

'Is there a Safe Level of Alcohol
that can be consumed during
Pregnancy without causing
Adverse Outcomes to the Child
and is this being communicated
effectively to Pregnant Women?'

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*'I declare that this dissertation is my
own work'*

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Word Count = 15986 words

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Abstract

Introduction

The research question for the dissertation was 'Is there a safe level of alcohol that can be consumed during pregnancy without causing adverse outcomes to the child and is this being communicated effectively to pregnant women?' To answer the question the dissertation was carried out in the form of a literature review and examined research carried out into the effects of differing levels of prenatal alcohol exposure to the foetus. The guidelines created in England and other countries with regard to alcohol use during pregnancy and the published information being provided to women during their pregnancy were also examined.

Findings

The conclusions provided in all of the research studies were that there is no safe level of alcohol that can be consumed without causing harmful effects to the foetus, both as a baby and in later childhood. When carrying out comparisons it became apparent that some of the recommendations provided by the government and healthcare organisations were conflicting, internationally between countries, nationally and also contradicted the recommendations derived from the research studies. This was also found to be the case with the publicised information. This showed that the evidence from the research studies was not being communicated effectively to pregnant women.

Discussion

Limitations to this dissertation included the fact that much more research into this area has been carried out in the United States of America than in the United Kingdom or other English speaking countries, making it difficult to find research from England. Also many of the research studies looked at discussed alcohol use in terms of 'alcoholic drinks', rather than standard units or grams of alcohol as in the guidelines and publicised information. This made it more difficult to make comparisons as researchers may interpret the amount of alcohol in an alcoholic drink differently.

Chapter 1: Introduction

1.1 The Research Question

This dissertation will attempt to answer the research question 'Is there a safe level of alcohol that can be consumed during pregnancy without causing adverse outcomes to the child and is this being communicated effectively to pregnant women?' In order to answer this question the dissertation will take the form of a literature review and will examine research that has been carried out into the effects of differing levels of prenatal alcohol exposure to the foetus. Further to this the guidelines created in England and other countries with regard to alcohol use during pregnancy and the published information being provided to women during their pregnancy will be examined. Preliminary literature searches have highlighted that it remains an issue of debate in the literature whether there is a threshold level below which alcohol does not harm the foetus (O'Leary, 2004) and that a lack of clarity exists in the published literature regarding this matter, allowing for a range of interpretations to be drawn from the data (O'Leary et al., 2007). Therefore it is hoped that by comparing and evaluating the research gathered for this dissertation more clarity will be provided on the issue of whether or not the information provided by the research correlates with the information broadcasted to the general public.

1.2 Background information

The consumption of alcohol has previously been associated with numerous health risks including various cardiovascular diseases, brain damage, cirrhosis of the liver, alcohol dependence, violent injury and motor vehicle accidents (Yeigh and Kean, 2005). During pregnancy alcohol reaches the foetus through the placenta

(Department of Health, 2007) so when a woman consumes alcohol she exposes not only herself to such health risks, but her baby also. The first teratogenic effects of alcohol were documented in 1973, when researchers discovered similar patterns in eight unrelated children of alcoholic mothers. These effects included craniofacial, limb, and cardiovascular defects; and also growth deficiency and developmental delay (Jones et al., 1973). Since this discovery, alcohol's effects have been confirmed by animal research as well as by clinical and epidemiological studies in humans. The effects have been found to be dose-related, meaning that the greater amount of alcohol consumed by the mother, the greater the adverse effects to the child. A study of 464 children followed from birth to fourteen years of age revealed that greater maternal alcohol consumption was related to a higher level of learning difficulties and behavioural problems in their children, including antisocial behaviour, substance abuse and self-reported intellectual and academic problems (Rolater et al., 2000). It has also been found that the rates of spontaneous abortion and neonatal deaths are more common in families when one parent has been shown to suffer from a drinking problem (Royal College of Physicians and British Paediatric Association, 1995).

Following the discovery of these effects in 1973 prenatal alcohol exposure has been a subject of concern in recent years, beginning in 1976 when the National Council of Women produced a report on the alcohol problems of women and young people (National Council of Women, 1976). In 1977 the effects of alcohol on pregnancy were discussed in parliament, following an article in the British health press. Despite press attention the British government continued to imply in the booklet 'Drinking Sensibly' that it was only frequent heavy drinking that was inadvisable, both in pregnant and non-pregnant members of the public (Department of Health and Social Security, 1981). A further parliamentary question in 1983 cautioned against insisting upon abstinence during pregnancy which they felt would only increase anxiety amongst women, instead advising a

reduction of alcohol use to less than two drinks per day. This advice was then further reduced to one or two units of alcohol once or twice per week (Royal College of Psychiatrists, 1986), which is also the current recommendation provided, by the Department of Health (Department of Health, 2001).

Multiple terms are used to describe the continuum of effects that result from prenatal exposure to alcohol, including Foetal Alcohol Effects (FAE), Alcohol-related Birth Defects (ARBD), Alcohol-related Neurodevelopment Disorder (ARND) and Foetal Alcohol Spectrum Disorders (FASDs) (Clarren and Smith, 1978). In April 2004, the National Organisation on Foetal Alcohol Syndrome defined Foetal Alcohol Spectrum Disorders as, the range of effects that can occur in a person whose mother drank alcohol during pregnancy, including physical, mental, behavioural and cognitive learning disabilities (Brown et al., 1991; Carmichael et al., 1997; Bertrand et al., 2005). These include growth deficiency, structural defects and problems with intellectual performance and behaviour. The most severe consequence of foetal alcohol exposure known to date is Foetal Alcohol Syndrome (FAS), which is known to occur when women have drunk heavily throughout pregnancy, with intakes of more than eight units of alcohol per day (Waterson and Murray-Lyon, 1990). Foetal Alcohol Syndrome is characterised by reduced birth-weight and length, including a small head size and a variety of congenital abnormalities, as well as a characteristic facial appearance caused by an elongated mid-face, thin upper lip and flattened maxilla. Other symptoms also include Central Nervous System disturbances such as neurological abnormalities, intellectual impairment and behaviour dysfunction, and heart and kidney abnormalities (Sokol et al., 1980; Abel, 1984; Rolater et al., 2000).

Alcohol exposed children are also susceptible to a wide range of later adolescent disability outcomes that can affect educational learning (Yeigh and Kean, 2005). Streissguth et al. (1993), reported children with Foetal Alcohol Spectrum

Disorders to have significant school adjustment problems characterised by impulsivity and hyperactivity (Streissguth et al., 1993), such as emotional disturbance, sleep disorders and abnormal behavioural habits (Yeigh and Kean, 2005).

1.3 Prevalence of Alcohol Use in Pregnant Women

The rates of alcohol use among pregnant women in England and Canada have previously been reported as between twenty and thirty-two percent and in some European countries this rate has been reported to exceed fifty percent (May, 1995). The Centre for Disease Control and Prevention has estimated that one in every twenty-nine women who know they are pregnant still continue to consume alcohol (Centre for Disease Control and Prevention, 2000). More recent studies have been carried out in the United States of America which showed the reported rate of alcohol use among American pregnant women to be 12.8 percent in 1999 (Centre for Disease Control and Prevention, 2002).

When discussing prenatal alcohol exposure it is important to consider not only the prevalence of alcohol use within pregnant women but also that of women of childbearing age. It has been found that up to fifty percent of women who become pregnant will not realise until after their sixth week of pregnancy, meaning that they may be unknowingly exposing their foetus to alcohol at a particularly vulnerable time (Floyd et al., 1999; Jones et al., 2006). Tsai and Floyd (2004) found that in 2002 54.9 percent of childbearing aged women reported some level of alcohol use. This is a high percentage of women who could possibly be in the early stages of pregnancy yet still continuing to consume alcohol. Women who do not know that they are pregnant may also partake in binge drinking, which puts the foetus at an even higher risk of harm, due to the increased concentration of alcohol in the mother's bloodstream. Binge drinking

has been defined by the National Health Service as consuming eight or more units of alcohol in one session for men and six or more units of alcohol in one session for women (National Health Service, 2008). In 2002 twenty-seven percent of women aged sixteen years to twenty-four years in the United Kingdom reported binge drinking at least once a week (Office for National Statistics, 2002).

1.4 Aims and Objectives for the Dissertation

This study has several aims and objectives, created to ensure that the research carried out is focused. The aims of the study are:

- To establish what current research, defined as research carried out from 1990 until the present day, has uncovered with regard to alcohol consumption during pregnancy.
- To examine this research to establish whether there is a level of alcohol able to be consumed during pregnancy without causing adverse effects to the foetus.
- To examine current guidelines which have been issued on the use of alcohol during pregnancy in the United Kingdom.
- To compare these guidelines to those issued in other selected countries.
- To examine both government endorsed and other publicly available advice regarding alcohol consumption during pregnancy, accessible for women in the United Kingdom.

- Finally to review the advice concerning prenatal alcohol use from the evidence, guidelines and publicly available literature to find any correlation or discrepancies between the conclusions.

1.5 Rationale for the choice of topic

After carrying out preliminary research into the area of alcohol consumption during pregnancy certain discrepancies were uncovered. Previous studies have found conflicting reports as to whether lower levels of prenatal alcohol consumption are independently associated with adverse mental health or cognitive outcomes in exposed children. This has raised the question of whether there is a safe level of alcohol consumption during pregnancy (Sood et al., 2001; Nordstrom et al, 2004) and has led the Royal College of Obstetricians and Gynaecologists (RCOG) to call for further studies to further address the question of a level of alcohol that is safe to drink in pregnancy (Jones et al., 2006). A preliminary literature search also revealed discrepancies between the guidelines that have been produced for alcohol consumption during pregnancy and research by Koren et al. (2003) examined this concept. Koren et al. (2003) found that doctors are being directed to advise women to abstain from consuming any alcohol during pregnancy whilst simultaneously reassuring those who were inadvertently exposed that, although the threshold is unknown, there is currently no widely established evidence of foetal risk. This is felt to be a 'double message' and is often poorly understood by the public (Koren et al., 2003). For these reasons a review of the literature and policies around this subject is required to attempt to examine formally any level of discrepancy.

