or one’s baby’s) susceptibility to poor outcomes in a persuasive way. Data from this study provided insight into how this can be achieved. The exploratory research showed that women are motivated towards behaviour change during pregnancy to avoid feeling responsible for, and to avoid feeling guilty for, causing poor outcomes for the baby. From this, a number of approaches are recommended for consideration in messaging that addresses the notion of susceptibility and risk in a credible and motivating way:

- The first message strategy postulates: ‘if you do this, we are not sure if something will happen, but if you don’t want to take the risk, this is what to do’.
- Another approach could aim to decrease ambiguity towards the behaviour change, and ask the audience: ‘if you do this, we are not sure if something will happen. Are you really willing to take that risk?’
- Data also suggest that it may be effective to combine information about the potential effects of prenatal alcohol exposure and their severe nature with an acknowledgement of the uncertainty of exposure outcomes. In this case, the communication becomes: ‘if you do this, we are not sure if something will happen, but if something does, it will be bad’.

An acknowledgment of uncertainty or a lack of evidence of harm as a rationale to 'err on the side of caution' is a strategy rarely used within health-related risk communication (Fugelli, 2006). In fact, for other health risk behaviours, messages simply imply, argue or state that 'if you do this, then the risks and consequences are this' (for example, saturated fats and heart disease, smoking and lung cancer, sun exposure and melanoma). This study indicates that a strategy that focuses on uncertainty avoidance has good potential for use within communications that target behaviour change during pregnancy. Certainly, many national guidelines for alcohol consumption by pregnant women have taken this 'prudent' public health stance and currently recommend abstinence from alcohol as the safest option given inconclusive evidence regarding the possible harm of low levels of exposure (O'Leary et al., 2007). Though this cautionary approach is not without criticism and has been referred to as "medical paternalism" (Gavaghan, 2009, pg. 300), strategies such as these may be particularly effective for the period of pregnancy, as the motivation towards promoting the baby's health and wellbeing or avoiding poor outcomes is central to behaviour change in that period. Furthermore, the connection between the mother's behaviour and the child's development is experiential and inherently understood to some degree. While social marketing and health promotion messaging often use the harmful effects on others as a deterrent for personal behaviour, such as in the case of speeding and road safety or passive smoking and tobacco control, in the case of preventing alcohol use during pregnancy, the relationship between the mother's behaviour during pregnancy and child development means that this strategy has good potential to be persuasive.

Data from this study suggest that the construct of susceptibility can be addressed in another potentially persuasive way when communicating about alcohol use during pregnancy. The nature of alcohol use during pregnancy and FASD create the option of promoting a 'no-risk' scenario: if you abstain from alcohol during pregnancy, your child will not be born with FASD. This is to link the action with a specific and alcohol (only) caused result. While this study did not focus specifically on exploring the value of promoting a 'no-risk' scenario, data from the exploratory research and qualitative concept testing indicate that 'no-risk' (with regard to prenatal alcohol exposure) may be an attractive goal for many pregnant women and a persuasive communication objective. For example, women spoke of being motivated towards having 'peace of mind' and knowing that they were doing all that they could to support the health of the pregnancy and baby. In addition, the qualitative concept testing showed that women

appreciated messages that were clear and devoid of ambiguity. Furthermore, the *Obstetrician* execution (which was shown overall to be most persuasive) indicated that it effectively delivered the message that alcohol should be avoided during pregnancy as it is not known how much it takes to disturb the development of the fetus. So while certainty cannot be presented with regard to the risk to the fetus of prenatal alcohol exposure, messaging should consider the potential of a communication objective that abstinence from alcohol throughout pregnancy at least means no risk of any alcohol-caused problems or FASD.

Population-based data indicate that the majority of Australian women hold negative attitudes towards alcohol use during pregnancy (Peadon et al., 2010). However this study has shown that neutral and positive attitudes exist for certain scenarios and with regard to low levels of alcohol consumption. Participants in this study spoke of social situations as inhibiting as well as promoting abstinence from alcohol during pregnancy. Some women reported receiving pressure from others to consume alcohol during pregnancy, and of a perception that alcohol use during pregnancy could be acceptable, justifiable and often socially desirable, but only if it was perceived that small amounts were being consumed. On the other hand, women also spoke of negative attitudes held by others with regard to alcohol use during pregnancy being a motivation for abstinence during social situations, both in terms of avoiding negative perceptions and gaining social approval. Given this described potential for social situations to support or undermine abstinence, executions were developed that focused on the positive motivation of gaining social approval. In these, a pregnant woman attended a social gathering during which alcohol was being served, chose a non-alcoholic option and was supported by a significant other to do so. This type of message strategy, that focuses on increasing social support of a pregnant woman with regard to abstinence from alcohol, has also been used and recommended in the past in countries such as Canada that have had a long history of mass media messaging regarding alcohol use during pregnancy (Drabble et al., 2011; Saskatchewan Prevention Institute, 2009). Overall, these insights and data lead to a recommendation that messaging that targets low to moderate alcohol use during pregnancy should consider using scenarios that focus on the social consumption of alcohol, and the influence of others in supporting and reinforcing women's decisions to abstain.

8.3 Motivations for behaviour change: insights from the qualitative concept testing

Pregnancy is a known “window of opportunity” (DiClemente et al., 2000, pg. iii16) for behaviour change given the intrinsic motivation of having a healthy baby. This study identified both positive and negative motivations for women to abstain from alcohol during pregnancy. These included wanting to minimise a generalised fear that something could go wrong, and wanting to feel like they were in control and doing the best that they could to support the health of the pregnancy and the fetus. The implications drawn from these data were that messages could either aim to emphasise that the negative outcomes, experiences or feelings could be reduced or avoided and/or that positive outcomes, experiences or feelings could be obtained or maintained if women abstained from alcohol during pregnancy.

The qualitative concept testing investigated the potential for both negative and positive motivation concepts. Within the *Best Friend*, *Partner* and *Woman* executions, the aim was to appeal to positive motivations such as having a healthy baby, and desirable feelings such as pride, self-approval, control, and social acceptance, as a result of adopting the recommended behaviour. The motivations of pride, social acceptance and even intellectual stimulation are not dissimilar to the notion of ‘responsible mothering’ that Baxter and colleagues (2004) identified as a prevalent frame for discourse around alcohol use by pregnant women, and from which they recommended a communication objective of “good mothering involves making wise choices” (Baxter et al., 2004, pg. 244).

As a threat appeal, the *Obstetrician* execution targeted negative motivations, that is, the avoidance of a negative experience such as having a baby who is ‘harmed’ or has brain damage, and undesirable feelings such as fear or worry. Of the motivations that were identified from the exploratory phase, all except two types of motivation underpinned the subsequent development of concepts. The two types of motivation that were not carried forward were the avoidance of feeling responsible for poor pregnancy or fetal outcomes (associated with the feelings of guilt and regret) and avoidance of social disapproval (associated with the feelings of shame and embarrassment). While these negative motivations may be powerful initiators of behaviour change for some women (Baxter et al., 2004), it has been previously recommended that messages addressing alcohol use during pregnancy avoid shame-

inducing appeals (Burgoyne et al., 2006). The reason for this is the potential for guilt and shame to promote maladaptive responses for women who are unable to consider abstinence from alcohol during pregnancy, or find themselves unable to resolve their guilt. Anecdotal evidence suggests that maladaptive responses can include exacerbated alcohol consumption, unwarranted pregnancy termination, and undue anxiety (Koren, 1996). Furthermore, feelings of shame may preclude disclosure of alcohol consumption to health professionals and undermine help-seeking behaviour (Wiechelt, 2007; Poole & Issac, 2001). Unintended effects include the exacerbation of negative attitudes towards women who consume alcohol during pregnancy and their offspring, resulting in potentially damaging stigmatisation of women and their children. So while results show that the avoidance of social disapproval and of feeling responsible for poor outcomes for the offspring may be strong motivators for behaviour change, this study deliberately avoided developing messaging based on these motivations. It is recommended that any message strategies that are underpinned by these motivators are thoroughly tested for unintended and maladaptive responses among both the target audience and women who may not be able to consider abstinence from alcohol during pregnancy, and women who have consumed alcohol before they know that they were pregnant.

The qualitative concept testing indicated that the execution appealing to the negative motivation of reducing fear and worry and avoiding poor pregnancy and fetal outcomes (*Obstetrician*) was the most effective at promoting participants' intentions to adopt the recommended behaviour. This suggested that the avoidance of negative feelings and outcomes for the pregnancy and fetus are greater motivators for abstinence than positive motivators, and this concept and execution became the focus of subsequent testing. However, there is another possible (non-exclusive) explanation for the effectiveness of the *Obstetrician* execution. The threat appeal differed from the positive appeals in the amount of factual information that it provided about effects of prenatal alcohol exposure. It is possible that in Australia, given the relative lack of public awareness regarding the consequences for the fetus (Peadon et al., 2010), the provision of explicit information about the about the risks and effects of prenatal alcohol exposure may be particularly important as part of initial campaigns and strategies in order to raise the salience of the issue.

The exploratory research and qualitative concept testing resulted in several other important insights from which recommendations can be made, though they were not tested quantitatively. One insight that has potential for further concept development and testing is with regard to the preconception approach to preventing prenatal alcohol exposure. Analysis of the exploratory data resulted in an important finding based on the construct of 'cues to action' described by the Health Belief Model (Becker, 1974; Rosenstock, 1974). In particular, data showed a low recognition among participants with regard to the importance of alcohol abstinence during the preconception period. While planning a pregnancy may not necessarily lead to a reduction in alcohol consumption (Kost et al., 1998), the importance and potential value of a preconception approach has been raised by several researchers (Floyd et al., 2007; Tough et al., 2006). Given that approximately 50% of pregnancies are planned (Colvin et al., 2007), the preconception approach represents an opportunity to target a broad target audience and minimise the potential for prenatal alcohol exposure, particularly in the first weeks of pregnancy.

What this study adds to the recommendation for a preconception approach is the potential to build the 'identity' of women as pregnancy planners by using a 'cue to action'. Exploratory data showed that a clear 'cue to action' during the preconception stage is when women cease contraceptive practices. Thus, the recommendation for messaging is to use the scenario of a woman ceasing contraception and link it to a message about alcohol cessation in order to strengthen the association between pregnancy planning and abstinence from alcohol. The merit in this approach is two-fold. First, it promotes abstinence from pregnancy for the full period of gestation (not just beginning with pregnancy recognition), and second there is the potential to align abstinence from alcohol with several other health behaviour changes that women already associate with the pre-pregnancy period. For example, several participants spoke of some behaviour changes relevant during the pregnancy planning period, such as vitamin and folate intake, and this was of far higher salience than alcohol cessation.

8.4 The value of concepts based on formative research with the target audience and models of behaviour change: insights from the quantitative concept testing

Intentions to behave in a certain way are not perfectly correlated with subsequent behaviour change (Bagozzi & Warshaw, 1990) but they are a good predictor of behaviour change (Webb & Sheeran, 2006). Results from the quantitative concept testing show that in general, the experimental concept executions based on formative research with the target audience and theoretical constructs of behaviour change were effective at increasing women's intentions to abstain from alcohol during pregnancy compared with the control. In particular, the executions based on a threat appeal were significantly more effective at increasing intentions among the non-pregnant sample. While the comparisons between the experimental concepts and the control were not always significant among the pregnant sample, results show a consistent pattern in which the experimental concepts increased participants' intentions to abstain and to reduce alcohol during their current pregnancy relative to the control. This same non-significant pattern was observed in regard to the pregnant participants' confidence to abstain from and reduce alcohol during pregnancy: those who saw an experimental concept execution were more confident than those who saw the control.

It is worthwhile noting that in comparison with the control execution that was not formatively developed, the experimental concept executions performed significantly better on the majority of message diagnostics, indicating that the process of formative research in itself is valuable to the creation of relevant and credible messages.

8.5 Using threat appeals to promote abstinence from alcohol during pregnancy: recommendations from the qualitative and quantitative concept testing

Overall, the four experimental concept executions based on a threat appeal were significantly more effective on the broad range of measures than the control and the positive appeal (*Self-efficacy only*). The effectiveness of the threat-based concept executions was most pronounced in terms of the proportion of participants nominating the 'top box', that is, the threat-based executions were significantly more effective in moving participants towards the strongest positive response both in terms of

behavioural intentions and confidence to modify behaviour. This result is consistent with much research around the efficacy of fear (or threat) appeals (Witte & Allen, 2000; Sutton, 1982) which shows that, provided the promoted response is under volitional control, the negative motivation of avoiding the threat is a powerful instigator of behaviour change. The quantitative results support the overall effectiveness of this message strategy and thus it is recommended that threat appeals, based on the negative motivation of avoiding poor health outcomes for the fetus, are considered for communications aimed at promoting abstinence from alcohol during pregnancy.

Some have noted the potential risk of using threat appeals within alcohol and pregnancy communications (Saskatchewan Prevention Institute, 2009; Burgoyne et al., 2006). The risk with threat-based messages is that they may be seen by the audience to be over-stating the risk or sensationalising the severity of the consequences, and subsequently rejected and argued against (Gavaghan, 2009). This study shows that if a threat appeal is delivered in a way that is perceived to be honest, factual and supportive of women making informed choices about their health behaviour during pregnancy, it is likely to be accepted and persuasive. Several execution elements were identified that appear to be important to this. Credibility of the message was enhanced by acknowledging uncertainty about the risk to the fetus with low to moderate alcohol exposure. Rather than undermine an abstinence-based message, this information served as a clear rationale for the recommendation. An honest and scientific framing of the message and delivery by an expert source were also shown to minimise counter-argument and strengthen the message's persuasiveness.

The other risk with threat appeals is that while they may be effective for those women who can choose to abstain from alcohol, there is a risk they may promote maladaptive responses among women who require support to reduce and abstain from alcohol, or women who have consumed alcohol before they knew they were pregnant. Thus, it is important that messaging achieves a "fine balance" (Thurmeier et al., 2011, pg. 182) and that any strategies and messages recommended from this research be tested for unintended effects with a sample of women at higher risk for prenatal alcohol use.

8.5.1 Moderate threat versus high threat

In the quantitative testing, the level of threat conveyed through the threat appeal was effectively manipulated using a combination of two techniques. First, explicit information about the effects of prenatal alcohol exposure for the fetus was included within the high threat execution (that is, “The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows”), and was kept as a general statement of harm within the *Moderate threat* execution (that is, “Alcohol can disturb the development of the fetus which could lead to problems later on”). Second, the *High threat* execution included an image of a fetus, as previous research has shown that provision of graphic imagery can increase emotional arousal. Though the picture was purposefully not gruesome or depicting a ‘harmed baby’, previous research has shown that imagery can support message elaboration (Keller & Block, 1996), and in this case it was proposed that it may increase perceived threat by drawing additional focus to the fetus. This manipulation of threat was effective; 47% of participants who saw *Moderate threat* perceived that the execution implied that if you drank alcohol during pregnancy that the impact on the unborn baby would be severe, compared with 80.5% of those who saw *High threat*. This enabled comparisons to be made based on the level of threat conveyed through the executions. That said, both executions portray threat to the large majority of participants, with over 70% of participants exposed to both perceiving that the execution implied some level of threat to the fetus. This may account for the lack of significant differences on some measures between these executions. However, significant differences were seen between *High threat* and *Moderate threat* in terms of participants’ emotional arousal and defensive motivation. Specifically, the *High threat* execution aroused more negative emotion (anxiety, guilt, regret and shame), and resulted in more defensive motivation and unintended effects among participants than did the *Moderate threat* executions (albeit for only a small percentage of participants). So while there was little difference between moderate and high threat in terms of their persuasive effect, the risk of message rejection and maladaptive responses may be higher with the *High threat* execution. Thus, the threat appeal conveying a moderate level of threat is recommended over that conveying a high threat.

8.5.2 Threat appeals alone versus threat appeals combined with self-efficacy

The quantitative investigation focused on testing the potential effectiveness of threat-based messages compared to a single positive self-efficacy focused message, as well as testing the effectiveness of combining the two types of appeals. As identified by Cismaru and colleagues (2010), messages targeting alcohol use during pregnancy often focus on increasing perceived severity of the threat and the audience's perceived susceptibility to the effects of prenatal alcohol exposure, without adequate attention given to perceived self-efficacy as important for instigating protection motivation (Rogers, 1975) or a danger control process (Witte, 1992). Generally, the inclusion of a self-efficacy message with the threat appeal did not increase behavioural intentions or participants' confidence to modify their behaviour, compared with the threat appeals alone. However, the results show one notable pattern of difference between those executions with and without self-efficacy; the inclusion of a self-efficacy message often worked to lower the level of negative emotional arousal and increase the positive emotional arousal resulting from the threat appeal. In addition, with a couple of exceptions, those executions that included self-efficacy aroused slightly less defensive motivation and potential for unintended effects.

A significantly greater percentage of participants perceived *Moderate threat/ self-efficacy* to be convincing, and to make them think about the topic in a new way than *Moderate threat*. In terms of emotional arousal, the addition of *Self-efficacy* to *Moderate threat* and *High threat* resulted in a significantly higher proportion of participants experiencing feelings of happiness. Also, *Moderate threat/ self-efficacy* aroused feelings of relief among a significantly greater proportion of participants than *Moderate threat* alone. It is less clear why *High threat* was slightly more effective on a majority of measures than *High threat/ self-efficacy*, however analyses of the responses from the pregnant sample shows that *High threat* aroused surprise among a significantly higher proportion of participants, indicating that the contribution of self-efficacy may have dulled this effect of the high threat message. Given that the overall differences in behavioural intentions are not significant between any of the executions containing threat, it would not be useful to investigate these differences further, or draw too much from the differences found.

In conclusion, the overall recommendation is for the *Moderate threat/ self-efficacy* to be developed for use in a campaign for two reasons. First, this execution had the greatest persuasive potential among the target audience compared with the other executions. Second, compared with *High threat*, which was also shown to be persuasive on many measures, results indicate that *Moderate threat/ self-efficacy* is less likely to arouse negative emotions that could lead to defensive motivation, rejection of the message and unintended effects.

8.6 Using self-efficacy messages to promote abstinence from alcohol during pregnancy: recommendations from the qualitative and quantitative concept testing

Self-efficacy may be increased through self-mastery, social modelling of success and social persuasion (Bandura, 1994). That is, an individual's sense of self-efficacy can be raised if they try something and succeed or master, or if they see others who are successful after sustained effort. Furthermore, modelling a behaviour can work to increase the salience of positive outcomes of that behaviour (Bandura, 1986). Increasing self-efficacy through mass media can focus on vicarious experience by utilising actors who model or role-play competency (Witte, 1996). In this study a display of social support and acceptance of a pregnant women abstaining from alcohol was well received by participants, as were specific strategies for avoiding alcohol during a social situation. A manipulation check showed that executions modelling these aspects increased the audience's perceived self-efficacy. Thus, it is recommended that these message strategies be considered for messaging aimed at promoting feelings of self-efficacy with regard to abstinence from alcohol during pregnancy. It is interesting to note that the *Self-efficacy only* execution carried with it an implicit threat, as shown by results from the manipulation test in which over 40% of participants perceived that the execution implied either a mild, moderate or severe effect on the fetus from alcohol consumption during pregnancy.

