Adverse Birth Outcomes Among Adolescents in Botswana

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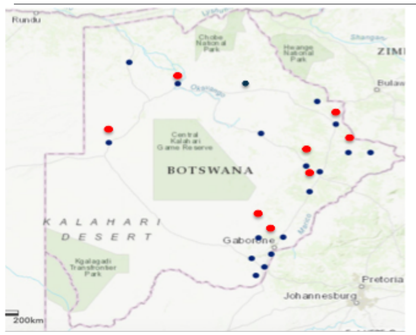
Background



8 original sites in RED
10 new sites in BLUE

Adolescent pregnancy remains a significant social, economic, and health care problem in sub-Saharan Africa. The adolescent birth rate in Botswana was 50 per 1000 in 2017, exceeding the global rate of 44 per 1000. Additionally, the HIV epidemic continues to disproportionately effect adolescent girls and young women with a prevalence rate of 26.3% compared to the rate of 17.6% for men[1]. There are limited data for adverse birth outcomes among adolescents in Botswana, especially those living with HIV.

Goals/Hypothesis/Questions

The primary goal of our study was to evaluate the prevalence of adverse birth outcomes in adolescent women compared with with adult women in Botswana.

Methods

- Data were analyzed from Tsepamo Study conducted through the Botswana-Harvard Partnership.
  - Tsepamo is a birth outcomes surveillance study where data are abstracted from the antenatal clinic record at the time of delivery for all births at study sites.
- Sub-analysis included the 8 initial Tsepamo sites, representing approximately 45% of all births in the country from 2014 to 2020
- We defined adolescents as participants between 10 to 19 years of age and compared them to adult women between 20 to 35 years of age.
- Adverse birth outcomes included **preterm delivery** (<37 weeks gestational age[GA]), **small for gestational age** (<10% percentile weight-for-GA per Intergrowth-21 standards), **stillbirth** and **neonatal death** (<28 days among infants who never left the hospital)
- We performed Chi squared tests to evaluate for differences in the prevalence of adverse birth outcomes between adults and adolescents.

Table 1. Study Participant Demographics

	Age Cohorts			
	10-14 year olds	15-19 year olds	20-35 year olds	Total
	N=242	N=21,048	N=123,094	
Community				
Rural	158 (65.3%)	13,636 (64.8%)	70,729 (57.5%)	84,523 (58.5%)
Urban	84 (34.7%)	7,412 (35.2%)	52,365 (42.5%)	59,861 (41.5%)
Nationality				
Non-Motswana	3 (1.2%)	350 (1.7%)	4,273 (3.5%)	4,626 (3.2%)
Motswana	237 (97.9%)	20,610 (97.9%)	118,440 (96.2%)	139,287 (96.5%)
Unknown	2 (0.8%)	88(0.4%)	381 (0.3%)	471(0.3%)
Number of Total Prior Pregnancies				
No prior pregnancies	234 (96.7%)	19,049 (90.5%)	43,041 (35.0%%)	62,324 (43.2%)
Multiparous	8 (3.3%)	1,906 (9.1%)	78,726 (64.0%)	80,640 (55.9%)
Grand-multiparous	0	0	904 (0.7%)	904 (0.6%)
Unknown	0	93 (0.4%)	423 (0.3%)	516 (0.4%)
HIV Status				
No	231 (95.5%)	19,284 (91.6%)	94,566 (76.8%)	11,4081 (79.0%)
Yes	7 (2.9%)	1,599 (7.6%)	27,649 (22.5%)	29,255 (20.3%)
Unknown	4 (1.6%)	165 (0.8%)	879 (0.7%)	1,046 (0.7%)

Table 2. Birth Outcomes

	Adolescents vs Adults		
	Adolescents	Adults	P-Value
Gestational age at delivery			<0.001
Term	16,569 (77.8%)	100,734 (81.8)	
Preterm	4076 (19.2%)	19,079 (15.5%)	
Unknown	645 (3.0%)	3,281 (2.7%)	
Total	21,290	123,091	
Small for gestational age			
No	17,421(81.8%)	103,084 (83.7%)	<0.001
Yes	3,067 (14.1%)	15,839 (12.9%)	
Unknown	802 (3.8%)	4,171 (3.4%)	
Total	21,290	123,094	
Mode of Delivery: Cesarean Section			
No	18,213 (85.6%)	95,152 (77.3%)	<0.001
Yes	3,056 (14.4%)	27,806 (22.6%)	
Unknown	21(0.1%)	136 (0.1%)	
Total	21,290	123,094	
Stillbirth			
Yes	340 (1.6%)	2779 (2.3%)	<0.001
No	20,949 (98.4%)	120,298 (97.7%)	
Unknown	1 (0%)	17 (0%)	
Total	21,290	123,094	
Neonatal Death <28 Days			(<.001)
No	20,679 (97.1%)	118,385 (96.1)	
Yes	249 (1.2%)	1,699 (1.4%)	
Unknown	362(1.7%)	3,010 (2.5%)	
Total	21,290	123,094	

Findings

- 165,457 births were recorded in the Tsepamo database including 21,290 (12.9%) adolescents and 123,094 (74.4%) aged 20-35. Among adolescents, 242 (1.2%) were aged 10-14, and 21,048 (98.9%) were aged 15-19.
- HIV infections increased markedly by age: 2.9% among those 10-14, 7.6% among those 15-19, and 22.5% among those 25-35.
- Compared with 20-35 year old adults, adolescents were more likely to have preterm births (19.2% vs. 15.5%, p<.001) and small for gestational age infants (15.0% vs. 13.3%, p<.001).

Conclusions

- The prevalence of adolescent HIV infection and adolescent pregnancy in Botswana is high.
- Linking HIV prevention and family planning strategies for this age group may help break the cycle of HIV infection in young women.
- Additional research needs to be conducted to better understand the potential of adverse birth outcomes among adolescents on longer-term infant outcomes.

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1. https://www.unaids.org/en/regionscountries/countries/botswana