

# NEONATAL OUTCOMES OF IPV IN PREGNANCY: A LITERATURE REVIEW

Neonatal Outcomes of Intimate Partner Violence in Pregnancy: A Literature Review

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### **Introduction**

Providing care for vulnerable populations is a defining component and purpose of the healthcare industry. The variety of adaptations in baseline health that occur during pregnancy make pregnant people and their expectant neonates a highly vulnerable population (Office on Women's Health, 2019). While teratogens such as alcohol and drugs are commonly regarded as directly harmful to the fetus, abuse is often viewed in a different light. This could be related to the abundance of research regarding substance abuse and fetal health, compared to the inconsequential amount of data regarding intimate partner violence (IPV) and fetal/neonatal health. There are many barriers to defining the effects of IPV on neonates, most notably including the widespread underreporting of IPV (Walton-Moss et al., 2002, p. 6)

Under the ethical principle of non-maleficence, the concept of doing no-harm, pregnant people must be protected from all forms of abuse. Although pregnant people are a population vulnerable to abuse from anyone, they are particularly vulnerable to abuse from intimate partners (Riley, 2022). From ultrasound-technicians to bedside nurses, to attending providers- everyone involved in the care of a pregnant person must be vigilant and follow protocols set forward to identify and intervene in IPV. The pregnant patient is often physically, emotionally, and financially at the mercy of their abuser, creating barriers to reporting including the fear of retaliation or loss of essential resources (Legg, 2018).

This paper will explore neonatal outcomes of IPV occurrence during pregnancy. Intrauterine growth restriction leading to the delivery of a neonate considered small for gestational age (SGA), preterm labor, and fetal demise have all been tied to IPV during pregnancy (World Health Organization, 2011).

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### **Background**

Intimate partner violence is defined as “abuse or aggression that occurs in a romantic relationship” (CDC, 2021, p.1). IPV is a global public health issue that effects everyone regardless of age, sex, gender identity, race, and sexual orientation. The blanket phrase “intimate partner violence” encapsulates several different types of abuse that occur within intimate relationships: physical violence, sexual violence, stalking, and psychological aggression (CDC, 2021). *Intimate partner violence* has replaced the term *domestic violence* in recent years, in efforts to acknowledge the broad spectrum of situations in which abuse can occur, which is increasingly non-domestic (Wallace, 2015).

The prevalence of IPV during pregnancy is difficult to statistically establish. Rates vary between approximately five to thirty percent globally, and are significantly affected by region (Coll et al., 2020). Violence against pregnant people stems from gender inequality- an international phenomenon prominent in the formation of most modern societies. Gender inequality morphs the perception of and consequences of IVP through multiple facets: the dehumanization of pregnant people, the social concept of pregnancy being a woman’s purpose and/or obligation, and the use of reproductive coercion to “trap” women in abusive situations. In developed countries, IPV is reported at lower rates than those in less developed countries. This is due to lower income levels, patriarchal structures and influences, lesser access to education, and lesser resources for reporting and intervening in IPV (Coll et al., 2020, p. 1).

The physiological adaptations to baseline health that occur during pregnancy and childbirth are a large component of why pregnant people are a highly vulnerable population. The pregnant person’s center of gravity is dramatically different than that of a non-pregnant person, putting pregnant people at high risk for falls. In addition, the pelvic bones soften in preparation

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for labor and delivery (Mittelmark, 2021). When carrying child, the pregnant person's blood volume increases by about 50%, and the body's mechanisms of getting blood from the lower extremities past the uterus and back to the heart are impaired, which can lead to mild to moderately debilitating edema or varicose veins during the pregnancy (Mittelmark, 2021). The kidneys must account for the increase in blood volume as they are responsible for filtering waste products out of the blood, but the growing uterus puts pressure renal arteries and subsequently decreases blood flow to the kidneys (Mittelmark, 2021). Regarding the respiratory function of a pregnant person, elevated progesterone levels cause increased respiratory effort, and the lining of the airways swell from increased blood volume (Mittelmark, 2021). In other words, the work of breathing is substantially increased during pregnancy. In the gastrointestinal tract, nausea and vomiting are very common side effects of pregnancy. Excessive vomiting can lead to several complications including dehydration, changes in blood pH, and heart dysrhythmias. In addition, metabolism is increased during pregnancy and there are many teratogens' women are guided to avoid, such as deli meats or high mercury fish (Mittelmark, 2021).

Accompanying dietary teratogens, consumption of drugs and alcohol pose major risks to the pregnant person and their expectant neonate. Stimulants and tobacco both cause systemic vasoconstriction which decreases placental blood flow and subsequently decreases fetal oxygenation. Alcohol is known to cause fetal alcohol syndrome and increased rates of sudden infant death syndrome (SIDS). These teratogens are often societally perceived as conscious, malicious behaviors from mother to baby- however research suggests that drug and alcohol consumption during pregnancy is closely tied to lower socioeconomic status and education levels (Shoff et al., 2012). IPV has been linked to increased consumption of these teratogens (Campbell et al., 1999).

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Perhaps the teratogen with the potential to do the most harm to both mother and child is violence. The pregnant person is twice as likely to die from homicide than any pregnancy related cause (Riley, 2022). Short term outcomes of IPV include but are not limited to bruises, fractures, internal bleeding, unwanted pregnancy, sexually transmitted diseases and infections, and death (Office on Women's Health, 2019). Long term outcomes of IPV include but are not limited to chronic pain, stomach ulcers, cardiac irregularities, irritable bowel syndrome, long term sleep and nutritional deficits, migraines, sexual dysfunction, long-term stress, traumatic brain injuries, and immunocompromised status (Office on Women's Health, 2019). There is a long list of psychological complications known to be onset by the occurrence of IPV, most commonly including "major depressive disorder (MDD), generalized anxiety disorder (GAD), post-traumatic stress disorder (PTSD), and a wide range of substance use disorders" (Benavides et al., 2022).

### Methods

Studies included were acquired using *CINAHL Complete* via SUNY Brockport Drake Memorial Library. Two studies were selected for each neonatal outcome of focus. The PICO question "*Are neonates exposed to IPV during pregnancy at a higher risk for SGA, preterm labor, and fetal demise?*" guided the development of key phrases included in the CINAHL search. The key phrases used were as follows:

P (Patient, Population, or Problem): Neonates, neonatal, fetal, newborn, baby, child.

I (Intervention or exposure): Intimate partner violence, IPV, domestic violence, abuse, partner abuse.

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C (Comparison): The “comparison” factor in this PICO question was neonatal outcomes of pregnancies free of IPV. These control groups were most often included in each individual study, but no specific phrases for the control were incorporated directly into the search.

O (Outcomes): Intrauterine growth restriction, IUGR, small for gestational age, SGA, preterm labor, PTL, preterm birth, PTB, fetal demise, miscarriage, stillbirth, abortion, MSA.

### **Intrauterine Growth Restriction as the Result of IPV During Pregnancy**

Intrauterine growth restriction (IUGR) is a term used to describe inadequate growth of a fetus in utero. IUGR occurs due to a wide range of maternal, placental, and fetal factors that constrict the amount of nutrients and oxygen the fetus receives. IUGR during a pregnancy can cause a neonate to be born at a low birth weight, also known as small for gestational age (SGA).

There are many channels in which IPV can cause IUGR. High blood pressure, heart disease, respiratory disease, malnutrition, anemia, infection, and substance use are all tied to both IPV and IUGR (Children’s Hospital of Philadelphia, 2022). Trauma from physical violence can cause placental abruption, blunt trauma directly to the fetus, and infection in tissues surrounding the fetus, all of which can hinder the fetus’ growth (Children’s Hospital of Philadelphia, 2022).

