

MODULE

10

DRINKING AND PREGNANCY

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Summary:

- There is strong scientific evidence that certain maternal patterns of drinking during pregnancy are associated with substantial risk of physical and psychological harm to offspring.
 - These drinking patterns generally include heavy drinking.
 - Several conditions have been described among children of mothers whose drinking patterns during pregnancy were excessive. These conditions include partial fetal alcohol syndrome (PFAS), fetal alcohol spectrum disorders (FASD), and the more severe fetal alcohol syndrome (FAS).
 - The occurrence of these conditions is relatively rare, with higher prevalence among particular populations, generally those of low socioeconomic status and who may not have adequate access to care.
 - There is currently no consensus on the threshold of maternal drinking below which the risk to the fetus is negligible. As a result, most official guidelines around drinking during pregnancy recommend abstinence or low levels of alcohol consumption.
 - Harm associated with maternal drinking is preventable and can be successfully addressed through harm reduction approaches to policy and prevention, including education and awareness building.
- Harm reduction approaches to alcohol policy focus on reducing the potential for adverse effects that may be associated with certain patterns of drinking. Included among these approaches are measures that address groups of individuals deemed to be at particular risk for harm. One area that has attracted particular attention is alcohol consumption by pregnant women.

There is conclusive scientific evidence that certain patterns of drinking during pregnancy can be harmful to the unborn child (Florey, 1992; Institute of Medicine, 1996; Kaminski, Rumeau, & Schwartz, 1978; Lumley, Correy, Newman, & Curran, 1985; National Institute on Alcohol Abuse and Alcoholism, 1993; Plant, 1985; Plant, Abel, & Guerri, 1999; Werler, Lammer, Rosenberg, & Mitchell, 1991; Wright et al., 1983). These patterns include heavy chronic and episodic consumption. However, there is less agreement on the risks of low to moderate levels of drinking by pregnant women. As a result, the debate continues over whether there is a “safe” limit for alcohol consumption during pregnancy, and, if so, where this limit should be defined (Abel, 1998a; Cassano, Koepsell, & Farwell,

1990; Chandler, Richardson, Gallagher, & Day, 1996; Faden & Graubard, 2000; Floyd, Rimer, Giovino, Mullen, & Sullivan, 1993; Lorente et al., 2000; Maconochie, Doyle, Prior, & Simmons, 2007; Plant et al., 1999).

Research also suggests that drinking during lactation may be harmful to infant development. If mothers do not allow sufficient time between consuming alcohol and nursing sessions, infants may ingest alcohol. This can harm an infant’s lactating performance and mental development (Giglia & Binns, 2006, 2008; Giglia, Binns, Alfonso, Scott, & Oddy, 2008). However, there is inconclusive evidence regarding long-term significance of these effects upon infants (e.g., Little, Northstone, & Golding, 2002).

Public health concerns

Among the children of women whose alcohol consumption during pregnancy was heavy and chronic, several conditions have been described and linked to the maternal drinking pattern. The best known of these is “fetal alcohol syndrome” (FAS), recognized since the 1970s (Jones & Smith, 1973), followed by “fetal alcohol effects” (FAE), a term originally used for a milder spectrum of harm found at lower levels of maternal alcohol consumption. However, as “FAE” is considered confusing and inaccurate by experts (Aase, Jones, & Clarren, 1995; Kaskutas, 1995), it has since been replaced with the concept of “partial FAS [PFAS] with confirmed maternal alcohol exposure” (Institute of Medicine, 1996).

Infants with FAS are characterized by at least one feature in each of the four following categories (Streissguth & O’Malley, 2000; Warren et al., 2001):

1. Pre- and postnatal growth deficiencies: intra-uterine growth retardation, including smaller than normal head circumference; small size at each term of gestation; continuing growth below the tenth percentile after birth and failure to thrive.

2. Physical anomalies: a cluster of facial features, including short upturned nose, receding forehead and chin, smaller than normal eye apertures, absent groove in upper lip (philtrum), and asymmetrical ears. Other problems include cardiac, gastrointestinal, and limb and joint anomalies.

3. Central nervous system dysfunction: moderate to severe learning difficulties; cognitive, hearing, and visual disabilities.

