Background

South Africa has high rates of intimate partner violence (IPV) against women. One in three adult women has experienced physical partner violence during her lifetime.[1] The perpetration of partnered violence violates a woman's right to freedom, and IPV has been shown to have significant negative consequences for South African women across the life course including injury, victimization, poor mental health, sexually transmitted infections (including HIV), substance use and death.[2,3]

In the only study on IPV during pregnancy or postpartum in South Africa, one in six women experienced physical partner violence during their most recent pregnancy.[4] Although we know very little about IPV during the period of reproduction for South African women, research in other settings shows that IPV during this time has been associated with significant negative consequences for both the mother and child, including preterm labor, vaginal bleeding, kidney infections, urinary tract infections, poor mental health, preterm birth, low birth weight and neonatal death. [5,6,7,8,9,10,11,12,13]

Women who do experience IPV during the period of reproduction may find that the transitions into pregnancy and motherhood affect their experience of IPV in different ways. Different subpopulations of women may experience different patterns, or trajectories, of violence during the reproductive period[14]. There is some empirical evidence to suggest that pregnancy is a time of respite from IPV for certain women and a time of risk for others. For example, some women who have previously experienced IPV in their relationship continue to experience IPV during the pregnancy and postpartum period.[15,16] However, other women who have previously experienced IPV in their relationship find that IPV ceases or abates during this time.[14,17] Further, some women who have never experienced IPV before the period of reproduction find that it emerges for the first time.[18,19] In order to appropriately identify and intervene with South African

women who are at risk of IPV during and following pregnancy, it is important to understand how IPV changes and for whom it changes during the period of reproduction.

Theoretical literature suggests that the type of relationship women have with their partners may affect whether the period of reproduction is a time of respite or risk of IPV. First, women who have experienced IPV before pregnancy may be more likely to experience IPV in their relationship during the period of reproduction as compared to women who have not experienced IPV before pregnancy[14]. Second, women whose partners are less committed to or supportive of the relationship may be more likely to experience IPV during reproduction because the partner feels he has less to lose in the relationship than he might if he was more committed to the relationship during the period of reproduction.[20] Third, women who have significantly lower power in their relationship as compared to their partner may be more likely to experience IPV during reproduction because they have less control over relationship processes or outcomes than women who have significantly higher power in their relationship.[21] Fourth, women whose relationships have higher stress during reproduction may be more likely to experience IPV during reproduction than women whose relationships have lower stress.[22] It is important to understand whether these specific characteristics of a couple's relationship affect women's trajectories of IPV during reproduction since these characteristics may be amenable to intervention.

Therefore, the primary aim of this paper is to use multilevel modeling to describe the trajectories of IPV and the relationship characteristics that are associated with these trajectories during the period of reproduction for South African women.

Methodology

The data for this analysis comes from the South Africa HIV antenatal post-test support study (SAHAPS), a longitudinal randomized controlled trial designed to provide psychosocial

support to 1,480 HIV+ and HIV- women during pregnancy and the postpartum period.[23] SAHAPS took place in a public antenatal clinic in a township near Durban. Women who consented to participate in the study completed a survey at their first antenatal visit, at three months and at nine months postpartum and were asked questions about IPV before, during and after pregnancy using a modified version of the World Health Organization's violence against women scale.[24] They were also asked questions about each of the following: their male partner's commitment to them and their child, their relationship power, and the presence or absence of specific stressors within the relationship. SAHAPS was approved by the University of North Carolina at Chapel Hill and the University of KwaZulu Natal's Internal Review Board.

To describe the trajectories of IPV across the period of reproduction and to explain variation across individuals for the observed trajectories, we will use multilevel modeling. This statistical analysis approach is appropriate because it allows us to account for the hierarchical nature of the data (wherein time is nested within individuals).[25] After organizing our data, we will fit an unconditional model to determine the average trajectory of IPV and will determine the appropriate model fit using the likelihood ratio test. Next, we will estimate conditional growth models by adding male commitment, relationship power and relationship stress to the model to understand their effects on levels of IPV at pregnancy and growth of IPV during reproduction. We expect there will be significant variability in women's experiences of IPV during this period and our analytic approach will allow me to examine whether relationship characteristics explain this variability. A multivariate Wald test will allow us to discern the significance of the relationship characteristics.

Significance

While IPV is a significant and well-studied public health problem in South Africa, there is a major gap in our knowledge of whether and how IPV changes during the period of reproduction. This analysis will elucidate the average trajectory of IPV as well as relationship factors that affect

women's trajectories of IPV during reproduction. A better understanding of these trajectories and specifically, how relationship characteristics buffer or enhance women's risk of IPV will allow us to develop clinic-based IPV prevention interventions tailored specifically to South African women seeking antenatal and postnatal care.