After being designated SGA at birth, the neonate is at a higher risk for certain complications including but not limited to: “decreased oxygen levels, low Apgar scores, meconium aspiration, hypoglycemia, difficulty maintaining normal body temperature, and polcythemia” (Children’s Hospital of Philadelphia, 2022). Thus, identification of and intervention in IPV can prevent poor outcomes related to infant’s SGA status.

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**Study 1: “Physical and Nonphysical Partner Abuse and Other Risk Factors for Low Birth Weight among Full Term and Preterm Babies: A Multiethnic Case-Control Study” by Campbell et al., (1999, p. 714-726).**

### *Title and Introduction*

The literature reviewed in this section will include a 1999 study published in the American Journal of Epidemiology titled “Physical and Nonphysical Partner Abuse and Other Risk Factors for Low Birth Weight among Full Term and Preterm Babies: A Multiethnic Case-Control Study” by Campbell et al. (1999, p. 714). The study utilized a variety of IPV screening instruments when comparing neonates born within defined healthy weight limits versus neonates deemed small for gestational age (SGA) to determine the significance, if any, of the relationship between the two.

### *Research Problem, Purpose, and Hypothesis*

This general problem of this study’s focus is abuse of women during pregnancy and its subsequent maternal and fetal health effects. The purpose of the study was to “determine the risk of low birth weight from intimate partner abuse” (Campbell et al., 1999, p. 714). The original hypothesis theorized “the stress of abuse is the underlying physiologic casual mechanisms operating to connect abuse, with other coping but unhealthy variables, and low birth weight”, in essence predicting that women who experience IPV during pregnancy will be more likely to have an SGA neonate (Campbell et al., 1999, p. 724). The study also predicted that underreporting of IPV would be expected during research given the well-documented phenomenon of universal underreporting (Gracia, 2004).

### *Study Design*

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The study implemented a retrospective case-control design with a focus on ethnic heterogeneity, which highlighted ethnic disparities in IPV and SGA neonates. Recent statistical data reinforces the validity of many disparities that exist within the health issue, with multi-racial, American Indian and Alaska Native, and black women experiencing more IPV than white, Hispanic, and Asian/Pacific women (Office for Victims of Crime, 2018). Thus, an ethnically homogenous study of either side of this disparity would exclude significant data by design. The diverse representation provided by this study allows for conclusions to be drawn that are applicable to ethnically heterogeneous regions, such as the United States.

Researchers used several different screening instruments as well as structured interviews to collect data from all recruited participants. Controls were comprised of women who gave birth to infants of a healthy weight, and cases were comprised of women who gave birth to SGA infants. The criteria for SGA categorization was defined as any infant weighing less than 2,500g. The controls were matched to the cases based on the location of the birth, ethnicity, maternal age, and gestational age group to limit these factors influence on birth weight (Campbell et al., 1999). Cases and controls were compared with a focus on the presence or absence, frequency, and severity of IPV during the pregnancy.

### *Sampling and Limitations*

Between 1991 and 1996, Campbell et al. recruited 1,004 women using an ethnic group sampling design that enabled the study to have equal representation of Mexican-American, Puerto Rican, Cuban-American, African-American, Central American, and Anglo participants. Participants were recruited from hospital maternity settings in two states- Florida and Massachusetts (Campbell et al., 1999). Ethnicity was the only demographic with a notable

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difference between the two states, with more Hispanic participants being drawn from the Florida maternity sites (Campbell et al., 1999).

All preterm infants were excluded as gestational age has too large of an effect on birth weight to subvert the cause of the low birth weight to any other factors. Excluding preterm infants from the study allowed researchers to establish valid relationships between birth weight and presence or absence of IPV.

Campbell et al. (1999) notes the underreporting of IPV as a major limitation on this study and all studies of a similar nature. From a public health perspective, IPV manifests as an “iceberg” phenomenon, where most cases go unreported and only become visible to society once they reach the “tip” of the iceberg- severe traumatic injury and/or homicide (Gracia, 2004, p. 536). Amongst the 25% of the population that is estimated to be affected by IPV, only between 2.5% and 15% are documented (Gracia, 2004, p. 536). Regarding this specific study, researchers cite the short postpartum stay as an inadequate window to assess the presence of IPV. With postpartum hospital stays becoming increasingly shorter, there is typically not enough time to foster an environment that is successful in IPV disclosure between patient and provider.

### *Ethical Considerations*

Study protocol was carefully designed to protect and advocate for all victims of IPV. All data collectors involved in the study underwent 16-24 hours of “educational material on the dynamics of abuse, interviewing techniques (including ethnic differences in interviewing), and advocacy for abused women” (Campbell et al., 1999, p. 715). In addition to sensitivity and advocacy training for all data collectors, participants were not recruited until “at least six hours

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after birth”, paid fifteen dollars, provided transparent information on the study before obtaining consent, and reassured about confidentiality (Campbell et al., 1999, p. 715).

### *Data Collection*

Data was collected using five different abuse screening instruments: the Index of Spousal Abuse (ISA), Daily Hassles Scale (DHS), Norbeck Social Support Questionnaire (NSSQ), Abuse Assessment Screen (AAS), and interviews. The ISA is a self-report survey with thirty questions regarding “emotional abuse, psychological threats ... coercive threats ... physical and sexual abuse” which uses the answers to each item to generate a score for both physical and nonphysical abuse (Campbell et al., 1999, p. 716). The DHS is a broader instrument which measures the severity of everyday stressors that affected participants throughout their pregnancy. Expanding on the analyzation of stressors effecting participants, the NSSQ is another self-report survey which assesses the social environment of each participant. The AAS is the shortest of the instruments, consisting of only four questions regarding the simple presence or absence of IPV. Lastly, interviews were conducted to “determine intimate partner relationship history, alcohol and drug use during pregnancy, and cultural attitudes” (Campbell et al., 1999, p. 716). The purpose of these instruments was to detect which neonates experienced IPV and if this influenced their birthweight being within defined limits of SGA.

### *Results*

Results were analyzed using the Statistical Package for the Social Sciences, version 7.0 for Windows (Campbell et al., 1999). Mathematical values were generated using this service to determine if the effect of IPV on birthweight was significant or not. Women who experienced abuse indicated on the ISA scale were found to be more likely to give birth to a full-term SGA

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neonate, but there was no significance indicated on the other instruments used (Campbell et al., 1999). Several cofounding factors of low birth weight, however, were observed to have a much higher prevalence in IPV pregnancies. These cofounding factors include smoking, inadequate prenatal care, and poor pregnancy weight gain and they have been shown to result in a variety of physiological conditions that cause low birth weight, including “preterm labor, hypertension/preeclampsia, early bleeding, placenta previa/abruptio placentae, spontaneous rupture of membranes, and emergency delivery” (Campbell et al., 1999, p. 717).

### *Implications for Practice*

As this study was believed to be most limited by the under reporting of IPV, researchers provided an alternative timeline for IPV screening and recommended it for future implementation across all maternal health settings. Factors that reduced IPV reporting included the short and one-time occurrence window of opportunity to report, and the underdeveloped relationship between patient and provider in which patients have not established enough trust in their provider to disclose sensitive information such as IPV. The study found that the highest prevalence of IPV being successfully reported happened when there were at least three prenatal care visits with IPV screenings, because the woman had multiple chances to decide to disclose abuse and the data collector had multiple chances to foster the relationship and the environment (Campbell et al., 1999). Researchers stated that “underreporting should be expected at delivery” implying that although the screening was valuable in the context of this study, the postpartum stay is a generally inadequate timeframe for IPV screening in the clinical setting (Campbell et al., 1999, p. 719).