Mukherjee et al. have stated that alcohol consumption during pregnancy is a major public health concern because of potential adverse long term physical, neurodevelopmental and behavioural consequences for children (Mukherjee et al.,

2005). A study by Yeigh and Kean, also carried out in 2005 encompassed a review of the literature surrounding alcohol and pregnancy. A recommendation deriving from this review is that knowledge about the effects of alcohol is an important factor in eliciting change in existing attitudes toward consumption (Yeigh and Kean, 2005). Nurses and midwives who work within an obstetric or gynaecological setting will encounter pregnant women and should be able to advise them on health issues with confidence that their information is correct to the best of their knowledge. However, not only healthcare professionals caring for adults will encounter the effects of alcohol consumption during pregnancy. Some children will be born with some form of Foetal Alcohol Effect and will need care both in hospital and the community. Research has found that professionals who work with persons affected by Foetal Alcohol Syndrome could benefit from better understanding of the disorder and services available for affected persons and their families (Bertrand et al., 2005). Therefore studies and reviews such as this dissertation may benefit Paediatric nurses as it will help to enable them to gain more knowledge about how the condition is caused and how it can be prevented. Research carried out into the effects of Foetal Alcohol Syndrome on families found it to be essential for nurses to understand the complex problems that face affected children and their families in order to establish a professional relationship with them (Gardner, 2000).

1.6 Definition of a Literature Review

A Research Literature Review is a systematic and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work produced by researchers, scholars and practitioners (Fink, 2005). It involves the critical reading of the selected literature to discover how it can be useful to the current research (Parahoo, 2006) and is made up of a set of tasks to achieve this. These tasks include selecting research questions, selecting

databases and search terms, and applying practical screening criteria to obtain only articles that are relevant. Methodological screening criteria can then be applied to the selected articles to evaluate the adequacy of their coverage before reviewing the studies and synthesising the results. The review will then base its conclusions on original work of past researchers (Fink, 2005). A literature review also states its provenance within the research literature and provides a complete description of the operations used to analyse the data (Locke et al., 2004).

1.7 Rationale for choosing a Literature Review

Carrying out a literature search and review can be a means of identifying and interpreting what is already known about a topic so that the proposed study can then be placed into this context (Fink, 2005; Parahoo, 2006). This process will be used throughout the dissertation to gain knowledge about the research previously carried out into alcohol intake during pregnancy, so that any gaps or discrepancies in the research could be highlighted, indicating the direction in which further research could expand into. This dissertation is aiming to discover what the current research literature recommends with regard to alcohol use during pregnancy, before comparing these recommendations to guidelines and information released to the public. Therefore by applying a literature review an evidence base of current research could be constructed so that conclusions gained from the research could be used to support or argue against recommendations issued in the current guidelines available to the public.

Chapter 2: Evidence

2.1 Introduction to chapter

This chapter will investigate the notion of a 'safe level' of alcohol use by pregnant women by searching for and examining research which has been carried out into the effects of alcohol on the foetus and more specifically whether differing amounts of alcohol consumed produce a greater or lesser scale of effects. This research will be used to determine if the literature surrounding the subject has established a level of alcohol that women are able to consume without producing any harmful effects to their unborn child.

2.2 Methodology for Evidence

2.2.1 Databases and Keywords used

To carry out the research needed to gain further knowledge of the effects of drinking alcohol during pregnancy online databases were used to locate journal articles. These databases were:-

- The Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Embase
- Medline
- Psychinfo.

Keywords were used in the searches to locate articles relevant to the subject and these were 'alcohol', which also included alcohol consumption, 'pregnancy', which also included attitude to pregnancy and 'safe level', which was searched as a keyword. Searches were carried out for each individual keyword and then combined to search for articles containing more than one of the keywords. The

Reference lists of the journal articles were also examined and articles from these lists relating to the dissertation were located and studied further.

2.2.2 Inclusion and Exclusion Criteria

Fink (2005) states that preliminary literature searches always yield many articles, but only a few are relevant. This was found to be the case when searching for research for this literature review so inclusion and exclusion criteria were created to screen the literature to obtain only articles that were of interest (Fink, 2005). Fink (2005) also suggests that efficient inclusion and exclusion criteria should be practical so that the articles obtained are all potentially usable. To do this it is important that they cover the topic of interest, are in a language of choice, and are in a respectable publication that can be accessed when needed (Fink, 2005).

Following this advice the following inclusion criteria were used for the literature search:-

- Only research published in English language.
- Only research carried out from 1990 to the present day.
- Only research which has been peer reviewed and published and relating to the subject.

The research must be carried out on female human participants and the pregnant women studied must have consumed only alcohol through their pregnancy and not used any other substances.

Therefore the exclusion criteria set for the review were; any research published in a language other than English, any research published before 1990 unless classed as seminal research in this field, any studies or research that have not yet been published, studies that were carried out on animal subjects and research carried

out involving drugs or other substances instead of or in conjunction with alcohol during pregnancy.

2.2.3 Theoretical Frameworks

When carrying out searches for literature Hart's Bibliographical Framework for Articles and Journals (Appendix 1) (Hart, 2001) was used, as knowledge of a bibliographical framework relevant to journal articles can assist in defining a time frame for a search (Hart, 2001). Using a framework when searching for literature also allowed a structure to be applied to searching which aided the way in which research was found.

Methodological quality refers to how well, scientifically, a study has been designed and implemented to achieve its objectives. The highest quality studies adhere to rigorous research standards (Fink, 2005) so therefore when looking at research the results of these studies will be the most accurate to base conclusions upon. To ensure that the research obtained and used in the literature review was of a high quality Crombie's set of standard appraisal questions were used to critically appraise the research and assess the quality of the literature (Crombie, 1996). Crombie states that there are several questions which should be asked of all research papers, irrespective of the method which has been used (Appendix 2). These questions include 'was the sample size justified?' which is important as studies which are too small may fail to detect clinically important effects and therefore the sample size in the study needs to be large enough for the results to present an accurate analysis of the situation (Crombie, 1996). Another important question posed by Crombie is 'did untoward events occur during the study?' as in some studies original subjects from the sample size may become difficult to contact or may also choose to leave the study. Crombie suggests that this problem should have been identified using a pilot study so if it shows to be a

regular occurrence in the main study the researcher may have been inadequately prepared. Missing data from the results could also lead to a level of bias in the study results (Crombie, 1996). The full set of standard appraisal questions were used to assess the research found for review to ensure that the results being obtained were of a high quality.

2.3 Findings from the Research

2.3.1 Results and Recommendations from Research Studies

The research studies reviewed for this chapter used different methods with the aim of establishing a level of alcohol able to be consumed by pregnant women without causing any adverse effects to the foetus, as detailed in the table. Investigating the methods of the study allowed for the recommendations to be compared more critically as factors such as the sample size of the participants and the methods used to record alcohol intake could increase or decrease the validity of a study. The recommendations from each study were also compared to establish whether researchers are producing results which lead to the same conclusions on the subject or whether contradictory recommendations are being produced from the research. The methods and recommendations from the studies were then put into table form to allow for easier comparison between the studies.

Table 1: Findings from Research Evidence

Researcher	<i>Barr and Streissguth</i>	<i>Sood et al</i>	<i>Nayak and Kaskutas</i>	<i>Day and Richardson</i>	<i>Sayal et al</i>
Year	2001	2001	2004	2004	2007
Country	USA	USA	USA	USA	UK
Participants	Out of 1529 women receiving prenatal care over two hospitals, 500 chosen for follow up	>2400 women at a maternity centre screened and 506 chosen for follow up	1601 women aged 18-39 years from 50 states of USA, of this 72 currently pregnant	Women aged >18 years in 4th month of pregnancy, 1360 women screened and 763 chosen for follow up	Pregnant women in Avon between April 1991 and December 1992 – 12678 pregnancies and 8046 babies chosen
How was alcohol intake recorded?	Retrospective interview at 5th month of pregnancy	Women interviewed at each prenatal visit about alcohol use over previous 2 weeks	Retrospective Computer aided telephone interviews (CATI)	Retrospective interview with mother at 4th month of pregnancy and then at end of 2nd and 3rd trimester	Self-report questionnaires at regular intervals
Which part of pregnancy?	First 5 months	2 week intervals throughout whole pregnancy	Alcohol intake over past year recorded so included before and after pregnancy	Whole pregnancy	First trimester, questionnaires collected in at 18 weeks gestation
When were the babies assessed?	At birth, 4 years and 7 years	At aged 6 to 7 years	Babies were not assessed	At birth, 8 months, 18 months, 3 yrs, 6 yrs, 10 yrs, 14 yrs	47 months, 81 months and 93-108 months
How were the outcomes of babies assessed?	Examination of the child by a dysmorphologist	Wechsler Preschool and Primary Scale of Intelligence-Revised Manual and Achenbach Child Behaviour Checklist	Babies were not assessed	Child's weight, height, head circumference and palpebral fissure width measured at each age	Strengths and Difficulties Questionnaire (SDQ)
Recommendations for alcohol use	No safe level of alcohol use in pregnancy	Adverse effects reported at 1 alcoholic drink per week so no safe level of alcohol use	No safe level of alcohol use	No safe level of alcohol use	Adverse effects at less than 1 drink per week especially in the 1st trimester so no safe level

2.3.2 Critique of Research Findings

The study carried out by Barr and Streissguth in 2001 investigated the association between maternal alcohol use and foetal alcohol spectrum disorders and provided the recommendation that there is no amount of alcohol which does not have any adverse effects on the foetus and that should be considered safe to consume whilst pregnant (Barr and Streissguth, 2001). This study used a large sample size by covering the two maternity areas and then selecting five hundred women and babies for follow up. Also when assessing the outcomes of children whose mothers consumed alcohol during their pregnancy a Dysmorphologist was used to examine the children, who would have specialist knowledge of the characteristics of effects brought on by prenatal alcohol exposure and therefore would be able to accurately diagnose any abnormalities observed as part of a Foetal Alcohol Spectrum Disorder. This would ensure that any associations made between the outcomes of children in the study and alcohol use would be based on clinical expertise. When assessing the children for any adverse outcomes they were examined not only at birth but also followed up at four and seven years of age thus allowing for any effects not detected at birth to be picked up on later in life. However there were obvious limitations to Barr and Streissguth's work. Although the outcomes of the children were examined thoroughly, the study relied on maternal self reporting of alcohol. This was done through a retrospective approach of an interview during the fifth month of pregnancy in which women were asked to recall their alcohol use during the past five months. When relying on recall over such a long period of time it is possible that women may underestimate the amount of alcohol that they have consumed, or omit episodes of drinking which may have been forgotten about at the time of the interview. When making recommendations about the consumption of particular levels of alcohol with regard to adverse foetal effects this is a factor which would largely threaten the validity of any such recommendations because the effects produced

may actually be due to a greater or lesser amount of alcohol than disclosed in the interviews. This would be due to the fact that researchers were unable to ascertain if the women were recalling the exact amount of alcohol they had consumed. Another limitation to Barr and Streissguth's study is that by only collecting data on alcohol consumption in the first five months of pregnancy they are unable to make any recommendations for alcohol use during a whole pregnancy because their data collection does not support such recommendations.