4. Identifiable drinking problem of the mother: In many cases, a drinking problem can be identified in the mother of children born with FAS symptoms. Where this cannot be established, the impairment is generally inconsistent with familial factors or environment.

Another term has been used more recently to cover the broad range of categories from individual, less serious factors to full-blown FAS. This is the so-called “fetal alcohol spectrum disorder” (FASD) (Sokol, Delaney-Black, & Nordstrom, 2003). While the symptoms in infants with FASD are not as severe as those found in babies with FAS, they include poor sucking reflex, sleep disorders, behavioral problems, and fine and gross motor dysfunction (Nayak & Murthy, 2008; Plant et al., 1999). More specific categories such as alcohol-related birth defects (ARBD)

and alcohol-related neurodevelopmental disorder (ARND) have also been identified (Manning & Hoyme, 2007; Ripabelli, Cimmino, & Grasso, 2006). Mothers of infants with these conditions have drinking patterns that include heavier alcohol intake in pregnancy. These conditions are a serious public health issue with significant implications for the growth and development of the affected children, before and after birth, persisting into adulthood.

It should be noted that in most countries where data are available, FAS is reported relatively rarely (Abel, 1998b; Testa, Quigley, & Das Eiden, 2003). In the United States, for example, the prevalence of FAS is estimated to be between 0.3 and 2.2 per 1,000 live births (Ripabelli et al., 2006), with an average of 0.97 cases per 1,000 live births in developed countries (Abel, 1995). However, research evidence shows that there are certain populations among whom fetal alcohol-related disorders are disproportionately prevalent. For example:

- The highest rate of FAS in the world has been described among certain communities living in South Africa’s Western Cape Province (Croxford & Viljoen, 1999; May et al., 2000, 2007; Viljoen, 1999; Warren et al., 2001).
- Among African American and Native American populations in the U.S. and First Nations communities in Canada, the incidence of FAS is higher than in other populations in either country (e.g., Abel, 1995; Miller et al., 2002).

More research is still needed on the incidence of these conditions in other countries, in particular within the developing world and countries in transition, where diagnosis is rare and data are insufficient.

Overall, higher rates of FAS and FASD have been reported among populations with low socioeconomic status and among socially marginalized groups (e.g., Abel, 1995; May et al., 2008). In many cases, inadequate access to prenatal care and medical care in general contribute to the problem. There is also evidence that other factors, such as maternal age, smoking, poor nutrition, and use of other psychoactive substances (such as illicit and prescribed drugs) may also contribute to the outcomes, meaning that the overall picture is still unclear.

Drinking patterns

The pattern of alcohol consumption is an important variable in the likelihood of harm to an unborn child. Frequent heavy episodic drinking—also referred to as “binge” or extreme drinking—during pregnancy appears to be related to the severity of fetal harm and later childhood mental health and learning problems (Sayal et al., 2009). This consumption pattern is especially risky in the early stages of pregnancy. However, since growth and particularly neural development occur during the second and third trimesters, discouraging harmful drinking patterns is advisable at all stages of pregnancy.

Maternal drinking patterns clearly play a direct and vital role on fetal development:

- Evidence suggests that frequent heavy episodic drinking during pregnancy is related to the severity of fetal harm (Abel, 1998a; Coles, Russell, & Schuetze, 1997) and preterm births (O’Leary, Nassar, Kurinczuk, & Bower, 2009).
- Risk increases among women who are over 30 years of age (Jacobson et al., 1993; Larroque & Kaminski, 1998).
- Problem drinkers are more likely than non-problem drinkers to experience spontaneous abortion (Henriksen et al., 2004).
- Comparisons of drinking patterns among pregnant teenagers and adults showed that the offspring of very young women may be exposed to higher peak blood alcohol levels farther into pregnancy than those of older women (Cornelius et al., 1994).
- In women who are light or infrequent drinkers there is little robust evidence of increased risk of

fetal harm or of spontaneous abortion (e.g., Abel, 1998a; Cavallo, Russo, Zotti, Camerlengo, & Ruggerini, 1995).