### *Recommendations and Conclusion*

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This study found that abuse-related maternal health problems, specifically low weight gain and poor obstetric history, are cofounders or mediators in explaining the relation between IPV and SGA infants (Campbell et al., 1999). The study did not determine a significant direct effect of abuse on birth weight, but because of its relationship with previously mentioned cofounders, researchers concluded the study to “support others which found the deleterious effects of domestic violence on maternal health factors that have in turn been identified as risk factors for low birth weight” (Campbell et al., 1999). Authors go on to state that although IPV is a direct cause of low birth weight in some pregnancies, it most often presents with a multitude of other risk factors. Also noted is the phenomenon of underreported IPV and its likely effect on the data collected from the self-report instruments, and how this underreporting “reinforces the importance of significant results that *were* found” (Campbell et al., 1999). Overall, the study fortified existing theories that IPV during pregnancy can have significant negative health effects on the neonate.

### **Study 2: “Psychological intimate partner violence and the risk of intrauterine growth restriction in Rio de Janeiro” by Lobato et al. (2018, p. 77-83).**

#### ***Title and Introduction***

The second study to be reviewed is “Psychological intimate partner violence and the risk of intrauterine growth restriction in Rio de Janeiro” by Lobato et al. (2018, p. 77). Researchers conducted a cross-sectional study in 2007 that observed mothers with infants younger than five months who were seeking basic services from five different primary health offices in Rio de Janeiro (Lobato et al, 2018). The study focused on the relationship between psychological abuse during pregnancy and intrauterine growth restriction (IUGR).

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### *Research Problem, Purpose, and Hypothesis*

As seen in the previous study which was unable to suggest a direct relationship between IUGR and IPV but more so a relationship between IUGR and a web of confounding factors, research that does suggest a direct relationship has been scarce until as of lately. This study aimed to substantiate a direct relationship and assess if the probability of IUGR increased with “an upward gradient in psychologic IPV” (Lobato et al. 2018, p. 78). Psychological abuse of women during pregnancy was the general problem of focus for this study. Before conducting the study, researchers hypothesized that there would be a direct cause-and-effect relationship between psychological IPV and low birth weight.

### *Study Design*

This retrospective cross-sectional study assessed 810 eligible women. After obtaining informed consent, participants answered six self-report surveys in total to evaluate both IPV and any confounding factors that have the potential to cause IUGR. Results were generated to fit into a theoretical model that could substantiate or disprove relationships between IUGR and its theorized causes. The theoretical model “encompassed most of the variables associated with both IPV and IUGR” to present the multitude of variables and manifestations of both IPV and IUGR as a simple x and y relationship (Lobato et al., 2018, p. 78). The theoretical model was a hierarchy, with the most distal hierarchal dimension consisting of “socioeconomic, demographic, and reproductive characteristics” (Lobato et al., 2018, p. 78). The intermediate dimension consisted of stressors that occurred in the participant’s life over the course of their pregnancy, including grief, loss of personal relationships, unemployment, being the victim of a crime, financial hardship, alcohol and drug use, and smoking (Lobato et al., 2018). The proximal dimension consisted of physiological

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occurrences during pregnancy that were obtained through medical records or the participant's self-report (Lobato et al., 2018).

### *Sampling and Limitations*

Participants were randomly selected from patients visiting five primary care offices. These patients were inquired from waiting rooms in which they waited for standard pediatric primary care appointments including well visits and vaccinations. All eligible participants had an infant five months old or younger. Due to demographics of the areas where participants were recruited from in Rio de Janeiro, there were a few notable characteristics that applied to most participants. Researchers note the predominant study population as being “adult women who had a steady partner, had low educational status, were not working during pregnancy, and had fewer than three children at home” (Lobato et al., 2018, p. 79).

This study was limited most by the same limitation that affects most IPV studies: underreporting. Researchers stated that finding participants through routine postpartum primary health care visits likely caused selection bias by design, as women who experience IPV may be “prone to social isolation and irregular prenatal visits or may be more likely to attend emergency units or tertiary maternity wards when IPV and IUGR are more severe” (Lobato et al., 2018, p. 81). It is therefore hypothesized that the relationship between IPV and IUGR is even stronger than presented in the study.

### *Other Considerations*

Previous studies of a similar nature have included medical risk factors as covariates that exist independently regardless of the presence or absence of IPV. This study argued that IPV can be the cause of said medical risk factors, which include maternal hypertension, pre-eclampsia,

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and poor maternal weight gain, and thereby excludes these risk factors from the analysis as covariates. This study does not take these specific medical risks into consideration when calculating the strength of the relationship between IPV and IUGR. However, a physiologic explanation of how IPV could be the cause of said medical risks is provided in the discussion. Researchers argue that psychological IPV activates the sympathetic branch of the autonomic nervous system, “leading to increased release of glucocorticoids and catecholamines” which increases peripheral vascular resistance, raising blood pressure (Lobato et al., 2018, p. 80). This physiological response occurs maternally. Because hypertension and subsequent complications of hypertension can be caused by IPV itself through this release of glucocorticoids and catecholamines, researchers decided to include cases of IUGR where hypertensive complications were also a factor and consider these cases as supporting data.

### ***Data Collection***

Six self-survey instruments were administered to each participant to evaluate the impact of a variety of stressors in their pregnancy. The first survey taken was the Revised Conflict Tactics Scale (*CTS2*) and measured for physical and psychological abuse. Participants were asked to take the self-survey in the context of their pregnancy. The psychological items scored on the *CTS2* survey included “insulted or swore at partner, shouted at partner, stomped out of room, threatened to hit or throw something at partner, destroyed something of partners, did something to spite partner, called partner fat or ugly”, and “accused partner of being a lousy love” (Lobato et al., 2018, p. 78). For each item that did occur during pregnancy, 2 points were added to the *CTS2* score. Physical abuse was also measured using 12 items each worth 2 points. The other five self-report surveys used to fill in the theoretical model were the Brazilian Criterion of Economic Classification (*BCEC*), *TWEAK* and *CAGE* tests for alcohol use among mother and partner, Non-

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Student Drugs Use Questionnaire, and the Medical Outcomes Study Support Survey (Lobato et al., 2018). Randomly selected participants were interviewed for further data collection and basic elaboration on survey responses.

### ***Results***

Data was analyzed using the software *Stata version 13*. Using the theoretical model, four different models were generated. The first model presented the relationship between IPV and IUGR considering only those two variables themselves. The second model included all factors accounted for in the distal dimension of the theoretical model, which were the socioeconomic, demographic, and reproductive characteristics of each participant. The third model included the intermediate dimension factors: stressful life events during pregnancy. The fourth and last model included the most proximal dimension of the theoretical model: medical complications that occurred during pregnancy.

The generated models contained p-values which represent statistical significance if smaller than 0.05. Regarding IPV and its effect on IUGR, the study yielded a *p*-value of <0.001 and an odds ratio of 1:15, concluding that women who experienced psychologic IPV during pregnancy were at a 15% greater risk of IUGR and SGA (Lobato et al., 2018). All values provided by the study suggested IPV as a significant indicator of IUGR and subsequent birth of an SGA neonate.

### ***Recommendations and Conclusion***

Lobato et al. (2018) conclude that their results confirm the risk of IUGR among women who experience IPV during pregnancy. A detailed physiological explanation is provided for a direct relationship between the two, citing the release of glucocorticoids and catecholamines and

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the subsequent rise in peripheral vascular resistance as a cause for placental insufficiency and subsequent IUGR. Results reinforce the need for “prevention, screening, and intervention procedures for IPV during pregnancy” (Lobato et al., 2018, p. 82). Not only do these services need to be available, but they must be accessible to all women. Lobato et al. (2018) culminates their study by advocating for policies that protect women from all forms of IPV (Lobato et al., 2018, p. 83).