Another study carried out in the same year by Sood et al. (2001) explored the issue of a dose-response effect of alcohol on the foetus, specifically investigating whether or not differing levels of alcohol consumption produced differing levels of effect on child behaviour. Just like Barr and Streissguth (2001), Sood et al. (2001) also used a large sample size to validate their research and used the technique of interviews to collect data surrounding alcohol use during pregnancy. However the interviews for Sood et al.'s study were carried out when women attended clinics for prenatal visits. For these studies they only enquired about alcohol use over the previous two weeks. Whilst not providing such a comprehensive picture of alcohol use as Barr and Streissguth, by only asking women to recall the previous two weeks it would be more likely that the alcohol use reported in Sood et al.'s study would be more accurate. Although only collecting data over two week periods, this study did examine alcohol use over the whole pregnancy thus allowing for a wider base of research to support recommendations upon. When observing for any adverse effects in the children, this study focused on behavioural effects and two methods of data collection were used. These were The Wechsler Preschool and Primary Scale of Intelligence-Revised Manual (Appendix 3) and the Achenbach Child Behaviour Checklist (Appendix 4), which ensured that data not only relied upon reporting by the parents but also upon observed activities carried out by the child.

The main limitation that can be observed from the details of this study is that child behaviour was assessed only once, between six and seven years of age. Some behaviour present as a younger child may have changed as the child got older but due to limitations this study may not pick up on this and behaviour changes presenting later in childhood would also not be shown in the results. For this reason further research would need to be carried out in this area studying the effects observed at other ages during childhood to provide more evidence to support any conclusions. The conclusions reached by Sood et al. (2001) were that significant differences in aggressive and externalised behaviour were observed in the children who had been exposed to as little as one alcoholic beverage per week. This led them to the recommendation that there is no 'safe' level of alcohol use during pregnancy (Sood et al., 2001).

The research study carried out by Nayak and Kastutas (2004) took on a different approach to other studies in that it focused on alcohol use by women of childbearing age. Therefore its participants included some pregnant women and some non-pregnant women. The recommendations from this study were that there is no safe level of alcohol use for pregnant women. Nayak and Kaskutas also make the statement that the threshold for drinking during pregnancy remains a subject of controversy. However several limitations to this work can be observed which could decrease the validity of this recommendation. The most important fact being that this study investigated the alcohol use of women but did not follow this up by assessing the outcomes of any of the babies born to these women. Thus it did not provide any evidence base of the outcomes of prenatal alcohol exposure to support their recommendations. Another major limitation to this study was the heavy reliance on recall from the women regarding their alcohol use. The participants in the study were interviewed over the telephone and during the interview were asked to recall their alcohol intake during the past year. This length of timescale would be very difficult for most people to

remember, possibly leading to women underestimating the amount of alcohol consumed over the year. What could be seen as a positive aspect to Nayak and Kaskutas' work was that the interviews were conducted over the telephone which could be seen as a less intimidating form of questioning for some women, especially those who may feel that they will receive criticism for their drinking behaviours. This issue has been previously raised in research carried out by Makarechian et al. (1998) who stated that the reason women may under-report their alcohol consumption during pregnancy could be attributed to the stigma currently associated with drinking alcohol whilst pregnant (Makarechian et al., 1998). If being interviewed over the phone where face to face contact is not established some women may feel that they can be more honest about alcohol as they are unable to view body language or facial expressions which could be intimidating if the researcher displayed any disapproving emotions. However although this may increase women's honesty about alcohol use the fact that women are expected to recall their alcohol use from the previous twelve months in this study allows for a large amount of what Polygenis et al. (1998) describe as 'recall bias'. This is described as an inability to remember the accurate timing and amount of alcohol due to the delay between consumption and interview (Polygenis et al., 1998). This coupled with the fact that no follow up assessments were carried out on children of women who drank alcohol during pregnancy provides a very weak basis of support for Nayak and Kaskutas' recommendations.

Day and Richardson carried out research in the same year as Nayak and Kaskutas (2004) analysing the effects of prenatal alcohol exposure on growth, meaning that unlike Nayak and Kaskutas, their study assessed the outcomes of children chosen for follow up. Day and Richardson's study also encompassed other positive aspects which would increase the validity of any recommendations. This included a large sample size of 763 pregnancies chosen for follow up, studying alcohol use throughout the whole pregnancy and the numerous times during

childhood that children were assessed for adverse outcomes in the study. When comparing Day and Richardson (2004) to the other studies under review for this chapter, Sood et al. (2001) were the only other study to collect data on alcohol use throughout whole pregnancies. The other studies focused upon the first and second trimester which could mean that important effects caused from prenatal alcohol exposure in the last few months of pregnancy may be unaccounted for. Day and Richardson (2004) carry out the most assessments on children from birth all the way up to fourteen years of age, whereas the other studies stop their follow up much earlier in childhood, meaning that outcomes presenting later in childhood may be neglected. This can be seen from Day and Richardson's work as it was found that at fourteen years of age growth continued to be significantly predicted by prenatal alcohol exposure (Day and Richardson, 2004), effects that would have been missed in other studies. In comparison to the studies previously discussed Day and Richardson also recommended that there is no safe level of alcohol that can be consumed during pregnancy without causing any adverse effects to the foetus whether in-utero or later in life (Day and Richardson, 2004). This was due to the fact that the conclusions gained from their research were that the effects of prenatal alcohol exposure were shown to be dose-response and therefore it was not only large alcohol amounts that had adverse effects on the child (Day and Richardson, 2004). As with other studies the work from Day and Richardson did have limitations which may have affected their conclusions because, as seen with many studies regarding alcohol use, the interviews relied on self-reporting of alcohol and also upon recall of alcohol use from the previous three months which allows for underestimation.

The last and most recent work studied was that of Sayal et al. (2007) which examined the possible link between prenatal alcohol consumption and childhood mental health problems. This study reached the same conclusions as the work of Sood et al. in 2001 that adverse outcomes could be observed in children exposed

to such small amounts as less than one alcoholic drink per week and therefore does not specify an amount of prenatal alcohol, which they deem to be harmless to the foetus (Sayal et al., 2007). Many positive aspects to this study can be observed which would support the conclusions reached such as the very large sample size of participants used for the study and the methods of gaining information about alcohol use among pregnant women. Sayal et al.'s methods involved self-report questionnaires regarding alcohol use that women completed during the first trimester of pregnancy. These questionnaires could be completed at home rather than having to attend an interview with a researcher. This could have resulted in women feeling less intimidated than if they had been asked about their alcohol use in person, allowing for more honesty. This method of data collection is supported by Thornberry et al. who state that due to social desirability, some pregnant women particularly heavy drinkers, may be more likely to reliably report their actual alcohol use in a computerised or 'pencil and paper' task rather than through a face to face interview (Thornberry et al., 2002). Also, as previously discussed by Polygenis et al. (1998), the problem of recall bias would be less prominent in this study because women were completing the questionnaires on a regular basis and therefore not having to recall alcohol use over large periods of time. One limitation to the study when examining the methods used though is the fact that information about alcohol use was only collected during the first trimester, so any effects brought about by second and third trimester alcohol use could have been overlooked. When examining the methods used to assess children for mental health problems Sayal et al. were thorough in their assessments by assessing children three times at different ages and also by using both parents and teachers to aid their assessments. Sayal et al. used the Strengths and Difficulties Questionnaire (SDQ) to collect information about children's mental health. The first copy being the SDQ for three to four year olds (Appendix 5) completed by the parents when the child was almost four years old. Then the SDQ for four to sixteen year olds (Appendix 6) was again

completed by parents when their child was almost seven years of age. A further SDQ was completed by the child's school teacher at between seven and nine years of age, the SDQ for teachers of four to sixteen year olds (Appendix 7). By collecting information from both parents and teachers, Sayal et al. would have been able to assess the child's behaviour in and out of the home. Also, by having another person present in the child's life carrying out assessments it would have reduced any bias on the part of the parents who may view their child's behaviour in a different way to others.

2.4 Summary of key findings

It can be observed from the table of research studies that the main recommendation being provided by the literature is that the evidence suggests that there is no level of alcohol that can be consumed whilst pregnant that will not produce any adverse outcomes for the foetus. However although some of the studies examined for this chapter produce a higher level of evidence to support their conclusions each study has limitations which can affect the validity of their results. When examining the studies in terms of their use for healthcare professionals such as doctors, nurses and midwives who may be accessing current research then although slight variations are presented the main recommendation is the same among all the studies in this chapter which provides a consistent message of advice. Further chapters of this dissertation will investigate other areas of the literature such as policy guidelines to gain an understanding of whether or not this recommendation from the research is being projected to the wider audience of the general public.

2.5 Limitations to the Evidence

It has been noted by a number of researchers that the conclusions and recommendations formulated from their research cannot always be completely accurate as when carrying out research based upon the self-reported alcohol use of pregnant women it cannot be certain that the alcohol consumption that they report is the true amount actually consumed and as discussed by other researchers an accurate measure of alcohol consumption is critical in determining the relationship between maternal alcohol consumption and reproductive outcomes (Makarechian et al., 1998). This could apply to women who may underreport the amount of alcohol they drink in pregnancy because they feel that it would generate criticism or stigma or it could also be due to the fact that women are simply underestimating the amount of alcohol in a single alcoholic drink. Underestimation of prenatal alcohol use has been cited as a problem with research especially when focusing on low and moderate levels of prenatal alcohol use (Makarechian et al., 1998; Plant et al., 1999). Unless drinking in a public house or restaurant where the amount of alcohol in a drink is measured out, one glass of an alcoholic drink, such as a spirit and a mixer may actually contain much more alcohol than that which the government class a standard unit. This was noticed to be the case in a study by Mengel et al. who found that up to forty percent of pregnant women were underreporting their actual alcohol use (Mengel et al., 2006). Researchers need to take this limitation into account but it is not something that can be easily standardised. One way in which researchers could attempt to increase the validity of the results would be to ensure that all participants were thoroughly clear about the number of units in an alcoholic drink to try and reduce underestimation. This, however, would not reduce the underreporting that takes place due women's fear of criticism. Also when basing recommendations upon results gained from a sample size, researchers cannot always ensure that they are carrying out research on a true cross-section of the

population. As observed in all the studies, with the exception of Nayak and Kaskutas (2004), the participants selected for follow up were accessed through hospitals or maternity clinics which automatically excluded women who may be pregnant but not accessing any prenatal care. This could occur for many reasons but of particular importance to these studies would be women who may use alcohol or other drugs to such an extent that it interferes with their prenatal care, causing them to miss clinic appointments or scans (Sood et al., 2001). This would mean that the results from such research would not be applicable to the whole population and could limit the validity of their recommendations.

