

Income, Power, and Intimate Partner Violence at the Transition to Parenthood

by

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B.A., Acadia University, 2016

Thesis Submitted in Partial Fulfillment of the  
Requirements for the Degree of

MASTER OF SCIENCE

in the Department of Psychology

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University of Victoria

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We acknowledge with respect the Lekwungen peoples on whose traditional territory the  
university stands and the Songhees, Esquimalt, and WSÁNEĆ peoples whose historical  
relationships with the land continue to this day.

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## Abstract

In relationships between men and women, women are still more likely than men to take family leave and reduce work hours after the birth of their first child. This results in economic changes between partners at the transition to parenthood. Gendered changes in income may impact relationship dynamics within couples and contribute to the elevated risk of intimate partner violence (IPV) seen at this time. Previous research has linked both relative and absolute income to IPV; however, it is unlikely that income directly impacts IPV. For this reason, the current study explored potential mediators of the relationship between income and IPV such as decision-making power (i.e., the ability to influence another person's opinions and decisions) and quality of alternatives (i.e., the availability of options outside of the current relationship) by following 196 first time parents across four timepoints (the third trimester of pregnancy, one year, two years, and four years postpartum). Multilevel modelling was used to test whether decision-making power mediates the relationship between *relative income* and IPV and whether quality of alternatives mediates the relationship between *absolute income* and IPV. Despite low base rates of physical IPV, findings indicated that at times when the gender wage gap within couples was smaller, overall levels of physical violence within the relationship were reduced. However, at times when the gender wage gap was smaller women's psychological IPV perpetration increased. There were mixed findings regarding decision-making power and quality of alternatives as mediators of the relationship between income and IPV. Implications for the current conceptualization of the link between income and power are discussed.

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## Acknowledgements

I would like to acknowledge the immense support I received from my supervisor Dr. Erica Woodin. Without her this project would certainly not have been possible. Her guidance has been indispensable and her patience unending.

I would also like to thank my second reader, Dr. Danu Stinson whose expert guidance has contributed substantially to the quality of the entire paper. Thank you for your thoughtful feedback and your technical writing expertise.

Thank you to Dr. Tamara Humphrey for graciously offering your time to serve as an external committee member. Also, thanks to Dr. Stuart MacDonald and Pauline Song for statistical support. Multilevel modelling was made less daunting through your assistance.

Finally, I would like to thank my dear friend and colleague Debra Torok. I am eternally grateful for her emotional and practical support over the past two years. I owe her much.

## Introduction

Intimate partner violence (IPV) affects individuals throughout the lifespan, including during pregnancy and the postpartum period. The transition to parenthood is, in fact, a period of elevated risk for IPV as compared to others stages in the lifespan (Slep & O'Leary, 2005) and IPV is a leading cause of injury among reproductive aged women (Chambliss, 2008; Mendez-Figueroa, Dahlke, Vrees, & Rouse, 2013). Pregnancy and the postpartum period are also periods of special concern given the serious adverse health impacts that violence has on women and developing children at that time, both in terms of compromised fetal development as well as disrupted parent-child interactions (Alhusen, Ray, Sharps, & Bullock, 2015; Janssen et al., 2003; Muhajarine & D'Arcy, 1999; Stewart & Cecutti, 1993).

Changes in income may play a role in the elevated levels of aggression seen during this time. In the early postpartum period one or both parents often take time off work resulting in a temporarily decreased household income. Extensive research documents that economic stress, low-income, and employment status are risk factors for IPV and that they continue to be risk factors throughout the pregnancy period (Benson & Fox, 2004; Benson, Fox, DeMaris, & Van Wyk, 2003; Daoud, et al., 2012; Heaman, 2005; Jewkes, 2002; Kaukinen, Meyer, & Akers, 2013; Kaukinen & Powers, 2015; Renzetti, 2009). Parental leave is still most often taken by women, leading to differential economic impacts of parenthood on men and women (Magnusson & Nermo, 2017; Sanchez & Thomson, 2017). Differences in income and status between partners is also a risk factor for IPV (Aizer, 2010; Dawson, Pottie Bunge, & Baldé, 2009; Farmer & Tiefenthaler, 2003).

One proposed reason for the link between income and IPV is relative power in the relationship. However, few studies have explicitly examined the potentially gendered elements

of power as a mediator of the income-IPV connection. This study will examine changes in IPV across the transition to parenthood, a time of fluctuating IPV and income levels, and will explore the gendered elements of relative power, asking the question: does money really equal power and for whom?

### **Intimate Partner Violence Research**

IPV is defined as physical, psychological, or sexual abuse that takes place within the context of a romantic relationship (Jolin, Feyerherm, Fountain, & Friedman, 1998). Physical IPV involves actions that can physically harm a partner and ranges from behaviours such as pushing or slapping to using a gun or a knife on a partner. Psychological IPV ranges from actions such as yelling at and insulting a partner, to threatening a partner or destroying things that belong to them. Sexual IPV includes forced sexual intercourse and other forms of sexual coercion.

IPV is a worldwide public health concern that affects people across the globe including millions of Canadians (Tjaden & Thoennes, 2000; World Health Organization, 2012). Between 20% and 30% of Canadian women have experienced either physical or sexual IPV in their lifetime (Tjaden & Thoennes, 2000) and each year 0.3% of Canadians are victims of at least one incidence of IPV where the police are called (Sinda, 2013).

Incidences of IPV where the police are called represent only a minority of all incidences of IPV. However, IPV research often focuses on justice-system involved perpetrators (usually men) who have engaged in severe physical abuse of their partners or shelter samples of women fleeing severe abuse. The type of IPV most often found in these samples is called *intimate partner terrorism*. Intimate partner terrorism tends to be severe and injury-causing, accompanied by high levels of fear and coercive control, and is primarily male perpetrated (Johnson, 2010). In

couples experiencing intimate partner terrorism physical IPV is just one tool that one partner uses in an effort to exert control over the other (Johnson, 2010).

Despite low levels of intimate partner terrorism in community samples, nearly half of all couples experience some form of physical IPV of a less extreme nature during the course of their relationship (Lawrence & Bradbury, 2001; Pedersen & Thomas, 1992; Slep & O’Leary, 2005). Termed *situational couple violence*, these violent acts tend to emerge as a reaction to frustration with one’s partner and are associated with less injury, fear, and coercive control (Johnson, 2010; Johnson & Ferraro, 2000). Although situational couple violence and intimate partner terrorism are typically characterized as two qualitatively different constructs, some researchers have suggested that they are more likely to be two points on a continuum (Frye, Manganello, Campbell, Walton-Moss, & Wilt, 2006). This is because controlling behaviours seem to be found in most couples where physical IPV is experienced regardless of the severity of violence and is also often found in couples where no violence is experienced at all (Frye et al., 2006).

In community samples characterized by situational couple violence, both physical and psychological IPV perpetration are equally as common in men and women (Archer, 2000; Dobash, Dobash, Wilson, & Daly, 1992; Dragiewicz & DeKeseredy, 2012). Despite similar frequencies, male IPV perpetration is still more physically injurious and severe and the psychological symptoms associated with IPV such as fear, anxiety, and depression are greater in female victims (Archer, 2000; Bunge & Locke, 2000; Dragiewicz & DeKeseredy, 2012).

Violence is often bidirectional in these couples with male perpetration predicting female perpetration and vice versa (Archer, 2000; Crane & Eckhardt, 2013). In fact, the majority of IPV is likely to be bidirectional (Palmetto, Davidson, Breitbart, & Rickert, 2013). Not only is bidirectional IPV more prevalent but it also tends to be more severe and injurious than

unidirectional IPV (Capaldi, Kim, & Shortt, 2007; Gray & Foshee, 1997; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). Bidirectional IPV is a common but understudied phenomenon given the emphasis on male IPV perpetration. This study will examine both male and female IPV perpetration in order to create a clearer picture of bidirectional IPV. However, the literature reviewed below primarily concerns male-perpetrated IPV given that the majority of literature concerning IPV at the transition to parenthood focuses on male perpetration only.