Paternal drinking also appears to play a role in contributing to problems in offspring:

- In many cases of children born with FAS, there is evidence of heavy drinking by the father (Disney, Iacono, McGue, Tully, & Legrand, 2008; May et al., 2008).
- Research findings suggest that heavy paternal drinking is associated with an increased risk of cardiovascular defects, such as ventricular septal defect, in the offspring (Savitz, Schwingl, & Keels, 1991).
- Small but significant differences in weight, IQ levels, and immune system problems have also been found in children of fathers who drink excessively (Abel, 1990; Alati et al., 2008; Bielawski & Abel, 1997; Gottesfeld & Abel, 1991; Savitz et al., 1991).

Other considerations

Drinking patterns also play a role in several other related conditions:

- Evidence into the effects of alcohol consumption and fertility suggests that heavy drinking may be associated with an increased risk of infertility, particularly in women over the age of 30 (Eggert, Theobald, & Engfeldt, 2004; Olsen, Bolumar, Boldsen, & Bisanti, 1997; Tolstrup et al., 2003).
- Similarly, rates of spontaneous abortion are higher in women who are problem drinkers, although no robust evidence exists to support an increased risk among those who are light or moderate drinkers (Abel, 1998a; Cavallo et al., 1995).

The harmful combination of heavy alcohol consumption with other factors has long been recognized as a contributor to fetal defects. These factors include the use of drugs such as tobacco and marijuana, poor diet and general health, as well as lower socioeconomic status and social deprivation (Chandler et al., 1996; da Costa Pereira, Olsen, & Ogston, 1993; Faden & Graubard, 2000; Floyd et al., 1993; Fried, 1995; Jacobson et al., 1991; Kesmodel & Olsen, 2001; Lorrente et al., 2000; May et al., 2008; Plant et al., 1999).

Current recommendations

In light of the strong evidence linking certain drinking patterns during pregnancy to various developmental and health outcomes for offspring, this issue deserves special attention. However, while there is consensus that patterns of heavy and extreme drinking are related to harm, there is none on the threshold below which the risk for harm is negligible.

In an effort to educate the public, governments, quasi-governmental organizations, and professional bodies in a number of countries have issued specific recommendations around drinking during pregnancy (see MODULE 19: Drinking Guidelines). In general, there is a strong consensus that women should either abstain from or only drink low amounts of alcohol during pregnancy. This consensus is reflected in recommendations provided in several countries (see ICAP Policy Table: International Guidelines on Drinking and Pregnancy).

- Among countries with policies on alcohol and pregnancy, those recommending abstinence include Australia, Canada, Sweden, the U.K, and the U.S.
- Those countries whose recommendations allow for occasional drinking of low/moderate amounts include Denmark and Switzerland. It should be

noted that countries are increasingly modifying their recommendations to promote abstinence during pregnancy.

One complicating factor should be acknowledged when comparing recommendations for pregnant women about drinking (and recommendations in general). “Standard drinks” or “units” of alcohol vary in different countries, ranging from 8 grams (g) of ethanol in the United Kingdom, for example, 10g in Australia, to 14g in the United States (ICAP, 1998; see MODULE 20: Standard Drinks). Therefore, a pregnant woman having a single drink may be consuming different amounts of ethanol depending on the country of her residence or visit. An additional consideration is that drinks poured in the home and elsewhere outside of serving establishments are not likely to adhere to standard sizes, making accurate estimates difficult (Kaskutas & Graves, 2001; Stockwell & Single, 1997).

Implications for policy and prevention

Harm attributable to drinking during pregnancy is preventable. Policy and prevention efforts can be developed around this issue in an effort to ensure that any potential for harm is minimized to the extent possible. There is clearly a role for a number of actors in this effort, including government, the public health and medical professions, educators, as well as family, friends, and informal support networks.

Information

The first step in reducing the potential for harm related to drinking during pregnancy requires the provision of accurate information to women of childbearing age and especially to those who are pregnant. Such information can be imparted through government-issued guidelines, but may be more effectively shared by healthcare providers (see MODULE 19: Drinking Guidelines; ICAP Policy Table: International Guidelines on Drinking and Pregnancy). For many women, these providers are nurses and physicians, but, particularly where access to healthcare is difficult, such information may be imparted through the intervention by other professionals (e.g., social workers, pharmacists).

