FETAL ALCOHOL SYNDROME

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PUBH-6115-3
Social, Behavioral and Cultural Factors
in Public Health

August 16, 2009

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The evolution of public health in the last two hundred years has seen a change in focus from holistic practice to scientific thought to the eventual inclusion of behavioral and social sciences as contributors to disease processes. Many public health problems cannot be solved without behavioral change in the population and an integrated approach is now gaining attention as a more successful model. With the advent of chronic diseases overtaking infectious diseases as the leading causes of mortality in the United States, more emphasis has been placed on identifying risk factors for diseases. It was found that most chronic diseases could be curtailed with changes in lifestyle such as healthier eating, exercise and abstaining from drug and alcohol abuse. These lifestyle changes are intertwined with adjustments in behavioral, psychosocial and social factors such as, stress reduction, smoking cessation, community involvement and cultural sensitivity (Schneiderman & Speers, 2001). A successful public health policy will integrate all of these factors in approaching the achievement of a healthy population.

In the case of fetal alcohol syndrome, it is the physical and mental health, behavior, and environment of the mother that has ramifications for life of the health of her unborn child. This disease was first identified in 1973 and is now under extensive study to determine the risks and prevention strategies to ensure delivery of healthy children (Barry et al, 2009). Fetal alcohol syndrome encompasses physical, mental, behavioral, and learning disabilities and can be prevented by a pregnant woman simply abstaining from alcohol. Prenatal alcohol exposure can cause brain cells to die resulting in irreversible outcomes (Wacha & Obrzut, 2007) and is manifested in a combination of fetal abnormalities. The diagnosis consists of growth retardation, abnormal facial features, and central nervous system dysfunction. It is considered the most preventable, non-genetic cause of diminished intellectual capacity (O'Leary, 2003) and can

actually result in a smaller or abnormal brain (Cousins & Wells, 2005). The World Health Organization has listed it as the highest indicator for birth defects and mental retardation (Kyskan & Moore, 2005). Fetal alcohol syndrome occurs in 0.5-2.0 cases per 1,000 births in the United States (Centers for Disease Control, 2009) with rates as high as 9.8/1000 births among Southwestern Plains Indians living on reservations (Hankin, 2002). The prevalence of alcohol use and binge drinking during pregnancy did not significantly change from 1991-2005 (CDC, 2009). Increased rates of miscarriage, stillbirth, premature birth, low birth weight, and intrauterine growth retardation have all been associated with alcohol consumption during pregnancy (Elliott & Bower, 2008). Other drug use along with alcohol use including binge drinking (CDC, 2009) has also increased in recent years, mostly among poor women (Sharpe & Velasquez, 2008). National data shows that 78% of women stop using illicit substances during pregnancy but then many resume the practices after pregnancy (Zambrana & Scrimshaw, 1997). The consequences of fetal alcohol syndrome can have a high impact on public health due to the potential for life-long interventions for the affected child and treatment or prevention efforts focused on the mother.

The behavioral factors leading to fetal alcohol syndrome is multi-faceted. Because alcohol is a legal beverage and is promoted as a rite of passage to adulthood, it is often associated with partying, relaxing and recreation. Women have different drinking habits than men and tend to drink more privately making their abuse less visible to others but they also become impaired with alcohol more quickly and are less likely to seek help. There is still more social stigma associated with alcohol consumption by women (World Health Organization, 2005). Because alcohol use is becoming more socially acceptable in most cultures, the decreased inhibitions associated with drunkenness (Kyskan & Moore, 2005) often leads to unwanted

pregnancy. Many girls are intoxicated when they have their first sexual encounter (WHO, 2005). Women who use illicit drugs are also more likely to smoke and use alcohol during pregnancy and do not consistently use contraceptives. Alcohol use combined with illicit drug use among poor women has increased significantly since 1994. A report by the Drug Abuse Warning Network showed that 34% of drug-related emergency department visits also included alcohol abuse (Sharpe & Velasquez, 2008). Women who are already drinking alcohol before becoming pregnant are at a higher risk of drinking during pregnancy (CDC, 2009).