Rates of IPV among sexual minority individuals is also a highly understudied area. Existing literature suggests that lesbian, gay, and bisexual individuals experience IPV at similar or higher rates than heterosexual individuals (Edwards, Sylaska, & Neal, 2015; Finneran, Chard, Sineath, Sullivan, & Stephenson, 2012; Messinger, 2011). Bisexual women tend to have the highest rates of IPV of any sexual orientation and are most likely to be victimized by male partners (Messinger, 2011). Research on transgender individuals is even more sparse, however, the literature that does exist suggests that transgender people may experience even more IPV than LGB individuals, with lifetime physical abuse rates as high as 35% in the transgender community (Landers & Gilsanz, 2009).

Intersectional marginality in the form of intersecting sexual and racial/ethnic minority identities may serve to increase the risk of IPV among sexual minority groups as rates of IPV are greater among individuals who belong to racial/ethnic minorities (Benson & Fox, 2004; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; Powers & Kaukinen, 2012). The research is mixed as to whether racial/ethnic differences in the rates IPV are largely due to differences in economic factors and neighbourhood (Benson & Fox, 2004; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; Cho, 2012; Rennison & Planty, 2003) or if racial/ethnic minority individuals are at a greater risk of IPV regardless of social class (Powers & Kaukinen, 2012).

The literature I review below includes research with people from a variety of racial and ethnic backgrounds but primarily concerns relationships between women and men. This is because of this study's focus on IPV in relationships between men and women and the gendered power dynamics that serve as risk factors for violence in these relationships. Exploring gendered power differentials and their link with IPV has clear implications for male-female romantic relationships. However, it also has important implications for how violations to heteronormative gender norms impact all interactions between individuals of any gender.

Heteronormative gender norms dictate which behaviours, activities, or attributes are deemed socially acceptable for men and women (Bornstein, 1998; Butler, 2002). These gender norms are predicated on heteronormativity, which encompasses a range of beliefs and social norms that place heterosexuality as the default sexual orientation (Harris & White, 2018). Heteronormativity is predicated on a binary conceptualization of gender where individuals can only be either male or female (Kitzinger, 2005). Heteronormative gender norms constrain how individuals of different genders interact with one another and can result in social sanctions, and even violence, for those who do not conform to these proscribed ways of being. For instance, rigid gender norms are a risk factor for IPV in relationships between men and women and gender norm violations are one reason why bisexual women are at a higher risk of IPV from male partners as opposed to partners of other genders. Differences in income and power that favour women over men do not conform to heteronormative gender norms and also may increase the risk for IPV in couples. These risks may be greater at the transition to parenthood, a highly gendered time in the lifespan.

### **IPV at the Transition to Parenthood**

There is an elevated risk of IPV-related health consequences for pregnant individuals, developing foetuses, and young children who witness IPV in the home (Alhusen, Ray, Sharps, & Bullock, 2015; Janssen et al., 2003; Muhajarine & D'Arcy, 1999; Stewart & Cecutti, 1993). At the individual level, IPV victimization is associated with anxiety disorders, substance use disorders, suicidal ideation, posttraumatic stress disorder, depression, and chronic physical illness (La Flair, Bradshaw, Mendelson, & Campbell, 2015). Individuals exposed to IPV during pregnancy are less likely to receive adequate prenatal care and are at an elevated risk of poor nutrition, inadequate weight gain, depression, and risky behaviours such as substance misuse during pregnancy (see Alhusen, Ray, Sharps, & Bullock, 2015 for review). Adverse neonatal outcomes such as low birth weight, preterm birth, and being small for gestational age, are also associated with exposure to IPV during pregnancy (see Alhusen, Ray, Sharps, & Bullock, 2015 for review). A period of heightened risk for adverse outcomes continues beyond the pregnancy period as witnessing IPV in the home has been associated with a host of negative outcomes for children. Children who are exposed to IPV in the home show decreased memory functioning (Jouriles et al., 2008), increased PTSD symptomology (Feerick & Haugaard, 1999), and more aggressive behaviours (Baldry, 2007) as compared to children who have never been exposed to IPV. Children whose mothers experience IPV are also at an increased risk of experiencing abuse themselves (Feerick & Haugaard, 1999; Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008; Holt, Buckley, & Whelan, 2008).

**Physical IPV at the transition to parenthood.** Globally, rates of physical IPV are lower during pregnancy than rates of IPV prior to pregnancy (see Taillieu & Brownbridge, 2010 for review). Despite lowered rates at this time, 1.2 to 6.6% of Canadian women still experience

some form of physical IPV during pregnancy (Janssen et al., 2003; Muhajarine & D'Arcy, 1999; Stewart & Cecutti, 1993). Women who experience physical IPV during pregnancy most often report that it is a continuation of IPV that began before pregnancy. In fact, between 60% to 96% of women who experience physical IPV during pregnancy report previous IPV (Taillieu & Brownbridge, 2010). Although the onset of physical IPV during pregnancy is uncommon, women who had previously experienced IPV in their relationship may see a worsening of IPV during the pregnancy period. Between 21 and 71 % of women who report IPV occurring before pregnancy report an increase in the frequency and severity of abuse during the pregnancy period (Taillieu & Brownridge 2010). Furthermore, women who report IPV during pregnancy report more frequent and severe violence throughout their entire relationship compared to women who report IPV only outside of pregnancy (Brownridge et al., 2011; Burch & Gallup 2004; Stewart & Cecutti 1993; Taillieu & Brownridge, 2010).

Although there is little research that follows women experiencing IPV throughout pregnancy and into parenthood one American study followed over 10,000 women from before they were pregnant, into pregnancy, and up to one year postpartum (Scribano, Stevens, & Kaizar, 2013). They found that when following the same women across the transition to parenthood, rates of physical IPV dropped from the pre-pregnancy period (8%) to the pregnancy period (5%) and then rebounded greater than before by 1 year postpartum (12%). The results of that study are echoed by cross-sectional research performed in the postpartum period, which suggests that the first few years proceeding childbirth are those with the highest incidences of physical IPV (Slep & O'Leary, 2005) and by longitudinal research starting at childbirth, which documents declines in physical and psychological IPV as children age (Sharps et al., 2016). Higher rates of IPV during the postpartum period have been linked to increased stress, reduced relationship

satisfaction, and increased conflict within couples after the birth of their first child (Jasinski, 2004).

**Psychological IPV at the Transition to Parenthood.** Up to 72% of adults will experience psychological IPV in their lifetimes (e.g., Breiding, 2014; Coker et al., 2002; Começanha, Basto-Pereira, & Maia, 2017). Despite the commonplace nature of psychological IPV its deleterious impacts can rival those of physical IPV (Coker et al., 2002; Começanha, Basto-Periera, & Maia, 2017; Ludermir, Lewis, Valongueiro, de Araújo, & Araya, 2010; Pico-Alfonso et al., 2015).

The early postpartum period is a period of increased risk for psychological IPV for a variety of reasons. Relationship satisfaction tends to decline at this time (Cowan & Cowan, 1992; Doss, Rhoades, Stanley, & Markman, 2009) and 90% of couples show increases in conflict from late pregnancy to 18 months postpartum (Cowan & Cowan, 1992). The transition to parenthood is also a time of increased stress for most couples (Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005), and stress has been linked to psychological aggression (e.g., Shortt, Capaldi, Kim, & Tiberio, 2013). Additionally, rates of psychological IPV peak in early adulthood (i.e., ages 18-30), the developmental time-period when many couples choose to have children, making the risk of IPV when young children are in the house higher than during other periods (Rennison & Rand, 2013; Shortt, Capaldi, Kim, & Tiberio, 2013).