Assessment of drinking

Alcohol consumption among young women is increasing in many countries, due largely to the changing role of women in society and their access to disposable income. As a basis for prevention, careful monitoring, therefore, is required to examine these new consumption patterns (especially among women who are already pregnant), with attention to other factors, such as illicit and prescribed drug and tobacco use in this population.

Screening and intervention

Screening of pregnant women for possible alcohol problems may be appropriate in some cases. This can be achieved in a formal way or through the general provision of prenatal care and advice. Pregnant women can

be encouraged to reduce their drinking and to change their drinking patterns through brief interventions (see MODULE 18: Early Identification and Brief Intervention). This also applies to new mothers who are identified as having a drinking problem. Advice should be given within the context of relevant country guidelines where these exist. However, in many countries, especially in the developing world, information, screening, and advice are simply not available.

Support and treatment

It is important that professionals working in alcohol and drug treatment agencies are trained to provide advice to any female client of childbearing age and to provide help and support as early as possible for problem drinking women who become pregnant. Support system is an essential component of education and any attempt to change the drinking patterns of individuals. The involvement of family members and others who play an important role in the lives of expectant mothers can help ensure that harm to both mother and child is minimized.

Several protocols for the treatment of women who abuse alcohol or other substances exist, although reaching the pregnant problem drinker continues to be difficult. Early identification and brief intervention approaches have shown promise. In particular, where pregnant women belong to otherwise marginalized groups (e.g., Native Communities or the urban poor), any effective approach must be culturally appropriate and in some cases must rely on the support of the community as a whole.

Conclusions

Certain patterns of drinking during pregnancy, including heavy chronic and episodic consumption, are associated with fetal harm. However, a number of issues still need to be clarified. First, the prevalence of alcohol-related birth damage in most populations of women worldwide is unknown. Much more research is needed to monitor this situation at local and national levels and to frame adequate prevention, screening, and management programs.

Second, it is yet to be categorically determined what level of alcohol consumption is harmful to an individual woman and her baby. Individual differences in maternal metabolism, nutrition, and possible genetic factors may account for the reasons why some infants are more severely affected than others. There is also less evidence that lower drinking levels are associated with harm.

However, given the potential vulnerability of both mother and fetus during pregnancy, careful advice and assessment are necessary. Harm reduction measures can be implemented that address pregnant women in particular and that can help ensure that pregnancy is carried to term safely, with no lasting effects for the child.

POLICY OPTIONS: Drinking and Pregnancy

In developing policies and approaches, consideration of a number of key elements is required. While some factors may be necessary at a minimum and under most conditions, others may not be appropriate in all cases, or may be difficult to implement. The list below offers a menu of areas that need to be addressed, based on effective approaches that have been implemented elsewhere.

Information

Guidelines around drinking and pregnancy, based on best available evidence. Guidelines may be issued through:

- Government departments (e.g., Ministries of Health, health services)
- Professional bodies (e.g., medical associations)
- Research institutions

Recommendations on drinking during pregnancy based on balanced evidence.

- Some guidelines recommend abstinence during pregnancy.
- Other guidelines recommend limiting alcohol intake to a low level.
- Heavy drinking (regular and episodic) is discouraged due to associated risks of birth defects and other complications for mother and child.

(See also MODULE 9: Women and Alcohol and MODULE 19: Drinking Guidelines)

Education and awareness building about responsible and harmful patterns, e.g., heavy chronic and

episodic drinking during pregnancy and risks of FAS, developmental problems. Some useful information channels may include:

- Mass media campaigns.
- Primary care providers, emergency rooms, social workers, pharmacists, workplace, and schools.

Screening and intervention

Training of health care and social workers, educators, others:

- Accurate information about relationship between pregnancy, drinking patterns, and outcomes.
- Brief intervention techniques.
- Counseling to change drinking patterns.

Access to support system during pregnancy.

- Access to adequate medical care.
- Involvement of family, peers, as appropriate.
- Culturally appropriate advice and support, for example, for Native Communities.
- Alternative approaches for marginalized groups, indigent populations through points of contact.

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