Self-efficacy only was perceived by the target audience to be believable, relevant, convincing, interesting and providing important information. It was one of the most liked executions, it aroused minimal defensive motivation and it made the audience think about alcohol use during pregnancy in a new way. Independent of the other experimental concepts, *Self-efficacy only* was shown to be significantly more effective

than the control, and can be recommended for use within a campaign aimed at reducing alcohol use during pregnancy targeting pregnant women and women of childbearing age. However, when compared with those executions containing a threat appeal, *Self-efficacy* was less effective on the majority of messages. Hence, self-efficacy messages need to be used in addition to, rather than instead of threat appeals.

8.7 Limitations

The first main limitation of this study and its findings is that these messages were not tested with specific sub-groups of women who may respond differently or require different and more comprehensive strategies to promote their abstinence from alcohol during pregnancy. The sample of participants was skewed towards an educated, middle socioeconomic sample of women (and men), and messages were designed to target those who drink alcohol, but generally not to excess. Previous research on women's responses to warning messages about alcohol use during pregnancy in the USA showed that those who drank alcohol during pregnancy were much more likely to ignore warning messages, compared with those who abstained during pregnancy (Kaskutas, 2000). This suggests that the risk of message rejection may be greater among those women who are at higher risk of prenatal alcohol consumption. Furthermore, the same study indicated that women who consumed alcohol during pregnancy were significantly more likely to "feel negative towards themselves when they saw or heard a warning message" (Kaskutas, 2000, pg. 1245) about alcohol and pregnancy. Thus, further testing with women with alcohol use at a level of clinical significance is important to ensure that there are no maladaptive outcomes of the messaging for women who cannot consider abstinence from alcohol during pregnancy.

While we would expect the same motivations for abstinence during pregnancy for women of lower socioeconomic status, it would be necessary to test any further concept ideas and executions with such women to ensure that the language and terminology were at an understandable level, and that the visuals did not position the actors as solely (or even mainly) middle-upper socioeconomic status. Furthermore, Aboriginal women and women from other culturally and linguistically diverse backgrounds were not purposefully included within the sampling. Any messaging for these specific target audiences would need to specific formative research to test or adapt these messages.

It is noted in the next section that a strength of the study was its inclusion of pregnant women at all phases of message development and testing. However there is also a limitation related to this. The limitation is that only pregnant women who reported stopping drinking alcohol were involved in the exploratory research and qualitative concept testing phase. This was based on the necessary ethical considerations for including pregnant women in research about alcohol use during pregnancy. Following the Australian *National statement on ethical conduct in human research* (National Health and Medical Research Council, 2007), it was considered that the risk of harm and discomfort resulting from participation in focus groups was too high for pregnant women who continued to drink alcohol during pregnancy, given that one of the purposes of such data collection techniques is to allow topics to arise from the group (Patton, 2002). Furthermore, in any area such as this, these results may have been influenced by social desirability. Future studies could include social desirability measure and seek to analyse its influence. It is possible that different qualitative results would have been achieved if pregnant women who were currently consuming alcohol had participated. Indeed, though it was beyond the scope and capacity of this study to do so, it is recommended that, with ethical approval permitting, formative research for strategies targeting women who are at high risk of prenatal alcohol consumption involve this target audience and consideration be given to how they may be adequately supported such that the risks of their participation are mitigated through the research process.

This study only included a single item to measure self-efficacy within the concept executions. Self-efficacy in the tobacco area has often been measured as confidence in adopting the recommended behavior (Bagozzi & Warshaw, 1990). Self-efficacy has also been related to self-referent beliefs in likelihood of success when attempting a behaviour change (Bandura, 1986). The qualitative research indicated that the perceived ease or difficulty of abstaining from alcohol during pregnancy would be a good indicator of self-efficacy. Thus, the terminology adopted for the purposes of measuring self-efficacy in this study was 'easier than you thought', thus, perceived ease of adopting the recommended behavior was used. In acknowledging this limitation it is noted that future studies could use several items to assess self-efficacy.

Another limitation of the qualitative and quantitative testing results is that they relate to a set of creative concept executions that were tested in prototype format. In this study

11 television concept executions, five categories of factual statements, seven effects of prenatal alcohol exposure and three risk graphics were developed and tested qualitatively. Only five concept executions were tested quantitatively, and by design there were many similarities among them. As with any creative concepts there are many ways in which messages can be executed, and there may well be more effective ways to execute these messages, or modifications to the executions that would result in different responses from the target audience and different conclusions drawn.

8.8 Strengths

One of the main strengths of this study was the size of the sample, and the characteristics of those who participated. By including the perspectives of pregnant women throughout the message design, screening and testing, the results claim to be reasonably representative of the main target audience. Overall, 183 pregnant women participated in this research (including 40 who were exposed to the control concept execution). Furthermore, a total of 556 women of childbearing age participated, and of those 520 women who participated in the quantitative concept testing, 32.3% indicated that they might become pregnant within the next two years, and a further 21.7% were unsure if they would. Thus, one of the main strengths of this study is its success in involving a large sample of the target audience to develop and test messages.

Another strength of this study is its use of social cognition models to underpin message design. As evidenced through the review of literature in Chapters Three and Four, very little information has been published regarding the development and testing of messages, and even less that evidences an application of theory in this development. It is a strength of the research, its findings and outputs that the concept executions produced are based both on exploratory research with the target audience and constructs of behaviour theory known to predict behavioural intentions and behaviour change.

One of the overall aims of the project was to create messages that avoided possible unintended effects and did not promote defensive responses such as counter-argument and denial that may result in message rejection. Unintended effects relevant to messaging for alcohol use during pregnancy include anxiety among women who consume alcohol during the early stages of pregnancy before pregnancy is known (Thurmeier et al., 2011), an increase in women seeking pregnancy terminations, and

continuation or exacerbation of alcohol consumption. A strength of the study is that the results of the quantitative concept testing indicate that these messages have achieved the aim of being sensitive, credible and appropriately pitched; they motivate intentions to adopt the recommended behaviour without promoting maladaptive responses or unintended effects among the target audience.

8.9 Recommendations for future research

As evidenced through the literature review, there is a dearth of published, evidence-based information that can be used to construct universal prevention strategies, including education and awareness-raising campaigns to prevent prenatal alcohol exposure and FASD. While this study goes some way towards filling this gap, more evidence is needed as to what messages and strategies are likely to be persuasive, sensitive and avoid unintended effects for various target audiences. Future prevention strategies would benefit from greater dissemination and publication of results from formative research with target audiences, and a comprehensive description of strategies and messages. Future research could also include a thorough evaluation of campaign outcomes as well as information on exposure, distribution channels, and perceived messages.

This research could be extended in a comprehensive program to identify what kinds of strategies and messages would support women who have not been specifically included within this study. That is, similar research should be conducted undertaken with Aboriginal women, women from culturally and linguistically diverse backgrounds, women of lower socioeconomic status, women with risky or chronic levels of alcohol consumption, women in their first pregnancy and women in their subsequent pregnancies, and women who are planning pregnancy.

The study provides an assessment of several efficacious concept executions that, subject to further confirmatory quantitative assessment and refinement for particular target audience characteristics, can be used in a communication campaign to persuade women to abstain from alcohol during pregnancy. Though the focus of this study was on the development of messages it does not preclude the importance of comprehensive communication strategies in promoting the effectiveness of messages. Messaging alone is not enough. The next steps in communication planning involve a selection of communication channels, development and pre-testing of supporting

material (e.g. for print media and radio), the development of a promotion plan and the implementation of communication strategies (Donovan, 1995b; Roper, 1993). Further to this, it is important that the impact of strategies is evaluated and that the results of any evaluation are published and disseminated. Furthermore, it is noted that communication strategies are designed to sensitise and facilitate positive behaviour change but if contexts are facilitative of alcohol consumption then the effectiveness of communication strategies will always be limited.

8.10 Conclusion

This study is the first to demonstrate the effectiveness of messages in increasing women's intentions to abstain from alcohol during pregnancy. In addition to the effective television concept executions, the formative research process resulted in a range of recommendations for messaging. To conclude, the following five recommendations are reiterated as key outcomes of the study.

1. Messaging should address and challenge the belief that low to moderate levels of alcohol consumption during pregnancy are risk-free.
2. Messaging should be based on relevant motivations for behaviour change and emphasise that:
 - negative outcomes, experiences and feelings such as fear and worry can be reduced or avoided if women abstain from alcohol during pregnancy; and
 - positive experiences and feelings such as social acceptance and being in control can be obtained or maintained if women abstain from alcohol during pregnancy.
3. Communication objectives and subsequent messages should seek to increase the salience of the effects of prenatal alcohol exposure and their severity. Perceived severity can be built with information about the specific consequences of prenatal alcohol use, such as brain damage and birth defects.
4. Threat appeals based on fear should be considered for use in campaigns that aim to promote abstinence from alcohol during pregnancy.
5. Content and execution factors should be used to support the credibility and persuasiveness of threat appeals, and lower the potential for counter-argument, message rejection and unintended effects. Those identified by this study are:

- that the inconclusive evidence of risk regarding low levels of alcohol exposure is acknowledged and used as a rationale for abstinence;
- that a health professional as an expert source delivers the message; and
- that self-efficacy is included as a message component.

This list is not exhaustive; the qualitative and quantitative results outlined in this thesis provide many other insights that could support the development of other communication objectives, and persuasive messages and concepts.

The findings from exploratory research provide insights into women's knowledge, attitudes, beliefs and motivations for behaviour change and these can be used to underpin the development of universal prevention strategies and messages. Furthermore, the results from qualitative and quantitative testing of specific concept executions provide recommendations for how to build the relevance, credibility and overall persuasiveness of messages. These data and the associated recommendations are an original contribution to what is known in the area of universal prevention of prenatal alcohol exposure. Four television concept executions, and one in particular, are recommended for future implementation through a comprehensive education and awareness-raising campaign. Within a facilitative environment, the identified messages have demonstrated capacity to increase women's intentions to abstain from alcohol during pregnancy thus lowering the number of pregnancies exposed to alcohol and reducing the potential for individuals to be born affected by prenatal alcohol exposure.

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Appendices

Appendix 1.1

Study funding, contributors and management of the study

This study was funded by a National Health and Medical Research Council Public Health Postgraduate Scholarship and a Healthway Research Project grant. Both funding applications were prepared by the PhD candidate.

The study had seven Chief Investigators and two Associate Investigators who advised on the study design and implementation. The Investigators and their associated organisations are as follows:

- Professor Rob Donovan, Curtin University of Technology;
- Professor Nadine Henley, Edith Cowan University;
- Professor Carol Bower, Telethon Institute for Child Health Research;
- Professor Elizabeth Elliott, University of Sydney;
- Ms Jan Payne, Telethon Institute for Child Health Research;
- Ms Heather D'Antoine, Menzies School of Health Research;
- Dr Anne Bartu, Curtin University of Technology;
- Mr Gary Kirby, Western Australian Drug and Alcohol Office; and
- Ms Heather Monteiro, Edith Cowan University.

A Community Reference Group comprising six women of childbearing age was established to provide a community perspective and advise on certain areas of the study design and implementation. The members of the Community Reference Group are:

- Ms Jocelyn Boylen;
- Ms Kelly Jeffreys;
- Ms Sheree Lawson;
- Ms Josie Maxted;
- Ms Stacy Maxted; and
- Ms Julie Whitlock.

The principal Chief Investigators, Professor Rob Donovan and Professor Nadine Henley, were also the PhD supervisors. Professor Nadine Henley withdrew from this role mid-way through the candidature due to illness. Subsequently Associate Professor Marie Ryan was assigned to the role of Associate Supervisor.

The PhD candidate performed the role of Study Manager and developed a Management Plan (available on request) outlining the processes for communication,

reporting and decision-making. The Management Plan ensured that the intellectual contribution and control of the study's design and implementation remained predominantly with the PhD candidate and her supervisors, and it was agreed to by all of the Investigators and Community Reference Group members. With the support of her PhD supervisors, the PhD candidate designed, coordinated and performed all aspects of the project data collection and analysis, and the thesis is her original work.

Appendix 3.1

Peer-reviewed awareness-raising and education campaigns, their strategies, their measures and evidence of their effectiveness

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
(Ma et al., 1998)	Educational program targeting Native American adolescents in grades six to eight: USA	19 class-based sessions of lectures, projects, experiential learning and group discussion that focused on notions of shared responsibility of FAS, healthy decision-making, peer pressure, and linking actions to consequences.	Pre and post survey measured knowledge, attitudes and preventive behaviour (n=85).	Results show an increase in knowledge about alcohol use during pregnancy and its consequences, and an increase in positive attitudes towards healthy choices and personal actions to prevent Fetal Alcohol Syndrome.
(May & Hymbaugh, 1989)	Community capacity building and awareness-raising program targeting Native Americans and Alaska Natives: USA	This community capacity building program provided local professionals and community members with information about FAS and FAS prevention, and provide training and support such that they could become educators and advocates within their community.	FAS-related knowledge was evaluated among eight school samples and 14 community groups before the intervention and two or more months after receiving a 30-60 minute slide-lecture, or one 6 hour training from a community educator.	Results show a significant increase in post-intervention knowledge among the samples. Authors note the importance of “local talent, enthusiasm and commitment” (pg. 515) to the success of this community-based education and awareness-raising program.
(Olsen et al., 1989)	Media campaign aimed at pregnant women: Denmark	The campaign materials addressing alcohol use during pregnancy were limited to a pamphlet that was given to all pregnant women attending antenatal services over a two-year period (more strategies were used to address tobacco use and diet during pregnancy).	Pre and post campaign surveys in the Odense (n=2044 and 2045 respectively) and a control town (n= 2001 and 1873 respectively) assessed women’s self-reports of	Results showed no change in women’s self-reported alcohol use during pregnancy within the intervention town following the campaign.

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
			alcohol use during pregnancy.	
(Waterson & Murray-Lyon, 1990)	Provision of written, verbal and video-based information to pregnant women during an antenatal visit: United Kingdom	Three strategies for providing information and advice regarding alcohol use during pregnancy were compared: written information only, written information and verbal advice from a doctor, and written information, verbalised advice and exposure to video-based information that provided strategies for reducing alcohol intake.	Self-report alcohol use was assessed prior to any intervention and at around the 28 th week of pregnancy following an antenatal check-up, and following birth (questions asked about consumption of alcohol in the week before birth). (n=625)	No significant differences between the groups of women receiving different types of information in terms of reduction of alcohol use during pregnancy.
(Casiro et al., 1994)	Television campaign targeting women of childbearing age: Canada	A 30 second television public service announcement (PSA) depicting a fetus floating in a glass of alcohol and promoting abstinence from alcohol during pregnancy. The PSA was shown a total of 585 times over a 10 week period during prime and non-prime time.	Pre (n=1577) and post (n=1392) campaign surveys were administered to women of childbearing age attending clinical health appointments. The surveys measured knowledge, perception of risk associated with drinking alcohol during pregnancy and sources of information.	The campaign significantly increased the audience's knowledge about the harms of prenatal alcohol exposure, as well a significant increase in the proportion of women who perceived that drinking alcohol once a week and once a month would be a risk to the fetus. There was also a significant increase in the proportion of women whose source of information was the television.
(Calabro et al., 1996)	Education intervention supplying written materials to pregnant women attending their first antenatal visit: USA	This study compared the effectiveness of two written health education materials among English and Spanish women. Written materials were developed for two reading levels: 3 rd and tenth grade, and women received the pamphlet written in either	Pre and post surveys were conducted to measure knowledge, attitudes and behavioural intentions regarding alcohol use during pregnancy. Surveys were	Among the participants who chose the pamphlet written in Spanish, there were no significant differences found between the pre and post survey scores. However, slightly more who read the third grade pamphlet reported intentions to abstain from alcohol

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
		Spanish or English, depending on their language preference.	completed by 126 primarily English-speaking women and 126 primarily Spanish-speaking women, half who received the 3 rd and half who received the tenth grade reading level pamphlets.	during pregnancy, than those who received the tenth grade pamphlet. Among the participants who chose the pamphlet written in English there were significant increases in knowledge and attitudes after receiving a written pamphlet. Furthermore, knowledge was shown to be greater among those who had received the third grade pamphlet compared to those who had received the tenth grade pamphlet.
(Glik et al., 2001)	Narrow-casting campaign targeting adolescent African-American and Latina girls: USA	Narrow-casting campaigns are defined by the authors as “a marketing strategy that uses highly focused messages for specific priority populations” (pg. 223). The intervention comprised poster and information tear-off slips being displayed for eight months in areas frequented by the target audience such as public toilets, elevators, doctor’s waiting rooms and beauty parlours.	Pre and post surveys measured changes in the target audience’s awareness and knowledge about the risks of prenatal alcohol exposure, and also assessed message recall. Post-campaign surveys were run with 330 adolescent girls four months after the campaign, and the 354 adolescent girls eight months after the campaign and compared to base-line data from 550 adolescent girls.	Significant differences were found in the post-campaign survey administered four months after the campaign: there was an increase in the awareness that alcohol use during pregnancy can harm the baby among African-American girls, though campaign exposure was not correlated with knowledge increase. No significant differences were found between the pre-survey result and post-results taken eight months after the campaign.
(Mengel et al., 2005)	Multi-level campaign targeting African American women of childbearing age:	A media campaign run with the aim to “increase knowledge and improve attitudes in African American women of childbearing age	Pre and post campaign surveys were conducted at the intervention site (n= 418	Results show a small but statistically significant decrease in knowledge regarding alcohol use during pregnancy among women

