DRINKING AMONGST PREGNANT WOMEN: SOME INITIAL RESULTS FROM A PROSPECTIVE STUDY

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Abstract — A review is presented of the characteristics of the foetal alcohol syndrome (FAS). It is noted that in its most extreme form the FAS encompasses both physical and mental abnormalities. Some of the initial results are briefly presented from the first two phases of a Scottish prospective study. This relates to the patterns of alcohol use and misuse of 1008 pregnant women. These data indicate that self-reported alcohol consumption was slightly but significantly correlated with previous obstetric problems. In addition, a minority of the study group, due to their levels of alcohol consumption, may run an increased risk of giving birth to abnormal offspring. It is concluded that on the basis of current evidence those planning or experiencing pregnancy should be advised not to drink.

INTRODUCTION

During the past few years, there has been a revival of interest in, and concern about, the risk to the foetus of maternal alcohol consumption during pregnancy. Historically there have been very clear statements. In Carthage and Sparta there were laws which forbade married couples to drink on their wedding night in case children conceived at that time would be damaged (Harlap and Shiona, 1979). Conversely, in 1955 the Yale Centre for Alcohol Studies published a pamphlet entitled How Alcohol Affects the Body (Keller, 1955). This stated that 'the old notions about children of drunken parents being born defective can be cast aside, together with the idea that alcohol can directly irritate and injure the sex glands'.

In 1965, Ashley Montague wrote: 'It can now be stated categorically, after hundreds of studies covering many years, that no matter how great the amounts of alcohol taken by the mother — or by the father, for that matter — neither the germ cells nor the development of the child will be affected . . . .' (Montague, 1965).

More recently the United States Surgeon General made the following statement:

"The premise is not that moderate drinking carries proved dangers to the fetus but only that the possibility of such dangers have to be entertained. The individual doctor has the responsibility of deciding what he will say to the expectant mother about her drinking, but questions on drinking must now be included in routine prenatal assessment. The alcoholic woman who is pregnant most certainly needs urgent and compassionate help."

(Surgeon General, 1981)

More recently, British commentators have acknowledged the advisability of pregnant women minimising or refraining from drinking (e.g. Plant, 1982; Royal College of Psychiatrists, 1982). A lead article by Edwards in the British Medical Journal concluded thus:

"the reported defects on pregnancy outcome appear to be independent of potentially confounding variables, including nutrition and smoking . . . . Each patient should be told about the risk of alcohol consumption during pregnancy and advised not to drink alcoholic beverages and to be aware of the alcoholic content of foods and drugs."

(Edwards, 1983)

Some of the features of FAS are described in Table 1. Possibly the most well-known features of the full blown syndrome are the facial features which are depicted in Fig. 1.

This paper describes some of the initial data collected from a Scottish prospective study. This project has one primary and two secondary aims. These are:

1. To establish whether or not birth abnormalities are associated with self-reported rates of drinking by pregnant women.
Table 1. Some features of the foetal alcohol syndrome

**Growth**
Intra-uterine growth retardation deficiency usually more severe in length than weight. Post-natal deficiency in length and weight. Failure to thrive

**Intellectual**
Mild to moderate mental retardation. I.Q. ranging from below 50 to 83.

**Neurological**

**Cardiac**
Murmurs — atrial or ventricular septal defects. Great vessel anomalies. Fallot's tetralogy.

**Skeletal**

**Behavioural**
Irritability in infancy. Hyperactivity in childhood. Disturbed sleep patterns. Poor suck.

If it is established that such abnormalities are associated with maternal alcohol consumption, these additional aims will be pursued.

(2) To ascertain at what levels of alcohol consumption birth damage of various types is evident.

(3) To investigate whether or not evident alcohol-related birth damage does in fact constitute a syndrome.