Another problem with some of the research evidence was the lack of specificity in the recommendations. Not all of the studies observed referred to alcohol use in terms of standard units or grams of alcohol, instead giving advice in the form of alcoholic drinks, such as Sood et al. (2001) and Sayal et al. (2007) which allows for misinterpretation of the amount of alcohol that is seen to cause no harm to the foetus. Waterson and Murray-Lyon stated in 1990 that if giving information about the adverse effects of alcohol then researchers must be highly specific in their advice (Waterson and Murray-Lyon, 1990), yet eighteen years on and the advice surrounding the subject is still unclear. For the recommendations to be easily interpreted and explained to other people all studies need to standardise the way in which they classify the amount of alcohol in a drink and make sure that this standardisation is made clear in their presentation.

Chapter 3: Guidelines

3.1 Introduction to Chapter

This chapter will review the guidelines for alcohol use in pregnancy set out by the Governments and major professional healthcare bodies of the United Kingdom and four other major English-speaking countries, Australia, the United States of America, Canada and New Zealand. These will be compared to establish whether the guidelines set out for alcohol consumption correlate between the countries or if conflicting advice is being distributed. The results from this chapter will also be compared to the results from the evidence chapter to determine if the guidelines created have been based on scientific research.

3.2 Methodology for Guidelines

3.2.1 Databases and Keywords used

As in the evidence chapter, online databases were used to locate the information needed for this section. The databases used were:

- The Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Embase
- Medline
- Psychinfo
- The National Service Frameworks database.

The Keywords used in these searches were 'alcohol', which included alcohol consumption, 'pregnancy', which included attitude to pregnancy and 'guidelines', which also included practice guidelines. Searches were carried out for each individual keyword and then combined to search for articles containing more than

one of the keywords. The journal articles found were studied to find the guidelines set out by each country and the reference lists of the articles were also examined so that the guidelines from each professional body could be observed in greater detail.

3.2.2 Inclusion and Exclusion Criteria

Inclusion and Exclusion criteria were set for the literature search to ensure that all the research pieces gathered were relevant and of a high standard and these were the same criteria as specified in the previous evidence chapter.

3.2.3 Theoretical Frameworks

As in the Evidence chapter when searching for guidelines Hart's Bibliographical Framework for Articles and Journals Model (Appendix 1) (Hart, 2001) was used. Crombie's set of standard appraisal questions (Appendix 2) (Crombie, 1996) were also used to maintain that a high quality of research was being examined.

3.3 Rationale for Choice of Countries to be included

When exploring the guidelines for alcohol consumption in pregnancy for the United Kingdom it was both interesting and useful to compare these guidelines to those set out in other countries, which gave a larger perspective on the issue and also allowed it to be seen whether or not the same message is being portrayed to women worldwide as well as nationally. As previously mentioned the countries chosen were Australia, the United States of America, Canada and New Zealand and this was due to the fact that these are English speaking countries so the research found would need no translation. Also as they are all well developed countries education and health services would be of a similar level to that of the United Kingdom, allowing for easier comparison between the countries.

3.4 Presentation of the Guidelines for different countries

3.4.1 The United Kingdom

Table 2: Guidelines for Alcohol Use during Pregnancy in the UK

Source	Advice		
	Abstinence	Any Specific Amount	Any additional comments
<i>Prime Minister's Alcohol Harm Reduction Strategy (2004)</i>	Not specified	No more than 1 unit per day*	None specified
<i>Royal College of Obstetricians and Gynaecologists (2006)</i>	Safest choice	1-2 units once or twice a week*	Binge drinking in early pregnancy may be particularly harmful
<i>Department of Health (2001)</i>	Safest choice	1-2 units once or twice a week*	Women should avoid getting intoxicated.
<i>National Institute for Clinical Excellence (2003)</i>	Not specified	No more than 1 unit per day*	None specified

*In the United Kingdom a standard unit is classed as containing 8g of alcohol (RCOG, 2006).

The Government guidelines for the United Kingdom are produced by the Prime Minister's Strategy Unit as part of the Alcohol Harm Reduction Strategy for England (Prime Minister's Strategy Unit, 2004) and offer the same guidance as the National Institute of Clinical Excellence (NICE, 2003), however this guidance is sparse, only stating that no more than 1 unit per day should be consumed and giving no mention to the question of abstaining from alcohol completely, as other professional bodies take into account. The Royal College of Obstetricians and Gynaecologists (RCOG) and the Department of Health provide the same basis of advice, both stating that abstinence is the safest choice and giving a specific amount of alcohol that they consider can be consumed without causing harm to

the development of the foetus. It is clear, however, from viewing the various guidelines produced in the United Kingdom that there are many differences between the recommendations. For example the Department of Health advise a maximum weekly total of four units per week (Department of Health, 2001) whereas the National Institute for Clinical Excellence recommends one unit per day, which would generate a weekly maximum of seven units. If these differing amounts were consumed over a number of weeks the differences in the total units of alcohol drank would increase dramatically.

The guidelines from the Royal College of Obstetricians and Gynaecologists have been updated in recent years and now suggest a much smaller amount of alcohol that can be consumed by pregnant women. The original guidelines produced by this organisation dated back to 1996 and stated that 'no adverse effects on pregnancy outcomes have been proven with a consumption of less than 120g of alcohol, approximately 15 units per week' (RCOG, 1996), a much higher amount than currently recommended.

3.4.2 Australia

Table 3: Guidelines for Alcohol Use during Pregnancy in Australia

Source	Advice		
	Abstinence	Any Specific Amount	Any additional comments
<i>Australian Government Department of Health and Ageing (2003)</i>	May be considered	Up to 2 units per day but no more than 7 per week*	Women should avoid getting intoxicated
<i>National Health and Medical Research Council (2001)</i>	May be considered	Up to 2 units per day but no more than 7 per week*	Women should avoid getting intoxicated
<i>Ministerial Council on Drug Strategy (2006)</i>	Safest choice	Up to 2 units per day but no more than 7 per week*	No level can be assumed to be completely safe. Women should avoid getting intoxicated
<i>Royal Australian College of General Practitioners (2005)</i>	Safest choice	Not specified	Women should limit their drinking during pregnancy
<i>Australian College of Midwives (2006)</i>	Safest choice	Up to 2 units per day but no more than 7 per week*	None specified
<i>Australian Medical Association (2005)</i>	Safest choice	No amount should be advised	None specified

* In Australia a standard unit is classed as containing 10g of alcohol (Australian Government Department of Health and Ageing, 2003).

As can be seen from the results table the guidelines produced by the Australian government and professional bodies of healthcare correlate more than those of the United Kingdom as all of the organisations that specify a specific amount of alcohol that is able to be consumed, advise the same amount. The Royal Australian College of General Practitioners and the Australian Medical Association give the least specific advice as they do not specify an amount and the former state only that women should limit their drinking (Royal Australian College of General Practitioners, 2005; Australian Medical Association, 2005). This can be interpreted in very different ways and could result in major differences in alcohol

consumption because, for example, a woman who drank alcohol heavily before her pregnancy may limit the amount of alcohol she drinks whilst pregnant but as a higher level was previously being consumed this limitation may still result in a much higher alcohol intake than that of a woman who was an infrequent alcohol consumer before pregnancy.

The Australian guidelines correlate with those United Kingdom guidelines that advise a larger amount of alcohol consumption, the Prime Minister's Alcohol Harm Reduction Strategy and the National Institute for Clinical Excellence, by advising no more than seven units of alcohol per week however an Australian unit is larger than that of a U.K unit, making it a larger amount of alcohol in total. As the U.K organisation the Royal College of Obstetricians and Gynaecologists have updated their guidelines in recent years, so have the Australian organisation the National Health and Medical Research Centre (NHMRC). The current NHMRC guidelines published in 2001 reversed the previous 1992 NHMRC policy advising women to abstain from alcohol during pregnancy (NHMRC, 1992) to now focus more on avoiding a high maternal blood alcohol level and recommending that abstinence may be considered but women should also be advised that no harm will be caused to the foetus by drinking up to seven units of alcohol per week (O'Leary et al., 2007). This could be described as a step in the opposite direction to the U.K Royal College of Obstetricians and Gynaecologists, who have adapted their guidelines to advise a lower level of alcohol consumption than before.

The Ministerial Council on Drug Strategy advise that abstinence from alcohol is the safest choice during pregnancy but not that it is the only option and provide an amount of alcohol deemed to cause no harm for those women that still choose to consume alcohol whilst pregnant. The Council state that an abstinence-based approach is not recommended by their organisation partly due to the suggestion that this message could result in disproportionate anxiety to those pregnant

women who have already consumed alcohol before becoming aware of the guidelines and that this anxiety could lead to precipitous decisions to terminate a pregnancy (Ministerial Council on Drug Strategy, 2006). This view may also be the reasoning behind the NHMRC change in recommendations.

3.4.3 The United States of America

Table 4: Guidelines for Alcohol Use during Pregnancy in the USA

Source	Advice		
	Abstinence	Any Specific Amount	Any additional comments
<i>United States Surgeon General (2005)</i>	Advised	No safe amount	If a woman has already drunk alcohol during pregnancy she should stop to minimise further risk
<i>National Institute on Alcohol Abuse and Alcoholism (2005)</i>	Advised	No safe amount	None specified
<i>U.S Department of Health and Human Services (2005)</i>	Advised	No safe amount	Heavy drinking may have serious effects on the baby's development
<i>American College of Obstetricians and Gynaecologists (2006)</i>	Safest choice	Small amounts unlikely to cause harm but no known safe amount	Women are best advised to refrain from alcohol

As can be seen from the table abstinence is advised by all major healthcare bodies in the United States of America. No amount of alcohol is recommended as harmless to the foetus and although the American College of Obstetricians and Gynaecologists state that a small amount of alcohol is unlikely to cause harm they still advise that women are best to avoid all alcohol whilst pregnant. The United States Department of Health and Human Services advises that heavy drinking may have effects on child development and also discuss further that moderate drinking during pregnancy may also have developmental and

behavioural consequences for the child in later life (United States Department of Health and Human Services, 2005). The guidelines produced in the United States of America are different to that of both the United Kingdom and Australia creating further contrasting advice for women around the world.