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
	USA	in St. Louis regarding FASD and alcohol use during pregnancy”(pg. 3) . Based on formative research with the target audience, campaign materials were developed for television, radio and print media. Educational videos were developed and sent to health educators in high schools, and opportunities were sought for media interviews and displays at community events. The campaign strategy also included “direct marketing” to community groups through presentations delivered by lay speakers at church congregations, and to physicians and staff in women’s and infants’ clinics who were sent posters and tear-off information sheets.	and 404 respectively) and a control town (n+ 381 and 402 respectively) and measured knowledge, and campaign and message recall.	at the intervention site. However results also show that knowledge increased when recalled exposure to the campaign message was ten or more occasions. The most recalled message was that there is no safe level of alcohol use during pregnancy, and the most recalled distribution channel was television.
(Burgoyne et al., 2006)	Multi-level campaign targeting women of childbearing age: Canada	Designed to “raise awareness about the risks of alcohol use during pregnancy among Ontario women of childbearing age” (pg. 1), this campaign used media (television, radio, print - posters, billboards, newspapers, magazines), and distributed information and resources (brochures and posters) to all physicians and midwives in Ontario, as well as distributed resources (tip-sheets and table toppers) to liquor stores, and provided resources to community groups to support local initiatives.	Pre (n=340) and post (n=340) campaign surveys with the primary measures of: top-of-mind mentions about things women could do to support a healthy pregnancy; knowledge and beliefs about the amount, type and timing of alcohol exposure that was harmful during pregnancy; and knowledge about the consequences of prenatal alcohol exposure. Campaign	Results showed a significant increase in the percentage of top-of-mind responses among all respondents that women should stop drinking alcohol as part of having a healthy pregnancy, and a significant reduction in the average number of alcoholic drinks considered to be safe to consume throughout pregnancy by respondents who believed there was a safe amount (n≤0.5) There was also a less significant (n≤0.10) increase in the percentage of participants who indicated that women should stop drinking alcohol before they get pregnant. The majority of respondents in the post-survey recalled

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
			and message recall were also assessed.	recently seeing or hearing information about alcohol use during pregnancy. Of these, the largest percentage of respondents saw or heard the information from the television, and the majority recalled the main message to be to 'refrain from alcohol during pregnancy'.
(LaChausse, 2006)	Educational program targeting adolescents in grades nine to 12: USA	A peer-delivered educational program comprising of one didactic 45 minute Powerpoint presentation. The presentation provided information on the characteristics of FAS and other disorders within the spectrum, its effect on brain development, the role of the father in alcohol use during pregnancy, and the social and economic impact of FAS.	Pre and post program surveys that measured knowledge, attitudes, perceived severity of FAS and intentions to drink alcohol during pregnancy (n=89).	An increase in knowledge about FAS but no changes in attitudes towards alcohol use during pregnancy, perceived severity of FAS or intentions to drink alcohol during pregnancy.
(Awopetu et al., 2008)	Media campaign targeting women of childbearing age: New USA	The campaign communication goal was "to answer potential questions regarding negative consequences associated with alcohol consumption in pregnancy (Why is drinking alcohol while I'm pregnant such a bad thing?), as well as providing resources for women who have alcohol dependency (What if I need help to stop drinking?)" (pg. e126). Campaign materials recommended abstinence from tobacco smoking and drugs as well as alcohol, and comprised radio public service announcements and print media (newspaper, billboards, and bus and subway posters).	The number of phone calls made to the support and information service that was referred to within all campaign material.	Results show an increase in calls made to the support and information service, with 49 FAS-related calls being received during the six-month campaign period, compared with five to six calls made in a typical non-campaign period.

Authors and year	Description, recipients or target audience and country	Strategies and campaign elements	Measures and evaluation	Evidence of effectiveness
(Glik et al., 2008)	Narrow-casting campaign targeting women of childbearing age and of low socioeconomic status: USA	The intervention comprised print materials that had been developed through formative research with the target audience. Print materials were placed and remained for eight months at venues frequented by the target audience such as clothing stores, convenience stores, restaurants and beauty parlours.	Cross-sectional data were collected at two time points, however results on the knowledge, attitudes and behaviour with regard to alcohol use during pregnancy were not published.	Results on material distribution and campaign recall were published and indicated low exposure rates among a random sample, though exposure rates of about 50% among a clinic sample in one of the communities.
(Lowe et al., 2010; Baxter et al., 2004)	A multi-media campaign targeting pregnant women attending antenatal appointments: USA	The campaign goals were to: 1) motivate pregnant women to “discuss alcohol use during pregnancy with people in their social network” and 2) “increase women’s knowledge about the dangers of alcohol use during pregnancy” (Lowe 2010, pg. 739). Based on formative research with the target audience, three campaign materials were produced. The intervention group were exposed to a 30-second television advertisement and were provided with a 10-minute DVD and printed pamphlet. The control group were only exposed to the advertisement.	Post intervention surveys were conducted with the control and intervention groups three months after exposure to the material. The survey measured recall, behaviour with regard to viewing the DVD and subsequent social interactions, and knowledge (n=700).	The intervention group were significantly more likely to discuss alcohol use during pregnancy with people in their social network. Recall of the television advertisement was significantly higher among the intervention group. Half the women who received and watched the DVD passed on information gained to other women and almost as many gave their DVD to someone else to watch. Knowledge was also higher on some measures among the intervention group.

Appendix 5.1

Focus group topic guides

Topic guide for the focus groups with women who were pregnant within the previous three years.

Icebreaker: To begin, can we go around the group, introduce yourself and tell us a little bit about your children?

What is it like being a mother to a young child?

What was it like being pregnant? How did it change your life?

Prompts

- What do you do differently? Did you make any lifestyle changes?
- When did you make these changes?
- Why did you make these changes? What are the main reasons? Where did you get that from?
- Was it easy/hard to make these changes? How did the people around you respond?
- How do you feel having made those changes?

Was there a point in time in your pregnancy when you were fearful or anxious?

- Why? When was this? Was it different at different times in your pregnancy?

What single piece of advice would you give to a daughter/niece/friend if you knew she was planning to get pregnant?

What single piece of advice would you give to a daughter/niece/friend if she was pregnant?

- Were you given any advice? What? From whom?

Topic guide for the focus group pregnant women.

Icebreaker: To begin could we go around the group, introduce yourself and perhaps say where you are at in your pregnancy and how it is going?

What is it like being pregnant? (How has being pregnant changed your life?)

Prompts

- What do you do differently? Did you make any lifestyle changes?
- When did you make these changes?
- Why did you make these changes? What are the main reasons? Where did you get that from?
- Was it easy/hard to make these changes? How did the people around you respond?
- How do you feel having made those changes?

So what about alcohol?

- What do you do differently? When did you make these changes?
- Why did you make these changes? Where did you get that from?
- How was it to make these changes (was it easy/hard)? How did the people around you respond?
- How do you feel having made those changes?
- Do you think it is OK to drink 1 or 2?

Were you given any advice? What? From whom?

How do you feel about your unborn child?

What impact has cutting out alcohol had on you? What do you gain by giving it up?

Topic guide for the focus group with women who did not have children but thought that they may in the future.

Icebreaker: To begin, can we go around the group, introduce yourself and maybe say one thing about what you did last weekend?

What are some of the pressures of being a woman in Perth today?

How do you unwind?

None of you have children, is that something that you think about?

I would like you to imagine you had decided you wanted to get pregnant, what kind of things would you think about?

Prompts

- Would you do anything differently? If so, what?
- Would you talk to anyone about it? Who? (Would you talk to your mother/ mother in law? Health professionals?)
- Would you consider changing anything about drinking alcohol before you got pregnant? If so, why?

Now, I would like you to imagine you found out just found out you were pregnant.

- What kind of lifestyle changes would you make if you were pregnant?
- Why would you make these changes? What are the main reasons? (mentally healthy children) Where did you get that from?
- Would it be easy/hard to make these changes? How would the people around you respond?
- How might you feel having made those changes?
- Do you think about the children you might have in the future? If yes, what do you think about?

How much alcohol is it OK for a woman to drink during pregnancy? Why do you think some women drink alcohol during pregnancy?

What single piece of advice would you give to a daughter/niece/friend if you knew she was planning to get pregnant?

What single piece of advice would you give to a daughter/niece/friend if you knew she was pregnant?

Appendix 5.2 Flyers for focus group recruitment



Do you have a child 3 years or younger?

**Or do you know someone
who does?**

**We are seeking the views of women
with young children.**

Edith Cowan University is conducting an important research project to find out more about the health information that women would like to receive for themselves during the period of pregnancy and how health promotion can be effective.

**If you have a child who is 3 years or
younger and you think you might like
to participate in a focus group
discussion, please contact Kathryn
France on 6304 5518 or
k.france@ecu.edu.au for more details.**

Focus group discussions will be held in West Perth at approximately 6pm and participants will receive \$60 to reimburse them for the costs associated with attending.

ARE YOU PREGNANT?

Or do you know someone who is?

**We are seeking the views of pregnant
women.**

Edith Cowan University is conducting an important research project to find out more about the health information pregnant women would like to receive for themselves during the period of and how health promotion would help.

**If you think you (or someone you
know) might like to participate in a
focus group discussion, please
contact Kathryn France on 6304 5518
or k.france@ecu.edu.au for more
details.**

Focus group discussions will be held in West Perth at approximately 6pm and participants will receive \$60 to reimburse them for the costs associated with attending.

Appendix 5.3

Screening questionnaires for focus group recruitment

Screening questionnaire for non-pregnant women with a child (Focus groups 1 & 4)

Good morning/ afternoon/evening my name is Kathryn France and I am calling on behalf of Edith Cowan University. You received a flyer from us who some focus groups that we are doing for a research project on women's health, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time? Is this the best number to get you on at that time?

YES - Just some more information about the project first - One of the aims of the project is to develop health promotion messages. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic with a trained facilitator. We serve a few snacks, and give people \$60 to cover the costs of attending. The discussion groups will be held in West Perth in the evening, they last up to an hour and a half and whatever is discussed in the groups is kept completely confidential.

A. Would you be interested in coming along to a focus group, if we have one that would suit you?

No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

B. Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions
Would it be OK to ask you some questions?

No	0	That is fine. <i>Go to T</i>
Yes	1	<i>Continue</i>

C. Are you aged between 18 and 45 years?

No	0	Unfortunately we are only holding focus groups with women within this age range. Thank you. END CALL
Yes	1	<i>Continue</i>

D. Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately given your professional experience, we are unable to include you in these focus groups, however... <i>Go to T</i>

E. Are you pregnant?

No	0	<i>Continue</i>
Yes	1	<i>Change to Screening questionnaire for pregnant women.</i>

F. Can I confirm, do you have children?

No	0	Unfortunately at this stage we are just recruiting women who have young children and pregnant women, however, <i>Go to T.</i>
Yes	1	<i>Continue</i>

G. Is one of your children 3 years of age or younger?

No	0	Unfortunately we don't have any groups available for you at the moment, however... <i>Go to S.</i>
Yes	1	<i>Continue</i>

H. Which suburb do you current live in? (*See list*)

Suburbs (High or low SES)	0	Unfortunately we don't have any groups available for you at the moment, however... <i>Go to S.</i>
Suburbs (Middle SES)	1	<i>Continue</i>

Now I am going to ask you about some health behaviours in the last month.

I. In the last month have you taken any vitamin supplements?

No	0
Yes	1

J. In the last month have you exercised for more than 30 minutes in any one day?

No	0
Yes	1

K. In the last month have you smoked 10 or more cigarettes?

No	0
Yes	1

L. In the last month have you drunk 2 or more standard alcoholic drinks in one session?

No	0	<i>Continue (could be breastfeeding)</i>
Yes	1	<i>Eligible. Continue.</i>

M. In the last month have you seen a doctor?

No	0
Yes	1

Thank you. I would now like to ask you some questions about your last pregnancy and some lifestyle changes that women make when they are pregnant, **is this OK with you?** (*Wait for response, if negative, proceed to S*). So, I am now going to ask you to think about your **last pregnancy**.

N. Some women change their diet when they are pregnant. Thinking about your diet before you got pregnant, and then when you were pregnant. **When you were pregnant** did you eat:

The same amount of fruit and vegetables	0
Less fruit and vegetables	1
More fruit and vegetables	2
OR you didn't usually eat fruit and vegetables	8

O. Some women change their cigarette smoking behaviour when they are pregnant. Thinking about your smoking before you got pregnant, and then when you were pregnant. **When you were pregnant** did you :

Continue to smoke the same amount as before	0
Cut down on smoking	1
Stop smoking	2
Smoke more	3
OR you didn't normally smoke cigarettes	8

P. Some women change their alcohol use when they are pregnant. Thinking about your alcohol use before you got pregnant, and then when you were pregnant. **When you were pregnant** did you:

Continue to drink the same amount of alcohol as before	0	Eligible for Focus Group 1 . <i>Continue</i>
Cut down on drinking alcohol a bit	1	Eligible for Focus Group 1 . <i>Continue</i>
Cut down on drinking alcohol a lot	2	Eligible for Focus Group 4 . <i>Continue</i>
Drink more alcohol	3	Eligible for Focus Group 1 . <i>Continue</i>
OR you didn't normally drink alcohol	8	<i>Ineligible</i> . Unfortunately we don't have any groups available for you at the moment. <i>Go to R</i> .

Q. Some women change their physical exercise when they are pregnant. Thinking about your exercise before you got pregnant, and then when you were pregnant. **When you were pregnant** did you:

Continue to exercise same amount as before	0
Cut down on exercise	1
Stop exercising	2
Exercise more	3
OR you didn't normally exercise	8

R. Great, so we are holding a focus group on:

Focus Group 1 (child ≤ 3 yrs, little or no change alcohol use)	8pm, Wed 29 th April	<i>Date/ time suits, continue.</i> <i>If cannot attend focus group at this time, go to S.</i>
Focus Group 4 (child ≤ 3 yrs, big change alcohol use)	8pm, Tues 12 th May	<i>Date/ time suits, continue.</i> <i>If cannot attend focus group at this time, go to S.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, Alternative phone number/ mobile number, Email address. An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one to two days before the focus group to remind you. END CALL

S. We might be conducting some other groups in the next couple of months. Would you be willing to be contacted by me at another time regarding participating at a later date?

No	0	That's fine. <i>Continue to T.</i>
Yes	1	Thank you. Could I please take some of your other contact details. Name. Mailing address. Phone number. Alternative phone number/ mobile number. Also... <i>Continue to T</i>

T. Later on in the year we will be conducting a web-based survey and asking people for feedback on some health promotion messages. Would you agree to be contacted by email at a later stage to see if you would like to participate in this survey?

No	0	That's fine. Thank you for your time. END CALL
Yes	1	Great, thanks very much. Thank you for your time. END CALL

Screening questionnaire for pregnant women (Focus group 2)

Good morning/ afternoon/evening my name is Kathryn France and I am calling on behalf of Edith Cowan University. You received a flyer from us who some focus groups that we are doing for a research project on women's health, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time? Is this the best number to get you on at that time?

Just some more information about the project first - One of the aims of the project is to develop health promotion messages. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic with a trained facilitator. We serve a few snacks, and give people \$60 to cover the costs of attending. The discussion groups will be held in West Perth in the evening, they last up to an hour and a half and whatever is discussed in the groups is kept completely confidential.

A. Would you be interested in coming along to a focus group?

No	0	Thank you for your time. <i>Go to L.</i>
Yes	1	<i>Continue</i>

B. Great, we are holding focus groups with a number of people. Could I ask you some questions to find out if you eligible?

No	0	Thank you for your time. <i>Go to L.</i>
Yes	1	<i>Continue</i>

C. Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately, given your professional experience, we are unable to include you in these focus groups, however... <i>Go to L.</i>

D. Are you pregnant?

No	0	<i>Change to Screening questionnaire for non-pregnant women.</i>
Yes	1	<i>Continue.</i>

E. Do you have children?

No	0
Yes	1

F. Are you aged between 18-45 years?

No	0	Unfortunately, we are only holding focus groups with participants within this age group. But thank you very much for your interest and I wish you luck with your pregnancy. END CALL.
Yes	1	<i>Continue.</i>

I am going to ask you about some lifestyle changes that some women make when they are pregnant.

G. Some women change their diet when they are pregnant. Since becoming pregnant, do you eat:

The same amount of fruit and vegetables	0
Less fruit and vegetables	1
Stopped eating fruit and vegetables	2
More fruit and vegetables	3
OR you don't usually eat fruit and vegetables	8

H. Some women change their diet when they are pregnant. Since becoming pregnant, have you:

Continued to eat the same amount of processed meat as before	0
Cut down on eating processed meat	1
Stopped eating processed meat	2
Eaten more processed meat	3
OR you don't usually eat processed meat	8

I. Some women change their cigarette smoking behaviour when they are pregnant. Since becoming pregnant, have you:

Continued to smoke the same amount as before	0
Cut down on smoking	1
Stopped smoking	2
Smoked more	3
OR you don't normally smoke cigarettes	8

J. Some women change their alcohol use when they are pregnant. Since becoming pregnant, have you...

Continued to drink the same amount of alcohol as before	0	<i>Ineligible. Continue.</i>
Cut down on drinking alcohol	1	<i>Ineligible. Continue.</i>
Stopped drinking alcohol	2	<i>Eligible. Continue</i>
Drunk more alcohol	3	<i>Ineligible. Continue.</i>
OR you don't normally drink alcohol	8	<i>Ineligible. Continue.</i>

K. Some women change their physical exercise when they are pregnant. Since becoming pregnant, have you:

Continued to exercise same amount as before	0	<i>If answered 0,1,3 or 8 at J - ineligible. Unfortunately we don't have any available groups for you at the moment. Go to L.</i>
Cut down on exercise	1	
Stopped exercising	2	<i>If answered 2 at J – eligible. Continue.</i>
Exercised more	3	
OR you don't normally exercise	8	

Great. We are holding a focus group **on Tuesday 5th May at 6pm.** (*Can't make group, go to L*)

Could I please take/confirm some of your other contact details. Name: Mailing address: Phone number: Alternative phone number/ mobile number: Email address:

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one to two days before the focus group to remind you. END CALL

L. We might be able to offer some other times, or instead invite you to participate in an in-depth interview. Would you be willing to be contacted by me at another time regarding participating at a later date?

No	0	That's fine. <i>Continue to L</i>
Yes	1	Thank you. Could I please take some of your other contact details. Name. Mailing address. Phone number. Alternative phone number/ mobile number. Also... <i>Continue to L</i>

M. Later on in the year we will be conducting a survey and asking people for feedback on some health promotion messages. Would you be interested in being contacted by me at a later stage to ask you whether you would like to participate in this survey?

No	0	That's fine. Thank you for your time and I wish you luck with your pregnancy. END CALL
Yes	1	<i>If not already provided at K.</i> Could I please take some of your other contact details. Name. Mailing address. Phone number. Alternative phone number/ mobile number. Thank you for your time and I wish you luck with you pregnancy. END CALL

Screening questionnaire for non-pregnant women without children (Focus group 3)

Good morning/ afternoon/evening my name is ... I am calling from Synovate on behalf of Edith Cowan University who are conducting an important research project on women's health. One of the aims of the project is to develop health promotion messages. As part of this research, we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic with a trained facilitator. We serve a few snacks, and give people \$60 to cover the costs of attending. The discussion groups are held in West Perth around 8pm, they last up to an hour and a half and whatever is discussed in the groups is kept completely confidential.