There is limited research exploring rates of psychological IPV at the transition to parenthood and even more limited longitudinal research. One longitudinal study that began following parents at childbirth and continued as children aged documented declines in psychological and physical IPV over time (Sharps et al., 2016). However, in previous analyses performed with the dataset used in the current study no linear change in the rates of

psychological IPV was detected when parents were followed from the third trimester of pregnancy to two years postpartum (Sotskova, Woodin, & Gou, 2015).

**Research Question 1.** Given the paucity of longitudinal research on rates of IPV across the transition to parenthood my first research question asked: Are there changes in rates of physical and psychological IPV perpetration and victimization for men and women across the transition to parenthood?

I hypothesized that rates of physical IPV experienced by women will peak during the postpartum period and then decline as children grow older. This hypothesis is based on previous cross-sectional and longitudinal research that suggests that pregnancy is a time of lowered risk of physical IPV for women but that rates of physical IPV rebound in the postpartum period and then decrease as children age (Scribano, Stevens, & Kaizar, 2013; Sharps et al., 2016; Slep & O’Leary, 2005; Taillieu & Brownbridge, 2010).

Given the important health consequences for pregnant individuals as well as unborn children when physical IPV is experienced during pregnancy, it is not surprising that research to this point has focused mainly on *physical* IPV affecting *women* during this time period. However, psychological IPV has serious long-term consequences and both physical and psychological IPV can be perpetrated by women as well as men. Therefore, I will also explore changes in psychological IPV and male IPV victimization in my analyses. Considering that limited research has been conducted on these aspects of IPV at the transition to parenthood, my analyses of these variables will be exploratory rather than confirmatory.

### **Income and IPV**

There is a well-established relationship between socioeconomic status (SES) and IPV (Benson & Fox, 2004; Benson, Fox, DeMaris, & Van Wyk, 2003; Jewkes, 2002; Renzetti, 2009).

Although IPV can be experienced by individuals from any social class, the risk of IPV increases with decreasing SES (Benson & Fox, 2004; Benson, Fox, DeMaris, & Van Wyk, 2003; Bureau of Justice Statistics, 1994). For instance, in the United States, women with an annual income below \$10,000 are five times more likely to be a victim of at least one instance of IPV where the police are called compared to women with an annual income above \$30,000 (Bureau of Justice Statistics, 1994). When one or both partners are unemployed the risk is even greater (Benson & Fox, 2004; Kaukinen, Meyer, & Akers, 2013). Similarly, couples who report high levels of financial strain are over three times as likely to report instances of IPV within the relationship compared to couples who report low levels of financial strain (Benson & Fox, 2004). In a study featuring both Canadian and American women, higher income was associated with a decreased risk of physical IPV and coercive control for both Canadian and American participants (Kaukinen & Powers, 2015). One reason low SES women are at a greater risk of experiencing IPV is that they experience more barriers to leaving abusive relationships and thus they are more likely to stay in abusive relationships despite low relationship satisfaction (Dugan, Nagin, & Rosenfeld, 1999; Kaukinen, 2004; Riger & Krieglstein, 2000; Renzetti, 2009). As women's incomes increase, they are more likely to end the relationship if abuse continues.

The decreased ability to exit an abusive relationship is only one reason why low-income individuals are more at risk of IPV. Economic stress, contextual factors such as residing in a disadvantaged neighbourhood, and residential instability all contribute to elevated risk (Benson, Fox, DeMaris, & Van Wyk, 2003). Additionally, when men are unemployed or underemployed, threats to masculinity via violations of male breadwinner norms increase the risk of male perpetrated IPV (Peralta & Tuttle, 2013). The link between income and men's risk of experiencing IPV is unclear because of the paucity of research on the subject.

While economic stresses can increase the risk of IPV, so too can IPV increase the risk of financial strain. Abusers may sabotage attempts made by their partners to secure employment, increase education, or engage in skills training (Renzetti, 2009). Women who experience IPV are more likely than women who do not experience IPV to miss work, perform poorly at work, and have difficulty maintaining employment (Leone, Johnson, Cohan, & Lloyd, 2004; Logan, Shannon, Cole, & Swanberg, 2007; Meisel, Chandler, & Rienzi, 2003; Reeves & O'Leary-Kelly, 2007). These problems are in addition to the increased risk of psychological and physical health problems that may reduce productivity at work (La Flair, Bradshaw, Mendelson, & Campbell, 2015).

**Income and IPV at the transition to parenthood.** Income and IPV are associated throughout the lifespan but income may be a particularly relevant factor when predicting physical abuse during pregnancy. Low-income pregnant women in Canada are 2-3x more likely than their higher income peers to experience physical IPV (Daoud, et al., 2012; Heaman, 2005). Unemployment status has also been linked to an increased risk of violence during pregnancy (Brownridge et al., 2011; Heaman, 2005; Stewart & Cecutti, 1993). Low income and unemployment are risk factors for IPV because they lower a women's bargaining power and reduce her ability to leave an abusive relationship (Aizer, 2010; Kaukinen, Meyer & Akers, 2013; Wolf, Ly, Hobart, & Kernic, 2003)

Women who experienced continued violence during pregnancy compared to those whose experiences of IPV cease during pregnancy vary on a variety of economic factors. Women whose abuse continues into pregnancy are more likely to have a husband who has lost his job or to report having bills they cannot pay (Diaz-Olavarrieta et al., 2007). Additionally, women whose abuse continues into pregnancy are more likely to be homemakers, which suggests that

not only economic strain but also a women's financial dependency upon her partner is a risk factor for abuse during pregnancy (Diaz-Olavarrieta et al., 2007).

**Income Disparities and IPV.** Not only are absolute levels of income and SES associated with IPV but income disparities between partners and financial dependency are also risk factors for violence. Based on marital dependency theory, in relationships where a male partner makes more money than his female partner, there are fewer consequences for his aggressive behaviour because his partner is dependent on his income, thus she is less likely to seek help or end the relationship when abuse occurs (Kaukinen, Meyer & Akers, 2013; Wolf, Ly, Hobart, & Kernic, 2003). By virtue of his greater economic resources, the male partner holds a great deal of power over his female partner. It is not surprising, then, that in relationships where the male partner makes more money than his female partner, there is a greater risk for male-to-female physical IPV than in more financially egalitarian couples (Sagrestano, Heavey & Christensen, 1999).

Both marital dependency theories and economic theories of household bargaining would suggest that higher income increases a woman's bargaining power within the relationship because it improves her options outside of the relationship (Aizer, 2010). In other words, it improves her *quality of alternatives* (i.e., options outside of the relationship), by improving her ability to provide for herself and do without the support of a partner. In this way, when women are better able to support themselves, they are at a decreased risk of violence because they are better able to leave a violent relationship (Farmer & Tiefenthaler, 2003; Kaukinen, 2004).

Globally, in societies where women are less able to support themselves financially (e.g., greater structural gender inequalities, fewer women in the workforce), there are higher rates of violence against women (Archer, 2006; Heise & Kotsadam, 2015; Ozaki & Otis, 2016). In Canada and the United States, dramatic decreases in rates of intimate partner violence since the

late 1980s have been linked to increased female participation in the labour market (Aizer, 2010; Dawson, Pottie, Bunge, & Baldé, 2009; Farmer & Tiefenthaler, 2003; Statistics Canada, 2011). Aizer (2010) found that after controlling for a variety of other factors, such as declines in the rates of other violent crimes, nine percent of the decrease in IPV in the state of California that took place between 1990 to 2003 could be attributed to reductions in the gender wage gap.

