Prevalence of Alcohol Consumption during Pregnancy and Fetal Alcohol Spectrum Disorder

Presented by
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OVERVIEW

• Prevalence of alcohol consumption and binge drinking during pregnancy in general population of different countries (including countries of Latin America and the Caribbean), World Health Organization (WHO) regions and globally.

• Prevalence of FAS/FASD in different populations in different countries (including countries of Latin America and the Caribbean), WHO regions and globally.
FASD is one of the leading known preventable cause of birth defects and developmental delay (PHAC, 2005)

• Alcohol => Harm to others! FASD is one of the most dramatic examples of such harm

• What is FASD?
  – An umbrella term describing the range of effects that can occur in a person whose mother drank alcohol during pregnancy

• Primary disabilities: permanent brain injury, learning disorders, developmental disabilities, maladaptive behaviours, physical malformations, and growth restrictions

• Other common outcomes: early school dropout, addiction problems, poorly recognized mental health conditions, promiscuous sexual behaviour, and trouble with the law

• Irreversible and lifelong
Permanent Brain Damage

- Prenatal alcohol exposure can permanently damage the brain affecting important structures such as the cerebellum and corpus callosum.

Permanent loss of the tissue indicated by the arrows (portions of the corpus callosum).

*Source:* Mattson et al. 1994. Alcohol Health & Research World
428 comorbid conditions, spanning across 18 (out of 22) chapters of the ICD-10

Percentage of conditions found to occur among individuals with FASD by ICD-10 chapter

- 6%; Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)
- 19%; Mental and behavioural disorders (F00-F99)
- 43%; Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
- 9%; Diseases of eye and adnexa (H00-H59)
- 4%; Diseases of the ear and mastoid process (H60-H95)
- 3%; Diseases of the circulatory system (I00-I99)
- 1%; Diseases of the respiratory system (J00-J99)
- 1%; Diseases of the digestive system (K00-K93)
- 2%; Diseases of the nervous system (G00-G99)
- 1%; Diseases of the eye and adnexa (H00-H59)
- 1%; Diseases of the musculoskeletal system and connective tissue (M00-M99)
- 1%; Diseases of the genitourinary system (N00-N99)
- 1%; Certain conditions originating in the perinatal period (P00-P99)
- 1%; Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
- 1%; Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)
- 1%; External causes of morbidity and mortality (V01-Y98)
- 1%; Factors influencing health status and contact with health services (Z00-Z99)

FASD is costly!

Total annual cost: $1.3B - $2.3B

Percentage of main cost components attributable to FASD in Canada in 2013

Popova et al. 2015. Available at: http://www.camh.ca/en/research/Pages/research.aspx
Prevalence of Alcohol Use During Pregnancy and FAS/FASD


Objective: To estimate the prevalence of alcohol use and binge drinking during pregnancy and FAS/FASD by country, WHO region, and globally

Methodology:

Comprehensive Literature search: not limited geographically/language
Meta-analyses: Pooled prevalence for countries with 2+ studies, assuming a random-effects model
Data prediction: For countries with one or no studies:

a) For AC: using fractional response regression modelling and;

b) For FAS/FASD: based on the proportion of women who gave birth to a child with FAS/FASD among women who consumed alcohol during pregnancy

• Estimated WHO regional and global averages of FAS/FASD prevalence weighted by the number of live births in each country
Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012


- Data from published studies on the prevalence of alcohol consumption during pregnancy were available from 5 of the 33 countries in Latin America and the Caribbean:
  - Brazil [n=17], Chile [n=2], Guatemala [n=1], Mexico [n=3], and Uruguay [n=1]; no studies from the Caribbean.
  - Meta-analysis for Brazil and Mexico, based on the criterion of three available studies per country.
  - The prevalence of alcohol consumption during pregnancy was predicted for 31 countries.
Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012

Lange, Probst, Heer, ... & Popova. 2017. Rev Panam Salud Publica

†Estimate of alcohol use (any amount) during pregnancy based on a meta-analysis of the current literature
Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012

Lange, Probst, Heer ... & Popova. 2017. Rev Panam Salud Publica
Prevalence of Binge Drinking During Pregnancy in General Population of Latin America and the Caribbean in 2012

*Estimate of binge drinking during pregnancy based on a meta-analysis of the current literature
Prevalence of FAS/FASD in General Population

Flow chart for systematic literature search on prevalence of FAS/FASD

11,089 records identified through database searching
11,110 records found
5,965 records screened
430 full-text articles assessed for eligibility
368 full-text articles excluded; lack of relevant data or did not meet the inclusion criteria
62 articles identified as including relevant data from 19 countries [African Region (South Africa, 9 studies), European Region (Croatia, 2 studies; Denmark, 1 study; France, 7 studies; Germany, 1 study; Ireland, 1 study; Italy, 3 studies; Netherlands, 1 study; Portugal, 1 study; Spain, 1 study; Sweden, 2 studies; Switzerland, 1 study; and United Kingdom, 3 studies), Region of the Americas (Canada, 2 studies; United States, 24 studies; and Uruguay, 1 study), and Western Pacific Region (Australia, 7 studies; New Zealand, 1 study; and Republic of Korea, 1 study)]
Prevalence of FAS in General Population by WHO Region and Globally, 2012


Prevalence (per 10,000)

- EUR: 37.4
- AMR: 16.6
- AFR: 14.8
- WPR: 12.7
- SEAR: 2.7
- EMR: 0.2
- Worldwide: 0.15%
- AFR: 14.6
Prevalence of FASD in General Population by WHO Region and Globally, 2012

Prevalence (per 10,000)

EUR: 198.2  AMR: 87.9  AFR: 78.3  WPR: 67.4  SEAR: 14.1  EMR: 1.3  Global: 77.3

AFR = African Region, AMR = Region of the Americas, EMR = Eastern-Mediterranean Region, EUR = European Region, SEAR = South-East Asia Region, WPR = Western Pacific Region

Globally: 0.77%

EUR: 2%
Prevalence of FAS and FASD in Latin America and the Caribbean in 2012

Prevalence (per 1,000)
Comparison FASD prevalence among special populations, based on select studies, to the global prevalence among the general population

As compared to the global FASD prevalence among the general population:
- 5 to 68 times higher among children in care
- 16 to 25 times higher among Aboriginal populations
- 19 times higher among a psychiatric care population
- 24 times higher in a low socioeconomic status population
- 30 times higher in a correctional population

Prevalence (per 1,000)

- 521.13: Adoptees from Eastern Europe, Sweden (Landgren et al.64)
- 285.19: Foster and adopted youth referred to a children’s mental health centre, USA (Chasnoff et al.65)
- 233.45: Foster and adopted youth referred to a children’s mental health centre, Canada (Fast et al.66)
- 189.66: Aboriginal population, Canada (Robinson et al.67)
- 182.4: Rural population with a low socioeconomic status, South Africa (de Vries et al.68)
- 170.21: Children residing in an orphanage, Brazil (Strömeland et al.69)
- 142.39: Psychiatric care population, USA (Bell & Chimata70)
- 120.37: Aboriginal population, Australia (Fitzpatrick et al.71)
- 40: Pre-adoption & foster care children, Israel (Tenenbaum et al.72)
- 7.73: General population, Globally

Popova et al. (submitted)
Discussion

- FASD is a prevalent alcohol-related developmental disability globally
- Establish a universal public health message about the potential harm of prenatal alcohol exposure
- Establish routine screening protocols
- Provide brief interventions, where appropriate, to all pregnant women
- Special attention has to be paid to high-risk populations where the impact of FASD is especially severe
References


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Remember: When you drink, so does your child