A. Would you be interested in coming along to a focus group?

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

B. Great, we are holding focus groups with a number of people. Could I ask you some questions to find out if you eligible?

No	0	That is fine. <i>Go to P</i>
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions.

C. Are you aged between 18-45 years?

No	0	Unfortunately we are only seeking women aged between 18 and 45 for these focus groups. Thank you for your time. END CALL
Yes	1	<i>Continue</i>

D. Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately given your professional experience, we are unable to include you in these focus groups.

E. Are you pregnant?

No	0	<i>Continue</i>
Yes	1	Unfortunately we are not recruiting pregnant women for these focus groups. Thank you for your time. END CALL

F. Do you have children?

No	0	<i>Continue</i>
Yes	1	Unfortunately we are seeking only women without children for these focus groups. Thank you for your time. END CALL

G. Do you think you will have children sometime in the future? This may not be in the immediate future.

No	0	Unfortunately we don't have any groups available for you at the moment. Thank you for your time. END CALL
Yes	1	<i>Continue</i>

H. What suburb do you currently live in? (*See list*)

Suburb not shaded (Higher or middle SES)	0	Unfortunately we don't have any groups available for you at the moment. Thank you for your time. END CALL.
Suburb shaded red (Lower SES)	1	<i>Continue</i>

Now I am going to ask you about your health behaviour in the last month.

I. In the last month have you taken any vitamin supplements?

No	0
Yes	1

J. In the last month have you exercised for more than 30 minutes in any one day?

No	0
Yes	1

K. In the month have you smoked 10 or more cigarettes?

No	0
Yes	1

L. In the last month have you drunk 2 or more standard alcoholic drinks in one session?

No	0	<i>Ineligible.</i> Unfortunately we don't have any groups available for you at the moment. Thank you for your time. <i>END CALL</i>
Yes	1	<i>Eligible. Continue.</i>

M. In the last month have you seen a doctor?

No	0	<i>Continue.</i>
Yes	1	<i>Continue.</i>

N. Great, so we are holding a focus group on Wednesday 6th May at 8pm. Would this date and time be OK for you?

No	0	<i>Go to O.</i>
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name. Mailing address. Phone number. Alternative phone number/ mobile number. An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. The facilitator of the focus group will also call you one to two days before the focus group to remind you. If you have any further questions you can call the Project Manager. Would you like the contact details of the Project Manager? Thank you very much for your time. END CALL.

Project Manager contact details: Kathryn France

Phone: 6304 5518 Email: k.france@ecu.edu.au

Appendix 5.4

Information sheet - non-pregnant participants

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project: Focus groups

Thank you for agreeing to attend a focus group. This letter is to provide you with information about the project and your participation.

The project

This research is being conducted by Edith Cowan University in affiliation with the Telethon Institute for Child Health Research, Curtin University of Technology, the WA Drug and Alcohol Office, and the University of Sydney.

We would like to find out more about the health information women would like to receive and how health promotion can be effective. Information gained in the focus groups will be used to develop messages and information about women's health.

Your participation

The focus group will be held at **[place, address]** on **[day, date]**. We would really appreciate it if you could please be there at **[time]** to be greeted by the host. A map is included with this letter.

It is anticipated that the focus group discussion may take up to one and a half hours. There will be up to eight participants – all women in a similar situation to yourself. A trained facilitator will begin the discussion. We would like to ask you your thoughts and perspective on the topics raised in the discussion. There are no right or wrong answers, we would simply like to gain your views. If you feel differently to others in the group, please speak up, we would like to hear your opinion. It is possible that sensitive health topics may be discussed which could raise concern in some participants. Should this happen, information and support will be provided free of charge.

The discussion will be audio-taped and kept confidential and you will not be personally identified in any reports on the project. Results of the study will be available on your request.

A cash payment of \$60 will be provided as a reimbursement for your costs in attending. Light refreshments will be provided. If you have any other questions please feel free to contact Kathryn on 6304 5518.

Many thanks and we look forward to seeing you.

Ms Kathryn France
Project Manager
Centre for Applied Social Marketing Research
Edith Cowan University
Ph: 6304 5518 E: k.france@ecu.edu.au

Professor Nadine Henley
Director
Centre for Applied Social Marketing Research
Edith Cowan University
Ph: 6304 5442 E: n.henley@ecu.edu.au

This research has been granted ethics approval from the Edith Cowan University Human Research Ethics Committee.

Appendix 5.5

Information sheet - pregnant participants

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project: Focus groups

Thank you for agreeing to attend a focus group. This letter is to provide you with information about the project and your participation.

The project

This research is being conducted by Edith Cowan University in affiliation with the Telethon Institute for Child Health Research, Curtin University of Technology, the WA Drug and Alcohol Office, and the University of Sydney.

We would like to find out more about the health information women would like to receive and how health promotion can be effective, particularly in the area of alcohol use during pregnancy. Information gained in the focus groups will be used to develop messages that may later be used to inform the community about alcohol and pregnancy.

Your participation

The focus group will be held at **[place, address]** on **[day, date]**. We would really appreciate it if you could please be there at **[time]** to be greeted by the host. A map is included with this letter.

It is anticipated that the focus group discussion may take up to one and a half hours. There will be up to eight participants – all women in a similar situation to yourself. A trained facilitator will begin the discussion. We would like to ask you your thoughts and perspective on the topics raised in the discussion. There are no right or wrong answers, we would simply like to gain your views. If you feel differently to others in the group, please speak up, we would like to hear your opinion. It is possible that sensitive health topics may be discussed which could raise concern in some participants. Should this happen, information and support will be provided free of charge.

The discussion will be audio-taped and kept confidential and you will not be personally identified in any reports on the project. Results of the study will be available on your request.

A cash payment of \$60 will be provided as a reimbursement for your costs in attending. Light refreshments will be provided. If you have any other questions please feel free to contact Kathryn on 6304 5518.

Many thanks and we look forward to seeing you.

Ms Kathryn France
Project Manager
Centre for Applied Social Marketing Research
Edith Cowan University
Ph: 6304 5518 E: k.france@ecu.edu.au

Professor Nadine Henley
Director
Centre for Applied Social Marketing Research
Edith Cowan University
Ph: 6304 5442 E: n.henley@ecu.edu.au

This research has been granted ethics approval from the Edith Cowan University Human Research Ethics Committee.

Appendix 5.6 Consent form

(Original was on Edith Cowan University letter-head)

Informed Consent

Health Promotion Messages for Women Project: Focus groups

_____ (your name)

- I have been given a copy of the Information Letter, and have read and understood the information provided.
- I have been given the opportunity to ask questions, and have had my questions answered to satisfaction. I know that if I have any other questions I can contact Ms Kathryn France or Professor Nadine Henley.
- I understand that I will participate in a focus group discussion which will be audio-taped and that this information will be used to develop health promotion messages, and the information that I give will only be used for research related to this project.
- I understand that it is possible that sensitive health topics may be discussed during the focus group which may raise concern in some participants.
- I understand that my answers will be kept confidential and agree that data gathered from this project may be published, provided that names are not used.
- I understand that I can withdraw from participating in the project at any time without any explanation or penalty.

I freely agree to participate in this project.

Signed _____ (your signature)

Date _____

Appendix 5.7 Demographic questionnaire

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project: Short questionnaire

Before you participate in a focus group, we would appreciate your assistance by answering this short questionnaire. This information will allow us to understand some background information about the women involved in this research.

This information is strictly confidential and your name is not required.

1. How old are you? *(please tick one)*

18-24 years	
25-29 years	
30-34 years	
35-39 years	
40-45 years	

2. Have you ever given birth to a child? *(please tick one)*

Yes	
No	

If yes, how many children have you given birth to? _____

3. What is the highest level of education that you have completed? *(please tick one)*

Year 9 or below	
Year 10 or 11	
Year 12	
Trade certificate	
Non-trade certificate	
Associate diploma	
Undergraduate diploma	
Bachelor degree	
Master's degree, Postgraduate degree or Postgraduate diploma	
Doctorate	

4. What is your marital status? *(please tick one)*

Never married	
Widowed	
Divorced	
Separated but not divorced	
Married (including de facto, or living with a life partner)	

If you are pregnant please also answer the following questions:

5. Which trimester of pregnancy are you in? *(please tick one)*

1 st trimester (weeks 1-13)	
2 nd trimester (weeks 14-26)	
3 rd trimester (weeks 27-40)	

6. Was your pregnancy planned? *(please tick one)*

Yes, it was planned	
No, it wasn't planned	

Appendix 5.8

List of women's health service providers

Health and Support Services for Women in the Perth Metropolitan Area 2009

Service	Services offered	Who is eligible	Referral process	Cost	Contact details
Women's Health Service – General and Specific	Medical and clinical services, counselling, health education and information, referral and outreach	Women of all ages	Self	Medical – bulkbilled if have a healthcare card or pension card Other – negotiable based on financial hardship	Phone: (08) 9227 8122 Web: www.whs.org.au Address: 100 Aberdeen St Northbridge 6003
Women's Health Service – Alcohol and Other Drugs Service	Counselling, specific support for women with young children or pregnant women, health education and information	Women who are parents and/or pregnant and their children	Self	Medical – bulkbilled if have a healthcare card or pension card Other – negotiable based on financial hardship	Phone: (08) 9227 8122 Web: www.whs.org.au Address: 122 Aberdeen St Northbridge 6003
FPWA Sexual Health Service	Sexual health services, information and training, counselling	Women and men of all ages	Self	Medical - \$35 per annum (\$15 conc.) for unlimited visits	Phone: (08) 9227 6177 Web: www.fpwa.org.au Address: 70 Roe St Northbridge 6003 (clinics also at Fremantle, Midland, Rockingham)
Women's Healthworks	Medical and clinical services, health education and information, counselling, social and support groups, referral.	Women of all ages	Self	Medical – bulkbilled if have a healthcare card or pension card	Phone: (08) 9300 1566 Web: www.womenshealthworks.org.au Address: Suite 6 Joondalup Lotteries House, 70 Davidson Tce Joondalup 6027
Women's Healthworks – Village Project	Counselling and group support to women with children who would like to make changes to their alcohol and other drug use/misuse.	Women who have children under 18 years	Self or referral		Phone: (08) 9300 1566 Web: www.womenshealthworks.org.au Address: Suite 6 Joondalup Lotteries House, 70 Davidson Tce Joondalup 6027
Women and Newborn Drug and Alcohol Service (WANDAS)	Specialist antenatal care, social support, counselling and parent education, special care nursery support	Pregnant women of all ages	Require referral from medical practitioner	Free	Phone: (08) 9304 2222 Address: 374 Bagot Rd Subiaco 6008
Alcohol and Drug Information Service	Statewide 24 hour free confidential telephone service providing information, referral, counselling, advice about alcohol and other drugs	Women and men of all ages	Self	Free	Phone-metro : 9442 5000 Phone-country: 1800 198 024

FOR MORE SERVICES

Directory of Services for Women with Children (WA)

Website: www.whs.org.au/directory

The WHS Directory of Services for Women with Children (WA) is a free service created in association with King Edward Memorial Hospital. This directory has been developed to assist organisations and community members in finding programs and facilities for expecting women and women with young families, in Western Australia.

Appendix 5.9

Initial 'deductive' coding sheet

Words or phrases determined a priori based on theory and objectives

- Social aspects of influence
 - Influence of partner's behaviour
 - Influence of partner's expectations
 - Influence of social expectations
 - Social norms
 - Motivation to comply with others/ social conformity
 - Beliefs about other's use of alcohol during pregnancy
- Consequences of alcohol use
 - Salience of threat of alcohol
 - Severity of threat of alcohol
 - Beliefs about alcohol use during pregnancy
 - Response efficacy
 - Self-efficacy
 - Evidence of effects
 - Small amounts
 - Large amounts
- Emotional motivations
 - Anxiety or fear during pregnancy
 - Pride or respect (social approval)
 - Self-approval (internal)
 - Guilt or remorse (conflicted/reassured)
 - Shame or embarrassment
 - In control and mastery (competent)
 - Peace of mind, relief
 - Protective
- Benefits of abstaining/ reducing OR encourages of abstinence
 - Feelings towards unborn baby
- Barriers to abstaining/ reducing OR facilitators of consumption
 - Habit of performing the behaviour
- Cues to action
 - Planning a pregnancy
 - Finding out you are pregnant
- Feelings/ thoughts/ emotions of the unborn baby
- Sources of information about behaviour during pregnancy

Appendix 5.10 *Preconception/ Obstetrician*



Scene One:

A woman is in a General Practitioners' office with her general practitioner.

The doctor says, "I'm really glad you came to have a chat to me at this point in time, before you got pregnant. A lot of people don't realise there are things you can do before you get pregnant to give your baby the best start in life."



Scene Two:

The same woman is cooking dinner with her partner.

The woman says, "And then she said that it would be best if I didn't drink any alcohol from now on, because we don't know when it's going to happen and alcohol can harm the baby from the time of conception on."

The partner responds (in a tone of agreement and understanding) "Yeah, it's not worth the risk."

Appendix 5.11 *Preconception/ Best Friend*



Scene One – A woman aged approximately 30 years is at a cafe with a female friend. Woman says with a smile, “Can you keep a secret?” Friend replies, “Of course I can! Why?” She leans forward towards the woman waiting for the answer. Woman says, “Gary and I have decided we’re going to try for a baby” The friend gasps, jumps up and gives the woman a big hug.



Scene Two
It is a ‘girls’ night out’ party scene and the same woman and her friend are arriving together. The woman is offered a glass of wine by the host, and the woman says “No thanks, just an orange juice for me.” The host says “What? That’s not like you!” The friend is standing next to the woman and says “Oh, we are on a health-kick, I’ll have an OJ too.” The host says with a roll of her eyes “Good on you, I should be too!” The woman and her friend smile at each other while the host turns away to get them the drinks.

Appendix 5.12 ***Preconception/ Partner***



Scene One

A woman aged approximately 30 years is in the bathroom with her partner. She picks up her contraceptive pill packet from the vanity and asks him, “So shall we start trying then?”

He says, “Yep, I think so”. He wraps his arms around her and they look at their reflection of each other lovingly in the mirror.

She says, “Well we won’t need these anymore then” as she puts her contraceptive pill packet in the medicine cabinet.



Scene Two

A party scene, and the same couple have just arrived.

The woman is offered a glass of wine by a host, and she shakes her head.

She says, “No thanks, just two orange juices, we’re on a health-kick”.

Her partner is standing next to her and he holds up a bottle of orange juice that they have brought with them.

The host says, “Good on ya, I should be too.”

The woman looks at her partner and they smile at each other.

Appendix 5.13 ***Preconception/ Woman***



Scene One

A couple are lying in bed. The woman's face is resting on the man's chest and she is lost in her own thoughts.

There is a voice-over of the woman's thoughts. She says to herself "I wonder when it will happen? The doctor said that it might take a while after going off the pill. Well, I'm good and healthy. I've been taking folate for a couple of months now. And I'm not missing the wine with dinner as much as I thought I would!"

She smiles to herself happily.



Scene Two

The same woman is at a work-function and standing with a small group of colleagues. One of her colleagues finishes off a sentence, he says "... so while there are many things you can't control, there are some things you can do to lower the risk and put yourself in the best position."

A waiter approaches and offers the group drinks. There are glasses of red wine, white wine, water and orange juice.

The woman picks up an orange juice.

There is a voice-over of the woman's thoughts "Just an OJ for me thanks. I'm doing what I can now to lower the risk and put myself in the best position to have a healthy pregnancy!"

Appendix 5.14 *Second (pre)Pregnancy/ Best Friend*



Scene One

Two women are at the park while their two toddlers play nearby.

One woman says with a smile, “Can you keep a secret?”

Her friend replies, “Of course I can! Why?” She leans forward towards the woman waiting for the answer.

The woman says, “Tom and I have decided we’re going to have another baby”

The friend gasps and gives the woman a big hug.



Scene Two

The same women are pushing their children on the swings.

The woman says “I was thinking about the barbeque tonight. I don’t really want everyone to notice that I am not drinking, and they will wonder why if I don’t have at least at least one drink”.

The friend says “No, it’s even more important you don’t drink for this one, the risks increase for your next pregnancy. Don’t worry about the others. How about we say we are on a health-kick together, and are off the wine. They’ll believe that.”

The woman nods and says “Are you sure? You don’t have to.”

The friend says with a smile “That’s what friends are for.”

Appendix 5.15 ***Second (pre)Pregnancy/ Partner***



Dining room with some toys scattered around, a couple break apart after sharing a hug.

The woman asks “So do you want to start trying for another one?”

The man says “Yep, I think so.”

The man looks around with a smile and says “We’d better start thinking about making some room!”

The woman nods at the fridge and says “We can make some room in the fridge straight away - I’ve heard that it’s even more important that I don’t drink alcohol now that we’ve already had one.”

Appendix 5.16 *Second Pregnancy/ Woman*



Scene One

A visibly pregnant woman is unpacking the shopping in the kitchen and feeding a toddler at the same time. You can see from the lighting outside that it is early evening. She is tired and frazzled and speaking on the phone.

She says, “You know, I haven’t really felt like it much before, but I would love a glass of wine right now!”

She stops what she is doing, looks down and rubs her stomach. We don’t hear what the friend says but the woman responds, “I know, and apparently it is even more important I don’t drink again this time, as the risks go up with each pregnancy.”

She looks at her toddler and smiles “And it’s not worth the risk, is it?”



Scene Two

The same woman is having dinner with her partner.

She says, “You should have seen him at the shops, he was such a handful today. I was telling Mel, I even wanted a drink when we got home! But we lay down on the couch and read a couple of books instead!”

She looks down at her stomach and says “And then for my efforts I had this little one kicking me!”

They both laugh.

Appendix 5.17

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Appendix 6.1

Screening questionnaires for focus group recruitment

Screening questionnaire for women who do not have children (Focus group 1)

Good morning/ afternoon/evening my name is Kathryn France. I am calling on behalf of Edith Cowan University. You have indicated your interest in participating in a focus group as part of some health promotion research that we are conducting/ you received a flier from us about some focus groups that we are doing for a health promotion research, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time?

Is this the best number to get you on at that time?

Firstly, just some more background information - One of the aims of the project is to develop health promotion messages, and test out advertising concepts suitable for a communication campaign. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic and some advertising concepts with a trained facilitator. We will also ask you to participate in some written exercises with pen and paper. With this, there are no right or wrong answers we are simply interested in your views and perspective. We serve a few snacks, and give people \$80 to cover the costs of attending. The focus group will be held in West Perth beginning at 8pm, and will last up to two hours and whatever is discussed in the groups is kept completely confidential.