**METHOD**
Data were collected in four phases. These were:

(1) Interviews with women when roughly three months pregnant;

(2) Reinterviewing a sub-group of respondents

The sub-groups were high-, medium- and low-risk in terms of their alcohol consumption;

(3) Assessment of the outcomes of all the pregnancies in this study;

(4) Three-month checks on all surviving children for development, weight, length, head circumference.

A total of 1008 women participated in this study. All were attending three ante-natal clinics in Edinburgh. Respondents were interviewed when they booked in at the clinic. A standardised interview schedule was admini-

![Fig. 1. Features of the foetal alcohol syndrome.](image_url)
stered. The interviewers were all female, married with children and were social drinkers. The respondents were guaranteed confidentiality and were interviewed outwith the antenatal clinic.

Initial data collection
The initial wave of data collection was carried out between February 1981 and February 1982. The second wave, which is briefly noted below, was conducted between July 1981 and April 1982.

RESULTS
A detailed account of the results of the initial phase of this study is to be published elsewhere (Plant, 1984). Only a partial summary is provided here.

Response
A total of 1008 women were interviewed. A further 13 women refused to participate, 10 spoke no English and were not asked to take part and 30 women agreed to take part but subsequently could not do so due to lack of time. The net response rate was 95.0%.

Biographical data
Most of the women were aged between 21 and 35 years; 91.2% were married or living with someone; over half the study group were working outwith the home; 44.3% were experiencing their first pregnancy.

Self-reported alcohol consumption
Only 8% of the entire study group had never drunk alcohol the majority of the rest, 80.5%, had drunk alcohol within the 12 weeks of pregnancy and 38.5% reported drinking it in the week preceding interview.

Effects of pregnancy on drinking
Respondents were asked how their drinking since becoming pregnant compared with that before conception. The great majority (70.8%) reported having reduced their consumption, while 27.9% stated that their consumption was unaffected and 1.3% stated that they were drinking more than before conception. Of those who reduced consumption, 52.3% gave fear of damaging their baby as the main reason. Other reasons given were dislike of the taste (20.7%) and nausea (17.7%). However, soon after the beginning of this phase of the project, the main local newspapers in the study area accorded considerable publicity to the topic of the risks of drinking in pregnancy. This attention may have influenced the study group.

General consumption levels
If previous week’s drinking and maximum day’s consumption since conception are combined, three sub-groups emerge:

1. Abstainers. Those who had consumed no alcohol since becoming pregnant (217 respondents, 21.5%).
2. Light drinkers. Those who had consumed between one and nine units during either of these periods (732 respondents, 72.6%).
3. Heavy drinkers. Those who had consumed ten or more units during either of these periods (59 respondents, 5.9%).

Past obstetric history
Details of respondents’ past obstetric histories were obtained from case notes. Five measures were considered: previous stillbirths, spontaneous abortions, terminations, physically and mentally handicapped children. Altogether, 23.6% of the study group had experienced one or more of these problems.

Past obstetric problems and alcohol consumption
The relationships between self-reported alcohol consumption and each of the five types of previous problem were examined. This analysis was conducted by partial correlation controlling simultaneously for the possible confounding effects of respondent’s age, smoking, legal and illegal drug use during the first trimester and the occupational status of the respondent’s husband, boyfriend or cohabitee.

There was a significant positive correlation between self-reported alcohol consumption and previous experience of a termination or of having had a physically or mentally handicapped child, a stillbirth or a spontaneous abortion. Although the correlations are significant, it must be emphasised that they are weak,
particularly in the light of the size of the study group.

**Smoking habits**

A total of 492 women, 48.8%, reported smoking before pregnancy. Of these 145, 14.4%, had stopped smoking when they found they were pregnant. The main reason given by these respondents was fear of harming the foetus. Consequently, only 29.5% of the smokers (492) stopped smoking when they learned of their pregnancy.