The psychosocial factors of fetal alcohol syndrome can be linked to negative role models, mental health issues, and misguided coping mechanisms. Between 1991 and 1995 there was a significant increase in alcohol use by pregnant women. It was thought by the researchers that this increase may be due to recent media stories reporting on the health benefits of moderate drinking. Despite this trend, the United States still has a low rate of alcohol consumption per capita compared to other countries (Kyskan & Moore, 2005). Other risk factors include depression, unhappiness about being pregnant, and lack of emotional support from family and partners who use drugs. (Zambrana & Scrimshaw, 1997). Some studies have shown that economically disadvantaged women may have a mistrust of medical professionals and avoid seeking medical care. Because of fear and misunderstanding, problems with substance abuse may often go undetected for many years (O'Connor & Whaley, 2007). The use of tobacco, drugs, and alcohol are a means of coping with stress and justified by some for these reasons. A lack of social support and increased violence against women may contribute to higher levels of drinking while pregnant (Zambrana & Scrimshaw, 1997).There is also a lack of understanding about the dangers of alcohol. Some women believe that wine, beer, and wine coolers are safe to drink during pregnancy (Hankin, 2002).

The environmental dimensions of fetal alcohol syndrome range from socio-economic status to a lack of education and opportunity in life. Many poor women experience unhealthy nutrition, genetic predisposition and have a history of alcoholism in their families. Race has been evaluated as a possible contributing factor but the results are confounded by the inter-relationship of socio-economic status and ethic origin. Biological factors have also been evaluated but no clear evidence has been found to link alcohol use with minority women (O'Leary, 2003). Approximately 49 percent of pregnancies are unplanned and are associated with younger, less educated, poor, and minority women. These low income women include those in jail as well as those in drug and alcohol treatment facilities. They often have limited resources and may not even know that alcohol is dangerous for a fetus. Or, they may have a general idea that it is harmful but not understand the danger zones for the gestational period and at which level the amount of alcohol consumed becomes life threatening or debilitating (Sharpe & Velasquez, 2008). Many state Medicaid programs have restricted coverage for alcohol treatment in an effort to balance their budgets. The family environment may also contribute to an increased risk for alcohol use during pregnancy. Researchers have reported that many times family members also have problems with drug abuse, domestic violence and mental health and perpetuate this culture to the extended family (Cousins & Wells, 2005).). These cultural factors and drinking norms have a tendency to promote further drinking regardless of pregnancy status (O'Leary, 2003). Women who drink while pregnant are likely to be unmarried, unemployed, and have less than 12 years of education (Zambrana, & Scrimshaw, 1997). Smoking, marital status, and age have all been shown to be associated with increased drinking during pregnancy. Unmarried, white women drank more as well as older women (Bobo, Klepinger, & Dong, 2006). Women in college have increased their level of alcohol consumption in recent years despite an

increase in the number of prevention programs aimed at this group (Barry et al., 2009). Some studies have shown that women of ethnic minorities are less likely to receive appropriate pre-natal counseling and tend to have a higher incidence of alcohol consumption during pregnancy (O'Connor & Whaley, 2007).

Prevention of fetal alcohol syndrome can be initiated by providing education to women of child-bearing age before they get pregnant and offering family planning services for those who are already consuming alcohol but unable to quit (Cousins & Wells, 2005). Education is a key component to prevention and should be included in routine obstetric and general practitioner care. Physicians themselves need to be educated about the diagnostic features of fetal alcohol syndrome. Only 17.5% of obstetricians surveyed in a study in Australia from 2002-2003 could identify the features of fetal alcohol syndrome and confidently provide a positive diagnosis (Elliott & Bower, 2008). All women of child bearing age should be monitored for alcohol and drug use as a part of their routine medical care. Preconception counseling, substance abuse education, birth control information and awareness about fetal alcohol syndrome should be part of routine care especially in high risk women (Sharpe & Velasquez, 2008). Selective prevention efforts targeting women who may have already had a child with fetal alcohol syndrome may be successful in preventing a second impaired pregnancy and counseling for those at risk is key among these efforts (Hankin, 2002). Some physicians have not been properly educated about fetal alcohol syndrome and often give incorrect information to their patients. One survey in 1998 showed that 41% of physicians thought one to three drinks per day was too many and 38% were advising one or fewer drinks per day. These opinions were both contrary to the Surgeon General's advice to not drink at all during pregnancy (Kyskan & Moore, 2005). Brief interventions such as time-limited sessions with various types of providers have shown to be