Would you be interested in coming along to a focus group, if we have one that would suit you??

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions

Would this be OK?

No	0	That is fine. <i>Go to P.</i>
Yes	1	<i>Continue</i>

Which suburb do you currently live in? (*See list of postcodes*)

Suburbs (High or low SES)	0	Unfortunately we don't have any groups available for you at the moment, however... <i>Go to P.</i>
Suburbs (Middle SES)	1	<i>Continue</i>

Are you aged between 18-45 years?

No	0	Unfortunately we are only seeking women aged between 18 and 45 for these focus groups. Thank you for your time. END CALL
Yes	1	<i>Continue</i>

Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately given your professional experience, we are unable to include you in these focus groups. However... <i>Go to P.</i>

Are you pregnant?

No	0	<i>Continue</i>
Yes	1	<i>Switch to recruitment script for pregnant women (Focus Group 4 or 5)</i>

Do you have children?

No	0	<i>Continue</i>
Yes	1	<i>Switch to recruitment script for women with children (Focus Group 2)</i>

Do you think you will have children sometime in the future, say in the next 5 years?

No	0	Unfortunately we don't have any groups available for you at the moment, however... <i>Go to P.</i>
Yes or maybe	1	<i>Continue</i>

Do you currently have a partner?

No	0	Unfortunately for these groups we are seeking to speak with people who are in a partnership, however we may be running a small number of one on one interview with women who do not currently have a partner. Is this something you would be willing to be contacted about at a later stage? <i>If yes, take details and then go to P. If no, go to P.</i>
Yes	1	<i>Continue</i>

Now I am going to ask you about your health behaviour in the last month.

In the last month have you taken any vitamin supplements?

No	0
Yes	1

In the last month have you exercised for more than 30 minutes in any one day?

No	0
Yes	1

In the month have you smoked 10 or more cigarettes?

No	0
Yes	1

In the last month have you drunk 2 or more standard alcoholic drinks in one session?

No	0	<i>Ineligible. Unfortunately we don't have any groups available for you at the moment, however... Go to P.</i>
Yes	1	<i>Eligible. Continue.</i>

In the last month have you seen a doctor?

No	0	<i>Continue.</i>
Yes	1	<i>Continue.</i>

Great, so we are holding a focus group on TUESDAY 17th NOVEMBER at 8pm. Would this date and time be OK for you?

No	0	<i>Go to P.</i>
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, Alternative phone number/ mobile number, Email address:

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one or two days before the focus group as a little reminder. Thankyou very much, and I will speak to you again soon. END CALL

P . We will be conducting an web-based survey early next year and asking people for feedback on some health promotion messages. Would you be willing to be contacted by me via email with an invite to participate in this?

No	0	That's fine. Thank you very much for your time today. END CALL
Yes	1	Thank you. Could I please take some of your email address?

Email address:

Thank you very much for your time today. END CALL.

Screening questionnaire for women with children (Focus group 2)

Good morning/ afternoon/evening my name is Kathryn France, I am calling on behalf of Edith Cowan University. Earlier in the year you indicated your interest in participating in a focus group as part of some health promotion research that we are conducting/ you received a flier from us about some focus groups that we are doing for a health promotion research, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time?

Is this the best number to get you on at that time?

Firstly, just some more background information - One of the aims of the project is to develop health promotion messages, and test out advertising concepts suitable for a communication campaign. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic and some advertising concepts with a trained facilitator. We will also ask you to participate in some written exercises with pen and paper. With this, there are no right or wrong answers we are simply interested in your views and perspective. We serve a few snacks, and give people \$80 to cover the costs of attending. The focus group will be held in West Perth beginning at 8pm, and will last up to two hours and whatever is discussed in the groups is kept completely confidential.

Would you be interested in coming along to a focus group, if we have one that would suit you?

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions

Would it be OK to ask you some questions?

No	0	That is fine. <i>Go to P.</i>
Yes	1	<i>Continue</i>

Which suburb do you currently live in? (See list of postcodes)

Suburbs (High or low SES)	0	Unfortunately we don't have any groups available for you at the moment, however... Go to P (but do not progress to Q).
Suburbs (Middle SES)	1	Continue

Are you aged between 18-45 years?

No	0	Unfortunately we are only seeking women aged between 18 and 45 for these focus groups. Thank you for your time. END CALL
Yes	1	Continue

Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	Continue
Yes	1	Unfortunately given your professional experience, we are unable to include you in these focus groups, however... Go to P.

Are you pregnant?

No	0	Continue
Yes	1	Switch to recruitment script for pregnant women (Focus Group 8 or 9)

Can I confirm, do you have children?

No	0	Switch to recruitment script for women without children (Focus Group 6)
Yes	1	Continue

Is one of your children 5 years of age or younger?

No	0	Unfortunately we don't have any groups available for you at the moment, however... <i>Go to P.</i>
Yes	1	<i>Continue</i>

Do you currently have a partner?

No	0	Unfortunately for these groups we are seeking to speak with people who are in a partnership, however, we may be running a small number of in-depth interviews with women who do not have a partner. Is this something that I might be able to contact you about in the future?
Yes	1	<i>Continue</i>

Now I am going to ask you about some health behaviours in the last month.

In the last month have you taken any vitamin supplements?

No	0
Yes	1

In the last month have you exercised for more than 30 minutes in any one day?

No	0
Yes	1

In the last month have you smoked 10 or more cigarettes?

No	0
Yes	1

In the last month have you drunk 2 or more standard alcoholic drinks in one session?

No	0	<i>Ineligible.</i> Unfortunately we don't have any groups available for you at the moment, however... <i>Go to P.</i>
Yes	1	<i>Eligible. Continue.</i>

In the last month have you seen a doctor?

No	0
Yes	1

Great, so we are holding a focus group on WEDNESDAY 11th November at 8pm. Would this date and time be OK for you?

No	0	<i>Go to P.</i>
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, alternative phone number/ mobile number, Email address:

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one to two days before the focus group to remind you. END CALL

P. We will be conducting an web-based survey early next year and asking people for feedback on some health promotion messages. Would you be willing to be contacted by me via email with an invite to participate in this?

No	0	<i>That's fine. Continue to Q.</i>
Yes	1	<i>Thank you. Could I please take some of your email address. Also... Continue to Q</i>

Q . Lastly, we are conducting a focus group with male partners of women who have been pregnant in the last 5 years. Do you think your partner would be interested in finding out more about the focus group? If so, when might be a good time for me to call him and have a chat about this?

No	0	That's fine. Thank you for your time. END CALL
Yes	1	Great, thanks very much. RECORD PARTNERS NAME AND TIME TO CALL BACK. END CALL

Partner's Name:

Time to call back:

Screening questionnaire for male partners (Focus group 3)

Good morning/ afternoon/evening my name is ... I am calling on behalf of Edith Cowan University. We spoke to you partner regarding some health promotion research that we are conducting. We are running a focus group that may suit you also, could I please have a moment of your time to tell you a little bit more about what we are doing?

No	0	Thank you for your time. Have a nice day. END CALL
No, it's not a good time to talk	2	When could I call you back? Is this the best number to get you on?
Yes	1	<i>Continue</i>

Firstly, just some more background information - One of the aims of the project is to develop health promotion messages, and test out advertising concepts suitable for a communication campaign. As part of this we hold group discussions, called focus groups, where a small number of men like yourself sit around and talk about the research topic and some advertising concepts with a trained facilitator. We will also ask you to participate in some written exercises with pen and paper. With this, there are no right or wrong answers we are simply interested in your views and perspective. We serve a few snacks, and give people \$80 to cover the costs of attending. The focus group will be held in West Perth beginning at 8pm, and will last up to two hours and whatever is discussed in the groups is kept completely confidential.

Would you be interested in coming along to a focus group, if we have one that would suit you??

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions.

Would this be OK?

No	0	That is fine. Thank you for your time. Have a nice day. END CALL.
Yes	1	<i>Continue</i>

Which suburb do you currently live in? (See list of postcodes)

Suburbs (High or low SES)	0	Unfortunately we don't have any groups available for you at the moment. Thank you very much for your time. END CALL.
Suburbs (Middle SES)	1	<i>Continue</i>

Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately given your professional experience, we are unable to include you in these focus groups. Thank you very much for your time. END CALL.

Can I confirm, do you have children?

No	0	Unfortunately we don't have any groups available for you at the moment. Thank you very much for your time. END CALL.
Yes	1	<i>Continue</i>

Can I confirm, was your partner pregnant with one of your children in the last five years?

No	0	Unfortunately we don't have any groups available for you at the moment. Thank you very much for your time. END CALL.
Yes	1	<i>Continue</i>

Now I am going to ask you about some health behaviours in the last month.

In the last month have you taken any vitamin supplements?

No	0
Yes	1

In the last month have you exercised for more than 30 minutes in any one day?

No	0
Yes	1

In the last month have you smoked 10 or more cigarettes?

No	0
Yes	1

In the last month have you drunk 2 or more standard alcoholic drinks in one session?

No	0	Unfortunately we don't have any groups available for you at the moment. Thank you very much for your time. END CALL.
Yes	1	<i>Eligible. Continue.</i>

In the last month have you seen a doctor?

No	0
Yes	1

Great, so we are holding a focus group on WEDNESDAY 18th NOVEMBER at 8pm. Would this date and time be OK for you?

No	0	Unfortunately this is the only group that we are running with male participants. Thank you very much for your time. END CALL.
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, Alternative phone number/ mobile number, Email address.

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one or two days before the focus group as a little reminder. Thankyou very much, and I will speak to you again soon. END CALL

Screening questionnaire for women in their first pregnancy (Focus group 4)

Good morning/ afternoon/evening my name is ... I am calling on behalf of Edith Cowan University. You received a flier from us about some focus groups that we are doing for health promotion research, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time? Is this the best number to get you on at that time?

Firstly, just some more background information - One of the aims of the project is to develop health promotion messages, and test out advertising concepts suitable for a communication campaign. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic and some advertising concepts with a trained facilitator. We will also ask you to participate in some written exercises with pen and paper. With this, there are no right or wrong answers we are simply interested in your views and perspective. We serve a few snacks, and give people \$80 to cover the costs of attending. The focus group will be held in West Perth beginning at 6pm, and will last up to two hours and whatever is discussed in the groups is kept completely confidential.

Would you be interested in coming along to a focus group, if we have one that would suit you??

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions

Would this be OK?

No	0	That is fine. <i>Go to M.</i>
Yes	1	<i>Continue</i>

Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately, given your professional experience, we are unable to include you in these focus groups, however... <i>Go to M.</i>

Can I confirm, are you pregnant?

No	0	<i>Switch to recruitment script for women without children (FG 5) or women with children (FG 6)</i>
Yes	1	<i>Continue</i>

Do you have children?

No	0	<i>Continue</i>
Yes	1	<i>Switch to recruitment script for pregnant women, subsequent pregnancy (FG 9)</i>

Are you aged between 18-45 years?

No	0	Unfortunately, we are only holding focus groups with participants within this age group. But thank you very much for your interest and I wish you all the best with your pregnancy. END CALL.
Yes	1	<i>Continue.</i>

I am going to ask you about some lifestyle changes that some women make when they are pregnant.

Some women change their diet when they are pregnant. Since becoming pregnant, do you eat:

The same amount of fruit and vegetables	0
Less fruit and vegetables	1
Stopped eating fruit and vegetables	2
More fruit and vegetables	3
OR you don't usually eat fruit and vegetables	8

Some women change their diet when they are pregnant. Since becoming pregnant, have you:

Continued to eat the same amount of processed meat as before	0
Cut down on eating processed meat	1
Stopped eating processed meat	2
Eaten more processed meat	3
OR you don't usually eat processed meat	8

Some women change their cigarette smoking behaviour when they are pregnant. Since becoming pregnant, have you:

Continued to smoke the same amount as before	0
Cut down on smoking	1
Stopped smoking	2
Smoked more	3
OR you don't normally smoke cigarettes	8

Some women change their alcohol use when they are pregnant. Since becoming pregnant, have you...

Continued to drink the same amount of alcohol as before	0	<i>Ineligible. Continue.</i>
Cut down on drinking alcohol	1	<i>Ineligible. Continue.</i>
Stopped drinking alcohol	2	<i>Eligible. Continue</i>
Drunk more alcohol	3	<i>Ineligible. Continue.</i>
OR you don't normally drink alcohol	8	<i>Ineligible. Continue.</i>

Some women change their physical exercise when they are pregnant. Since becoming pregnant, have you:

Continued to exercise same amount as before	0	<i>If answered 0,1,3 or 8 at J - ineligible. Unfortunately we don't have any available groups for you at the moment. However... go to M.</i>
Cut down on exercise	1	
Stopped exercising	2	
Exercised more	3	<i>If answered 2 at J – eligible. Continue.</i>
OR you don't normally exercise	8	

Great, so we are holding a focus group on <DAY>, <DATE> at 6pm. Would this date and time be OK for you?

No	0	<i>Go to M.</i>
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, Alternative phone number/ mobile number, Email address.

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one or two days before the focus group as a little reminder. Thank you very much, and I will speak to you again soon. END CALL

M. Early next year we will be conducting a web-based survey and asking people for feedback on some health promotion messages. Would you be willing to be contacted by me via email with an invite to participate in this?

No	0	That's fine. Thank you very much for your time today and I wish you all the best with your pregnancy END CALL
Yes	1	Thank you. Could I please take some of your email address?

Email address:

Thank you very much for your time today and I wish you all the best with your pregnancy. END CALL.

Screening questionnaire for women in a pregnancy subsequent to their first (Focus group 5)

Good morning/ afternoon/evening my name is ... I am calling on behalf of Edith Cowan University. You received a flier from us about some focus groups that we are doing for health promotion research, and gave you details because you thought you might like to participate or find out more. Is now a good time to talk?

NO – when would be a good time? Is this the best number to get you on at that time?

Firstly, just some more background information - One of the aims of the project is to develop health promotion messages, and test out advertising concepts suitable for a communication campaign. As part of this we hold group discussions, called focus groups, where a small number of women like yourself sit around and talk about the research topic and some advertising concepts with a trained facilitator. We will also ask you to participate in some written exercises with pen and paper. With this, there are no right or wrong answers we are simply interested in your views and perspective. We serve a few snacks, and give people \$80 to cover the costs of attending. The focus group will be held in West Perth beginning at 8pm, and will last up to two hours and whatever is discussed in the groups is kept completely confidential.

Would you be interested in coming along to a focus group, if we have one that would suit you??

Response	Code	Progression
No	0	Thank you for your time. Have a nice day. END CALL
Yes	1	<i>Continue</i>

Great, we are holding focus groups with people with a range of characteristics. To find out if you are eligible I would like to ask you some questions

Would this be OK?

No	0	That is fine. <i>Go to M.</i>
Yes	1	<i>Continue</i>

Are you a health professional or teacher? (Health professional = medical doctor, nurse, allied health professional, Aboriginal health worker)

No	0	<i>Continue</i>
Yes	1	Unfortunately, given your professional experience, we are unable to include you in these focus groups, however... <i>Go to M.</i>

Can I confirm, are you pregnant?

No	0	<i>Switch to recruitment script for women without children (FG 6) or women with children (FG 5)</i>
Yes	1	<i>Continue</i>

Do you have children?

No	0	<i>Switch to recruitment script for pregnant women, 1st time (FG 8)</i>
Yes	1	<i>Continue</i>

Are you aged between 18-45 years?

No	0	Unfortunately, we are only holding focus groups with participants within this age group. But thank you very much for your interest and I wish you all the best with your pregnancy. END CALL.
Yes	1	<i>Continue.</i>

I am going to ask you about some lifestyle changes that some women make when they are pregnant.

Some women change their diet when they are pregnant. Since becoming pregnant, do you eat:

The same amount of fruit and vegetables	0
Less fruit and vegetables	1
Stopped eating fruit and vegetables	2
More fruit and vegetables	3
OR you don't usually eat fruit and vegetables	8

Some women change their diet when they are pregnant. Since becoming pregnant, have you:

Continued to eat the same amount of processed meat as before	0
Cut down on eating processed meat	1
Stopped eating processed meat	2
Eaten more processed meat	3
OR you don't usually eat processed meat	8

Some women change their cigarette smoking behaviour when they are pregnant. Since becoming pregnant, have you:

Continued to smoke the same amount as before	0
Cut down on smoking	1
Stopped smoking	2
Smoked more	3
OR you don't normally smoke cigarettes	8

Some women change their alcohol use when they are pregnant. Since becoming pregnant, have you...

Continued to drink the same amount of alcohol as before	0	<i>Ineligible. Continue.</i>
Cut down on drinking alcohol	1	<i>Ineligible. Continue.</i>
Stopped drinking alcohol	2	<i>Eligible. Continue</i>
Drunk more alcohol	3	<i>Ineligible. Continue.</i>
OR you don't normally drink alcohol	8	<i>Ineligible. Continue.</i>

Some women change their physical exercise when they are pregnant. Since becoming pregnant, have you:

Continued to exercise same amount as before	0	<i>If answered 0,1,3 or 8 at J - ineligible. Unfortunately we don't have any available groups for you at the moment. However... go to M.</i>	
Cut down on exercise	1		
Stopped exercising	2		
Exercised more	3		<i>If answered 2 at J – eligible. Continue.</i>
OR you don't normally exercise	8		

Great, so we are holding a focus group on Wednesday 25th November 8pm. Would this date and time be OK for you?

No	0	<i>Go to M.</i>
Yes	1	<i>Continue.</i>

Could I please take some of your other contact details: Name, Mailing address, Phone number, Alternative phone number/ mobile number, Email address.

An information pack which includes the details of the focus group and a map of where it will be held and parking details will be mailed out to you shortly. I will also call you one or two days before the focus group as a little reminder. Thank you very much, and I will speak to you again soon. END CALL

M. Early next year we will be conducting a web-based survey and asking people for feedback on some health promotion messages. Would you be willing to be contacted by me via email with an invite to participate in this?

No	0	That's fine. Thank you very much for your time today and I wish you all the best with your pregnancy END CALL
Yes	1	Thank you. Could I please take some of your email address?

Email address:

Thank you very much for your time today and I wish you all the best with your pregnancy. END CALL.

Appendix 6.2

Information sheet - non-pregnant participants

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project: Focus groups

Thank you for agreeing to attend a focus group. This letter is to provide you with information about the project and your participation.

The project

This research is being conducted by Edith Cowan University in affiliation with the Telethon Institute for Child Health Research, Curtin University of Technology, the WA Drug and Alcohol Office, and the University of Sydney.