**Use of legal and illegal drugs**

Very few of the respondents, 1.3%, reported use of illicit drugs, such as cannabis, glues or heroin. Even so, 62.8% of the study group reported having used some form of legal or prescribed drugs, mainly analgesics, antacids, laxatives and antibiotics. Only 4.6% of the entire study group reported that they had not used alcohol, tobacco, legal or illegal drugs during the first trimester. Caffeine was not included in this analysis. Even so, it may be viewed as worrying that so many pregnant women ingest some type of drug.

**Changes in alcohol consumption during pregnancy.**

As noted above, a minority of respondents were reinterviewed when 34 weeks pregnant. Data were obtained altogether from 255 women at this time. The main aim of this second interview was to ascertain whether or not alcohol consumption changed later in pregnancy. The results of this comparison are shown in Table 2.

As indicated by Table 2, both previous week’s consumption and maximum day’s consumption during previous week declined during pregnancy. Even so, both measures were quite highly intercorrelated. This latter fact is reassuring, since it indicates quite a high degree of consistency between self-reports obtained at 12 weeks and at 34 weeks pregnancy.

**COMPARISON WITH OTHER STUDIES**

**General level of alcohol consumption**

Two surveys have recently been conducted in Scotland which serve as useful sources of comparative data (Wilson, 1980; Plant et al., 1982). The first of these, by Wilson, related to a national sample of women. This survey showed that the average previous week’s self-reported alcohol consumption of women aged 20 and over who had consumed alcohol during that period was 6.2 units. A more recent survey of female school students aged 15 and 16 was conducted in the Lothian Region. The alcohol consumption reported by respondents in that study who had drunk it in the previous week was 9.2 units. Both of these studies indicate that, in general, respondents in the present study were not drinking heavily in relation to more general population groups.

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**Table 2. Changes in self-reported alcohol consumption in pregnancy amongst a cohort of Edinburgh women (N=255)**

<table>
<thead>
<tr>
<th>Product-moment correlation between 3 and 8 months</th>
<th>At 3 months pregnant</th>
<th>At 8 months pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \bar{x} ) previous week’s consumption*</td>
<td>1.5</td>
<td>1.1</td>
</tr>
<tr>
<td>( \bar{x} ) maximum day’s consumption during previous week*</td>
<td>1.0</td>
<td>0.7</td>
</tr>
</tbody>
</table>

* Consumption is in units, each of which = 1.0 cl/7.9 g of absolute alcohol. Each unit approximates to ½ pint of ordinary beer or lager or to a single glass of wine or spirits.
Changes in drinking during pregnancy

The findings in this study are broadly consistent with others (Little, 1976).

Alcohol consumption in pregnancy and foetal damage

There is general agreement on heavy consumption causing harm: as yet there is little consensus on levels or patterns of alcohol consumption at which harm occurs. Amongst previous studies, lowest levels at which drinking is reported to be harmful is 1.5 units daily (Harlap and Shiona, 1979). This approximates to a weekly total of 10.5 units, which has reportedly been exceeded by 18 respondents, 1.8%, in the present study group. Klein et al. (1980) reported that there was a serious risk of spontaneous abortion amongst mothers who consumed the equivalent of three units of alcohol on at least two occasions per week. Of the study group 8% had exceeded this level on at least one day during the week preceding interview. Streissguth et al. (1981) reported that binge drinking was associated with decreased birth weight. A total of 4.8% of the study group reported having consumed 10 units or more on a single day during the first trimester which could reasonably be defined as a binge. A small minority, 1.5% of the study group, reported that their maximum day's consumption during pregnancy had been 15 units or more.

The implications of these initial results remain unclear. The final conclusions of this study will be described in future publications; they confirm that a minority of pregnant women in one British study were consuming levels of alcohol which have been associated in earlier studies with birth abnormalities. The 'extreme form' of the FAS is probably rare in Britain; however there is now reliable evidence that drinking in pregnancy is harmful. Even before further information is obtained a sound basis now exists for advising those contemplating or experiencing pregnancy to stop drinking.

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REFERENCES