successful in some studies. These interventions included behavioral counseling, feedback on drinking behavior, goal setting, provider training and followup. Some populations such as mothers who have previously given birth to a baby with fetal alcohol syndrome were found to need more than brief interventions. These women require more intensive management and aftercare to ensure long term success in abstinence from drinking (Barry, et al, 2009). Secondary prevention measures could include alcoholism treatment of pregnant women or those who may become pregnant. This, coupled with education about the dangers of drinking while pregnant may help mitigate further damage to the fetus (Hankin, 2002). Post-partum programs and surveillance may help to prevent more long-term problems reduce the chance for drinking during subsequent pregnancies (Zambrana & Scrimshaw, 1997). Successful prevention of prenatal alcohol exposure will involve a combination of strategies followed by evaluation studies to provide reinforcement and strength to each program (Barry et al, 2009).

The public health policy implications of fetal alcohol syndrome are multi-faceted. Because a child with fetal alcohol syndrome may need long-term medical care, psychological, and behavioral intervention, many of these services may come from public health. Since health policies are usually based on scientific evidence and knowledge, research on topics such as fetal alcohol syndrome have wide interest. Since there is still some debate about the actual safe levels of alcohol, it is difficult to present valid data to policy makers for a definitive decision. As a result, a uniform, standard policy is difficult to generate (Kyskan & Moore, 2005). One of the objectives of the CDC's Healthy People 2010 program is to increase the percentage to 95% of pregnant women who abstain from using alcohol. The CDC also supports regional training centers for health care providers to learn how to deal with women and alcohol and is in the process of developing state-based fetal alcohol syndrome prevention programs to help reduce the

incidence of this problem (CDC, 2009). Many clinics have been established to treat and educate the public about this disease. The National Organization of FAS (Fetal Alcohol Syndrome) website has directory information for national and state resources including community groups, support groups, prevention programs, prenatal care, addiction services, and treatment services (Kyskan & Moore, 2005). Screening for alcohol use needs to be implemented in public health clinics to target high risk members of the population (O'Leary, 2003). This may be a challenge if financial resources are not available. Since unplanned pregnancies increase the chance for alcohol exposure to unborn babies, public health policy should include strategies to improve education of women of childbearing age and aggressively promote prevention measures (Sharpe & Velasquez, 2008). Family planning clinics can help by providing screening programs. One example of a public policy that has been somewhat successful is the alcohol beverage warning label that was passed by the U.S. Congress in 1988. Although knowledge of fetal alcohol syndrome increased significantly from 62 percent to 73 percent over a five-year period knowledge levels alone will not change behaviors and additional research is needed to identify the most effective ways to get the message out (Hankin, 2002). The Surgeon General first recommended in 1981 that pregnant women should not drink alcohol at al (Bobo, Klepinger, & Dong, 2006). In 2005 the same recommendation was re-released in an effort to revive awareness of this problem (Hankin, 2002). The World Health Organization (WHO) has published many strategies regarding alcohol consumption including: minimum age requirements for purchasing alcohol, restricted hours or days of alcohol sales, increased taxes on alcoholic beverages, drivers license suspensions for drinking while driving, alcohol education in schools, public service messages, warning labels, designated drivers, and ride services (Barry et al, 2009). Increased alcohol tax may reduce drinking since studies have shown that binge drinking is reduced when