We would like to gain your feedback and thoughts on some health promotion advertisements and messages which are relevant to the period of pregnancy. Information gained in the focus groups will be used to further develop advertising concepts suitable for a communication campaign.

Your participation

The focus group will be held at **Synovate, Level 1, 1292 Hay St West Perth** on **[date]** at **[time]**. We would really appreciate it if you could please be there at 7.50pm to be greeted by the host. A map is included with this letter.

It is anticipated that the focus group discussion may take up to two hours. There will be up to eight participants – all individuals in a similar situation to yourself. A trained facilitator will begin the discussion. We would like to ask you your thoughts and perspective on the topics raised in the discussion. We will also ask you to participate in some written exercises with pen and paper. There are no right or wrong answers, we would simply like to gain your views. If you feel differently to others in the group, please speak up, we would like to hear your opinion. It is possible that sensitive health topics may be discussed which could raise concern in some participants. Should this happen, information and support will be provided free of charge.

The discussion will be audio-taped and kept confidential and you will not be personally identified in any reports on the project. Results of the study will be available on your request.

A cash payment of \$80 will be provided as a reimbursement for your costs in attending. Light refreshments will be provided.

If you have any other questions please feel free to contact Kathryn on 6304 5518.

Many thanks and we look forward to seeing you.

Ms Kathryn France

Project Manager

Centre for Applied Social Marketing Research

Edith Cowan University

Ph: 6304 5518 E: k.france@ecu.edu.au

Professor Nadine Henley

Director

Centre for Applied Social Marketing Research

Edith Cowan University

Ph: 6304 5442 E: n.henley@ecu.edu.au

This research has been granted ethics approval from the Edith Cowan University Human Research Ethics Committee.

Appendix 6.3

Information sheet - pregnant participants

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project: Focus groups

Thank you for agreeing to attend a focus group. This letter is to provide you with information about the project and your participation.

The project

This research is being conducted by Edith Cowan University, in affiliation with the Telethon Institute for Child Health Research, Curtin University of Technology, the WA Drug and Alcohol Office, and the University of Sydney.

We would like to gain your feedback and thoughts on some health promotion advertisements and messages which are relevant to the period of pregnancy, and in particular, alcohol use during pregnancy. Information gained in the focus groups will be used to further develop advertising concepts suitable for a communication campaign about alcohol use during pregnancy.

Your participation

The focus group will be held at **Synovate, Level 1, 1292 Hay St West Perth on Wednesday [date] at [time]**. We would really appreciate it if you could please be there at 7.50pm to be greeted by the host. A map is included with this letter.

It is anticipated that the focus group discussion may take up to two hours. There will be up to eight participants – all women in a similar situation to yourself. A trained facilitator will begin the discussion. We would like to ask you your thoughts and perspective on the topics raised in the discussion. We will also ask you to participate in some written exercises with pen and paper. There are no right or wrong answers, we would simply like to gain your views. If you feel differently to others in the group, please speak up, we would like to hear your opinion. It is possible that sensitive health topics may be discussed which could raise concern in some participants. Should this happen, information and support will be provided free of charge.

The discussion will be audio-taped, will be kept confidential and you will not be personally identified in any reports on the project. Results of the study will be available on your request.

A cash payment of \$80 will be provided as a reimbursement for your costs in attending. Light refreshments will be provided.

If you have any other questions please feel free to contact Kathryn on 6304 5518.

Many thanks and we look forward to seeing you.

Ms Kathryn France

Project Manager

Centre for Applied Social Marketing Research

Edith Cowan University

Ph: 6304 5518 E: k.france@ecu.edu.au

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This research has been granted ethics approval from the Edith Cowan University Human Research Ethics Committee.

Appendix 6.4

Motivating content and execution elements for each concept execution (*Pregnancy*)

Obstetrician – risks

Message content

Information/ Facts

This ad tells you ... there is more information

No amount of alcohol has been proven as safe for the fetus – this is what everyone should know.

The reason for the advice/ recommendation is given

This ad says that 'we just don't know', and leaves you with the message that no alcohol is the safest choice. The message appears more believable to participants because they are given this scientific rationale/ reason for the advice.

The ad is honest about not knowing the risk.

It addresses the question of a glass or two/ amounts of alcohol

The ad goes beyond the 'don't drink' message and addresses the question of a couple of glasses of wine.

It makes you think about having those couple of drinks.

It says that any amount can harm your baby.

The ad hits home

The ad hits home and is a lot stronger

Message execution

They are being told by a doctor

In this ad the advice is coming from a professional

Obstetrician – effects

Message content

Information/ Facts

The ad provides information and facts. The information is thorough, scientific/ clinical
It spells it out and there is not ambiguous.

The information is helpful if you didn't know about alcohol and pregnancy.

Effects

This ad tells you the effects – the others say 'lower the risk' (they aren't giving me any more information than I already have.

Clear Message (included here as the message itself was an element of appeal and was believed by participants)

No alcohol is the safest choice, given we don't know how much...

The recommendation was clear/ straight-forward/ direct

The reason for the advice/ recommendation is given

It is honest

Addresses question of 1 or 2 drinks

This is realistic, it would be my thought process

Addresses a commonly held question based on societal norms

It gives you what you want to know (i.e. response to question about 1-2 drinks)

Shock-Factor

It is not wishy-washy

Message execution

They are being told by a doctor

They are speaking to someone who knows about it.

People take a lot away from what their obstetrician says.

Partner**Message content**

Partner/ support/ together

The ad shows the support of the woman by the partner. They are doing it (avoiding alcohol) together. This support is important during pregnancy.

It is nice, but it is not realistic that a partner would do this.

Not disclosing pregnancy

The ad shows a way of not disclosing to people that you are pregnant in a social situation.

Being on a 'health-kick' used as an excuse not to drink alcohol.

Best Friend**Message content**

Support of a friend

The ad displays camaraderie, sharing and female bonding through the support of a friend.

Indicates the sharing of the responsibility of being pregnant.

Support from a friend makes it easier not to drink alcohol.

The support of a friend (abstaining) is more realistic than a partner abstaining.

It sends a message to friends of pregnant women that they can support pregnant women in this way.

Doesn't alienate women who don't have a partner.

Not disclosing pregnancy

The ad shows a way of not disclosing to people that you are pregnant in a social situation.

Being on a 'health-kick' used as an excuse not to drink alcohol.

You do have to make excuses for not drinking alcohol/ some people will pressure you.

Woman**Message content**

Avoid the risks

The main message is avoid the risks by not drinking alcohol during pregnancy (included as a motivating theme as this message appealed to respondents).

The message is direct, less open to interpretation (than other ads).

The ad doesn't tell you what to do.

Message content and execution

The woman has a choice, she makes the decision for herself

The ad shows that the woman is making the choice (not to drink alcohol) for herself and her baby.

It shows that it doesn't matter what other people think or do, and also that she doesn't have to justify her decision (not to drink alcohol).

Shows she is doing what she can, things within her control

Appendix 6.5

Main messages for each concept execution and frequency with which they were noted

Preconception/ Obstetrician (n=4)

Key message	Frequency (n)
Do not drink alcohol when trying to get pregnant	2
Plan your pregnancy	2
There are precautions you can take to make sure you have a healthy baby	2
Alcohol can harm the baby from the time of conception	1

Preconception/ Best Friend (n=5)

Key message	Frequency (n)
Don't drink alcohol if you are trying to get pregnant.	4
Promoting not drinking alcohol for healthy conception.	1
Friends should support and do support women not to drink.	2
Plan your pregnancy.	1

Preconception/ Partner (n=8)

Key message	Frequency (n)
Don't drink alcohol if you are trying to get pregnant (both partners).	4
Don't drink alcohol if you are trying to get pregnant (does not specifically include male).	2
Reduce alcohol consumption (did not mention who or when).	1
If you want to be pregnant, don't use the pill.	1

Preconception/ Woman (n=9)

Key message	Frequency (n)
Don't drink alcohol if you are trying to get pregnant.	4
Don't drink alcohol during pregnancy.	2
You could be pregnant without knowing so no alcohol is best.	1
Things should be done to lower the risks when planning for a baby.	2
Small changes to your lifestyle can protect your baby.	1
Take folate when trying to get pregnant.	2
Healthy choices possibly increases chance of pregnancy.	1
Pregnancies are planned.	1

Appendix 6.6

Motivating content and execution elements for each concept execution (*Preconception/ Second Pregnancy*)

Preconception/ Obstetrician

Message content

It is clear, straightforward message - don't drink alcohol if you are trying to get pregnant

It gives reason for advice – because alcohol can harm from conception onwards

People should know this

It confirms what I would already do if I was planning to have a baby (not drink alcohol).

She is getting the information from a professional – someone who knows and is concerned about her and her baby (not just a friend)

Message execution

If I was wanting to start trying for a baby I would go to my doctor to ask

I would ask the question about alcohol

I can relate to the conversation that she is having with her partner

Preconception/ Best Friend

Message content

The ad shows the support of the woman by the friend by also not drinking

This is a nice idea

Message execution

The party scene is realistic and the feeling of pressure to drink alcohol.

Preconception/ Partner

Message content

Key message is that if you are planning a pregnancy you should plan not to drink – this is aligned.

Key message is that both parents shouldn't drink during pregnancy

This is not a realistic message, 'far from reality'

The ad makes you think about the effects of alcohol in early pregnancy (but doesn't answer the question)

Message execution

Nil

Preconception/ Woman

Message content

Give up alcohol if you are trying to get pregnant

Though this is not a realistic message

You could be pregnant and not realise it, therefore best not to drink if you are trying to conceive

People should know this message

Message execution

Nil.

Second Pregnancy/ Best Friend

Message content

It is more of a health-kick message

The ad shows she has support of her friend

Message execution

Nil

Second Pregnancy/ Partner

Message content

You get complacent in your second pregnancy about behaviour change.

'It is more important now that I've had one'

It says to me it is more dangerous for the second pregnancy

Message content and execution

I like that they are thinking and talking about stopping drinking before they get pregnant.

Does this mean it is less dangerous for the first – this is the wrong message to send.

Message execution

The scene setting is more realistic

The conversation (except about the fridge) is realistic.

Second Pregnancy/ Woman

Message content

There will be times that you feel like a drink but you have to make the choice not to

It is worth the sacrifice

Shows you that there is a choice but the priority has to be the baby and it is worth this

Message content and execution

I can identify with wanting a drink at that time of day

I identify with that stress

I can relate to the sense o

f complacency that comes into your second pregnancy

It is worth the sacrifice

The kick is a reminder of the reason that you are making the choice

Appendix 7.1 *Obstetrician - effects, high threat*

Please read the advertisement.



Scene One

A woman and her partner arrive at a health clinic. The woman is not obviously pregnant, though there are some women in the later stages of pregnancy sitting in the waiting room. She approaches the counter and you see her talk to the receptionist.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows."

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe.

That is why I say no alcohol is the safest choice."



A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Appendix 7.2

Obstetrician - effects, moderate threat

Please read the advertisement.



Scene One

A woman and her partner arrive at a health clinic. The woman is not obviously pregnant, though there are some women in the later stages of pregnancy sitting in the waiting room. She approaches the counter and you see her talk to the receptionist.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus. The baby could be born with brain damage, birth defects, low IQ, and possibly behavioural problems which become more obvious as the child grows."

As the obstetrician talks a graphic image of a fetus appears on the screen. We then see the woman and the obstetrician again.

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe.

That is why I say no alcohol is the safest choice."

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Appendix 7.3 Manipulation check questionnaire

[Screen 1.]

First, just a couple of questions about yourself.

Did you participate in a focus group last year for this same project?

- Yes
- No

Are you female?

- Yes
- No

[Ineligible – go to Screen 1a.]

How old are you?

Please select one

- 17 years or less
- 18-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-45 years
- 46 years or older

[Ineligible – go to Screen 1a.]

[Ineligible – go to Screen 1a.]

Do you currently live in Perth?

Yes

No

[Ineligible – go to Screen 1a.]

Have you ever given birth to a child?

Please select one

Yes

If yes, how many children have you given birth to?

No

Are you currently pregnant?

Please select one

Yes

[Ineligible – go to Screen 1b.]

No

[Screen 1a]

Thank you very much for your interest in this research.

However we are only seeking the views of women aged 18-45 years living in Perth for this phase of the research.

We appreciate your time.

[Screen 1b]

Thank you very much for your interest in this research.

However this phase of the research only involves women who are not pregnant.

[Screen 2.]

On the next screen you will be shown an idea for a television advertisement.

The advertisement is in what we call a “story-board format”.

Don’t worry too much about the specific pictures - they are just there to help you get the idea of the advertisement.

[Screen 3.]

Please read the advertisement.

[Insert either the Obstetrician - medium severity OR Obstetrician – high severity OR Best Friend concept.]

[Screen 4.]

We would now like you to look at the advertisement again, as if you were seeing the advertisement for the second time on television.

[Screen 5.]

Please read the advertisement.

[Insert same concept as Screen 3.]

[Screen 6.]

What do you think is the main message in this advertisement? What is it telling people?

Please type your response.

What else is the advertisement saying?

Please type your response.

[Screen 7.]

Did you have any of the following **feelings** while you were reading the advertisement?

Please select one for each row. [randomised order]

	No	Yes, a little	Yes, somewhat	Yes, a lot
anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
surprised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you have any of the following **thoughts** while you were reading the advertisement?

Please select one for each row. [randomized order]

	Yes	No
I don't want to think about what this advertisement is saying	<input type="radio"/>	<input type="radio"/>
The information in this advertisement is not true	<input type="radio"/>	<input type="radio"/>
The advertisement exaggerates the issue	<input type="radio"/>	<input type="radio"/>
The advertisement is misleading	<input type="radio"/>	<input type="radio"/>
The advertisement is interesting	<input type="radio"/>	<input type="radio"/>
The advertisement is convincing	<input type="radio"/>	<input type="radio"/>
The advertisement makes me think about the topic in a new way	<input type="radio"/>	<input type="radio"/>
The advertisement provides important information	<input type="radio"/>	<input type="radio"/>

[Screen 8.]

Did the advertisement **imply or suggest** any of the following:

Please select one for each row.

	Yes	No	Unsure
women should reduce the amount of alcohol they drink when they are pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
women should stop drinking alcohol completely when they are pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
friends can support pregnant women not to drink alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
alcohol use during pregnancy harms the fetus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
alcohol use during pregnancy can cause brain damage in the fetus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 9.]

Did the advertisement **imply or suggest** that if you were pregnant and trying to stop drinking alcohol during social situations it could be ...

Please select one.

- easier than you thought
- the advertisement didn't imply or suggest anything about this at all. **[Skip next question]**

If the advertisement did imply or suggest something about the ease of stopping drinking alcohol during pregnancy, what part or parts of the advertisement did this?

Please type your response.

Did the advertisement imply or suggest that if you drank alcohol during pregnancy the impact on the unborn baby could be ...

Please select one.

- mild
- moderate
- severe
- the advertisement didn't imply or suggest anything about this at all. **[Skip next question]**

If the advertisement did imply or suggest something about the impact of alcohol on the unborn baby, what part or parts of the advertisement did this?

Please type your response.

[Screen 10.]

How believable did you find the advertisement?

Please select one.

- very believable
- quite believable
- a little believable
- not believable → Why not believable?
- not at all believable → Why not at all believable?

How relevant is the advertisement to women in general?

Please select one.

- very relevant
- quite relevant
- a little relevant
- not relevant → Why not relevant?
- not at all relevant → Why not at all relevant?

Was there anything you found confusing in the advertisement?

Please select one.

- Yes → What did you find confusing in the advertisement?
- No

[Screen 11.]

On the next screen you will be shown another advertisement that has been designed for television.

Again, the advertisement is in story-board format.

Don't worry too much about the pictures, they are just there to help you get the idea of the advertisement.

[Screen 11.]

Please read the advertisement.

[Insert either the Obstetrician - medium severity, Obstetrician – high severity OR Best Friend concept]

[Screen 12.]

We would now like you to read through the advertisement again, so it is as if you are seeing the advertisement for the second time on television.

[Screen 13.]

Please read the advertisement

[Insert either same concept as Screen 11.]

[Screen 14]

What do you think is the main message in this advertisement? What is it telling people?

Please type your response.

What else is the advertisement saying?

Please type your response.

[Screen 15.]

Did you have any of the following feelings while you were reading the advertisement?

Please select one for each row.

	No	Yes, a little	Yes, somewhat	Yes, a lot
anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
surprised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you have any of the following thoughts while you were reading the advertisement?

Please select one for each row.

	Yes	No
I don't want to think about what this advertisement is saying	<input type="radio"/>	<input type="radio"/>
The information in this advertisement is not true	<input type="radio"/>	<input type="radio"/>
The advertisement exaggerates the issue	<input type="radio"/>	<input type="radio"/>
The advertisement is misleading	<input type="radio"/>	<input type="radio"/>
The advertisement is interesting	<input type="radio"/>	<input type="radio"/>
The advertisement is convincing	<input type="radio"/>	<input type="radio"/>
The advertisement makes me think about the topic in a new way	<input type="radio"/>	<input type="radio"/>
The advertisement provides important information	<input type="radio"/>	<input type="radio"/>

[Screen 16.]

Did the advertisement **imply or suggest** any of the following:

Please select one for each row.

	Yes	No	Unsure
women should reduce the amount of alcohol they drink when they are pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
women should stop drinking alcohol completely when they are pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
friends can support pregnant women not to drink alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
alcohol use during pregnancy harms the fetus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
alcohol use during pregnancy can cause brain damage in the fetus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 17.]

Did the advertisement **imply or suggest** that if you were pregnant and trying to stop drinking alcohol during social situations it could be ...

Please select one.

- easier than you thought
- the advertisement didn't imply or suggest anything about this at all. **[Skip next question]**

If the advertisement did imply or suggest something about the ease of stopping drinking alcohol during pregnancy, what part or parts of the advertisement did this?

Please type your response.

Did the advertisement imply or suggest that if you drank alcohol during pregnancy the impact on the unborn baby could be ...

Please select one.

- Mild
- Moderate
- Severe
- the advertisement didn't imply or suggest anything about this at all. ***[Skip next question]***

If the advertisement did imply or suggest something about the impact of alcohol on the unborn baby, what part or parts of the advertisement did this?

Please type your response.

[Screen 18.]

How believable did you find the advertisement?

Please select one.

- very believable
- quite believable
- a little believable
- not believable → Why not believable?
- not at all believable → Why not at all believable?

How relevant is the advertisement to women in general?

Please select one.

- very relevant
- quite relevant
- a little relevant
- not relevant → Why not relevant?
- not at all relevant → Why not at all relevant?

Was there anything you found confusing in the advertisement?

Please select one.

- Yes → What did you find confusing in the advertisement?
- No

[Screen 19.]

