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## **Hierarchical modelling approach to identify factors affecting HIV testing and counselling among women who were attending antenatal care services in Ethiopia**

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**Background:** HIV counselling and testing (HCT) enables individuals to make informed choices and actions concerning their HIV status. This study examined individual and contextual predictors of HCT uptake among women attending antenatal care (ANC) in Ethiopia.

**Method:** Between May 05 and July 15, 2011, 1493 post-partum women attending child immunization services at 50 health facilities in 46 districts of Ethiopia, were enrolled in this cross-sectional study using multistage probability sampling. Due to the nested nature of the data, hierarchical modelling methods were used and assessed macro-level random-effects.

**Result:** 74.6% of women accessed HCT services during their most recent pregnancy. The multivariate multilevel model found individual-level significant predictors for HCT included: Attending ANC (OR=4.54; 95%CI 2.82,7.33) and getting encouragement from husband (OR=1.97; 95%CI 1.25,3.10). At community-level, for the addition of one health facility per 25000 and HCT site 24000 people increased the likelihood of HCT utilization by 2.1 and 2.4 fold, respectively. Findings also showed that HCT utilization is nested according to district of residence, contributing 11.3% of the variance.

**Conclusion:** This study highlights that factors influencing HCT utilization operate at the individual and community-levels. Hierarchical modelling allows identification of factors at personal and societal-level impeding antenatal HCT uptake. The government should focus on increasing ANC access, educating couples on importance of health services utilization, increasing health facility and HCT sites per population to improve HCT utilization.

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