### **Preterm Birth as the Result of IPV During Pregnancy**

Preterm birth (PTB) is defined as a birth that occurs before 37 weeks of gestational age. Well established causes of PTB include infections, vaginal bleeding, and hormone changes- all of which are also linked to IPV (Stanford Children’s Hospital, 2021). Additional risk factors commonly acknowledged are smoking, long term heart or renal disease, stress, early placental separation, and problems with fetal growth- again all of which have been linked to IPV (Stanford Children’s Hospital, 2021).

Being born before 37 weeks of gestation comes with significant risks which increase exponentially in accordance with how early the neonate is delivered. Being born after 37 weeks is best for the neonate because it is the adequate time frame for developing fully viable and autonomous organs. Neonates born too early into this process need medical assistance with basic life functions including “breathing, eating, fighting infection, and staying warm” (Stanford Children’s Hospital, 2021). After the neonatal period, infants who were delivered preterm can suffer long term health conditions. Being delivered before 24 weeks of gestation almost always results in neonatal demise or serious long term health complications (University of Utah, 2022).

### **Study 1: “Domestic violence: Effect on pregnancy outcome” by Fernandez et al. (1999)**

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### *Title and Introduction*

“Domestic violence: Effect on pregnancy outcome” by Fernandez et al (1999) is a case-control study which was conducted between 1993 and 1995 and assessed the relationship between IPV and PTB. Also assessed was the relationship between IPV and low birth weight, which substantiates claims made in the previous section that IPV is a risk factor for neonates being SGA. This study was unique in its careful control of major potential covariates: drug and alcohol use during pregnancy. Thus, Fernandez et al. (1999) contributes valuable data to the field.

### *Research Problem, Purpose, and Hypothesis*

The overarching problem that guided this study was physical abuse of women. Fernandez et al. (1999) acknowledges substance abuse as an independent risk factor for PTB and thereby sought to design a study which would assess “domestic violence as a risk factor for poor pregnancy outcome while controlling for drug and alcohol abuse” (Fernandez et al., 1999, p. 254). Based on the conclusions of existing studies at the time, researchers hypothesized that IPV during pregnancy would be an independent risk factor for PTB, which would clinically manifest in women who experienced IPV having a significantly higher prevalence of preterm deliveries via obstetrical history.

### *Study Design*

The study utilized a case-control design to observe the effect of IPV on PTB and birthweight. All 489 subjects completed prenatal screenings for both substance abuse and domestic violence and were subsequently assigned to either the control group or the study group. The control group consisted of women who reported “no substance abuse and no domestic

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violence”, whereas the study group consisted of women who reported “no substance abuse with domestic violence” (Fernandez et al., 1999, p. 254). To assess substance abuse, both the CAGE questionnaire and a urine drug screen were utilized (Fernandez et al., 1999). To assess domestic violence, subjects completed “nursing assessment interview(s) using previously published screening tools for domestic violence” (Fernandez et al., 1999, p. 254).

After establishing the control cases and study cases, the subjects received postnatal follow up assessments for birth outcomes, including gestational age at the time of delivery and birth weight. PTB was defined as birth before 37 weeks of gestation and low birth weight was defined as less than 2,500g (Fernandez et al., 1999). The rates of PTB and low birth weight among women who experienced IPV was then compared to the rates of PTB and low birth weight among women who did not experience IPV.

### *Sampling and Limitations*

Participants were recruited from a prenatal care clinic in a suburban area that served Medicaid recipients (Fernandez et al., 1999). The sample was predominantly white. Several exclusion criteria were applied to the sample to control factors that can independently contribute to PTB and low birthweight. Based on the findings of the CAGE questionnaires and urine drug screens, any participant who used drugs during their pregnancy was excluded. This exclusion criteria allowed the study to meet researcher’s objective of assessing the relationship between IPV and PTB independent of substance abuse. In addition, participants who had “medical indications” that independently accounted for their preterm deliveries were also excluded (Fernandez et al., 1999, p. 254). Participants with a medical history of “preterm delivery and low-birth-weight neonates” were excluded (Fernandez et al., 1999, p. 254). This sampling criteria improved the validity of the study by minimizing co-mediators to outcomes of focus.

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This study was limited by its inability to assess other confounding variables that are not as significant as substance abuse but may still influence birth outcome. These confounding variables include “age, ethnicity, weight gain, maternal growth, and smoking” (Fernandez et al., 1999, p. 256). Although this study could not account for these variables individually, IPV is already believed to be associated with increased rates of smoking and a decreased amount of weight gain and maternal growth (Campbell et al., 1999, p. 714). However, researchers still call for a “prospective cohort analysis” to determine the effect of other demographic variables such as age and ethnicity (Fernandez et al., 1999, p. 256).

### *Other Considerations*

Though substance abuse during pregnancy has a well-established influence on PTB and low birth weight, researchers chose to exclude all participants who used any type of substances during their pregnancy, to minimize confounding variables. Other researchers have previously included these cases because IPV itself is associated with a higher rate of drug use, alcohol use, and smoking during pregnancy (Fernandez et al., 1999). In this sense, researchers can either take a physiological approach to the issue which examines the direct relationship between IPV itself and determined outcomes, or a holistic approach which examines how IPV increases the rate of several influencing comediators- such as Campbell et al.’s approach in “Physical and Nonphysical Partner Abuse and Other Risk Factors for Low Birth Weight among Full Term and Preterm Babies: A Multiethnic Case-Control Study” (Campbell et al., 1999). This study (Fernandez et al., 1999) takes the more physiological approach by excluding all cases which may be influenced by substance use during pregnancy, despite IPV potentially having its own effect on the substance use.

### *Data Collection*

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The CAGE questionnaire was used to determine whether substance abuse was present or absent and thereby determine whether the participant met inclusion criteria. The CAGE questionnaire includes four sections:

C: Have you ever felt the need to *cut down* on your drinking?

A: Have you ever felt *annoyed* by criticism of your drinking?

G: Have you ever felt *guilty* about your drinking?

E: Have you ever taken a drink (*eye opener*) first thing in the morning? (Fernandez et al., 1999, p. 255).

The questionnaires used to determine domestic violence were not specified in the report. Outcomes were identified based on criteria for preterm birth and low birth weight set forward by the American College of Obstetricians and Gynecologists guidelines (Sanchez et al., 2013). PTB was defined as any delivery occurring before 37 weeks, and low birth weight was defined as a neonate weighing less than 2,500g (Fernandez et al., 1999).

### **Results**

Out of the sample, the prevalence of IPV was 20%, which is consistent with other studies while also being believed to be underreported to a certain extent (Fernandez et al., 1999). As hypothesized, women who experienced IPV experienced significantly higher rates of PTB. 22% of the study cases had PTB compared to the 9% of control cases who had PTB, suggesting that women who experience IPV during pregnancy are “2.5 times more likely to have preterm deliveries than their nonvictim counterparts” (Fernandez et al., 1999, p. 255-256). The study also assessed the neonatal outcome of low birthweight and found that 16% of study cases resulted in

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SGA neonates compared to only 6% of control cases, also yielding a relative risk of 2.5 (Fernandez et al., 1999).