Despite research that supports marital dependency and economic bargaining theories there is another body of literature in which employment and increased female income is a risk factor for IPV victimization. Male backlash theory is typically characterized as male-perpetrated violence used to assert control over a partner either in response to violations of male-breadwinner norms or as an alternative means of asserting control when economic control becomes less viable (Anderson, 1997; Dugan et al, 1999; Hornung et al, 1981; Kaukinen, 2004; Riger & Krieglstein, 2000; Rinelli, 2006; Vieraitis, Kovandzic, & Britto, 2008). Male backlash conforms with feminist theories that suggest that men use violence to assert control and dominance over women (Bell & Naugle, 2008; Dobash & Dobash, 1977).

Male backlash may also explain why female employment has been isolated as a risk factor for IPV rather than a protective factor in some studies (Kaukinen & Powers, 2005; Powers & Kaukinen, 2012). Powers and Kaukinen (2012) found that employed women were at a greater risk than unemployed women for IPV. Women may experience higher levels of IPV as they attempt to gain employment because of abuser's attempts to regain control once economic independence is beginning to be established (Brush, 2011). This risk for male backlash seems to hold true despite evidence that absolute levels of female income are inversely related to IPV (Anderson, 1997; Kaukinen, 2004; Pridemore & Freilich, 2005; Riger & Krieglstein, 2000; Vieraitis, Kovandzic, & Britto, 2008).

The male backlash phenomenon has been noted especially in low SES couples and couples in which men were unemployed or underemployed (Anderson, 1997; Benson & Fox, 2004; Riger & Krieglstein, 2000; Vieraitis, Kovandzic, & Britto, 2008). Paid employment on the part of an intimate partner may be especially threatening to men who are not themselves making very much money because it poses an even greater threat to their control over the relationship and to heteronormative gender norms that dictate that men must be financial providers.

**Research Question 2.** Controlling for household income levels, do relative differences in income between partners impact the likelihood of IPV perpetration or victimization over the transition to parenthood?

I hypothesized that at times when a woman was making more relative to her partner than she usually did it would trigger male backlash and result in more IPV perpetration for men and more IPV victimization for women. Given that a measure of relative income not absolute income was used in this study, I hypothesized that the results would align with the literature on male backlash. This is because higher absolute income levels are associated with a reduced risk of IPV victimization for women but higher income relative to that of a partner can result in male backlash.

Less is known about the relationship between income and women's IPV perpetration and so exploratory, rather than confirmatory, analyses will be conducted with regards to women's IPV perpetration and men's IPV victimization at this time.

### **Elements of Power as Mediators of the Link between Income and IPV**

According to marital dependency theory, economic theories of household bargaining, feminist theories and research on male backlash, income is an important predictor of IPV because of its association with power (Anderson, 1997; Kaukinen, 2004; Dutton, 1988; Bell &

Naugle, 2008; Dobash & Dobash, 1978). Although a clear relationship exists between income and IPV it is unlikely that income directly impacts IPV. Rather, it creates changes in the balance of power within the relationship, which in turn impacts IPV (Anderson, 1997; Kaukinen, 2004; Bell & Naugle, 2008; Dobash & Dobash, 1978). In interdependence theory, power is conceptualized as the opposite of dependence, which is measured by one's *quality of alternatives* or options outside of the relationship (Rusbult, Agnew, & Arriaga, 2012; Rusbult & Martz, 1995; Rusbult & Van Lange, 1996; Thibaut & Kelley, 1959). With increased income an individual is better able to leave a relationship if they are dissatisfied, thus exerting power over relationship continuation. Multiple factors can impact an individual's quality of alternatives but income can work on quality of alternatives by ensuring less economic hardship should one leave a relationship (Rusbult & Martz, 1995).

Some previous research suggests there is no link between quality of alternatives and IPV (Rhatigan & Axsom, 2006; Rhatigan, Moore, & Stuart, 2005), yet, other studies suggest greater quality of alternatives predicts greater intentions to leave an abusive relationship (Edwards, Gidycz, & Murphy, 2015; Le & Agnew, 2003; Rhatigan, Moore, & Stuart, 2005). Gaertner and Foshee (1999) found that quality of alternatives was positively related to IPV perpetration for adolescent boys in situationally violent dating relationships but not for adolescent girls. The authors hypothesized that violence was a prelude to relationship termination for men in situationally violent couples, however, they were not able to test this hypothesis in their study and called for further research on the topic.

Severe IPV, or intimate partner terrorism, can reduce quality of alternatives by limiting the ability to pursue education and employment (Riger, Ahrens, & Blickenstaff, 2000; Rhatigan, Moore, & Stuart, 2005). Education, employment, and income are all conceptually related to the

construct of quality of alternatives and have been used as a measure of quality of alternatives in previous research on women residing in domestic violence shelters (Rusbult & Martz, 1995).

Quality of alternatives is higher when there are attractive options outside of the relationship. If an individual has limited economic opportunities then remaining in the relationship becomes more appealing (Rusbult & Martz, 1995).

Income also engenders power through resultant increases in bargaining power (Aizer, 2010). For instance, having a greater income than one's partner allows individuals to opt out of menial tasks such as household labour (Mannino & Deutsch, 2007; Sanchez & Thompson, 2017; Shelton & John, 1996). The link between income and housework is stronger for men because using their male power they are better able to leverage their income to opt out of housework (Bittman, England, Sayer, & Matheson, 2003). The link between earning and contributions to household labour are not as strong for women. For women, income does not seem to be enough to overcome the gender-based role expectancies that women should be the ones to complete household labour (Bittman, England, Sayer, & Matheson, 2003; Shu, Zhu, & Zhang, 2012). Additionally, despite increases in women's contributions to household income over the past several decades and the rise of dual-earner households, studies find that women who earn more than their male partners frequently cede financial and decision-making control to their partners in order to compensate for the gender-atypical nature of their greater economic contributions (e.g., Tichenor, 1999; Tichenor, 2005; Wesson, 1997).

Resource theory in social context hypothesizes that patriarchal gender role norms serve to limit the influence of women's resources on her relational power (Rodman, 1972). Fuwa (2014) elaborated by looking at relative resources within couples and their corresponding impact on the division of household labour. Across 22 countries, in those countries with greater economic

development, female labor-force participation, welfare regimes, and less traditional gender norms, women were better able to translate their personal earnings into a more equitable division of household labour. So, relative differences in income between partners may influence the balance of power within a couple but this link has a gendered component. A woman's ability to use her resources to influence her partner may be impeded, especially when opportunities for women are restricted at the macro-level.

Increased bargaining power allows an individual to better influence the opinions and behaviour of their partner. The ability to influence a partner in order to get your way is called *decision-making power* (Halstead, De Santis, & Williams, 2016; Thibaut & Kelley, 1959). Studies that examine the relationship between decision-making power and IPV are limited, however, there is some evidence that lower power couple members are more likely to perpetrate psychological IPV as a means of gaining power in the face of hopelessness (Overall, Hammond, McNulty, & Finkel, 2016). However, there is also research to suggest that when men have higher decision-making power than their female partners they are more likely to perpetrate physical IPV and when women have higher decision-making power they are more likely to experience physical IPV (Hindin & Adair, 2002).