Thank you very much for your support with this research. Your perspectives and feedback are helping us to develop these advertisements.

If you would like to be entered into the draw to win one of five \$100 Coles/Myer vouchers, please enter your first name and phone number below.

The information provided here will be kept separate from your survey responses and will remain completely confidential.

Name

Phone number

We are about to begin a large web-based survey to test these advertisements along with a couple of others. We won't be contacting you for the large survey, as you have already participated.

However, if you have any friends or family living in Perth who are female and aged between 18 and 45 years who you think might like to participate in the survey (it will take about 15 minutes to complete), we would be very grateful if you could please include their name and email address below, and we will contact them with an invitation to participate. They will ONLY be contacted for this purpose and their details will be kept strictly confidential.

Name	Email address

If you have any questions about the research project or would like to request a copy of the project results when they become available, please contact:

Kathryn France, Project Manager. Phone (08) 6304 5518 Email k.france@ecu.edu.au

Appendix 7.4 *Obstetrician - effects, moderate threat (modified version)*



Scene One

A woman and her partner arrive at a health clinic. The woman is not obviously pregnant, though there are some women in the later stages of pregnancy sitting in the waiting room. She approaches the counter and you see her talk to the receptionist.



Scene Two

The same woman and her partner are in a clinic room with an obstetrician. The obstetrician hands to the woman an ultrasound picture that she has been looking at. The obstetrician says, "So you are doing really well, everything is looking very good. Is there anything else you would like to ask?"

The woman says, "And how about alcohol? I've heard different things."

The obstetrician says, "I recommend that you don't drink any alcohol during pregnancy. Alcohol can disturb the development of the fetus which could lead to problems later on."

The woman asks, "Is a couple of glasses of wine every now and then OK?"

The obstetrician says, "We just don't know how much alcohol it takes to do damage. It is different for different women and different babies. No amount has been proven as safe. That is why I say no alcohol is the safest choice."

A final message is displayed on the screen:

No alcohol during pregnancy is the safest choice.

Appendix 7.5

Concept testing questionnaire (non-pregnant participant version)

[Screen 1]

When you are completing the survey:

1. Please scroll down the page and complete each question before pressing 'Next'
2. If the survey 'freezes' please reload the page and it will take you back to where you were in the survey.

[Screen 2]

First, just a couple of questions about yourself.

(Perth) Do you live in Perth?

Yes (1)

No (2)

[Ineligible – go to Screen 1a.]

(Female) Are you female?

Yes (1)

No (2)

[Ineligible – go to Screen 1a.]

(Age) How old are you?

Please select one

- 17 years or less (1) ***[Ineligible – go to Screen 1a.]***
- 18-24 years (2)
- 25-29 years (3)
- 30-34 years (4)
- 35-39 years (5)
- 40-45 years (6)
- 46 years or older (7) ***[Ineligible – go to Screen 1a.]***

[Screen 3]

(Pregnant) Are you currently pregnant?

- Yes (1) → THESE PARTICIPANTS ARE AUTOMATICALLY ASSIGNED TO CONCEPT 0
- No (2)

[Screen 1a.]

Thank you very much for your interest in this research.

However we are only seeking the views of women aged 18-45 years living in Perth, Australia for this phase of the research. We would be very grateful if you could forward the email with the survey link to anyone you know who fits these criteria.

We appreciate your time.

[Screen 4]

We would like to involve a range of people in this survey. These following questions are about some health behaviours.

(Multivit) How often do you take multivitamins?

Please select one.

- 4 or more times per week (1)
- 2-3 times per week (2)
- 2-4 times per month (3)
- Monthly or less (4)
- Never (5)

(Exercise) How often do you exercise for 30 minutes or more per day?

Please select one.

- 4 or more times per week (1)
- 2-3 times per week (2)
- 2-4 times per month (3)
- Monthly or less (4)
- Never (5)

[Screen 5]

(Smoke) How often do you smoke cigarettes?

Please select one.

- 4 or more times per week (5)
- 2-3 times per week (4)
- 2-4 times per month (3)
- Monthly or less (2)
- Never (1)

(Drink) How often do you have a drink containing alcohol?

Please select one.

- 4 or more times per week (5)
- 2-3 times per week (4)
- 2-4 times per month (3)
- Monthly or less (2)
- Never (1) →

[If not pregnant, ineligible – Go to Screen 7a.]

[Screen 6]

(Drnk_amt) How many drinks containing alcohol do you have on a typical day when you are drinking?

Please select one.

- 10 or more (1)
- 7, 8 or 9 (2)
- 5 or 6 (3)
- 3 or 4 (4)
- 1 or 2 (5)
- 0 (6)

(6Drnk) How often do you have 6 or more drinks on one occasion?

Please select one.

- Daily or almost daily (1)
- Weekly (2)
- Monthly (3)
- Less than monthly (4)
- Never (5)

[Screen 7a.]

Thank you very much for your interest in this research.

However this phase of the research only involves women with certain health behaviours.

We appreciate your time.

[Screen 7]

Thinking about yourself, please indicate the extent to which you agree or disagree with the following statements.

Please select one for each row.

	Strongly Disagree (1)	Disagree (2)	Not Sure (3)	Agree (4)	Strongly Agree (5)
(Slf_eff1) I will be able to achieve most of the goals that I have set for myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff2) When facing difficult tasks, I am certain that I will accomplish them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff3) In general, I think that I can obtain outcomes that are important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff4) I believe I can succeed at most any endeavour to which I set my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff5) I will be able to successfully overcome many challenges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff6) I am confident that I can perform effectively on many different tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff7) Compared to other people, I can do most tasks very well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(Slf_eff8) Even when things are tough, I can perform quite well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 8]

On the next screen you will be shown an idea for a television advertisement.

The advertisement is in what we call “story-board format”.

Don't worry too much about the specific pictures - they are just there to help you get the idea of the advertisement.

[Screen 9]

Please read the advertisement.

[One advertisement is shown out of: Concept0 (only for those participants who answered 'yes' to being pregnant at Screen 4), Concept1, Concept2, oncept3, Concept4, Concept5.]

[Screen 10]

Now we would like you to look at the advertisement again before answering some questions.

[Screen 11]

Please read the advertisement.

[The same advertisement is presented as Screen 9.]

[Screen 12]

(Top_mind) Please take some time to tell us what thoughts, feelings or pictures came to mind when you were reading the advertisement.

Please type your response.

[Screen 13]

Did you have any of the following feelings while you were reading the advertisement?

Please select one for each row. [randomized order]

	No (1)	Yes, a little (2)	Yes, somewhat (3)	Yes, a lot (4)
(feel_wor) worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_anx) anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_glt) guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_reg) regretful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_ash) ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_sur) surprised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_rel) relieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_prd) proud of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(feel_hap) happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 14]

(Main_msg) What do you think is the main message in this advertisement? What is it telling people?

Please type your response.

[Screen 15]

(Oth_msg) What else is the advertisement saying? [This response is not required to progress through survey]

Please type your response.

[Screen 16]

(Believe) How believable is the main message?

Please select one.

- Very believable (1)
- Quite believable (2)
- A little believable (3)
- Not believable (4) → **[Screen 19a]** Why is the main message not believable? (Ntblv)
- Not at all believable (5) → **[Screen 19b]** Why is the main message not at all believable? (Ntallblv)

[Screen 17]

(Sug_self) Did the advertisement imply or suggest that if you were pregnant and trying to stop drinking alcohol during social situations it could be ...

Please select one.

- easier than you thought (1)
- the advertisement didn't imply or suggest anything about this at all (0)

[Screen 18]

(Sug_sev) Did the advertisement imply or suggest that if you drank alcohol during pregnancy the impact on the unborn baby could be ...

Please select one.

- mild (1)
- moderate (2)
- severe (3)
- the advertisement didn't imply or suggest anything about this at all (0)

[Screen 19]

(Red_amnt) Having read the advertisement, are you *more or less likely* to try to reduce the amount of alcohol you drink during a future pregnancy?

Please select one.

- Much more likely to try to reduce (1)
- More likely to try to reduce (2)
- No different (3)
- Less likely to try to reduce (4)
- Much less likely try to reduce (5)
- I don't currently drink alcohol (6)

(Stp_drnk) Having read the advertisement, are you *more or less likely* to try to stop drinking alcohol completely during a future pregnancy?

Please select one.

- Much more likely to try to stop (1)
- More likely to try to stop (2)
- No different (3)
- Less likely to try to stop (4)
- Much less likely to try to stop (5)
- I don't currently drink alcohol (6)

[Screen 20]

(Sug_stop) Having read the advertisement, are you *more or less likely* to suggest to anyone you know who is pregnant to stop drinking alcohol?

Please select one.

- Much more likely to suggest (1)
- More likely to suggest (2)
- No different (3)
- Less likely to suggest (4)
- Much less likely to suggest (5)

(Stpdnk_f) Having read the advertisement, are you *more or less likely* to stop drinking alcohol around pregnant friends?

Please select one.

- Much more likely to stop drinking (1)
- More likely to stop drinking (2)
- No different (3)
- Less likely to stop drinking (4)
- Much less likely to stop drinking (5)

[Screen 21]

(Red_try) Having read the advertisement, would you be *more or less likely* to try to reduce the amount of alcohol that you drink if you were trying to get pregnant?

Please select one.

- Much more likely to try to reduce (1)
- More likely to try to reduce (2)
- No different (3)
- Less likely to try to reduce (4)
- Much less likely to try to reduce (5)

(Stop_try) Having read the advertisement, would you be *more or less likely* to try to stop drinking alcohol completely if you were trying to get pregnant?

Please select one.

- Much more likely to try to stop (1)
- More likely to try to stop (2)
- No different (3)
- Less likely to try to stop (4)
- Much less likely to try to stop (5)

[Screen 22]

(Conf_red) Having read the advertisement, are you *more or less confident* that you could reduce the amount of alcohol that you drink if you were pregnant?

Please select one.

- Much more confident I could reduce (1)
- More confident I could reduce (2)
- No different (3)
- Less confident I could reduce (4)
- Much less confident I could reduce (5)

(Conf_stp) Having read the advertisement, are you *more or less confident* that you could stop drinking alcohol completely if you were pregnant?

Please select one.

- Much more confident I could stop (1)
- More confident I could stop (2)
- No different (3)
- Less confident I could stop (4)
- Much less confident I could stop (5)

[Screen 23]

(Hlth_ch) To what extent do you think your chances of having a healthy child would increase if you drank no alcohol during pregnancy?

Please select one.

- A lot (1)
- Quite a bit (2)
- A little (3)
- Not at all (4)

(Brdmg_ch) To what extent do you think your chances of having a child with brain damage or birth defects would increase if you drank any alcohol during pregnancy?

Please select one.

- A lot (1)
- Quite a bit (2)
- A little (3)
- Not at all (4)

[Screen 24]

Did you have any of the following thoughts while you were reading the advertisement? Did you think ...

Please select one for each row. (Please randomise order)

	Yes (1)	No (2)
(Thght_1) I don't want to think about what this advertisement is saying	<input type="radio"/>	<input type="radio"/>
(Thght_2) the information in this advertisement is false	<input type="radio"/>	<input type="radio"/>
(Thght_3) the advertisement exaggerates the issue	<input type="radio"/>	<input type="radio"/>
(Thght_4) the advertisement is misleading	<input type="radio"/>	<input type="radio"/>
(Thght_5) the advertisement is interesting	<input type="radio"/>	<input type="radio"/>
(Thght_6) the advertisement is convincing	<input type="radio"/>	<input type="radio"/>
(Thght_7) the advertisement makes me think about the topic in a new way	<input type="radio"/>	<input type="radio"/>
(Thght_8) the advertisement provides important information	<input type="radio"/>	<input type="radio"/>

[Screen 25]

(Relevant) How relevant is the advertisement to women in general?

Please select one.

- Very relevant (1)
- Quite relevant (2)
- A little relevant (3)
- Not relevant (4) → **[Screen 31a]** Why is the advertisement not relevant to women in general? (Ntrel)
- Not at all relevant (5) → **[Screen 31b]** Why is the advertisement not at all relevant to women in general? (Ntallrel)

(Ov_Feel) Which of these phrases do you think best describes your overall feelings about this advertisement?

- I liked it a lot (1)
- I liked it quite a bit (2)
- I neither liked nor disliked it (3)
- I didn't like it much (4)
- I didn't like it at all (5)

[Screen 26]

(Like) What, if anything, did you like about the advertisement?

Please type your response.

(Dislike) What, if anything, did you dislike about the advertisement?

Please type your response.

[Screen 27]

(Confuse) Was there anything you found confusing in the advertisement?

Please type your response.

- Yes (1) →
- No (2)

[Screen 35a] What did you find confusing in the advertisement? (Confuse1)

[Screen 28]

How worried do you think a pregnant woman would be if she was in the following situations and she saw an advertisement like this?

	Not worried (1)	A little worried (2)	Quite worried (3)	Very worried (4)	Don't know (5)
Was drunk when she conceived her child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drank 2 alcoholic drinks per day before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Got drunk on two occasions before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drank 4 alcoholic drinks on two occasions before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had been drinking 1 alcoholic drink per day throughout the first six months of her pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had drunk 1 alcoholic drink on two 'special' occasions throughout the first six months of her pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 29]

How worried would a pregnant woman be if she was in the following situations but did not see any advertisements like this?

	Not worried (1)	A little worried (2)	Quite worried (3)	Very worried (4)	Don't know (5)
Was drunk when she conceived her child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drank 2 alcoholic drinks per day before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Got drunk on two occasions before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drank 4 alcoholic drinks on two occasions before she found out she was pregnant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had been drinking 1 alcoholic drink per day throughout the first six months of her pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had drunk 1 alcoholic drink on two 'special' occasions throughout the first six months of her pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 30]

(Bel_red) Do you believe that women should reduce the amount of alcohol that they drink during pregnancy?

Please select one.

- Yes, strongly (1)
- Yes (2)
- No (3)
- No, strongly (4)

(Bel_stop) Do you believe that women should stop drinking alcohol completely during pregnancy?

Please select one.

- Yes, strongly (1)
- Yes (2)
- No (3)
- No, strongly (4)

[Screen 31]

(Belredty) Do you believe that women should reduce the amount of alcohol that they drink when they are trying to get pregnant?

Please select one.

- Yes, strongly (1)
- Yes (2)
- No (3)
- No, strongly (4)

(Belstpty) Do you believe that women should stop drinking alcohol completely when they are trying to get pregnant?

Please select one.

- Yes, strongly (1)
- Yes (2)
- No (3)
- No, strongly (4)

[Screen 32]

How likely is it that there would be a harmful effect on the unborn baby in the following situations?

	Not at all likely (1)	Not likely (2)	Somewhat likely (3)	Very likely (4)
A woman was drunk when she conceived the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman got drunk on two occasions during pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 1 alcoholic drink per day throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 2 alcoholic drinks per day throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 4 alcoholic drinks on most Friday nights throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If these situations did have a harmful effect on the unborn baby, what kind of effect would it have?

	It would not have an effect (1)	Mild effect (2)	Moderate effect (3)	Severe effect (4)
A woman was drunk when she conceived the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman got drunk on two occasions during pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 1 alcoholic drink per day throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 2 alcoholic drinks per day throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pregnant woman drank 4 alcoholic drinks on most Friday nights throughout pregnancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Screen 33]

(Dnk_preg) Which of the following things would you do, if any, if you drank alcohol as usual in the early stages of pregnancy before you found out you were pregnant?

Please select all that apply.

- Talk to my partner about any worries that I had (1)
- Talk to a friend or family member about any worries that I had (2)
- Talk to a health professional about any worries that I had (3)
- Talk to a health professional about options for terminating the pregnancy (4)
- Stop drinking alcohol for the rest of the pregnancy (5)
- Drink less alcohol than usual for the rest of the pregnancy (6)
- Drink the same amount of alcohol as usual for the rest of the pregnancy (7)
- Do nothing (8)
- Other (9) (Dkpr_oth)

[Screen 34]

Lastly, just a few more questions about yourself.

(Child) Have you ever given birth to a child?

- Yes (1) → **[Screen 35a.]**
- No (2)

[Screen 35a]

(Child_num) How many children have you given birth to?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 or more (5)

[Screen 35]

Do you think you might become pregnant in the next 2 years? (for non-pregnant participants only)

- Yes (1)
- No (2)
- Unsure (3)

[Screen 36]

(Educate) What is the highest level of education that you have completed?

Please select one.

- Year 9 or below (1)
- Year 10 or 11 (2)
- Year 12 (3)
- Trade certificate (4)
- Non-trade certificate (5)
- Associate diploma/ undergraduate diploma (6)
- Bachelor degree (7)
- Postgraduate degree or diploma (8)

(Relship) What is your marital status?

Please select one.

- Never married (1)
- Widowed (2)
- Divorced (3)
- Separated but not divorced (4)
- Married, de facto or living with a partner (5)

[Screen 37]

(Suburb) Which suburb do you live in?

Please type your response.

(Prv_part) Have you completed this same survey on a previous occasion?

Yes (1)

No (2)

[Screen 38]

Thank you very much for your time. Your responses are greatly appreciated.

If you would like to be entered into a draw to win one of five \$100 Coles/Myer vouchers, please enter your first name and phone number below. The information provided here will be kept separate from your survey responses and will remain confidential.