### *Recommendations and Conclusion*

Researchers conclude that IPV during pregnancy is associated with poor neonatal outcomes including both preterm delivery and low birthweight. Though Fernandez et al. (1999) describes the effect of IPV on pregnancy outcomes as “quite disturbing”, this effect is also described as considerably preventable (Fernandez et al., 1999). Fernandez et al. (1999) further recommend that all providers utilize the “effective screening mechanisms” that have become increasingly available in recent years. Providers must identify women who are at risk for IPV and intervene as per institutional protocol to protect women during this vulnerable time. Given the correlation between IPV and PTB established during this study, women who experience PTB with no confounding factors or medical explanation should be screened for IPV.

### **Study 2: “Risk of Spontaneous Preterm Birth in Relation to Maternal Exposure to Intimate Partner Violence During Pregnancy in Peru” by Sanchez et al. (2013)**

#### *Title and Introduction*

“Risk of Spontaneous Preterm Birth in Relation to Maternal Exposure to Intimate Partner Violence During Pregnancy in Peru” by Sanchez et al. (2013) is a case control study that occurred between 2009 and 2010 which analyzed 959 Peruvian women and the gestational age at the time of their deliveries, and the relationship between the time of their deliveries and if they had experienced IPV during the pregnancy. This study covered a variety of demographic factors and confounding variables, including the effects of lifelong IPV versus IPV during only pregnancy, emotional versus physical violence, maternal age, and pre-pregnancy weight. Due to

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the extent of which covariates are covered, this study is one of the most detailed of its field, providing new and valuable information to be utilized in preventing poor neonatal outcomes.

### *Research Problem, Purpose, and Hypothesis*

The underlying issues that prompted this study are PTB and violence against women in Peru. Researchers state their main objective was to “evaluate the effect of exposure to IPV on risk of PTB” (Sanchez et al., 2013, p. 486). As existing research suggests women who are victims of IPV are at a high risk for several pregnancy-threatening medical conditions and symptoms including “vaginal bleeding, placental abruption, hypertensive disorders of pregnancy, urinary tract and kidney infections... vaginal or cervical infections... and suicide or homicide”, Sanchez et al. (2013) hypothesized that victims of IPV would be at a higher risk of PTB as well (Sanchez et al., 2013, p. 486).

### *Study Design*

This study utilized a case-control design. Cases consisted of participants who experienced PTB as defined by spontaneous delivery between 22- and 36-weeks of gestation, and controls consisted of participants who delivered at term as defined by 37 or more weeks of gestation (Sanchez et al., 2013). After each case patient delivered, a control patient whose delivery immediately followed in the same hospital would be recruited.

After obtaining informed consent, data from three different outlets was collected from each participant: medical history, demographics, and IPV assessment. Prenatal and intrapartum medical records were reviewed for pertinent information including maternal comorbidities and pregnancy complications. A brief questionnaire was administered to collect information on “maternal socio-demographics and lifestyle habits” (Sanchez et al., 2013, p. 487). Most notably,

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IPV was assessed via standardized interviews with trained research personnel. The interview collected data on the presence, severity, and frequency of IPV during the pregnancy. After all data was collected, results were compared in the case studies versus the control studies.

### *Sampling and Limitations*

Participants were selected from three different hospitals in Lima, Peru: Hospital Nacional Dos de Mayo, Instituto Nacional Materno Perinatal de Lima, and Hospital Edgardo Rebagliati Martins (Sanchez et al., 2013). All participants were in recovery from live birth at the time of the study. 479 study cases and 480 control cases agreed to participate in the study. Women who experienced PTB as the result of an established medical condition/reason were excluded (Sanchez et al., 2013)

Researchers note three main limitations. The cross-sectional method of data collection used in the study “may be subject to recall bias”, which can be confirmed or denied by future longitudinal studies (Sanchez et al., 2013, p. 490). The second limitation is the assessment of IPV exposure being “limited only to the period during pregnancy” (Sanchez et al., 2013, p. 490). Due to the well-established underreporting of IPV, limited assessment is universally regarded as a substantial limitation because it likely causes decreased reports of IPV occurrences (Campbell et al., 1999). The last limitation noted was the large sample size that makes it difficult to make inferences from sub-groups within the study (Sanchez et al., 1999).

### *Other Considerations*

Like many studies of a similar nature, Sanchez et al. (1999) faced the conflict of deciding which covariates to include and exclude. Many covariates were initially analyzed but only the ones who were found to alter results by at least 10% were considered in the final logistic

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regression models. These covariates included pre-pregnancy weight, education level, planned or unplanned pregnancy, alcohol use, cigarette smoking, illicit drug use, prenatal vitamin access, prenatal care access, and maternal age (Sanchez et al., 1999).

### *Data Collection*

The same methods of data collection were used all cases and controls. After completing a standardized abstraction form, a team of obstetricians reviewed each participants medical records in regard for any pregnancy complications that could confound the outcome. A questionnaire on the women's demographic characteristics and lifestyle habits (including smoking) was administered for the purpose of including all relevant factors that showed to be prominent during the study. Trained research personnel conducted interviews which screened for the following occurrences:

*During the last six to nine months (during your pregnancy) how often did your current partner or boyfriend do any of the following things to you? (i) threatened you in any way; (ii) caused a serious injury during a fight that you had; (iii) kicked, pushed, shoved or slapped you; (iv) insulted or embarrassed you in front of others; (v) sworn or cursed at you; (vi) treated you like an inferior; (vii) yelled and screamed at you; (viii) monitored and accounted for your whereabouts; (ix) been jealous or suspicious of your friends; (x) accused you of having an affair; (xi) interfered in your relationships with other family members, and (xii) kept you from doing things to help yourself. (Sanchez et al., 2013, p. 487).*

Participants would answer to each part of the above question with the frequency of the occurrence, with the options never, being 1-2 times a month, almost weekly, or all the time

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(Sanchez et al., 2013). Abused participants were then classified as rarely victimized or frequently victimized, and emotionally victimized, physically victimized, or both emotionally and physically victimized. Before drawing conclusions, data was adjusted for “maternal age, pre-pregnancy weight, unplanned pregnancy, prenatal or multivitamin use during pregnancy and alcohol consumption during pregnancy” (Sanchez et al., 2013, p. 488).

### ***Results***

The data collected revealed that IPV greatly increased the risk of PTB. IPV was much higher in the cases than the controls. Women who experienced any degree of IPV faced a two-fold increased risk of PTB, and women who experienced IPV more than twice a week faced a 3-fold increased risk (Sanchez et al., 2013). In addition to frequency of IPV, the type of IPV also was shown to be a factor in delivery. Women who experienced only emotional abuse had a 1.6-fold increased risk, while women who experienced both emotional and physical acts of abuse had a 4.7-fold increased risk of PTB (Sanchez et al., 2013). IPV was also associated with low birthweight, a decreased rate in planned pregnancy, decreased prenatal care, and decreased usage of prenatal vitamins.

### ***Recommendations and Conclusion***

In consideration of the significantly increased risk of PTB for women who experience IPV during pregnancy, it is concluded that IPV poses a large threat to neonatal health. Sanchez et al. (2013) offers a physiological explanation for how IPV and PTB may be related. Several lab values have been clinically recognized as commonly altered in individuals with psychiatric conditions and who have experienced violence, including plasma cortisol,  $\beta$ -endorphin corticotrophin releasing hormone, and serotonin concentration (Sanchez et al., 2013). These

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altered concentrations are believed to lead to endothelial dysfunction and inflammatory cytokines which are hypothesized to be “implicated in the pathogenesis of placental insufficiency, abruption placentae and preterm birth” (Sanchez et al., 2013, p. 490).

As the Peruvian lifetime incidence of IPV is alarmingly high at approximately 50% of all women, the risk of PTB is a prominent maternal and neonatal health concern. PTB is a leading cause in perinatal mortality- therefore intervening in IPV could improve newborn mortality rates (Sanchez et al., 2013). Researchers impose efforts must be continued and improved upon to stop IPV in the best interest of maternal and fetal health outcomes. Researchers also call for a societal change in attitudes towards violence as a component of IPV prevention.