Research that focuses on various types of power and IPV concurs with the decision-making power literature that suggests the risk of IPV is only elevated when there are discrepancies in power between partners. Male-dominated power structures within relationships have been linked to greater male IPV perpetration, whereas egalitarian marital structures are negatively correlated with IPV (Kim & Emery, 2003; Vives, Gil-González, & Carrasco-Portino, 2009). In contrast, higher levels of perceived power for women and female-dominated power structures within the relationship have been linked to increased IPV victimization for women

(Babcock, Waltz, Jacobson & Gottman, 1993; Hindin & Adair, 2002; Kaukinen, 2004) and greater levels of both physical and verbal IPV perpetrated by male and female partners (Sagrestano, Heavey & Christensen, 1999). Greater rates of IPV in couples where decision-making power favours female partners is akin to the male backlash phenomenon seen with income. Violence is seen as a way to compensate for the lack of power wielded by the male partner (Babcock, Waltz, Jacobson & Gottman, 1993).

The mention of power is ubiquitous in the IPV literature, making power one of the most widely cited reasons for IPV (e.g., Anderson, 1997; Babcock, Waltz, Jacobson & Gottman, 1993; Bell & Naugle, 2008; Cascardi & Vivian, 1995; Dobash & Dobash, 1978; Gelles & Straus, 1988). However, few studies directly address it, perhaps because power is an omnipresent force that shapes relationship processes but is difficult to directly observe (Komter, 1989). Whether it is associated with additional bargaining power within the relationship or a greater ability to leave a relationship, income is also inextricably linked to power in the literature. Despite countless articles that assert that income is associated with IPV because it gives the income-earner power, no research thus far has tested whether power can explain the link between income and IPV.

In an effort to test the common assumption that income and IPV are connected through power, I propose two mediations models to begin probing this association.

***Research Question 3.*** Is the link between absolute income and IPV explained by quality of alternatives?

Previous research suggests that greater economic opportunities outside of the relationship result in increased quality of alternatives (Rusbult & Martz, 1995). The limited research available on quality of alternatives and IPV suggests that for men, greater quality of alternatives is related to greater IPV perpetration (Gaertner & Foshee, 1999). Thus, I hypothesize that the

relationship between absolute income and male IPV will be explained by quality of alternatives such that greater income will result in greater quality of alternatives, which will result in greater physical IPV perpetration for men.

Absolute income is used in this case because of the hypothesized link between actual levels of earning power and the ability to leave a current relationship (Rusbult & Martz, 1995). All previous research on quality of alternatives and IPV involved measures of physical IPV only. Given the important consequences of psychological IPV, I chose to still conduct mediations involving psychological IPV but they were exploratory in nature. Additionally, I also chose to conduct exploratory mediations involving quality of alternatives predicting female perpetration, given the paucity of previous research examining quality of alternatives and female IPV perpetration.

***Research Question 4.*** Is the link between relative income and IPV explained by decision-making power?

I hypothesize that the link between relative income and IPV will be explained by perceived decision-making power such that at times when income increases relative to partner's income, decision-making power will increase. Increases in decision-making power for men will predict greater physical IPV perpetration for men. Increases in decision-making power for women will predict greater physical IPV perpetration and victimization for women. This hypothesis is based on previous research suggesting that when men and women feel more powerful within a relationship they increase their physical IPV perpetration but that female-dominated power structures also increase the risk of physical victimization for women (Babcock, Waltz, Jacobson & Gottman, 1993; Hindin & Adair, 2002; Kaukinen, 2004; Kim & Emery, 2003; Vives, Gil-González, & Carrasco-Portino, 2009).

I used relative income in this case because of the hypothesized link between income disparities between couple members and decision-making power within the relationship. The preponderance of research looking at IPV and its links to decision-making power and other forms of relational power examine physical IPV only. Given the important consequences of psychological IPV, mediations involving psychological IPV were still conducted but were exploratory in nature. Additionally, mediations involving decision-making power predicting female IPV perpetration/male victimization were also exploratory due to a lack of previous research on female IPV perpetration and decision-making power.

## Methods

### Participants

Participants were 98 male-female couples (98 women and 98 men) recruited from a mid-sized Canadian city (see Table 1 for participant demographics). Data were collected from couples at four time points: the third trimester of pregnancy, one year postpartum, two years postpartum and four years postpartum. Participation fell across all four time points with 77 men and 85 women participating at one year postpartum, 72 men and 74 women participating at two years postpartum, and 43 men and 40 women participating at four years postpartum. Those who completed all four timepoints and those who did not were compared across a variety of demographic and outcome variables. There were no differences between groups in terms of age, income, education level, number of years married, likelihood of couple separation over the course of the study, and rates of IPV perpetration.

Two female-female couples also completed this study. I excluded them from the analyses because links between the variables explored in this study were likely to be impacted by couple type (female-female vs male-female) and the sample size of female-female couples was too low to analyze these couples separately. If all couples were analyzed together the unique results for female-female couples would not have been identifiable. Given a larger sample size of female-female couples, comparisons between couple types would have been made and potential differences in the way income, power, and IPV intersect for different types of couples would have been explored.

### Procedure

At Timepoint one (third trimester) couples came to a research laboratory at a mid-sized Canadian University and completed a variety of computer questionnaires, participated in an

interview with a researcher, and engaged in activities that were observed by a researcher. Questionnaires were completed separately but the interview and activities were done as a couple. At Timepoints two and three, follow-up questionnaires were emailed to participants and completed online. At Timepoint 4, participants came back to the research laboratory to complete the final follow-up questionnaires in person. Participants were offered a \$50 honorarium at Time 1, \$25 at Time 2, and \$50 at Times 3 and 4.

### **Measures**

**IPV.** I used the Conflict Tactics Scale Revised (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996) to measure IPV. The CTS is a 39-item questionnaire with five subscales: negotiation, psychological aggression, physical aggression, sexual coercion and injury. For these analyses, the 8-item psychological aggression subscale and the 12-item physical aggression subscale were combined to create a score for overall levels of physical and psychological aggression in the relationship. The psychological aggression subscale asks questions such as “Have you insulted or sworn at your partner?” and “Has your partner insulted or sworn at you?” The physical aggression subscale asks questions such as “Has your partner slapped you?” and “Have you slapped your partner?”

Participants are asked to indicate how many times in the past year they or their partner have engaged in a certain aggressive behaviour. The responses range from “never” to “more than 20 times” within the last year. To minimize underreporting, the higher of the two partners’ reported score on each item was used to calculate each individual’s level of IPV perpetration. This procedure is recommended for IPV research (e.g., Heckert & Gondolf, 2000; O’Leary & Williams, 2006), because of the tendency for individuals to underreport their own physically or

psychologically aggressive behaviors (Cui, Lorenz, Conger, Melby, & Bryant, 2005; Heyman & Schlee, 1997).

This study will also examine different forms of IPV (physical and psychological) separately as suggested in previous research, because of different outcomes associated with each (e.g., Emery & Laumann-Billings, 1998; Johnson & Ferraro, 2000; Kitzmann, Gaylord, Holt, & Kenny, 2003).

Cronbach's alpha for the physical and psychological IPV composite ranged from .66 to .70 at each time point for men and from .71 to .73 at each time point for women.

**Decision-Making Power.** The Marital Power Scale (MPS; Coleman & Straus, 1986) was used to measure the perceived decision-making power of each partner (see Appendix A). The MPS is a 6-item scale that asks participants “who has the final say” with regards to a variety of situations from “how much money to spend on food each week” to “buying a car” or “having children”. Participants are asked to rate “who has the final say” on a 4-point scale ranging from “partner only” to “me only”. All items were added together to create a total score.

For these analyses decision-making power was person-mean centered by subtracting a participant's average score across all timepoints from their score at each timepoint. In this way, participants' person-mean score on decision-making power reflects their perceived power at a specific timepoint relative to their own general levels of perceived power.

Cronbach's alpha for the Marital Power Scale ranged from .62 to .83 at each time point for men and from .70 to .83 at each time point for women.