3.4.4 New Zealand

Guidelines for Alcohol Use during Pregnancy in New Zealand

Source	Advice		
	Abstinence	Any Specific Amount	Any additional comments
<i>New Zealand Ministry of Health (1998)</i>	Safest choice	No safe amount	None specified
<i>Alcohol Advisory Council of New Zealand (2005)</i>	Safest choice	No safe amount	None specified

Although New Zealand is extremely close to Australia, the guidelines produced by the healthcare bodies of the two countries could not be more different. Whereas most of the advice given in Australia provides an amount of alcohol 'safe' to drink, an amount which is the highest of all the countries investigated, New Zealand provides no such amount, with both organisations clearly stating that there is no amount that has been shown to be consumable without causing harm to the foetus and that pregnant women should abstain from alcohol. This advice is different again to that of the United Kingdom but is the same as the guidelines issued in the United States of America, the first of the countries to correlate in their advice so far.

3.4.5 Canada

Guidelines for Alcohol Use during Pregnancy in Canada

Source	Advice		
	Abstinence	Any Specific Amount	Any additional comments
<i>Health Canada National Guidelines for Childbearing Years (1999)</i>	Safest choice	Risk from low levels is minimal but no specific amount given	Risk is relative to the amount of alcohol consumed
<i>Public Health Agency of Canada (2007)</i>	Safest choice	No safe amount	None specified
<i>Canadian Medical Association (2000)</i>	Safest choice	Not specified	None specified
<i>Society of Obstetricians and Gynaecologists of Canada (1998)</i>	Safest choice	Occasional intake is unlikely to cause harm but no amount specified	None specified

Canada gives advice which is more similar to the advice of its nearby country the United States of America by promoting abstinence as the safest choice and not specifying any amount of alcohol deemed harmless to drink during pregnancy. However two of the healthcare bodies do state that minimal and occasional intake has low risk and is unlikely to cause harm. This advice may be dangerous as by not specifying any amount the guidelines leave the phrases 'low levels' and 'occasional intake' open to interpretation by the public. For those women that consumed alcohol daily before their pregnancy, occasional may be seen as drinking alcohol weekly whereas for others it may be seen as a monthly occasion. The Canadian guidelines are most similar to those issued from the United States of America and New Zealand, although not quite as strict as New Zealand. However, as they do not specify any amount of alcohol they are once again in contrast with the United Kingdom and Australia.

3.5 Summary of key findings

It can be seen from the tables of guidelines that the advice produced by both the governments and professional healthcare bodies differs between countries, which leads to the question of how many of the guidelines produced reflect a researched evidence base and if so how reliable is the evidence studied if the same standard cannot be set throughout all countries.

Australia advise the highest amount of alcohol during pregnancy, with most of the organisations stating that up to seven units of alcohol per week is considered harmless to the foetus, especially taking into account the fact that a standard unit contains more grams of alcohol than that of a standard unit in the United Kingdom. The United Kingdom provide the second most lenient guidelines, with two of the organisations advising up to seven units of alcohol per week but the other two advising women that they should not cause harm by drinking four units of alcohol per week. When taking into account the size of a standard unit of alcohol in the United Kingdom, eight grams, then this is a total of thirty-two units per week, less than half of the amount than that advised in Australia, which would total seventy grams of alcohol per week. Even when advising that up to seven standard United Kingdom units of alcohol this still does not provide the same volume of alcohol as Australia because seven U.K units only totals fifty-six grams of alcohol per week.

The United States, New Zealand and Canada all deliver a similar message, different to that of Australia and the United Kingdom, that abstinence is the safest choice and none of the organisations researched for the review mention a specific amount of alcohol that women should consider harmless or low risk to the foetus. However one of the main critiques that could be made from the guidelines is the lack of definition that some organisations offer. Two of the professional

healthcare bodies in Canada refuse to specify an amount, only mentioning the phrases occasional and low risks which are easily open to interpretation. This can also be seen in the United States of America. Only New Zealand provides clear advice that abstinence is the safest option a woman can choose and that there is no amount of alcohol harmless to drink.

Another critique is that in some of the countries the guidelines produces different advice, not only worldwide but nationally also. New Zealand is the only country not guilty of this conflict in advice, as although countries such as the United States of America provide very similar guidelines between organisations there are still some non-specific parts of advice which as previously discussed may be interpreted differently by different women at different stages of their pregnancy possibly leading to a wide variety in what is believed to be alcohol use harmless to the foetus.

Chapter 4: Publicised Information

4.1 Introduction to the Chapter

This chapter will locate and examine published literature which is distributed to pregnant women in the United Kingdom and is easily accessible to them, such as internet sources, leaflets and books. When searching for literature in terms of accessibility it must be literature available to the general public so therefore that which does not require a subscription or password to view, as with some research studies. When acquiring literature in the forms of leaflets and books it must also be present in a place which is easily viewed by pregnant women, such as available from a health centre or clinic, or literature which midwives and doctors distribute.

The recommendations from this form of literature will be examined and compared to establish whether clear and consistent advice regarding the consumption of alcohol during pregnancy is being projected to pregnant women as members of the general public. If any amount of alcohol is recommended as that which can be consumed without causing harm to the foetus then this will be looked at further and later compared to those recommendations previously discussed in the evidence and guidelines chapter to establish if the findings from scientific studies are being filtered through to the public.

4.2 Methodology

4.2.1 How the Literature was located

The methods of literature searching for this chapter differ from that of the previous sections. As the previous chapters were examining recommendations produced from research and academic studies then online databases were used, only available to those qualified as or studying to become a healthcare professional. This chapter is concerned with information that pregnant women and the general public can access, therefore the literature searching process needed to be adapted so as to generate recommendations that are accessible to women but also had to be restricted so as not to generate information that was not validated by a professional organisation. When carrying out research for the previous chapters it became clear which were the main professional healthcare bodies in this field and when carrying out online searches to locate the guidelines set by professional bodies such as the United Kingdom government and the National Health Service, these resources contained links to information for the public, easily accessible online when using search engines.

4.2.2 Inclusion and Exclusion Criteria

Inclusion and Exclusion criteria were set to ensure that the literature being examined were produced by professional bodies and had been subject to some form of quality control, as some internet sources can contain information which is personal opinion and not supported by any evidence.

The inclusion criteria set for this chapter was only information produced by professional bodies associated with healthcare, only information which has been reviewed and published and if examining leaflets or books it must be material

which is currently available to the public. Also as this chapter is focusing only on the public information in the United Kingdom, not in any other countries as in the previous chapter, then the information under observation must have been produced in the United Kingdom.

The exclusion criteria set were any information produced by individuals or companies not recognised to be a professional body or work in relation to healthcare, information that has not yet been reviewed or published, resources that are no longer available in publication or those which have been discontinued from use and finally any resources created or published outside of the United Kingdom.

4.3 Rationale for choice of literature

The literature which has been chosen for review takes a variety of forms such as online resources in the form of web pages, a book and a printed leaflet. This allowed for comparison between different forms of information. The literature chosen was also from a range of sources such as the United Kingdom government, a registered United Kingdom trust concerned with research into alcohol use, and the National Health Service therefore presenting advice published from a range of different sources which could be compared for any contrast in the recommendations. The research presented has all been published within the last five years so as to present the most current recommendations available to women.

4.4 Findings from the Publicised literature

4.4.1 Introduction

When examining the literature sources located for this section of the dissertation the recommendations for alcohol use in pregnancy were compared and also the source was evaluated in terms of effectiveness and accessibility. This is because it has been noted in the past that although written material is an established method of passing on information in health clinics there has been considerable debate about the quality of the material itself (Graham and McKee, 1980; Perkins and Spencer, 1980). It was also identified by the Health Education Council that this material, such as leaflets and books, not only needs to advise women of the guidelines but also then needs to contain practical suggestions on how to change drinking behaviour if it is to be effective (Health Education Council, 1987), therefore this is part of the criteria which will be looked at when evaluating the sources. Each source will be examined individually and then the information compared and contrasted.

4.4.2 Drinkaware

The Drinkaware Trust is an independent public-facing body who carry out research to contribute to the education resources regarding alcohol-related harm available in the United Kingdom. With the support of the government and alcohol retailers the trust aims to reduce alcohol misuse by positively changing public behaviour (The Drinkaware Trust, 2007). The recommendations for alcohol use during pregnancy can be found online and also other resources such as leaflets can be downloaded or be ordered to be delivered as a hard copy.

Drinkaware state that the Government's advice to pregnant women is to avoid drinking alcohol, however if women do choose to drink during their pregnancy then, to minimise risk to the baby, they should not drink more than one to two units of alcohol once or twice a week and should not drink such an amount that they become drunk (The Drinkaware Trust, 2007). It is stated that when pregnant the alcohol from the mothers blood crosses the placenta and enters the baby's blood therefore heavy drinking can affect the development of the foetus. With reference to heavy drinking Drinkaware also advise that heavy drinking during the first three months of gestation can damage the developing organs and nervous system of the foetus and in the remaining six months that follow it can have the additional effect of stopping the baby from growing and developing as it should (The Drinkaware Trust, 2007).

This recommendation provides a clear amount of alcohol which Drinkaware state to have minimal risk to the foetus during pregnancy and also discusses alcohol in terms of units which is beneficial as it can assist in ensuring that the amount of alcohol being consumed is less easily misinterpreted than is possible when using the term 'alcoholic drink'. However a critique that can be made of this recommendation is that when discussing the effects that alcohol can have on the unborn child it is only discussed in terms of 'heavy drinking'. This could promote the message that low and moderate levels of alcohol use have no adverse effects on the foetus and despite using the term more than once in the recommendation, at no point is the term heavy drinking defined into an amount of alcohol or a time period that alcohol is consumed within. This phrase could project different messages to different women, as women who drink low levels of alcohol on a regular basis may see heavy drinking as consuming a large volume of alcohol over a short time period and the opposite of this view may be taken by others. When promoting a message to pregnant women within the general public then it must be taken into account that there will be differing levels of education,

lifestyles and views within the sample, therefore when using phrases which are poorly defined it can cause confusion, which could in turn overshadow the advice that the literature was originally trying to convey.

4.4.3 NHS Direct

NHS Direct is an organisation of the United Kingdom's National Health Service, which provides the public with twenty four hour access to health information either via telephone, where users can discuss health problems with qualified nurses, on a website or by using their interactive digital television service. It is maintained by the National Health Service and provides users with information and advice so that they can make decisions regarding their health and the health of their families (National Health Service, 2007)

When providing advice NHS Direct refer to the Department of Health guidelines which recommend that women should avoid drinking alcohol whilst pregnant and should also avoid drinking alcohol if currently trying to conceive because many women do not realise that they are pregnant until some weeks into their pregnancy (National Health Service, 2007). However they recommend that if women do choose to drink alcohol then, as Drinkaware suggest, to minimise risk to the unborn baby, they should not consume more than one to two units of alcohol once or twice a week (National Health Service, 2007). NHS Direct also support Drinkaware in their recommendation that pregnant women should avoid becoming 'drunk' but then add to this statement that binge drinking should also be avoided, which they define as consuming several units of alcohol in one session (National Health Service, 2007).

