Obesity, gestational weight gain and adverse birth outcomes in South African women

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BACKGROUND

- Obesity increases medically-indicated preterm delivery (MI-PTD), high birthweight (HBW) and large for gestational age (LGA) infants
- HIV/ART contribute to spontaneous PTD, low birthweight (LBW) and small for gestational age (SGA) infants
- Obesity in HIV+ individuals on ART increasingly common
- Few data on obesity and gestational weight gain (GWG) in HIV+ pregnant women on ART

METHODS

- 2921 (HIV- & HIV+) pregnant women ages ≥18y at 1st antenatal care (ANC) visit
- Overall cohort followed through routine medical records
- Subset cohort (n=471) of HIV+ women followed through study visits
- Pre-pregnancy BMI estimated using corrected first ANC weight
- Associations between obesity, high GWG (per IOM guidelines) and birth outcomes (PTD, birthweight and size for GA) assessed via multinomial logistic regression

RESULTS

- Median age 28y, GA at first ANC 19w, BMI 29 kg/m^2 (IQR, 24-34) - similar by HIV status, 38% were HIV+
- Obesity prevalence: HIV- (46%) and HIV+ women (42%) (Fig. 1)
- In HIV+ subset, median GWG 0.25 kg/week (IQR, 0.11-0.42)
- High GWG in HIV+ subset: non-obese (15%) and obese (35%) women (Fig. 2)
- In obese women, frequencies of spontaneous PTD, MI-PTD, LBW, SGA, HBW and LGA did not differ by HIV status (Fig. 3)
- Obesity significantly associated with reduced odds of LBW & SGA in HIV- and HIV+ women; and increased odds of HBW & LGA in HIV- and HIV+ (non-significant) women (Table 1)

Obesity common in both HIV- and HIV+ women in South Africa – association between obesity in pregnancy and adverse birth outcomes similar regardless of HIV status

RESULTS (cont)

Fig 1. Pre-pregnancy BMI by HIV status

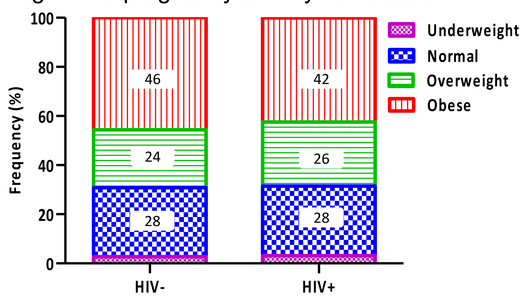


Fig 2. GWG categories in HIV+ women

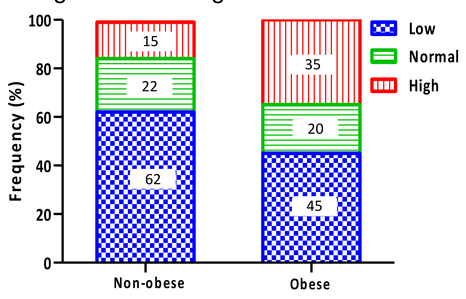


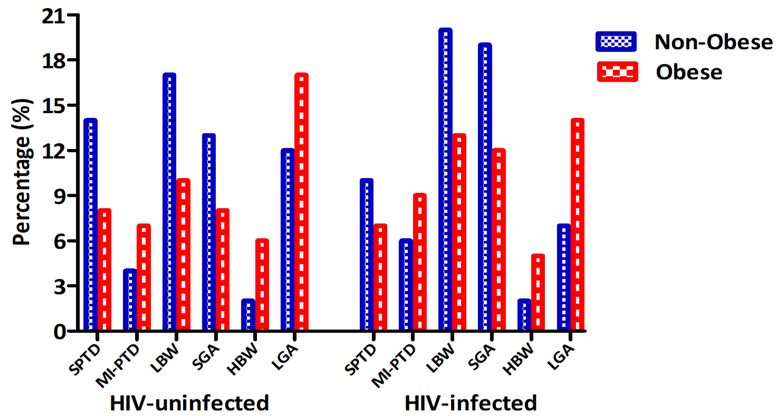
Table 1. Association of obesity, GWG and birth outcomes

	HIV-uninfected n = 1779 Obese vs Non-obese	HIV-infected n = 1142 Obese vs Non-obese	HIV-infected n = 471 High vs Normal GWG
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Preterm delivery (<37 wks)			
Spontaneous PTD	**0.52 (0.31-0.89)**	0.95 (0.47-1.91)	1.25 (0.20-7.65)
Medically Indicated PTD	1.27 (0.53-3.03)	2.21 (0.93-5.23)	2.54 (0.49-13.09)
Birth weight (g)			
Low (<2500)	**0.57 (0.37-0.88)**	**0.61 (0.38-0.97)**	2.24 (0.83-6.07)
High (>4000)	**3.31 (1.41-7.76)**	1.66 (0.69-4.00)	2.18 (0.56-8.59)
Size for GA (centile)			
Small (<10th)	**0.59 (0.37-0.93)**	**0.52 (0.32-0.84)**	1.65 (0.63-4.33)
Large (>90th)	**1.68 (1.11-2.55)**	1.63 (0.94-2.83)	2.10 (0.68-6.52)

Adjusted for maternal age, ART status, haemoglobin, GA at enrolment and parity

RESULTS (cont)

Fig 3. Frequencies of birth outcomes by BMI status



CONCLUSIONS

- Many HIV- and HIV+ women in this setting are obese; obese women likely to have high GWG
- Obesity associated with HBW and LGA, although only borderline significant in HIV+ women
- Obesity in HIV+ women may alter previously reported association of HIV/ART with LBW and SGA
- Further research needed to assess long-term impact of exposure to both HIV/ART and obesity in off-springs

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