**Quality of Alternatives.** Quality of alternatives was measured by the quality of alternatives subscale from Rusbult's Investment Model Scale (IMS; Rusbult et al., 1998). Responses are rated on a 9-point Likert scale with 0 indicating “I do not agree at all” and 8

indicating “I completely agree.” The quality of alternatives subscale includes items such as: “If I weren’t dating/married to my partner, I would find someone else” (reverse coded).

Cronbach's alpha for the quality of alternatives items ranged from .84 to .87 at each time point for men and from .79 to .90 at each time point for women.

**Income.** One item asked each partner to report their personal yearly income at each timepoint. For each timepoint, both partner’s incomes were then combined to create a measure of household income. Using the household income measure a “Percent Income” measure was generated to show the proportion of the overall household income each partner contributed. For instance, if one partner reported earning \$40,000 per year and the other partner reported earning \$60,000 per year their household income at that timepoint would be \$100,000 and their “Percent Incomes” would be 40% and 60% respectively.

### **Data Analysis Plan**

I conducted multilevel modeling analyses using Hierarchical Linear Modelling (HLM; Raudenbush, Brennan, & Barnett, 1995). Multilevel modeling is the preferred approach for these data because it is able to account for the nestedness of individuals within couples. This is accomplished by plotting slopes over time, and by accounting for change over time at the individual and group level simultaneously (Singer & Willet, 2003). A two-slope method of two-level dyadic analysis was employed to account for the variance that is shared by individuals within a couple. Dummy variables were used in order to yield separate intercepts and slopes for each gender, results are thus interpreted for men and women separately while retaining the ability to account for shared variance within couples.

Multilevel modelling is also able to maximize power by including individuals with missing data and accounting for individual variability in the timing of assessment points. One

way missing data is accounted for in multilevel modelling is by the use of full information maximum likelihood (FIML). FIML considers all available information in the model in order to estimate model parameters for missing values (Acock, 2005).

It is important to note that previous research examining the rate of psychological IPV across the transition to parenthood has been conducted using this dataset. Although no change in the rates of psychological IPV were found, the data will be re-examined with the inclusion of an additional time point at four years postpartum. Also, quadratic as well as linear change over time will be examined in this study. Given the nature of change in IPV across the transition to parenthood described in previous research (Scribano, Stevens, & Kaizar, 2013) quadratic change in IPV may be more likely to be detected than linear change during this time.

Our sample is made up of predominantly situationally violent and nonviolent couples because it is a community sample with individuals reporting low levels of IPV, controlling behaviours, and fear of partner. For this reason, rates of IPV are clustered in the less severe range. In order to account for this skewness, a Poisson distribution was applied to all equations with IPV as the outcome variable. Poisson distributions use a log-link function to account for skewness in count data. For the rest of the variables, which conformed to a normal distribution, variables were Winsorized to account for outliers. This means that those data points three standard deviations away from the mean or more were replaced by the next highest or lowest value.

## Results

### Descriptive Statistics

See Table 2 for descriptive statistics concerning levels of IPV perpetration, household income, percentage of household income made by each partner, quality of alternatives, and perceived decision-making power at each timepoint for both men and women. Descriptive statistics were generated using raw data rather than the FIML imputed dataset generated in HLM. I performed paired samples t-tests to check for gender differences on all variables. Statistically significant gender differences are displayed in Table 2.

Women in our sample had a median income of \$30,000 and men had a median income of \$50,000. Paired t-tests showed that income differences between men and women in our sample were statistically significant at every timepoint and in the overall (T1:  $t=19.25, p<.001$ ; T2:  $t=18.10, p<.001$ ; T3:  $t=17.74, p<.001$ ; T4:  $t=12.46, p<.001$ ; T1 to T4 combined:  $t=34.08, p<.001$ ). Couples in our sample had a median household income of \$83,000, similar to the median family income of \$81,936 reported by Victorians at the time of data collection (Statistics Canada, 2013).

Across all timepoints, 30.6% of women perpetrated physical IPV at least once and 89.8% perpetrated psychological IPV at least one. Across all timepoints, 20.5% of men perpetrated physical IPV at least once and 83.7% perpetrated psychological IPV at least one. Although at each individual timepoint there was no statistically significant difference in the amount of physical and psychological IPV men and women perpetrated, when scores were averaged across all timepoints women did perpetrate more psychological IPV than men on average ( $t=-2.24, p=.001$ ).

Base rates of IPV were low in this sample. This was expected given that participants were drawn from the community. The most common forms of physical IPV were pushing or shoving a partner (9% of couples), throwing something at a partner that could hurt (8.6% of couples), and grabbing a partner (6.9% of couples). The most common forms of psychological IPV were shouting or yelling at a partner (61.4% of couples), insulting or swearing at a partner (51.8% of couples), and stomping out of the room during an argument (50% of couples).

A descriptive HLM model was run with changes in individuals' psychological IPV predicting their own physical IPV over time. Physical and psychological IPV did vary together over time for both men and women (men:  $B = .048, p = <.001$ ; women:  $B = .039, p = <.001$ ). This means that at times when an individual was perpetrating more physical IPV than usual they were also perpetrating more psychological IPV than usual.

### **Changes in IPV over the Transition to Parenthood: Hypothesis 1**

Hypothesis 1 examined change over both linear and quadratic time for IPV perpetration. Change was tested at Level-1 of the equation because research questions concerned *within individual* change over time. Random effects were included for male and female intercepts because of expected differences in baseline levels of IPV perpetration among both men and women. Plots were generated in HLM which allows for missing data to be accounted for and for lines to be fit to a quadratic slope.

Below is the model used to test IPV over both linear and quadratic time:

Level-1 Model

$$E(IPV_{ij} | B_i) = \lambda_{ij}$$

$$\log[\lambda_{ij}] = \eta_{ij}$$

$$\eta_{ij} = \pi_{1i}*(MALE_{ti}) + \pi_{2i}*(FEMALE_{ti}) + \pi_{3i}*(MLTIME_{ti}) + \pi_{4i}*(FLTIME_{ti}) + \pi_{5i}*(MQTIME_{ti}) + \pi_{6i}*(FQTIME_{ti}) + e_{ti}$$