NHS Direct also refer to heavy drinking during pregnancy as do Drinkaware, stating that it is associated with low birth weight and other more serious birth

defects. It also promotes that excessive alcohol can cause damage to the foetus at all stages in pregnancy, although not referring to as much detail as Drinkaware (National Health Service, 2007). When referring to heavy drinking the same critique can be made of NHS Direct as that of Drinkaware, that although NHS Direct define binge drinking they do not state how much alcohol needs to be consumed to be classified as a heavy amount, which could create confusion and misunderstanding.

4.4.4 An NHS Publication

The National Health Service (NHS) and Department of Health produced a booklet in 2007 entitled 'How much is too much when you're having a baby?' to be distributed to pregnant women in the United Kingdom. This booklet gives the National Health Service recommendations for alcohol use for women during pregnancy and after if they are breastfeeding.

The NHS informs women that when they drink alcohol during pregnancy it reaches the baby through the placenta but as the baby is unable to process the alcohol as fast as an adult it is exposed to the effects for a longer time period (Department of Health, 2007). The recommendations are that because of the risk to the development of the foetus pregnant women, or those trying to conceive, should avoid drinking alcohol. If women do choose to drink alcohol then to protect their baby they should consume no more than one to two units of alcohol once or twice a week and should not get drunk (Department of Health, 2007). This advice reflects that of both Drinkaware and NHS Direct, showing that so far the advice being projected to the general public is consistent. Like NHS Direct but unlike Drinkaware 'How much is too much when you're having a baby?' also warns pregnant women against binge drinking by comparing alcohol units to calories and stating that as some people may 'save up' calories and have more one week and less another this should not be done with alcohol, then going on to repeat the

original recommendation of one to two units once or twice a week only (Department of Health, 2007).

As previously mentioned when examining the previous publications a positive point to the NHS publication is that it discusses amounts of alcohol in units which gives a clearer form of advice than when using phrases such as an alcoholic drink or low levels of alcohol. The way in which this booklet explains binge drinking is helpful because it compares it to a process of saving up calories from one week to then use all at once, which is something that many women will be familiar with and therefore will aid in people's understanding, making it easier for them to follow the guidelines.

4.4.5 NICE Guidelines for the Public

The National Institute for Clinical Excellence (NICE) is an independent organisation which provides national guidance on health promotion and the prevention and treatment of ill health. This guidance is developed in collaboration with the National Health Service, healthcare professionals, patients and carers and the academic world (NICE, 2003a). The guideline 'Routine Antenatal Care for Healthy Pregnant Women' discusses aspects of lifestyle, such as alcohol consumption, that women may wish to consider whilst pregnant (NICE, 2003a).

NICE recommend that excess prenatal alcohol can harm an unborn child and therefore if choosing to drink whilst pregnant women should limit their intake to one standard unit of alcohol per day (NICE, 2003a). No reference is made to binge drinking in these guidelines. So far the previous publications examined have been consistent in their advice however the amount of alcohol advised by the National Institute for Clinical Excellence is a higher amount than previously advised, as by recommending one unit of alcohol per day this would give a

weekly total of seven units, almost double the weekly total previously advised. The guidelines are clear in the amount of alcohol that they advise as it is discussed in terms of units but the guidelines only form a short paragraph and are not as comprehensive as the previously publications discussed.

4.4.6 The Pregnancy Book

The Pregnancy book is a book produced by the Department of Health which is distributed by midwives to all first time mothers. It is a source of reference which contains detailed information regarding health and lifestyle during pregnancy, how the baby develops and advice for the first few weeks after birth. The Department of Health recommendations for alcohol use during pregnancy are covered in the first chapter of the book which discusses women's lifestyle during pregnancy (Department of Health, 2007a).

The guidelines given in the Pregnancy Book reflect those advised by Drinkaware and the NHS by recommending that as a general rule if women are pregnant or attempting to conceive then they should avoid any alcohol but that if they do choose to continue drinking, then in order to protect the foetus no more than one to two units of alcohol should be consumed only once or twice per week (Department of Health, 2007a). This book also advises that women should not drink such an amount that they become drunk whilst pregnant (Department of Health, 2007a). The reasons given for reducing the amount of alcohol consumed whilst pregnant are the same as those given in the NHS publication 'How much is too much when you're having a baby?' and the book also gives a brief description of Foetal Alcohol Syndrome.

4.4.7 UK Government Advice

The United Kingdom government issues guidance to pregnant women regarding alcohol use on their website under the section of advice to parents. This guidance again supports the Drinkaware, National Health Service and Department of Health recommendation that the advice is to avoid alcohol if pregnant or trying to conceive but if women do choose to drink alcohol then they should limit this to no more than one to two units once or twice a week, contradicting the recommendation provided by the National Institute for Health and Clinical Excellence (Central Office of Information, 2005). It is stated that the Government's view of the evidence is such that if women consume only this recommended amount of alcohol during their pregnancy then it is highly unlikely that their baby will suffer from any adverse effects (Central Office of Information, 2005). When discussing alcohol and pregnancy further the Government state that it is particularly risky to the foetus for the mother to become drunk whilst pregnant and also that alcohol can affect the foetus at any time during the pregnancy not just the first few weeks of gestation (Central Office of Information, 2005).

The advice from the government is clear in the quantities of alcohol it recommends and is consistent with almost all of the previous publications examined in this chapter. It is also more comprehensive than some of the publications in that it warns against becoming intoxicated and raises awareness to the fact that alcohol affects the foetus at any time during pregnancy. However although it states that their view of the evidence is that these amounts of alcohol cause no adverse effects to the foetus, which demonstrates that a review of the research evidence has taken place when creating the guidelines, it does not provide any reference or link to this evidence to support this statement.

4.5 Summary of Key Findings

It can be seen from the above findings that all the publications apart from one provide the same advice for alcohol use during pregnancy, that women should ideally avoid alcohol when pregnant but if they do choose to drink they should limit their intake to one to two units of alcohol once or twice per week (Central Office of Information, 2005; Department of Health, 2007; Department of Health, 2007a; National Health Service, 2007; The Drinkaware Trust, 2007). Only the public guidelines issued by the National Institute for Clinical Excellence provide different advice, that women should limit their intake during pregnancy to one unit of alcohol per day (NICE, 2003a), providing a higher recommended intake than the other publications.

When looking at reasons why supporting or conflicting advice may be provided in this section the year that the publication was produced could provide insight. All of the publications examined were published in 2007, some being updated versions of previous publications, apart from the National Institute for Clinical Excellence guideline which is being looked at. This was published in 2003 and when carrying out further research it was found that this guideline is currently under review, with the expected date of issue of the revised guideline to be March 2008. It would be useful for future researchers to review these revised guidelines to find out if any changes to the advice on alcohol during pregnancy have been made and if these changes put the recommendations in line with the other publications currently available.

4.6 Accessibility of the Publications

As previously mentioned when studying the publications for the advice they provide regarding alcohol use during pregnancy other factors were also observed to evaluate the accessibility of each publication to the public, as this is a key factor in cascading information. These factors included aspects such as is the publication available in several forms such as online and hard copies, as not everyone will have access to the internet, and does it provide advice on how to change drinking behaviour as the Health Education Council states that publications should contain if they are to be effective (Health Education Council, 1987). The results from this evaluation were collated and put into a table so that they could be reviewed more easily.

Table 7: Accessibility of Publicised Information Literature for Pregnant

Women

Publication	<i>Drink-aware</i>	<i>NHS Direct</i>	<i>How much is too much when you're having a baby?</i>	<i>NICE Guidelines for the Public</i>	<i>The Pregnancy Book</i>	<i>UK Government</i>
Explanation of a unit	Yes	Yes	Yes	Yes	Yes	Yes
Hard copy and online	Yes	Yes	Yes	Yes	Yes	No
Other languages	No	Yes	Yes but has to be ordered	No	Yes but has to be ordered	Yes but only welsh
Advice on reducing alcohol consumption	No	No	Yes	No	Yes	No
Access to help in reducing consumption if needed	Yes	Yes	Yes	No	Yes	No
References to supporting evidence	No	No	No	No	No	No

The factors chosen to evaluate the publications were chosen to represent accessibility in terms of how easily copies of the advice could be obtained, how easily they could be understood and how clear the advice was made. For this reason it was felt to be important that if discussing amounts of alcohol in terms of units that this measurement was explained, as some people may not have had experience of this term before. All of the publications under evaluation provided an explanation of how much alcohol a unit contained in terms of beer, wine and spirits and some also provided a link to where people could calculate how many units of alcohol they usually drink on average. It can be seen from the table that when evaluating accessibility in terms of these factors that the NHS Publication

'How much is too much when you're having a baby?' and the Department of Health publication The Pregnancy Book are the most accessible as they provide their resource as hard copies and online, in a range of languages, and they provide tips to cut down on alcohol use and access to further help if women are struggling to reduce their alcohol intake, making it easier for women to follow the advice being given. The NICE guidelines are perhaps the least accessible in terms of these factors as they provide brief recommendations only, are not available in any other languages and do not provide any further advice. As these guidelines are currently under review and the proposed date of issue of the revised guideline is not until after the submission of this dissertation it would be useful for future researchers to evaluate this new guideline, not only in terms of the advice it provides, as previously discussed, but also in terms of accessibility to the public.

The main criticism that can be made of all the publications under study is that although some briefly describe the effects of alcohol on the foetus no studies offer any form of reference or link to any research evidence which supports their recommendations or provides any verification that they have reviewed any evidence before producing suggestions. This is a negative aspect of the publications from an academic view because without any references it is unclear which evidence the recommendations have been based upon and therefore questions the validity of such recommendations. It is also a limitation for the public as it prevents pregnant women who may wish to investigate the subject further from accessing links to research evidence.

Chapter 5: Discussion

5.1 Introduction to Chapter

This chapter will recall the key findings from previous chapters to discuss the recommendations for prenatal alcohol use provided by the research evidence, government and professional bodies of healthcare and publicly available literature. The conclusions and recommendations will be compared to establish if there are any correlations or discrepancies between what has been found in the research, with regard to the effects of differing levels of alcohol on the foetus, and what is being promoted in leaflets and websites accessible to women. If any discrepancies are discovered during this discussion of the findings then possible reasons for any differences between the recommendations will be put forward and also the implications of such differences with regard to pregnant women and their children will be considered. As previously noted in the evidence chapter research studies often contain limitations to their work which can affect the validity of their results. Any limitations that were found when carrying out this dissertation will also be discussed in this chapter.