### **Fetal Demise as the Result of IPV During Pregnancy**

Fetal demise refers to three different classifications of death: miscarriage, stillbirth, and abortion (MSA). *Miscarriage* refers any intrauterine fetal death, *stillbirth* specifically refers to intra or extrauterine fetal demise at or after 28 weeks of gestational age, and *abortion* sometimes refers to induced intrauterine fetal death (CDC, 2020). MSA is encompassing of a neonatal condition which is not suitable for life. This condition can be induced by a wide range of maternal and/or fetal health issues that ultimately lead to fetoplacental unit failure- signaling the maternal body to stop circulating blood and oxygen flow to the fetus (Salafia et al., 2008). Research supports the notion that physical IPV can directly induce MSA via trauma (Salafia et al., 2008). Some have hypothesized women who are victims of IPV are at a higher risk for experiencing MSA throughout all pregnancies that they carry (Gebreslasie et al., 2020).

#### **Study 1: “Intimate partner violence with miscarriages, stillbirths, and abortions**

#### **Identifying vulnerable households for women in Bangladesh” by Afiaz et al. (2020)**

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### *Title and Introduction*

“Intimate partner violence with miscarriages, stillbirths, and abortions: Identifying vulnerable households for women in Bangladesh” by Afiaz et al. (2020) is a recent study that was conducted via the Bangladesh Demographic Health Survey 2007 which aimed to evaluate the relationship between IPV and fetal death. Fetal death can occur through miscarriage, still-birth, or induced abortion (MSA) and can carry lasting effects on physical and psychological maternal health. As IPV is even more-so of a critical health issue in developing countries, Bangladesh is an ideal location to assess the state of the issue.

### *Research Problem, Purpose, and Hypothesis*

The overarching issues that prompted this study are violence against women as well as preventable fetal demise. Researchers hypothesized IPV would be associated with all forms of fetal death, including miscarriage, still-birth, and medically induced abortion. As current literature up to the point of this study had already indicated that IPV would increase the risk of poor maternal and fetal outcomes, this study additionally aimed to analyze the sociodemographic factors at play. The sociodemographic factors analyzed in this study included “age, place of residence, education, religion and number of children” (Afiaz et al., 2020, p. 3)

### *Study Design*

The study followed a theoretical framework which uses a broad analysis of several factors impacting IPV, known as Dutton’s nested ecological theory (Dutton, 2012). The nested ecological theory of domestic violence consists of four levels:

(a)The macrosystem, which is made up of “broad cultural values and belief systems”; (b)

The exosystem, which consists of the institutions (educational, employment, religious)

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and groups (peers, society) through which the individual is connected to the outside environment; (c) The microsystem, which refers to the individual itself and interaction patterns within the family itself; and, (d) The ontogenetic factors, which refer to the “individual’s developmental experience that shape responses to microsystem and exosystem stressors” (Afiaz et al., 2020, p. 3).

The study utilized data from the 2007 Bangladesh Demographic and Health Survey and 10,400 interviews with eligible women. The interviews collected data on IPV and MSA, which was then respectively compared to variables from the health survey providing insight on common demographic factors believed to have an impact on IPV. IPV was assessed during the interviews by asking participants if they had ever experienced being pushed, shook, thrown an object at, punched, kicked, dragged, choked, burned, threatened with a weapon, twisting an extremity, or physically forced into sex by their partner (Afiaz et al., 2020). Since MSA was the fetal outcome focus of this study, physical IPV was the only type of IPV assessed. Further studies are warranted to study the effect of psychological, financial, and all other subcategories of IPV on MSA.

### *Sampling and Limitations*

Households were randomly selected to have an equal representation from different areas of Bangladesh based on the 2007 census. Each selected household interviewed every 15–49-year-old woman who had ever been married and had spent the night in the household the night prior to the study. Women who were temporary residents or had missing data in their Bangladesh Demographic and Health Survey were excluded. Women whose answers indicated domestic violence were then eligible to be included in the domestic violence module of the study. The final sample consisted of 3,920 women.

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The study had three main limitations. Since the demographic survey used was a cross sectional survey, researchers disclaim “a causal relationship between IPV and MSA could not be estimated” (Afiaz et al., 2020, p. 11). The demographic survey provides correlational relationships rather than causal. Secondly, the study did not account for *when* the physical IPV occurred, adding to the need to interpret results through a correlational lens instead of cause-and-effect. Lastly, the true incidence of IPV is believed to be higher than the reported IPV in this study because of the stigmatization of reporting, especially among Bangladeshi women (Afiaz et al., 2020). These are common limitations among relevant studies.

### *Other Considerations*

Afiaz et al.’s (2020) study had one unique ethical consideration: induced abortions are highly legally restricted in Bangladesh. The study was intended to include induced abortions but because of criminalization, it was nearly impossible to collect accurate data on how much women have experienced induced abortions due to underreporting from both women and abortion providers. In Bangladesh, abortion is illegal after 12 weeks unless it is to save the woman’s life (Crouthamel et al., 2021). Legislation regarding abortion in Bangladesh has been largely controversial since the 1800’s, and universally controversial for even longer. Restrictive legislation is commonly rooted in traditional and/or religious values which are more prominent in less developed countries, including Bangladesh. Several ethical questions are raised by the topic of induced abortion: when does human life begin and does life or potential life hold any weight against women’s right to autonomy? Afiaz et al. (2020) suggest that restrictive legislation could be an instigating factor in IPV causing MSA in unplanned and unwanted pregnancies.

### *Data Collection*

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Demographic data was collected using the fifth Bangladesh Demographic and Health Survey, a questionnaire which collects information on each household member's age, education level, age of respondent at first birth, sex of the head of household, economic class, husband level of education, and current work status of respondent (Afiaz et al., 2020). Interviews were conducted assessing for the presence or absence of IPV by asking participants if they had experienced any of a variety of acts of physical abuse. Data was analyzed using the chi-square test and "Cramer's V", which are processes that mathematically determine the significance or insignificance of a relationship (Afiaz et al., 2020, p. 5)

### *Results*

The study found a significant relationship between IPV and MSA. Women who had reported experiencing IPV had a 31% prevalence of at least one MSA at the time of the survey while women who had not reported experiencing IPV only had a 24% prevalence, amounting to a 35% increased risk of MSA for those who experience IPV (Afiaz et al., 2020, p. 8). Below is a graph depicting the prevalence of MSA among women who experienced specific physical acts of IPV, each bar illustrating how most women who had experienced each specific act had also experienced MSA.

