Abstract Title: The Association Between Intimate Partner Violence and Birth Spacing: an Application of the Cox Proportional Hazards Model to the Demographic and Health Surveys

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Introduction

Intimate partner violence (IPV) is the most prevalent form of gender-based violence; the 2013 Global Burden of Disease Study indicate that an estimated 30% of women age 15 or over have experienced IPV.(2-4) Women who experience sexual or physical IPV are at increased risk of experiencing unwanted pregnancies. (2) Exercising control over women's fertility is one pathway through which IPV occurs. Reproductive control takes myriad forms. IPV affects women's ability to negotiate safe sexual practices or to express their fertility intentions. Women may be forced to have sex or to practice unprotected sex by their male partners and male partners may sabotage women's FP to increase their female partner's dependency or to otherwise express their control over their partner's decision making. (1) Inadequate birth spacing is a known risk factor for maternal and infant mortality. (5) Understanding how IPV affects birth spacing is central to quantifying the public health burden of IPV on women and children. Birth spacing is correlated with maternal death and disability and health outcomes for infants and children.

Methods

While the DHS collects data on the spacing of all of women's births, detailed data is collected in the last five years of a woman's birth history. To ensure we can adjust for measured factors that may confound the relationship between IPV and birth spacing, we will restrict our analysis to birth spacing within the last 5 years. Although we are using cross-sectional data, because we are interested in the causal nature of IPV on birth spacing, we will compare women who report IPV prior to the index birth to women who do not report IPV prior to that birth. The analysis will adjust for factors known to influence birth spacing including: birth order, sex of prior children, knowledge of family planning (FP) methods, FP uptake and method choice, use of antenatal and postnatal care, breast feeding, and maternal age, age at first birth, urban or rural residence, household income, maternal employment and education. We will model birth intervals using the Cox proportional hazards model to examine the differential spacing of births by women's experience of IPV. Because physical and sexual IPV may have a differential effect on birth spacing, we will look at these exposures separately. The birth interval will be defined as the time, in months, between women's reported births during the last five years. We will consider births within the interval of 12-35 months as inadequately spaced. (6) Women who report sterilization will be right censored. For the last child, we will use the child's age as the estimated duration of the last birth interval. For women who report that they or their partners are sterilized, we will

censor their survival time at the birth of their youngest child. We will use the non-parametric Wilcoxon test to test the null hypothesis of the equality of the survivor functions for women who do and do not experience sexual and/or physical IPV prior to the index birth. We will evaluate the regression coefficients from the Cox proportional hazards model to understand which risk factors significantly increase or decrease the number of months in the birth interval.

Expected Results

Duration between successive births is the result of a confluence of factors. Qualitative work indicates that reproductive sabotage is one way in which IPV occurs. This analysis will quantify the association between IPV and birth spacing. We hypothesize that IPV will have a significant effect on birth interval, after adjusting for the aforementioned factors. We also hypothesize that the relationship between IPV and birth spacing may be modified by the sex of preceding children in IPV may be more closely associated with a decreased birth interval in women whose preceding live births are all female.

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