5.2 Findings from the Evidence

After examining the studies reviewed for the evidence chapter it was established that three out of the five studies recommended that there is no safe level of alcohol that can be consumed during pregnancy without causing any adverse effects to the foetus (Barr and Streissguth, 2001; Nayak and Kaskutas, 2004; Day and Richardson, 2004). This would therefore indicate that pregnant women should not be advised of any amount of alcohol that is harmless for them to continue to drink during their pregnancy. The other two studies both correlated

with this advice but also expanded on their recommendations, to include that adverse effects were reported in the children in their studies who were prenatally exposed to as little as one alcoholic drink per week (Sood et al., 2001; Sayal et al., 2007).

5.3 Findings from the Guidelines

The results from the Guidelines chapter were much more varied than those from the Evidence chapter and contained discrepancies between the countries under study. Three of the countries looked at, the United States of America, New Zealand and Canada; all provide very similar recommendations that abstinence from alcohol is the safest choice during pregnancy. This, they state, is because there has been no level of alcohol established which does not produce adverse effects to the foetus, either as a baby or later in childhood.

However the recommendations from the United Kingdom and Australia contradict these recommendations by providing different advice. The Government and professional healthcare bodies of Australia provide the highest recommendations of alcohol use of all the countries looked at, with most of the organisations advising that up to seven units of alcohol could be consumed per week without causing harmful effects to the foetus. However this advice is not consistent throughout the Australian guidelines as two of the organisations state that abstinence is the safest choice and do not provide any amount of alcohol that women should limit their drinking to during pregnancy (Royal Australian College of General Practitioners, 2005; Australian Medical Association, 2005). The guidelines produced from organisations in the United Kingdom differ not only from the United States of America, New Zealand and Canada but also from the guidelines issued in Australia. The advice produced in the United Kingdom is also inconsistent between the different bodies of healthcare within the UK. Two of the

organisations specify that although abstinence is the safest choice, if women do choose to drink then they should limit this to no more than one to two units of alcohol once or twice per week (RCOG, 2006; Department of Health, 2001). However the other two UK organisations specify that women should limit their alcohol intake to no more than one unit of alcohol per day (Prime Minister's Strategy Unit, 2004; NICE, 2003).

5.4 Findings from the Publicised Information

When examining the recommendations that can be found by accessing the published literature currently available to pregnant women it was found that all of the recommendations correlated with each other, except one publication. The recommendations provided by this literature are that women should ideally avoid alcohol whilst pregnant but if they do choose to drink alcohol then they should limit their intake to one or two units of alcohol once or twice per week (Central Office of Information, 2005; Department of Health, 2007; Department of Health, 2007a; National Health Service, 2007; The Drinkaware Trust, 2007). The only piece of literature which contradicts this advice is that issued by the National Institute for Health and Clinical Excellence, which suggests that pregnant women should consume no more than one unit of alcohol per day (NICE, 2003a). However this literature is currently under review and issued for release later this year so this advice may change.

5.5 Comparisons of the Findings

It can be observed from the findings of the literature searches that although some of the guidelines and publications are promoting the same recommendations for alcohol use during pregnancy, contrasting advice is also being provided. When beginning with the conclusions and recommendations provided from the research evidence it can be seen that all of the studies chosen for focus reported that their findings showed no threshold for alcohol use. This recommendation is also given as the guidelines from the government and professional bodies of healthcare in the United States of America, New Zealand and Canada. This would suggest that the organisations from these countries have researched the evidence base before providing their recommendations. However this was the only comparison that can be made between the findings. The guidelines from the United Kingdom and Australia provided different recommendations and the advice promoted in the publicised books and leaflets differed further.

5.6 Differences within the Findings

The guidelines from Australia on the whole concur between organisations; however two of the guidelines do not provide any level of alcohol that pregnant women are advised to limit themselves to, which does not present a consistent message to the Australian public. The United Kingdom guidelines provide what could be seen as an even more contrasting message within the country, with half of the guidelines examined recommending a weekly total of up to four units of alcohol (RCOG, 2006; Department of Health, 2001); and the other half advising up to seven units of alcohol per week (Prime Minister's Strategy Unit, 2004; NICE, 2003). The guidelines from the United Kingdom and Australia provide even further disparity within the dissertation by providing different recommendations

to not only the Guidelines from the other countries but also to the research evidence.

When examining the publicised information for pregnant women even further differences were noticed, both within the findings for the chapter, and also between the information, the research evidence and the guidelines. As all the publicised information looked at for this dissertation was from the United Kingdom, it would be expected that the recommendations would reflect the guidelines issued in this country. However as the guidelines for the UK were found to be in contrast with each other it would not be possible for them to correlate fully. As would be expected the NICE Guidelines for the Public (NICE Guidelines put yr) provide the same recommendations as the NICE guidelines (NICE, 2003) although this is different to the recommendations issued in the other publications. The other publications all correlate with the Department of Health (2001) and the Royal College of Obstetricians and Gynaecologists (2006). However by recommending any amount of alcohol consumption at all, all of the publications contradict the suggestions from the research evidence, that there is no level of prenatal alcohol consumption that does not produce adverse effects in the foetus. The fact that the United Kingdom guidelines and publicised information all provide contrasting recommendations to the conclusions from the research studies prompts the question of where these recommendations originated from. As discussed in the previous chapter none of the publicised information pieces provided any links or references to evidence to support their recommendations. Within the United Kingdom guidelines section the only organisation that provided any reference to an evidence base was the Royal College of Obstetricians and Gynaecologists, who stated that a systematic review of the evidence was undertaken (O'Leary et al., 2007). However details of this review are not provided so it is not known what the keywords or inclusion criteria set for the review were, which would be useful as it could be used to view the

evidence base that this organisation used, considering that the recommendations provided are very different to the evidence base located and reviewed for this dissertation.

When investigating differences between the recommendations from the evidence, guidelines and publicised information it is important to take notice of the years that the recommendations were created. All of the studies reviewed have been published in the past seven years, with one study being published in 2007. The two countries in which the guidelines differ to the evidence are Australia and the United Kingdom, the guidelines from which were all issued from 2001 or later. Therefore those guidelines issued in 2001 may have been created before the publication of any of the research studies examined in this dissertation. Four out of the five research studies used were from the United States of America, due to the reason that much more research into the effects of prenatal alcohol exposure has been carried out there than in the United Kingdom. This could have affected some of the United Kingdom guidelines and Australian guidelines, who may have chosen to limit their supporting evidence to research from their own countries, research which may have been dated or limited.

An important point to consider is the discussion of a very different approach to those previously taken in the research with regard to abstaining from consuming alcohol in pregnancy. The research evidence in this dissertation promotes the message that there is no prenatal level of alcohol consumption shown to be free from adverse outcomes and that is therefore safer for the foetus for pregnant women to avoid all alcohol. The guidelines from the United States, New Zealand and Canada also all recommend that abstinence from alcohol is the safest choice whilst pregnant. However it was suggested by Doctor Ian Walpole, a clinical dysmorphologist and paediatrician in 2002 that it is possible that an abstinence message is not the right approach to take. It was discussed at the Australian

National Council on Drugs Workshop on Foetal Alcohol Syndrome that an abstinence message could generate fear and guilt for women who may have consumed alcohol before recognising that they are pregnant, to such a level that they may consider terminating the pregnancy (Australian National Council on Drugs, 2003). This outcome would be going against the aim of such advice as an abstinence message, which would be created as a way of attempting to decrease the risk of harm to the foetus. The fact that this discussion first took place in Australia could mean that it has influenced some of the Guidelines produced for prenatal alcohol use in Australia, which were found to be the most lenient guidelines of all the countries examined. It is also possible that research carried out with regard to this theory could have been reviewed by other countries, hence influencing the guidelines and advice promoted in countries such as the United Kingdom.

5.7 Implications for Families

The implications of such conflicting advice for families are the obvious risks of giving birth to a child with a form of Foetal Alcohol Spectrum Disorder. The evidence base is still varied in the effects of prenatal alcohol exposure, therefore providing the recommendations that there is no safe level of alcohol consumption. Past researchers, such as Olney have investigated the effects of minimal levels of alcohol consumption on the foetus and have presented alarming results that even a single episode of consuming the equivalent of two alcoholic drinks during pregnancy may lead to a loss of foetal brain cells (Olney, 2004). This amount is dramatically smaller than the recommendations given in the United Kingdom publicised information. When accessing advice on alcohol consumption from publications produced by well established professional bodies such as the Department of Health, women would assume that the advice that they are receiving is correct, when they may actually be consuming alcohol at a level

which has been shown to produce adverse outcomes in their child. This can be observed when taking into account research evidence such as that from Sayal et al. (2007), and the guidelines issued for the public by the National Institute of Clinical Excellence (NICE, 2003a). Sayal et al. (2007) stated that adverse foetal outcomes were reported when women consumed less than one alcoholic drink per day during pregnancy. However the NICE Guidelines for the public recommend that this is a level that women should limit their alcohol consumption to during pregnancy. By consuming an amount of alcohol which they believe to be harmless for their unborn child, but all the while producing Foetal Alcohol Effects, women may face the situation of a caring for a child with physical and learning disabilities which they were totally unprepared for.

5.8 Limitations to the Research

One of the main limitations to this dissertation was found when searching the current research literature available. Much more research surrounding the topic of prenatal alcohol exposure and Foetal Alcohol Effects has been carried out in the United States of America than in the United Kingdom or other English speaking countries, therefore it was often difficult to find research that had taken place in England. This applied not only to research studies but also when locating statistics such as prevalence of alcohol use among pregnant women. As can be seen in the first chapter of this dissertation, despite extensive searches the most recent information that could be found with regard to rates of alcohol use among pregnant women in the United Kingdom is from 1995, whereas reported rates for the United States of America were collected more recently, in 2002. As shown in the guidelines chapter the USA has much stricter recommendations with regard to prenatal alcohol consumption than in the United Kingdom. This could mean that when carrying out research with pregnant women in America, attitudes and

practices towards alcohol may be very different to that of the UK so findings from such research may not reflect pregnant women in the United Kingdom as closely.

