Intimate partner violence and childhood vaccination: Evidence from the Dominican Republic

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September 2008

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Abstract:

Intimate partner violence is a prevalent health problem in the Dominican Republic, with 22% of women aged 15 – 44 in a nationwide survey reporting that they had experienced intimate partner violence in their lifetimes. Childhood mortality is also high in the Dominican Republic. Previous studies indicate that partner violence among mothers is often associated with increased risk of childhood mortality. Reduced vaccination rates among the children of women who are victims of intimate partner violence might be one explanation for these increased childhood mortality rates. Data from the 2007 Dominican Republic Demographic and Health Survey indicates a bivariate association between a mother's experience of physical intimate partner violence and a reduced number of vaccines among her children currently aged 1 – 4. These children receive 10.0 vaccines of a possible 11, compared to 10.3 of 11 for children whose mothers have not experienced physical violence [$p = 0.03$].

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Introduction:

Intimate partner violence is the most common form of violence against women. The health effects of intimate partner violence on women are well – documented, and include an increased risk of HIV (Maman et. al. 2000), other sexually transmitted infections (Bauer et. al. 2002), and increased alcohol and drug use (El – Bassel et. al. 2005). In the Dominican Republic, a 2002 nationwide survey estimated that lifetime prevalence of partner violence was 22%, while 11% of women aged 15 – 44 had been assaulted within the 12 months prior to the survey (Measure DHS/ORC Macro 2003).

Previous research has also documented the health effects of intimate partner violence among children. Violence during pregnancy has a detrimental effect on birth outcomes, increasing the risk of premature birth (Sarker 2008), low birth weight (Rosen et. al. 2007), and perinatal infant death (Jejeebhoy 1998). Less is known regarding the effects of intimate partner violence on the health of older children, particularly with regards to physical illness, as opposed to behavioral and psychiatric effects. A 2007 study in Uganda indicated that infants of mothers who had ever experienced intimate partner violence were more likely to be currently ill (Karamagi 2007), and a study in Nicaragua from 2003 indicates that intimate partner violence increased the risk of death in children under 5 (Asling – Monemi et. al. 2003). The mechanisms underlying these associations, however, are unclear. Research from Brazil indicates an association between intimate partner violence and childhood malnutrition (Hasselmann and Reichenheim 2006). A recent meta – analysis by Bair – Merritt et. al. (2006) suggests that children of women suffering from intimate partner violence do not receive all of their vaccinations in a timely manner, which would put these children at increased risk of morbidity and mortality from vaccine – preventable illness. This conclusion, however, is based mainly on studies conducted in the United States on shelter populations of women actively fleeing intimate partner violence.

The under – 5 child mortality in the Dominican Republic is estimated at 34.3 per 1,000 in 2006 (Pan American Health Organization 2008). While vaccination rates have improved in the recent past, childhood vaccination is far from universal (Perez – Then et.

al. 2007), and communicable illnesses, many of which are vaccine – preventable, cause approximately 40% of childhood deaths in the 1 – 4 year age group per year (Pan American Health Organization 2008). Newer vaccines, such as those against rotavirus, the most common cause of diarrhea among infants, hold the promise to reduce the infant and child death rate even further by preventing death from dehydration secondary to rotavirus infection, estimated at 5.9 deaths/1,000 births during the first five years of life (Rheingans et. al. 2007).

In this paper, we will examine how intimate partner violence affects one proximate determinant of childhood mortality, vaccination, among children aged 1 – 4 in the Dominican Republic.

Data and methods:

The data for this study come from the 2007 Dominican Republic Demographic and Health Survey [DHS], a nationally – representative survey of women aged 15 – 44. In addition to basic demographic information, the DHS includes information on whether woman have experienced intimate partner violence, both in their lifetimes and within the past year. These analyses include a variable indicating whether a woman has ever experienced physical intimate partner violence at the hands of her husband. This variable is coded '1' if a woman reports ever having been slapped, pushed, shaken, kicked, dragged, strangled, burned, threatened or attacked with a weapon, or had her arm twisted or hair pulled by her husband. Thus, information is only available for currently married women.

The DHS contains data regarding whether children received a total of 11 doses of vaccines scheduled for the first 12 months of life, with some vaccines requiring multiple doses: BCG [single dose], measles [single dose][3], DPT[4] [3 doses], polio [3 doses], and pneumococcus [3 doses]. Because one of these vaccines [measles] is not effective prior to age 1, children who were at least 1 year at the time of survey are included in the final sample. The DHS includes information on childhood vaccinations for children who are

[3] While the measles vaccine requires two doses to be fully effective, the second dose is not required until age 4 – 6.

[4] DPT stands for diphtheria, pertussis and tetanus

under age 5 at the time of survey. The final analysis sample includes 7,990 children with complete maternal and child data on vaccines, intimate partner violence. Preliminary analyses use T tests on the difference between the mean number of vaccines received to determine whether physical intimate partner violence is associated with fewer childhood vaccines. In future analyses, OLS regression will be used to examine the relationship between the total number of vaccines a child has received at the time of survey and maternal experience of intimate partner violence. Further work will examine whether a count data model is a more appropriate specification. Finally, future models will attempt to incorporate available vaccine data for children less than age 1 by using logit models to determine whether children are appropriately vaccinated for their age, rather than only looking at total vaccines received.

Several control variables will be included in these future regressions, including mother's age in years, mother's educational attainment, child's age in months, child's birth order, child's gender, whether the child is part of a multiple birth, whether the household is located in an urban area, and household wealth quintile. The included probability survey weights for the intimate partner violence module are used to control for survey design effects in all analyses.

Preliminary results:

Preliminary results indicate a significant bivariate association between receiving fewer vaccines and maternal experience of intimate partner violence. Specifically, children whose mothers have experienced physical violence at the hands of their husbands receive 10.0 vaccines of 11, compared to children whose mothers have not experienced violence, who receive on average 10.3 vaccines [$p = 0.03$].

References:

Bauer H, Gibson P, Hernansez M, Kent C, Klausner J, and Bolan G (2002). "Intimate partner violence and high – risk sexual behaviors among female patients with sexually transmitted diseases." *Sexually Transmitted Diseases* 29(7): 411 – 416.

El – Bassel N, Gilbert L, Wu E, Go H, and Hill J (2005). "The relationship between drug abuse and intimate partner violence: a longitudinal study among women receiving methadone." *American Journal of Public Health* 95(3): 465 – 470.

Jejeebhoy S (1998). "Associations between wife – beating and fetal and infant death: Impressions from a survey in rural India." *Studies in Family Planning* 29(3): 300 – 308.

Maman S, Campbell J, Sweat M, and Gielen A (2000). "The intersections of HIV and violence: Directions for future research and interventions." *Social Science and Medicine* 50(4): 459 – 478.

Measure DHS/ORC Macro (2003). *Demographic and Health Survey Dominican Republic 2002: Final Report*. Calverton, MD: ORC Macro.

Pan American Health Organization (2008). Regional Core Health Database. Available at: http://www.paho.org/English/SHA/coredata/tabulator/newsqlTabulador.asp.

Rosen D, Seng J, Tolman R, and Mallinger G (2007). "Intimate partner violence, depression, and posttraumatic stress disorder as additional predictors of low birth weight infants among low – income mothers. *Journal of Interpersonal Violence* 22(10): 1305 – 1314.

Sarker N (2008). "The impact of intimate partner violence on women's reproductive health and pregnancy outcome." *Journal of Obstetrics and Gynecology* 28(3): 266 – 271.