Level-2 Model

$$\pi_{1i} = B_{10} + r_{1i}$$

$$\pi_{2i} = B_{20} + r_{2i}$$

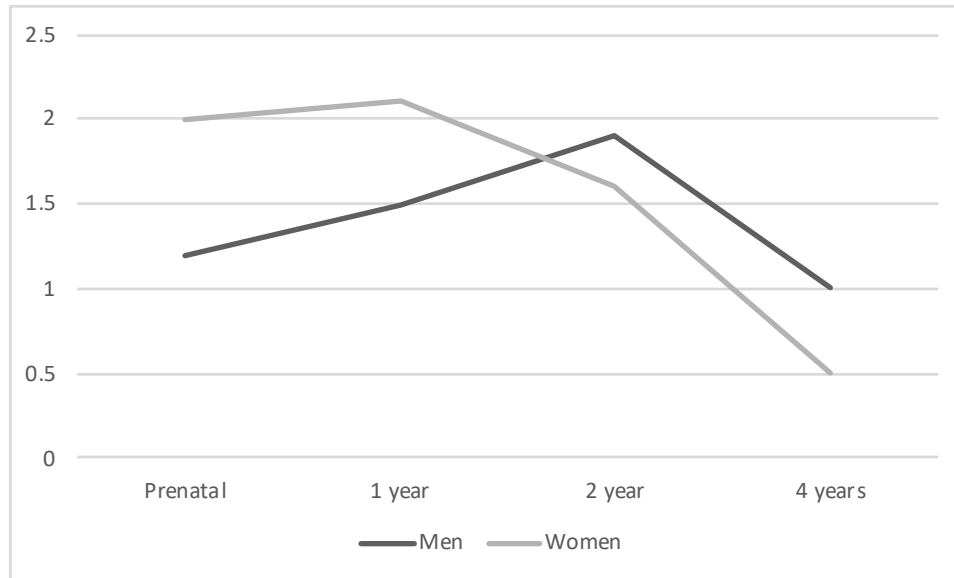
$$\pi_{3i} = B_{30}$$

$$\pi_{4i} = B_{40}$$

$$\pi_{5i} = B_{50}$$

$$\pi_{6i} = B_{60}$$

Physical IPV and psychological IPV were tested separately. Results for physical IPV (see Table 3) showed significant linear change over time for men ( $B = .015, p = .009, r^2 = .13$ ) and significant quadratic change over time for men ( $B = -.001, p = .002, r^2 = .15$ ) and women ( $B = -.001, p < .001, r^2 = .17$ ). Men's linear change over time showed increasing physical IPV perpetration across the transition to parenthood. Quadratic effects show women's physical IPV peaked at one-year postpartum and declined after that and men's physical IPV peaked at two-years postpartum and declined after that. See Figure 1 for a depiction of men's and women's changes in physical IPV perpetration over quadratic time.



*Figure 1.* Physical IPV over the Transition to Parenthood. Quadratic change over time for men and women.

Results for psychological IPV (see Table 4) showed significant linear change over time for women ( $B = -.004, p = .013, r^2 = .12$ ) and significant quadratic change over time for men ( $B = <-.001, p = <.001, r^2 = .30$ ). Results indicated that for women psychological IPV perpetration decreased across the transition parenthood whereas for men psychological IPV perpetration peaked at one-year postpartum and declined as children aged. See Figure 2 for a depiction of men's and women's changes in psychological IPV perpetration over time.

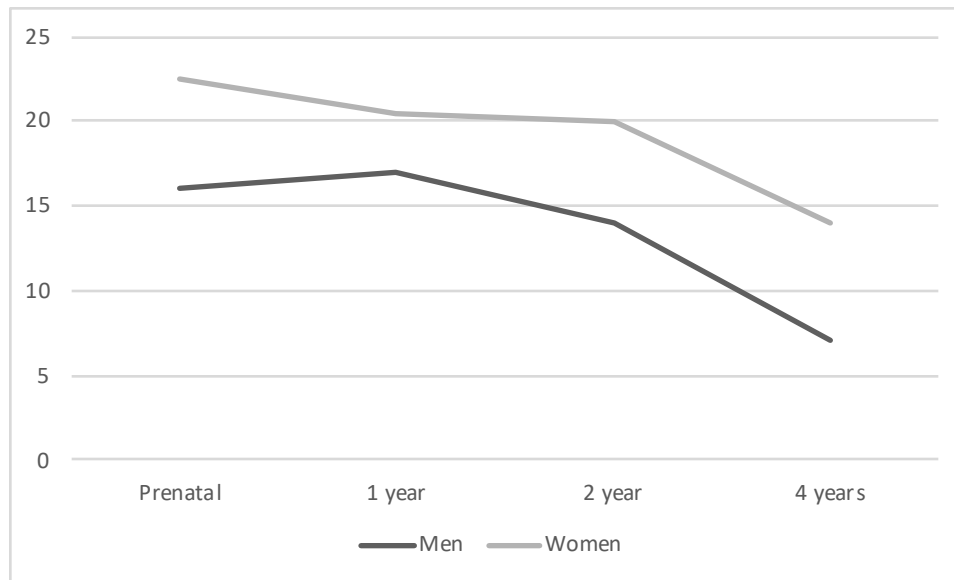


Figure 2. Psychological IPV over the Transition to Parenthood. Linear change over time for women and quadratic change over time for men.

### Percent Income Predicting IPV: Hypothesis 2

Hypotheses 2 was investigated using actor-partner interdependence models which test whether an individual's score on one variable is related to their own score or *their partner's* score on another variable. In this way, we were able to test the relationship between an individual's income and both their and their partner's IPV perpetration. In this dataset we are only examining physical and psychological violence that occurs within couples and not any violence that may occur outside of the relationship. For this reason, in this sample an individual's partner's perpetration is the same as their own victimization. Thus, actor effects are an individual's own income predicting their IPV perpetration and partner effects are an individual's own income predicting their IPV victimization (i.e., their partner's perpetration).

All predictor variables were person-mean centered such that a high score does not necessarily reflect a high absolute score but a higher than usual score compared to that individual's own personal average. For instance, the model below tested whether, at times when an individual's income is higher/lower than their own personal average, is their IPV perpetration

and their partner's IPV perpetration are correspondingly higher/lower at that time. Person-mean centering was performed in order to account for individual change over time. Person-mean centering is advantageous because it allows for a link to be made between change in one variable and change in another variable within the same person (Singer & Willett, 2003). In this way individuals act as their own controls.

Household income was included as a covariate in order to control for socioeconomic status. The predictor variable was *percent income*, or the percentage of the household income generated by each individual in a couple. For this reason, percent income values for men and women within the same couple mirrored each other. For instance, if a woman earned 40% of the household income her partner would have to earn the other 60%. Despite these mirrored values, men's and women's percent income variables are not multicollinear. This is because the variables are set up such that men's percent income predicts only his IPV and women's percent income predicts only hers. Because they are predicting different parts of the outcome variable they do not violate assumptions of non-multicollinearity.

Below is the equation used to model the relationship between percent income and IPV:

#### Level-1 Model

$$E(IPV_{ij} | B_j) = \lambda_{ij}$$

$$\log[\lambda_{ij}] = \eta_{ij}$$

$$\eta_{ij} = \pi_{1i}*(MALE_{ti}) + \pi_{2i}*(FEMALE_{ti}) + \pi_{3i}*(MLTIME_{ti}) + \pi_{4i}*(FLTIME_{ti}) + \pi_{5i}*(MQTIME_{ti}) + \pi_{6i}*(FQTIME_{ti}) + \pi_{7i}*(M\_HOUSE\_INCOME_{ti}) + \pi_{8i}*(F\_HOUSE\_INCOME_{ti}) + \pi_{9i}*(M\_ \%INCOME_{ti}) + \pi_{10i}*(F\_ \%INCOME_{ti}) + e_{ti}$$

#### Level-2 Model

$$\pi_{1i} = B_{10} + r_{1i}$$

$$\pi_{2i} = B_{20} + r_{2i}$$

$$\pi_{3i} = B_{30}$$

$$\pi_{4i} = B_{40}$$

$$\pi_{5i} = B_{50}$$

$$\pi_{6i} = B_{60}$$

$$\pi_{7i} = B_{70}$$

$$\pi_{8i} = B_{80}$$

$$\pi_{9i} = B_{90}$$

$$\pi_{10i} = B_{100}$$

Physical IPV and psychological IPV were tested separately. A significant link between percent income and physical IPV perpetration (see Table 5) was found for both men ( $B = .032, p = <.001, r^2 = .30$ ) and women ( $B = -.016, p = <.001, r^2 = .21$ ). For men, at times when they were earning a greater proportion of the household income than their own personal average they perpetrated more physical IPV. At times when women were earning a smaller proportion of the household income than their own personal average they also perpetrated more physical IPV. So, when men were earning a greater proportion of the household income than they normally did (and so, women were earning a lesser proportion than they normally did) there were greater overall levels of physical IPV within the relationship.