---

[1] Gass JD, Stein DJ, Williams DR, Seedat S. *Intimate partner violence, health behaviours, and chronic physical illness among South African women*. S Afr Med J. 2010 Sep;100(9):582-5.
[2] Jewkes R, Morrell R. *Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention.* J Int AIDS Soc. 2010;13:6.

[3] Norman R, Schneider M, Bradshaw D, Jewkes R, Abrahams N, Matzopoulos R, et al. *Interpersonal violence: an important risk factor for disease and injury in South Africa.* Population Health Metrics. 2010;8(1):32.
[4] Jewkes, R., et al., *Prevalence of emotional, physical and sexual abuse of women in three South African provinces.* S Afr Med J, 2001; **91**(5):421-8.
[5] Sharps, P.W., K. Laughon, and S.K. Giangrande, *Intimate partner violence and the childbearing year: maternal and infant health consequences.* Trauma Violence Abuse, 2007. **8**(2): p. 105-16.
[6] Silverman, J.G., et al., *Intimate partner violence victimization prior to and during pregnancy among women residing in 26 U.S. states: associations with maternal and neonatal health.* Am J Obstet Gynecol, 2006. **195**(1): p. 140-8.
[7] Lancaster, C.A., et al., *Risk factors for depressive symptoms during pregnancy: a systematic review.* Am J Obstet Gynecol, 2010. **202**(1): p. 5-14.
[8] Fisher, J., et al., *Common perinatal mental disorders in northern Viet Nam: community prevalence and health care use.* Bull World Health Organ, 2010. **88**(10): p. 737-45.
[9] Ludermir, A.B., et al., *Violence against women by their intimate partner during pregnancy and postnatal depression: a prospective cohort study.* Lancet, 2010. **376**(9744): p. 903-10.
[10] Coker, A.L., M. Sanderson, and B. Dong, *Partner violence during pregnancy and risk of adverse pregnancy outcomes.* Paediatr Perinat Epidemiol, 2004. **18**(4): p. 260-9.
[11] Valladares, E., et al., *Physical partner abuse during pregnancy: a risk factor for low birth weight in Nicaragua.* Obstet Gynecol, 2002. **100**(4): p. 700-5.
[12] Shah, P.S. and J. Shah, *Maternal exposure to domestic violence and pregnancy and birth outcomes: a systematic review and meta-analyses.* J Womens Health (Larchmt), 2010. **19**(11): p. 2017-31.
[13] Murphy, C.C., et al., *Abuse: A risk factor for low birth weight? A systematic review and meta-analysis.* CMAJ: Canadian Medical Association Journal, 2001. **164**(11): p. 1567.

[14] Taillieu TL, B.D., *Violence against pregnant women: prevalence, patterns, risk factors, theories and directions for future research.* Aggression and Violent Behavior, 2010; **15**:14-35.
[15] Martin, S.L., et al., *Physical abuse of women before, during, and after pregnancy.* JAMA, 2001; **285**(12):1581-4.
[16] Stewart, D.E. and A. Cecutti, *Physical abuse in pregnancy.* CMAJ, 1993; **149**(9):1257-63.
[17] Salazar, M., et al., *Ending intimate partner violence after pregnancy: findings from a community-based longitudinal study in Nicaragua.* BMC Public Health, 2009; **9**:350.
[18] Guo, S.F., et al., *Physical and sexual abuse of women before, during, and after pregnancy.* Int J Gynaecol Obstet, 2004. **84**(3): p. 281-6.

[19] Stockl, H., C. Watts, and J.K. Kilonzo Mbwambo, *Physical violence by a partner during pregnancy in Tanzania: prevalence and risk factors.* Reprod Health Matters, 2010. **18**(36): p. 171-80.

[20] Hirschi, T., *Causes of delinquency*. 2002: Transaction Publishers
[21] Wuest, J. and M. Merritt-Gray, *A Theoretical Understanding of Abusive Intimate Partner Relationships that Become Non-violent: Shifting the Pattern of Abusive Control.* J of Family Violence, 2008; **23**(4):281-293
[22] Jasinski, J.L., *Pregnancy and Violence Against Women: An Analysis of Longitudinal Data.* J Interpers Violence, 2001; **16**:712.
[23] Maman, S., et al., *Integrating health, psychosocial and legal support for pregnant women in South Africa.* HIV AIDS Policy Law Rev, 2007. **12**(2-3): p. 61-3.
[24] World Health Organization, *WHO Multi-country Study on Women's Health and Domestic Violence Against Women: Summary Report of Initial Results on Prevalence, Health Outcomes and Women's Responses* 2005: Geneva, Switzerland.
[25] Raudenbush, S. and A. Bryk, *Hierarchical linear models: Applications and data analysis methods*. 2 ed. 2002, Thousand Oaks, CA: Sage.