prices go up. Some states have developed prevention programs aimed at public awareness of fetal alcohol syndrome. The state of Alaska mandates reporting of prevalence rates and also has programs in place to promote prevention, early detection, and evaluation of these programs. Statewide assistance is also provided through training for families and children (Kyskan & Moore, 2005). Successful approaches should include improved screening mechanisms, brief interventions with motivational and behavioral models, improving contraceptive practices, and using technology for education and followup (Barry, et al, 2009). Some successful brief interventions using the social learning theory have included nutritionist counseling combined with healthy menu planning and simply encouraging pregnant women not to drink. This positive reception may have been due to the one-on-one time that was spent by non-medical personnel and the desire by the women to have healthy pregnancies (O'Connor & Whaley, 2007). One prevention study called Project TrEAT (Trial for Early Alcohol Treatment) concluded that brief interventions consisting of two 15 minute counseling sessions with review of current health behavior, alcohol intake, agreement not to drink, and education regarding adverse effects was more successful than simply receiving a booklet on health issues (Hankin, 2002).

Public health interventions can take many approaches. The complex interactions of behavioral and social factors leading to fetal alcohol syndrome will require a behavior modification model designed to persuade mothers not to consume alcohol while pregnant. Evaluation studies are also vital in ensuring a successful program. Some interventions are more successful than others and have the potential to change societal norms. It is important to track which methods are effective in which particular population (Barry et al., 2009). One possible approach would be to use the media in getting the message out. Successful media outlets could include pubic service announcements, health related news stories, and entertainment features

promoting lifestyles that do not include alcohol consumption. The health belief model focuses on using knowledge to persuade behavior change based on the intention to improve one's health and believing that the benefits of not drinking will outweigh the perceived sacrifices in giving up the habit. In the case of pregnancy, the desire to improve health is not for the mother alone but also for her unborn child (Bobo, Klepinger, & Dong, 2006). This model has been successful when used for predicting whether or not behaviors will be changed from unhealthy to healthy in a specific test such as immunizations or checkups, but has had some limitations in more complex studies (Schneiderman & Speers, 2001).

Partnership and collaboration among federal, state, and local agencies is vital as well as community involvement (Barry et al., 2009). Programs such as community-based research that involve combined efforts at education and support will have a higher rate of success than single-minded approaches. A successful community coalition includes forming a group of concerned citizens, setting goals, conducting a needs assessment, developing a plan, implementing a program and evaluating its impact on the community. Participation by citizens is key in the success of these kinds of programs. The personality of individuals and their psychological makeup will determine whether or not they get involved in community efforts. Some people participate only if there is something to gain and others may participate for the actual benefit of those needing help (Schneiderman & Speers, 2001). Substance abuse programs designed for women may provide success in reducing fetal alcohol syndrome. Coupled with organization such as Alcoholics Anonymous, abstinence rates could significantly increase. Some medication programs have also been successful when coupled with other interventions. However, these drugs have not yet been approved by the U.S. Federal Drug Administration for use during pregnancy, but may be beneficial in women who are not yet pregnant (Barry, et al, 2009).

Providing supportive programs for pregnant women who drink alcohol may depend on soliciting help from groups such as Alcoholics Anonymous and utilizing the life experiences of women who have kicked the habit. Other successful efforts may include providing alternatives to drinking such as alcohol- free activities, social networking and accountability systems. A combined effort at education and screening by obstetricians, pediatricians, midwives, and local health department professionals is the biggest key to prevention (Elliott, 2008). Applying behavioral and social sciences to the disease of fetal alcohol syndrome will contribute to a clearer approach for intervention and planning. However, more research is needed to fully understand the risks and consequences of alcohol consumption during pregnancy (O'Leary, 2004). Understanding the scope of the problem along with education, prevention, and affordable treatment programs will be vital in designing an effective public health promotion policy and ensure a greater chance of success.

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