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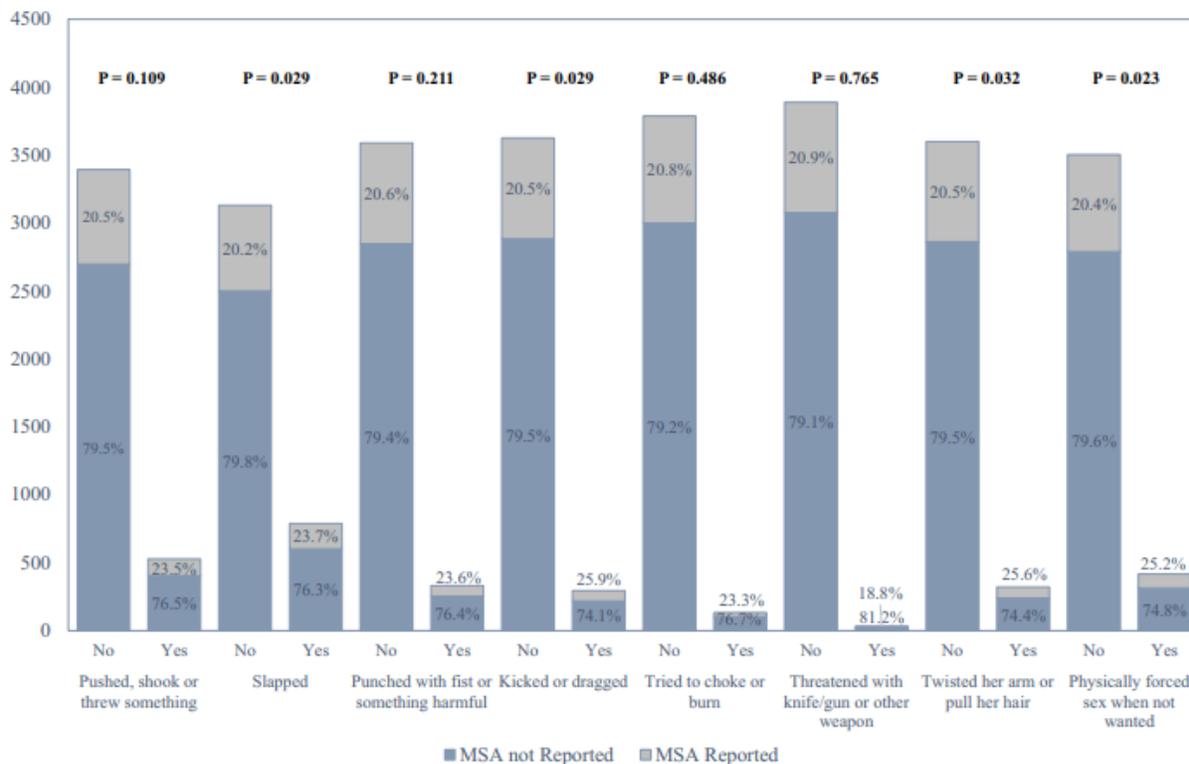


Figure 1: "Distribution of IPV among MSA in Bangladesh Demographic and Health Survey (BDHS) 2007" (Afiaz et al., (2020, p. 6)

In addition to the relationship between IPV and MSA, several demographics were concluded to have significant relationships with both IPV and MSA. Older age, rural location, lower economic class, lower levels of education, and having a male head of household were all associated with higher prevalence's of both IPV and MSA (Afiaz et al., 2020).

### ***Recommendations and Conclusion***

Researchers conclude that IPV can be a factor in fetal demise. Therefore, intervening in the occurrence of violence against women in Bangladesh is hypothesized to decrease the occurrence of MSA in Bangladesh. Because education level, age, and economic status all influence IPV and MSA, social programs and policies that provide and protect social and socioeconomical equity throughout a population are hypothesized to decrease both IPV and

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MSA. This would be observed through lower maternal mortality rates and newborn mortality rates. To this notion, maternal and newborn mortality rates can be indicative of the state of gender equality among a population.

### **Study 2: “Spousal Violence and Potentially Preventable Single and Recurrent Spontaneous Fetal Loss in an African setting: Cross-Sectional Study” by Alio et al. (2009)**

#### ***Title and Introduction***

Alio et al. (2009) conducted a study titled “Spousal Violence and Potentially Preventable Single and Recurrent Spontaneous Fetal Loss in an African setting: A Cross-Sectional Study” which, similar to the 2007 Bangladesh study, collected and analyzed data from a national demographic health survey and a series of structured interviews to discern the relationship between IPV and MSA. This was the first known study to account for recurrent fetal loss as opposed to singular, spontaneous fetal loss- which is a significant differentiation to make due to the thereby indicated “opportunity to prevent subsequent losses once spousal abuse has been identified as a risk factor” (Alio et al., 2009, p. 318). This study is also uniquely relevant due to its sub-Saharan African location, where approximately half of all women have experienced IPV (Alio et al., 2009, p. 318).

#### ***Research Problem, Purpose, and Hypothesis***

Recent studies have shown the perinatal mortality rate in sub-Saharan Africa is 34.7 deaths per 1,000 live births, much higher than the global average of 19 deaths per 1,000 live births (Akombi et al., 2019, p. 106). Many covariates are cited as contributing factors to the high perinatal mortality rate, including “a poor health service delivery system due to conflict, lack of political commitment and a weak health care system”, but the alarmingly high incidence of IPV

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in this region had not been discerned as a contributing factor before Alio et al. (2009)'s study.

With sub-Saharan Africa accounting for an overwhelming majority of fetal deaths in recent years and having the highest known perinatal mortality rate in the world, the purpose of the study was to examine spousal abuse as a risk factor (Alio et al., 2019). Researchers hypothesized spousal abuse would increase the risk of both singular and recurrent fetal loss, observable through women who experience IPV having a much higher incidence of MSA than their counterparts who do not experience IPV (Alio et al., 2009).

### ***Study Design***

Study design mirrored the 2007 Bangladesh study previously analyzed. Data was collected from the 2004 Cameroon Demographic Health Survey, a survey which was administered in all regions of sub-Saharan Africa but only inclusive of the *type* of fetal loss (spontaneous or induced) in the Cameroon survey. This provided the basis for demographics, reproductive and birth history, sexually transmitted diseases (STD) history, contraceptive history, nutritional status, and attitudes towards IPV (Alio et al., 2009). Women deemed eligible to participate in the IPV module of the study were questioned by trained interviewers to collect data on their personal experiences of both IPV and MSA.

### ***Sampling and Limitations***

The first round of finding a sample involved obtaining the 2003 Cameroon census data. Researchers used the census select a proportionally representative sample from each region of the country (Alio et al., 2009). Information from the Cameroon Demographic Health Survey was then collected from selected households for every eligible participant, women between ages 15 and 49, and interviews were conducted. Sampling was conducted with the intention of having

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proportional sample representation to the region's population, hence there were more respondents from urban areas than rural.

The inability to discern a causal relationship between IPV and MSA due to the cross-sectional design of the study is noted as a significant limitation. Researchers note that although “reverse causality” (fetal loss *causing* IPV instead of vice versa) is a possibility with this type of study design, it is unlikely due to the consistency of the results (Alio et al., 2009). Another limitation was the lack of maternal self-report or other means of obtaining the cause of fetal loss. It is possible that there were instances of fetal loss accounted for in the study that had autonomous causes or explanations and would thereby not be representative of a correlation with IPV. Lastly, the study is limited by the hypothesized underreporting of IPV. As most IPV is believed to be unreported, there is no way of knowing that all women in the non-IPV effected module had truly not been affected at any point by IPV.

### ***Other Considerations***

One notable consideration made due to the region of the study was the cultural belief that emotional and psychological violence are not real violence. Despite emotional abuse being the type of IPV with the greatest effect on recurrent MSA, Cameroon is one of many countries that holds the idea “sticks and stones can hurt you, but words cannot” (Alio et al., 2009, p. 322). This virtue, in combination with the undeveloped health care system, makes the studied population one which is predisposed to experience emotional IPV. A cultural understanding of the poor maternal and fetal outcomes of emotional IPV would be more likely to foster an environment with social and systemic efforts to prevent such abuse.

### ***Data Collection***

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First, demographic characteristics and data were collected from the 2004 Cameroon Demographic Health Survey. Socioeconomic characteristics considered in the study were respondents age, education, liveborn parity, residence, religion, wealth index, husband's age, husband's number of wives, and husband's level of education (Alio et al., 2009).