Name

Phone number

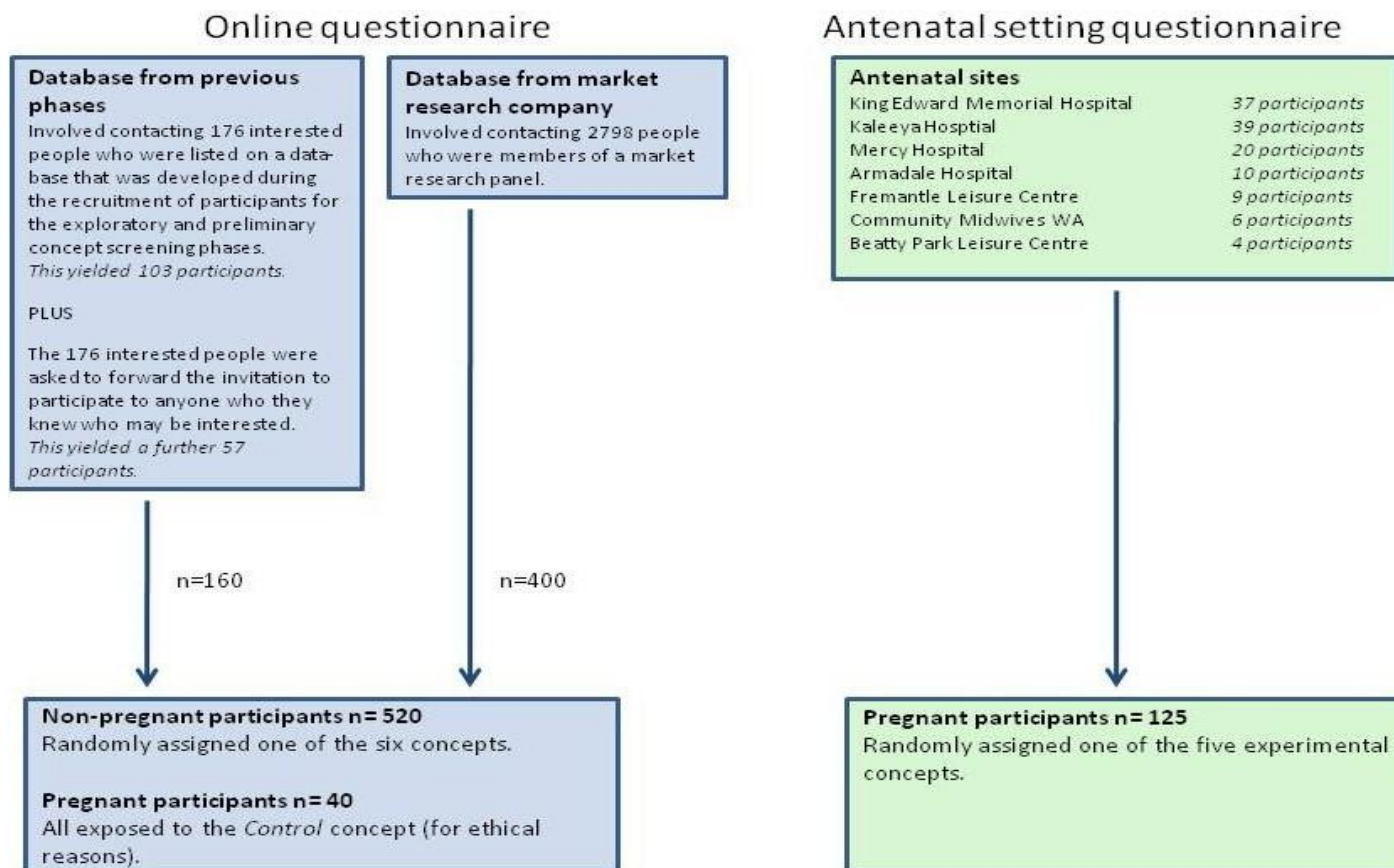
Finally, if you have any friends or family living in Perth who are female and aged between 18-45 years who might be interested in doing this survey too, we would be very grateful if you could forward the survey invitation to them. Your support makes this important research possible.

If you have any questions about the research project or would like to request a copy of the project results when they become available, please contact:

Kathryn France, Project Manager Phone (08) 6304 5518 Email k.france@ecu.edu.au

Appendix 7.6

Diagram of recruitment sites and results for quantitative concept testing



Appendix 7.8 Information sheet

(Original was on Edith Cowan University letter-head)

Health Promotion Messages for Women Project:

Survey to test advertisements for alcohol use during pregnancy

This letter is to provide you with information about the project and your participation.

The project

This research is being conducted by Edith Cowan University in affiliation with the Telethon Institute for Child Health Research, Curtin University of Technology, the WA Drug and Alcohol Office, and the University of Sydney.

We would like to find out more about how health promotion can be effective in pregnancy in informing women about alcohol use during pregnancy. Information gained will be used to develop messages suitable for a media campaign.

Your participation

The survey will take approximately 15 minutes to complete and will involve some questions about yourself as well as seeking your responses to an advertisement regarding alcohol use during pregnancy.

Your responses will be kept completely confidential and any personal details will be kept separate from your responses. Results of the study will be available on your request.

Several advertisements are being tested through this project. It is possible that information in some of the advertisements may be of concern to some participants. Should this happen, a researcher will be available to speak with you about your concerns and refer you to further support and information if necessary.

Participants will be provided with a \$20 Coles/Myer gift voucher as a token of appreciation.

Thank you for your participation, it is greatly appreciated.

Regards,

Ms Kathryn France
Project Manager
Centre for Applied Social Marketing Research
Edith Cowan University
Ph: 6304 5518
Email: k.france@ecu.edu.au

Professor Rob Donovan
Acting Chief Investigator A
CBRCC
Curtin University of Technology
Ph: 9266 4598
Email: r.donovan@curtin.edu.au

This research is funded by Healthway and has received ethics approval from the ECU Human Research Ethics Committee.

If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact: Research Ethics Officer, Edith Cowan University, 270 Joondalup Drive, JOONDALUP WA 6027 Phone: (08) 63042170
Email: research.ethics@ecu.edu.au

Appendix 7.9 Consent form

(Original was on Edith Cowan University letter-head)

Informed Consent

Health Promotion Messages for Women Project:

Survey to test advertisements for alcohol use during pregnancy

_____ (your name)

- I have been given a copy of the Information Letter, and have read and understood the information provided.
- I have been given the opportunity to ask questions, and have had my questions answered to satisfaction. I know that if I have any other questions I can contact Ms Kathryn France or Professor Rob Donovan.
- I understand that I will answer a survey which will seek my responses to an advertisement about alcohol use during pregnancy, as well as some personal information, and these data will be collected anonymously.
- I understand it is possible that information in some of the advertisements may be of concern to some participants.
- I understand that I can withdraw from participating in the project at any time without any explanation or penalty.

I freely agree to participate in this project.

Signed _____ (your signature)

Date _____

Appendix 7.10

Main messages perceived across all experimental concept executions and percentage of participants perceiving message - non-pregnant women (n=462)

Main message theme	Number and percentage of times the main message was perceived n (%)
Do not drink alcohol during pregnancy	262 (56.7)
They aren't sure how much alcohol will damage a baby so best not to drink at all	53 (11.5)
You can damage your baby if you drink alcohol during pregnancy	48 (10.4)
No amount of alcohol is safe during pregnancy	45 (9.7)
No alcohol is the safest option during pregnancy	28 (6.1)
Drinking alcohol during pregnancy is risky	16 (3.5)
Alcohol in moderation	11 (2.4)
Any alcohol will harm the baby	10 (2.2)
If a woman really cares, she will abstain from alcohol during pregnancy	9 (1.9)
Do everything you can during pregnancy to help the health of the baby	8 (1.7)
It isn't bad to say no to alcohol during pregnancy	7 (1.5)
Don't drink alcohol at any time during pregnancy	5 (1.1)
Friendship is important	4 (0.9)
Can cause damage – specific effects listed	4 (0.9)
Follow the advice of a health professional	3 (0.6)
Don't drink alcohol even if you don't want people to know you are pregnant	2 (0.4)
You can go out and have fun without alcohol	2 (0.4)
You'll be happy with yourself when you do the right thing (don't drink during pregnancy)	2 (0.4)
Hate on pregnant women because they are dumb	1 (0.2)
Ask questions of your health professional	1 (0.2)
The evidence isn't clear regarding alcohol and pregnancy	1 (0.2)

Appendix 7.11

Main messages reported (by at least 5% of non-pregnant women) and percentage of pregnant participants who reported them for any one experimental concept execution - pregnant women (n=125)

Main messages	Concept execution				
	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/self-efficacy</i>
	n=26	n=25	n=24	n=25	n=25
	%	%	%	%	%
Do not drink alcohol during pregnancy	46.1	36.0	33.3	36.0	32.0
They aren't sure how much alcohol will damage a baby so best not to drink at all	0.0	24.0	29.2	28.0	20.0
No amount of alcohol is safe during pregnancy	3.8	20.0	12.5	12.0	24.0
You can damage your baby if you drink alcohol during pregnancy	3.8	16.0	20.8	12.0	4.0
No alcohol is the safest option during pregnancy	26.9	0.0	8.3	8.0	16.0
Alcohol in moderation	0.0	4.0	0.0	0.0	0.0
Drinking alcohol during pregnancy is risky	0.0	4.0	4.2	0.0	8.0

Appendix 7.12

Believability and relevance by each concept - pregnant women (n=165)

Measure	Concept execution											
	<i>Control</i>		<i>Self-efficacy only</i>		<i>Moderate threat</i>		<i>High threat</i>		<i>Moderate threat/self-efficacy</i>		<i>High threat/self-efficacy</i>	
	n=40		n=26		n=25		n=24		n=25		n=25	
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Believability	27.5	2.03	50.0	1.69	52.0	1.56	41.7	1.63	44.0	1.88	48.0	1.56
Relevance to women in general	30.0	2.05	42.3	1.81	56.0	1.62	75.0[#]	1.25*	76.0^{#^~}	1.24*	76.0^{#^~}	1.28*

[#]Top box percentage significantly different from *Control* at p=0.05.

[^]Top box percentage significantly different from *Self-efficacy* at p = 0.05.

[~]Top box percentage significantly different from *Moderate threat* at p=0.05.

^{*}Mean score is significantly different from *Control* at p=0.05.

Appendix 7.13

Behavioural intentions and confidence to modify behaviour following exposure to a concept execution - pregnant women (n=165)

Measure	Concept execution											
	Control n=40 ^b		Self-efficacy only n=26 ^b		Moderate threat n=25 ^b		High threat n=24 ^b		Moderate threat/self-efficacy n=25 ^b		High threat/self-efficacy n=25 ^b	
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Intentions to try to ABSTAIN in current pregnancy ^a	n=13 7.7	2.77	n=11 18.2	2.45	n=11 18.2	2.36	n=16 25.0 ^{#@}	2.19	n=13 38.5 ^{#@}	2.38	n=10 10.0	2.60
Intentions to try to REDUCE in current pregnancy ^a	n=13 7.7	2.77	n=11 18.2	2.55	n=11 18.2	2.36	n=16 37.5 ^{#^~@}	1.94	n=13 38.5 ^{#@}	2.38	n=10 10.0	2.50
Intentions to try to ABSTAIN if trying to get pregnant	15.0	2.53	15.4	2.31	28.0	2.28	33.3 ^{#^}	2.04	48.0 ^{#^~}	1.92	44.0 ^{#^}	1.84
Intentions to try to REDUCE if trying to get pregnant	12.5	2.36	19.2	2.35	32.0 [#]	2.08	29.2 [#]	2.08	44.0 ^{#^}	1.92	40.0 ^{#^}	1.92
Intentions to suggest to others not to drink	0.0	2.88	30.8 [#]	2.19	40.0 [#]	2.08*	33.3 [#]	2.0	48.0 [#]	1.88*	36.0 [#]	2.08*
Intentions to stop drinking around pregnant friends	0.0	2.83	19.2 [#]	2.15*	16.0 [#]	2.48	12.5 [#]	2.5	32.0 ^{#~&}	2.00*	24.0 [#]	2.24
CONFIDENCE to ABSTAIN in current pregnancy ^a	n=13 0.0	2.92	n=11 27.3 [#]	2.27	n=11 45.5 ^{#@}	2.09	n=16 43.8 ^{#@}	2.00	n=13 38.5 [#]	2.15	n=10 20.0 [#]	2.50
CONFIDENCE to REDUCE in current pregnancy ^a	n=13 0.0	2.85	n=11 27.3 [#]	2.45	n=11 45.5 ^{#@}	2.09	n=16 37.5 [#]	2.00	n=13 30.8 [#]	2.23	n=10 20.0 [#]	2.40

^a Those indicating that they do not currently drink alcohol removed from analysis.

^b Number of participants unless otherwise stated.

[#] Top box percentage significantly different from *Control* at p=0.05.

[^] Top box percentage significantly different from *Self-efficacy* at p = 0.05.

[~] Top box percentage significantly different from *Moderate threat* at p=0.05.

[&] Top box percentage significantly different from *High threat* at p = 0.05.

[@] Top box percentage significantly different from *High threat/ self-efficacy* at p=0.05

* Mean score significantly different from *Control* at p=0.05.

Appendix 7.14
Beliefs and attitudes - pregnant women (n=165)

Beliefs and attitudes	Concept execution					
	<i>Control</i>	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/self-efficacy</i>
	n=40 yes %	n=26 yes %	n=25 yes %	n=24 yes %	n=25 yes %	n=25 yes %
Your chances of having a healthy child would increase if you drank no alcohol during pregnancy	90.0	92.3	92.0	95.8	88.0	88.0
Your chances of having a child with brain damage or birth defects would increase if you drank any alcohol during pregnancy	85.0	88.5	96.0	87.5	92.0	96.0
Women should REDUCE the amount of alcohol they drink during pregnancy	100	100	100	100	100	100
Women should STOP drinking alcohol completely during pregnancy	80	84.6	88.0	79.2	88.0	84.0
Women should reduce the amount of alcohol they drink when TRYING to get pregnant	97.5	88.5	88.0	100	100	92.0
Women should stop drinking alcohol completely when TRYING to get pregnant	52.5	65.4	48.0	54.2	68.0	60.0

Appendix 7.15
Message diagnostics - pregnant women (n=165)

Message diagnostics	Concept execution											
	<i>Control</i>		<i>Self-efficacy only</i>		<i>Moderate threat</i>		<i>High threat</i>		<i>Moderate threat/self-efficacy</i>		<i>High threat/self-efficacy</i>	
	n=40	n=26	n=25	n=24	n=25	n=25						
	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}	t.b.%	\bar{x}
Likeability	10.0	2.55	19.2	2.19	20.0	2.32	25.0	2.29	28.0[#]	2.16	36.0^{#^~}	1.96
	yes %		yes %		yes %		yes %		yes %		yes %	
Interesting	60.0		69.2		68.0		83.3[§]		64.0		72.0	
Convincing	70.0		73.1		76.0		70.8		80.0		80.0	
Makes me think about the topic in new way	32.5		30.8		28.0		45.8		40.0		40.0	
Provides important information	67.5		73.1		96.0^{#^}		100^{#^§}		84.0		92.0^{#^}	

[#]Top box/ affirmative percentage significantly different from *Control* at p=0.05.

[^]Top box/ affirmative percentage significantly different from *Self-efficacy only* at p = 0.05.

[~]Top box/ affirmative percentage significantly different from *Moderate threat* at p=0.05.

[§]Top box/ affirmative percentage significantly different from *Moderate threat/self-efficacy* at p=0.05.

Appendix 7.16
Emotional arousal - pregnant women (n=165)

Emotional measure	Concept execution					
	<i>Control</i>	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/self-efficacy</i>
	n=40 yes %	n=26 yes %	n=25 yes %	n=24 yes %	n=25 yes %	n=25 yes %
worried (negative)	7.5	3.8	24.0[#]	37.5^{#^\$}	12.0[^]	24.0[#]
anxious (negative)	5.0	7.7	4.0	29.2^{#^~\$}	12.0^{#~}	24.0^{#^~}
guilty (negative)	7.5	15.4	12.0	29.2^{#~\$}	12.0	24.0[#]
regretful (negative)	2.5	0.0	12.0[#]	29.2^{#^~\$}	8.0[^]	20.0^{#^\$}
ashamed (negative)	5.0	0.0	0.0	12.5^{^~\$}	4.0	16.0^{^~\$}
surprised (neutral)	27.5^{~@}	38.5^{~\$@}	12.0	29.2^{~@}	20.0[@]	8.0
relieved (positive)	30.0	34.6	36.0	20.8	36.0	40.0^{&}
proud of myself (positive)	27.5	80.8^{#~}	60.0[#]	62.5[#]	64.0[#]	72.0[#]
happy (positive)	55.0	84.6^{#~&\$}	52.0	41.7	60.0	72.0^{#~@}

[#]Affirmative percentage significantly different from *Control* at p=0.05.

[^]Affirmative percentage significantly different from *Self-efficacy* at p = 0.05.

[~]Affirmative percentage significantly different from *Moderate threat* at p=0.05.

[&]Affirmative percentage significantly different from *High threat* at p = 0.05.

^{\$}Affirmative percentage significantly different from *Moderate threat/self-efficacy* at p=0.05.

[@]Affirmative percentage significantly different from *High threat/self-efficacy* at p=0.05.

Appendix 7.17

Defensive responses and potential unintended effects - pregnant women (n=165)

Defensive responses	Concept execution					
	<i>Control</i>	<i>Self-efficacy only</i>	<i>Moderate threat</i>	<i>High threat</i>	<i>Moderate threat/self-efficacy</i>	<i>High threat/self-efficacy</i>
	n=40 yes %	n=26 yes %	n=25 yes %	n=24 yes %	n=25 yes %	n=25 yes %
I don't want to think about what the ad. is saying	2.5	3.8	0.0	16.7 ^{#^~\$}	0.0	8.0 ^{~\$}
The information in this advertisement is false	2.5	3.8	0.0	0.0	0.0	4.0
The advertisement exaggerates the issue	7.5	11.5	12.0	25.0 ^{#^}	16.0 [#]	24.0 [#]
The advertisement is misleading	10.0 [^]	0.0	12.0 [^]	4.2	8.0 [^]	12.0 [^]
Would a woman be worried if she saw this advertisement and ...						
was drunk when she conceived	70.0	76.9	76.0	79.2	76.0	88.0
drank 2 per day before found out she was preg.	82.5	76.9	80.0	91.7	80.0	92.0
got drunk on 2 occasions before she found out she was pregnant	77.5	65.4	84.0	87.5	88.0	96.0
drank 4 drinks on 2 occasions before she found out she was pregnant	80.0	69.2	88.0	91.7	88.0	96.0
been drinking 1 per day during the first 6 months of pregnancy	90.0	84.7	100	91.7	92.0	96.0
drank 1 drink on 2 'special' occasions in first 6 months of pregnancy	45.0	50.0	68.0 [#]	50.0	68.0 [#]	76.0 [#]

	Concept execution					
	<i>Control</i> n=40	<i>Self-efficacy only</i> n=26	<i>Moderate threat</i> n=25	<i>High threat</i> n=24	<i>Moderate threat/self-efficacy</i> n=25	<i>High threat/self-efficacy</i> n=25
Potential unintended effects						
Talk to a health professional about options for terminating the pregnancy	2.5	0.0	4.0	0.0	8.0^{^&@}	0.0
Drink the same amount of alcohol as usual for the rest of the pregnancy	0.0	0.0	0.0	0.0	0.0	0.0

[#]Affirmative percentage significantly different from *Control* at p=0.05.

[^]Affirmative percentage significantly different from *Self-efficacy only* at p = 0.05.

[~]Affirmative percentage significantly different from *Moderate threat* at p=0.05.

[&]Affirmative percentage significantly different from *High threat* at p = 0.05.

[§]Affirmative percentage significantly different from *Moderate threat/ self-efficacy* at p=0.05.

[@]Affirmative percentage significantly different from *High threat/ self-efficacy* at p=0.05.