Another important limitation which became apparent when examining and comparing the findings from each section in the dissertation was that many of the research studies looked at, discussed alcohol use in terms of 'alcoholic drinks', rather than standard units or grams of alcohol which were the terms used in the guidelines and publicised information. This made it more difficult to make comparisons as different researchers may interpret the amount of alcohol in an alcoholic drink differently if it is not made clear. It could also affect the results of a study if, for example, one researcher was classing a double measure of spirits as an 'alcoholic drink' but another was only using single measures because it could not be clear how much alcohol was needed to produce certain effects. This was reflected in the guidelines section where it was highlighted that some countries classified a standard unit to contain more grams of alcohol than others. If this was the case in research studies then it could affect the validity of any conclusions put forward. This issue is supported by Whitehall (2007), who states that using the term 'one drink' when discussing alcohol use is imprecise, suggesting instead that terms used to describe alcohol should be expressed scientifically (Whitehall, 2007).

Chapter 6: Conclusion

6.1 Summary of Key Findings of the Dissertation

This work was carried out with the aim of answering the question 'Is there a safe level of alcohol that can be consumed during pregnancy without causing adverse outcomes to the child and is this being communicated effectively to pregnant women?' A literature review of currently available research studies was conducted, during which relevant studies were located, examined and evaluated. The conclusions and recommendations provided in all of the research studies under assessment were that there is no safe level of alcohol that can be consumed without causing harmful effects to the foetus, both as a baby and in later childhood. This therefore provides the answer to the first part of the research question that no, to this date research has not proven any level of alcohol consumption to be safe to consume during pregnancy.

With regard to answering the second part of the research question further literature searches were carried out, firstly to find guidelines for alcohol use during pregnancy from the United Kingdom and other countries; and secondly, to locate publicised literature, produced from professional bodies of healthcare, which is distributed to pregnant women in the United Kingdom. After locating and evaluating this research the recommendations provided were compared to those from the research studies to see if the evidence was being disseminated clearly to the general public. Nonetheless when carrying out these comparisons it became apparent that the recommendations provided by the government and healthcare organisations were conflicting, not only internationally between countries but also, in cases such as the United Kingdom, conflicting within themselves. Also some of the guidelines, again including those from the United Kingdom, also contradicted the recommendations derived from the research studies. The advice

provided in the publicised information from the United Kingdom matched that given in the guidelines, with one publication correlating with two of the guidelines and the others correlating with the other two guidelines. However by correlating with the recommendations provided in the guidelines the publicised information also contrasts those conclusions gained from the research studies. Such differences as these provided the answer to the second part of the research question, as this dissertation highlights that the recommendations provided from the research evidence, with regard to alcohol use during pregnancy, are not being communicated effectively to pregnant women or the general public.

Chapter 7: Evaluation

7.1 Implications for Nursing

The issues raised in this dissertation are of importance to a range of healthcare professionals including Adult Nurses, Paediatric Nurses, Midwives, Obstetricians and General Practitioners. As healthcare professionals' nurses are in a position where they will come across pregnant women, especially those nurses working within a primary care or gynaecological setting, and may be involved in providing advice to women regarding health issues during their pregnancy, such as alcohol use. Nurses need to feel confident that they have the knowledge to answer such queries and must feel positive that the advice they are providing is supported by research evidence. A review such as this dissertation could provide nurses with more clarity of the research that is available to them. A study carried out in 1992 in Glasgow found that of 186 nurses, fifty percent did not know the recommended safe limits for alcohol consumption. These nurses attributed their lack of knowledge to inadequate training in this area (Watson, 1992), a fact supported by previous evidence from both the United Kingdom and the United States of America (Arneson, 1983; Arneson et al., 1987; Friend, 1992). This lack of knowledge needs to be addressed within nurse training to ensure that pregnant women are receiving adequate care and advice from health care providers and nurses themselves need to acknowledge the health risks associated with alcohol use during pregnancy, so that they can be effective advisors on healthcare.

Public information explaining the risks to the foetus from alcohol, and counselling in the antenatal clinic have so far been the main means of confronting the problem of alcohol use during pregnancy (Waterson and Murray-Lyon, 1990), therefore healthcare professionals who provide prenatal care such as nurses, midwives and nurse practitioners are well positioned to identify women who are

at risk for exposing their unborn child to alcohol. Screening for alcohol use during pregnancy should distinguish those women who are alcohol dependent from those who are not (Walker et al., 2005) and this screening combined with health promotion can be a key role of the nurse.

If a child is diagnosed with a form of Foetal Alcohol Spectrum Disorder then paediatric nurses will play a key role in their care. Children may need to be hospitalised at times during their lives due to the complex and wide ranging effects caused by prenatal alcohol exposure. To provide children with the best possible care it is important that nurses understand not only the medical problems the child may face but also social problems which may occur for the child and their family when bringing up a child with such complex needs. Having an understanding of how foetal alcohol effects can be brought about and the conflicting advice given to women can help nurses understand and therefore empathise more with the struggles families may be experiencing.

Paediatric nurses can also be very important in raising awareness of Foetal Alcohol Effects and attempting to reduce the rates of prenatal alcohol exposure, in the role of school nurses. It has been found that young people are an important group to target when increasing awareness of prenatal alcohol exposure, due to high rates of teenage pregnancy and underage drinking in this country (MacKinnon et al., 1995), and that this education of young people may best be delivered jointly through schools and the mass media (MacKinnon et al., 1995). The school nurse would be in an ideal position to provide some of this health education, in collaboration with teachers.

7.2 Further Research

When discussing the limitations of the dissertation suggestions for further research can also be made, which would aim to expand on the findings of this work and increase knowledge and awareness of this research area. This research showed that differences currently exist between the research evidence, the guidelines and the publicised advice distributed to pregnant women. There are also international differences in prenatal alcohol recommendations, a conclusion also reached by Sayal et al. (2007). This highlights the need for further research to address these discrepancies.

More than half of the studies examined in this dissertation only collected data on prenatal alcohol use during the first trimester of pregnancy. In doing so their conclusions may lead to the understanding that risk is highest in the earlier stages of pregnancy, distracting people from the evidence which shows that damage can also occur in later months of pregnancy (Qiang et al., 2002). Further research needs to be carried out addressing alcohol use throughout the whole pregnancy if any accurate recommendations are to be made regarding prenatal alcohol exposure. Due to the time and word restraints of this dissertation, only research carried out into differing levels of alcohol exposure was reviewed. However further research investigating not only the effects of differing levels of alcohol exposure to the foetus but also the timing of exposure would be useful in creating a more thorough evidence base of the effects of alcohol use at all levels in all stages of pregnancy.

Another variable that was controlled in this dissertation was the use of other substances as well as alcohol during pregnancy, so that the recommendations provided were due to effects from only alcohol exposure. However it has been noted that women who consume alcohol during pregnancy are more likely to use

illicit drugs before, and during the pregnancy (Day and Richardson, 2004). For this reason it would be valuable to carry out further research into the effects of alcohol and other substances on the foetus, when used separately and in conjunction with each other to again provide a more detailed evidence base.

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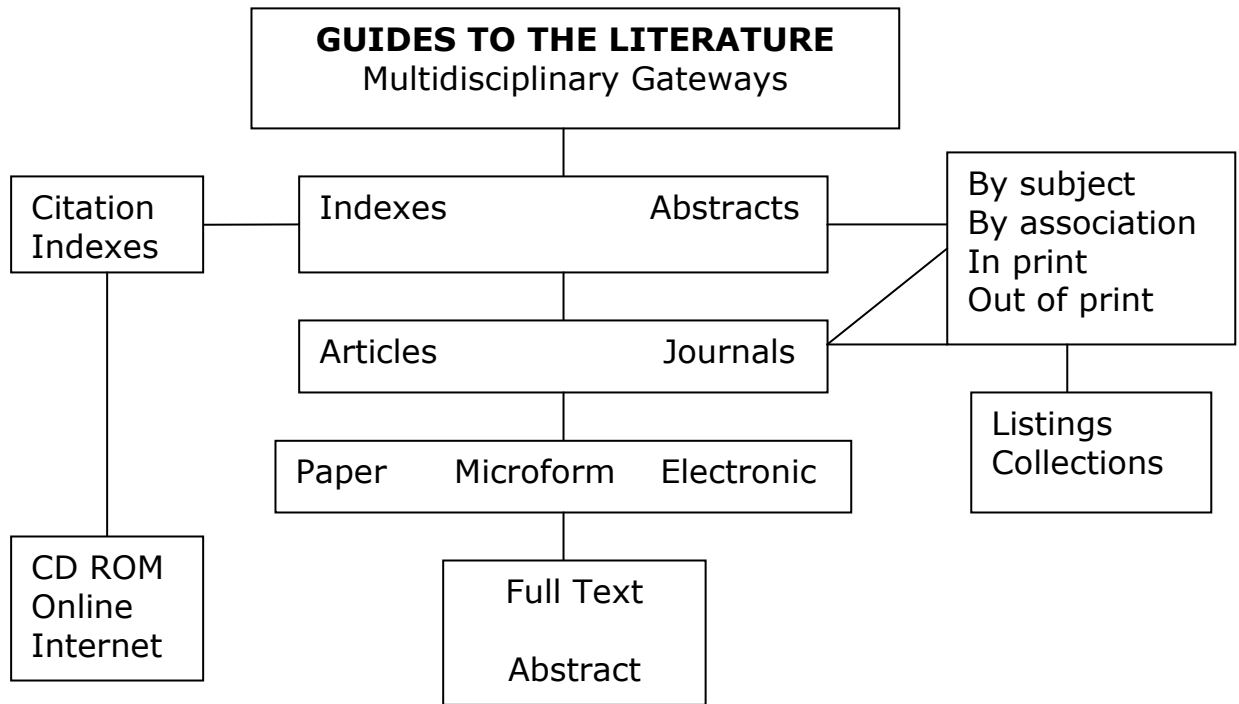
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Appendices

Appendix 1

The Bibliographical Framework for Articles and Journals (Hart, 2001)



Appendix 2

Crombie's set of Standard Appraisal Questions (Crombie, 1996)

- **Are the Aims clearly stated?**
- **Was the Sample size justified?**
- **Are the measurements likely to be valid and reliable?**
- **Are the statistical methods described?**
- **Did untoward events occur during the study?**
- **Were the basic data adequately described?**
- **Do the numbers add up?**
- **Was the statistical significance assessed?**
- **What do the findings mean?**
- **How are the null findings interpreted?**
- **Are important effects overlooked?**
- **How do the results compare with previous reports?**
- **What implications does the study have for your practice?**

Appendix 3

Explanation of the Wechsler Preschool and Primary Scale of Intelligence – Revised

Manual

Appendix 4

The Achenbach Child Behaviour Checklist for Ages 6 – 18 years.

Appendix 5

The Strengths and Difficulties Questionnaire, for Parents of three and four year olds.

Appendix 6

The Strengths and Difficulties Questionnaire, for parents of four to sixteen year olds.

Appendix 7

The Strengths and Difficulties Questionnaire, for teachers of age four to sixteen
years.