All respondents were then categorized by whether they reported having experienced IPV. Physical, emotional, and sexual violence all qualified as IPV history for the purpose of the study. Women were asked if they had ever experienced the following:

(1) physical violence, including instances of pushing or shoving, throwing objects, slapping, arm twisting, punching, hitting with an object, kicking, dragging, attempting to strangle or burn, threatening with a weapon, and attacking with a weapon; (2) emotional violence, referring to verbal or physical public humiliation and verbal threat to the woman or her family; (3) sexual violence, incorporating being forced to have sex or to undertake sexual acts (Alio et al., 2009, p. 319).

After the IPV questions, respondents were asked if they had ever experienced a fetal loss, the gestational age at the time of fetal loss, and how many fetal losses if any had occurred. Fetal losses were categorized as either spontaneous abortion or stillbirth based on gestational viability at time of demise. Respondents who reported recurrent fetal loss were further categorized as having a history of "(1) all stillbirths, (2) all spontaneous abortions, (3) or a combination" (Alio et al., 2009, p. 319).

### ***Results***

The final sample size was 2,562 women. Out of this sample, 51% reported an experience of IPV, on par with the national incidence of approximately 50% (Alio et al., 2019, p. 321). The

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demographic indicators of health were on par with the Bangladesh study analyzed previously, with increased age, decreased education, and decreased income all being associated with a higher prevalence of IPV. Regarding the effect of IPV on MSA, women who experienced IPV were 50% more likely to experience MSA (Alio et al., 2009, p. 321). Sexual IPV was found to have the greatest effect on singular occurrences of MSA, and emotional IPV had the greatest effect on recurrent MSA (Alio et al., 2009). Below is a table depicting the alarming percentages of women who have experienced different subtypes of IPV that have also experienced fetal loss.

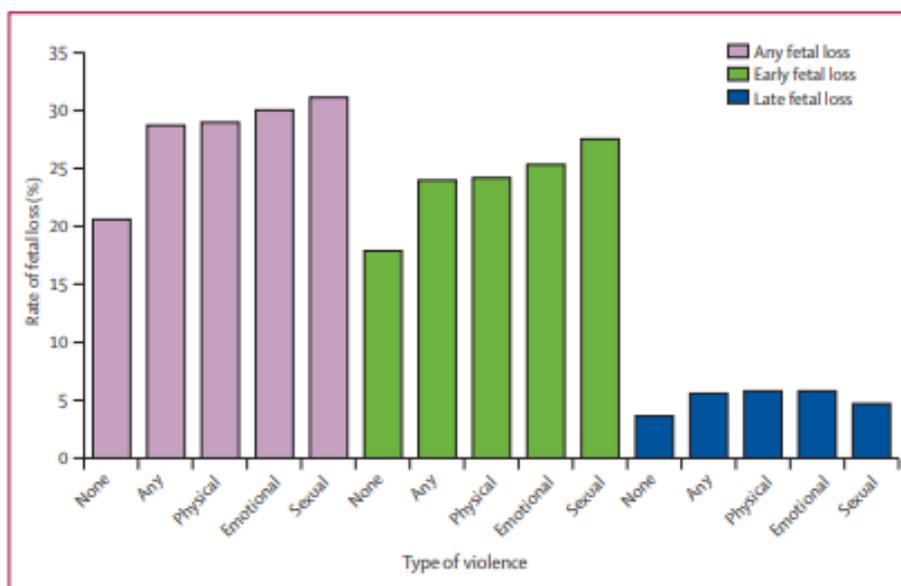


Figure 2: "Experience of spousal violence and rates of early and late fetal loss" (Alio et al., 2009, p. 320)

### **Recommendations and Conclusion**

With results yielding a 50% increased risk of MSA for women who experience any type of IPV, the study concludes that IPV is a preventable covariate for single and recurrent fetal loss. For women who have experienced multiple fetal losses, domestic intervention assuring the woman's safety from violence in the home may prevent future losses. Because of the stigmatization of reporting IPV and the patriarchal social structure of sub-Saharan African

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regions, IPV screenings should be administered prophylactically to provide an opportunity for women to come forward. Eliminating exposure to IPV among the studied population may have a dramatic effect on the perinatal mortality rate, which is the highest in the world. Lastly, researchers conclude the study warrants further investigation into the differences in demographic characteristics and populations at risk for IPV & MSA between developed and underdeveloped countries (Alio et al., 2009).

### **Discussion and Conclusion**

Available literature supports the notion that IPV is a risk factor for poor neonatal outcomes including intrauterine growth restriction, preterm birth, and fetal death. Findings indicate that decreasing maternal IPV could retrospectively decrease IUGR/SGA, PTB, and MSA. This additionally implies that higher rates of IPV in certain regions may contribute to those region's equivocally high newborn mortality rates. For the betterment of global public health, decreasing and preventing IPV needs to be a priority within all healthcare systems. Bedside nurses can contribute to this cause.

Nurses must first play a role in *identifying* IPV during pregnancy. The first call to action for nurses is to implement universal prenatal IPV screenings at all indicated points in prenatal care. This needs to be done in private to ensure anonymity; victims of IPV are unlikely to disclose abuse in front of their abuser. The suggested screening is as follows:

*“Do you feel safe in your current relationship?”*

*Has anyone ever forced you to have sex when you didn't want to? If yes, who?*

*Do you currently have any contact with him?*

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*Have you ever been hit, slapped, or kicked by someone? If yes, who? Do you currently have any contact with him?"* (Walton-Moss et al., 2002).

If initial screening questions suggest the patient is experiencing IPV, the nurse should keep in mind potential manifestations of battered woman syndrome (BWS). BWS is described as a PTSD-subtype which specifically applies to IPV victims (Legg, 2018). One manifestation of BWS for nurses to be aware of is *destructive beliefs about self and situation*. These beliefs could present as variations of *"The abusive behaviors are not who my partner really is"*, *"I sometimes warrant abuse behaviors"*, *"My partner is going to get better after the baby arrives"*, etc. Though these beliefs are unfounded and even non-sensical from the outsider perspective, "low self-esteem and feelings of guilt and shame" are long term effects of IPV and can be the root of such ideas (Legg, 2018). This is an important concept for the nurse to keep in mind while communicating with and caring for victims of IPV.

If indicated by the initial screening questions, the next call to action for the nurse is to assist high-risk IPV patients in creating a safety plan. This is prophylactic crisis intervention for IPV. Walton-Moss et al. (2002) outline the essential components of a safety plan:

*"Important papers*

*House and car keys*

*Community resource phone numbers*

*Establish a code with family, friends, and neighbors*

*Hide extra clothing and money*

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*Identify behaviors of partner indicating increased danger*” (Walton-Moss et al., 2002, p. 6).

Lastly, and arguably the biggest contributor to prevention of future IPV, is the nurse’s role in documentation. Nurses’ documentation of IPV can be used to prosecute abusers, grant victims’ protective orders, grant full custody to mothers who desire, and for general legal and medical advocacy for patients who are victims of IPV. Adequate documentation must include several components to best advocate for the patient, including but not limited to; the patient’s recollection in their own words of abusive events or behaviors, photos and/or scans of physical injuries, nurse’s assessment of woman’s mood or affect, the results of a lethality assessment, and all patient education that was completed at each visit (Walton-Moss et al., 2002).

Further research is greatly needed pertaining to IPV. For the rates at which IPV is occurring, there is a notable absence of data caused by under or non-reporting. This lack of data is alongside IPV itself in terms of public health failures rooted in gender inequality. In any healthcare system that values justice, eradicating intimate partner violence needs to be a priority. The literature reviewed in this paper authenticates the relationship between IPV and poor neonatal outcomes, thereby warranting efforts to decrease IPV as a method of decreasing said poor neonatal outcomes.

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