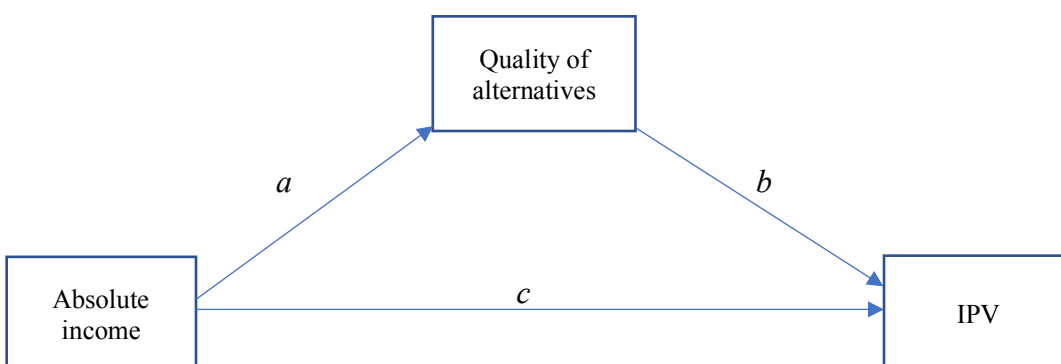
Different results were found for psychological IPV. There was a significant link between percent income and psychological IPV perpetration for women ( $B = .005, p = <.001, r^2 = .26$ ) but not men (see Table 6). These results indicated that women's psychological IPV perpetration

increased when they were earning a greater proportion of the household income than they usually did.

Slightly different patterns of results were found when *absolute income*, rather than percent income, was used to predict both physical and psychological IPV perpetration and victimization (see Tables 7 and 8). Male absolute income but not female absolute income predicted men's physical IPV perpetration ( $B = .001, p < .001, r^2 = .31$ ). Male absolute income also predicted female IPV perpetration ( $B = .001, p < .001, r^2 = .24$ ). For psychological IPV, women's absolute income predicted her IPV perpetration ( $B = .001, p = .035, r^2 = .11$ ). Men's absolute income did not predict his psychological perpetration or victimization and women's absolute income did not predict her victimization. So, men's absolute income predicted men's and women's physical IPV and women's absolute income predicted women's psychological IPV.

### **Absolute Income and IPV via Quality of Alternatives: Hypothesis 3**

As stated in Hypothesis 3, I hypothesized that quality of alternatives would explain the link between absolute income and IPV (see Figure 3). Recall that absolute income rather than percent income was used in this case because of the hypothesized link between actual levels of personal earnings and options outside of the current relationship (i.e., quality of alternatives).



*Figure 3.* Mediation model where the link between income and IPV (pathway *c*) is explained by quality of alternatives (pathway  $a \times b$ ).

I have already tested the link between absolute income and IPV (*c* path in Figure 3). Recall that men's absolute income predicted men's and women's physical IPV perpetration and women's absolute income predicted women's psychological IPV perpetration. I next modelled absolute income predicting quality of alternatives (*a* path in Figure 3).

Below is the equation used to model the relationship between income and quality of alternatives (*a* path in Figure 3):

#### Level-1 Model

$$QoA_{ti} = \pi_{1i}*(MALE_{ti}) + \pi_{2i}*(FEMALE_{ti}) + \pi_{3i}*(MLTIME_{ti}) + \pi_{4i}*(FLTIME_{ti}) + \pi_{5i}*(MQTIME_{ti}) + \pi_{6i}*(FQTIME_{ti}) + \pi_{7i}*(M\_HOUSE\_INCOME_{ti}) + \pi_{8i}*(F\_HOUSE\_INCOME_{ti}) + \pi_{9i}*(M\_INCOME_{ti}) + \pi_{10i}*(F\_INCOME_{ti}) + e_{ti}$$

#### Level-2 Model

$$\begin{aligned}\pi_{1i} &= B_{10} + r_{1i} \\ \pi_{2i} &= B_{20} + r_{2i} \\ \pi_{3i} &= B_{30} \\ \pi_{4i} &= B_{40} \\ \pi_{5i} &= B_{50} \\ \pi_{6i} &= B_{60} \\ \pi_{7i} &= B_{70} \\ \pi_{8i} &= B_{80} \\ \pi_{9i} &= B_{90} \\ \pi_{10i} &= B_{100}\end{aligned}$$

Absolute income predicted quality of alternatives for men ( $B = -.001, p = <.001, r^2 = .15$ ) but not women (see Table 9). Contrary to my initial hypothesis, at times when men were making more income than usual, their quality of alternatives were lower than usual.

Because path *a* in my model was not present for women, I did not continue to test the mediation model among women. So next, I tested whether quality of alternatives predicted psychological and physical IPV for men, controlling for men's absolute income (path *b* in Figure 1).

## Level-1 Model

$$E(IPV_{ij} | B_j) = \lambda_{ij}$$

$$\log[\lambda_{ij}] = \eta_{ij}$$

$$\begin{aligned} \eta_{ij} = & \pi_{1i}*(MALE_{ti}) + \pi_{2i}*(FEMALE_{ti}) + \pi_{3i}*(MLTIME_{ti}) + \pi_{4i}*(FLTIME_{ti}) + \\ & \pi_{5i}*(MQTIME_{ti}) + \pi_{6i}*(FQTIME_{ti}) + \pi_{7i}*(M\_HOUSE\_INCOME_{ti}) + \\ & \pi_{8i}*(F\_HOUSE\_INCOME_{ti}) + \pi_{9i}*(M\_INCOME_{ti}) + \pi_{10i}*(F\_INCOME_{ti}) + \\ & \pi_{11i}*(MPartner\_INCOME_{ti}) + \pi_{12i}*(FPartner\_INCOME_{ti}) + \pi_{13i}*(M\_QoA) + \\ & \pi_{14i}*(F\_QoA_{ti}) + \pi_{15i}*(MPartner\_QoA) + \pi_{16i}*(FPartner\_QoA_{ti}) + e_{ti} \end{aligned}$$

## Level-2 Model

$$\pi_{1i} = B_{10} + r_{1i}$$

$$\pi_{2i} = B_{20} + r_{2i}$$

$$\pi_{3i} = B_{30}$$

$$\pi_{4i} = B_{40}$$

$$\pi_{5i} = B_{50}$$

$$\pi_{6i} = B_{60}$$

$$\pi_{7i} = B_{70}$$

$$\pi_{8i} = B_{80}$$

$$\pi_{9i} = B_{90}$$

$$\pi_{10i} = B_{100}$$

$$\pi_{11i} = B_{110}$$

$$\pi_{12i} = B_{120}$$

$$\pi_{12i} = B_{120}$$

$$\pi_{14i} = B_{140}$$

$$\pi_{15i} = B_{150}$$

$$\pi_{16i} = B_{160}$$

With both income and quality of alternatives included in the model, men's absolute income continued to predict men's physical IPV perpetration and victimization (see Table 10). Controlling for the direct effect, men's quality of alternatives also predicted physical IPV perpetration for men ( $B = -.048, p = <.001, r^2 = .32$ ; see Table 10). For men, at times when their self-reported quality of alternatives were higher than their own personal average, they perpetrated less physical IPV. Men's quality of alternatives also predicted physical IPV victimization for men ( $B = -.037, p = <.001, r^2 = .28$ ). At times when their self-reported quality of alternatives were higher than their own personal average they experienced less physical IPV victimization.

Finally, I tested each of the four indirect paths linking absolute income to men's physical and psychological IPV perpetration and victimization via quality of alternatives (i.e., path  $a \times b$  in Figure 1). I tested this path by performing a Sobel's test using Preacher and Leonardelli's online macro (2001). Only two of the indirect paths were statistically significant (see Table 11). For men, quality of alternatives explained the relationship between absolute income and physical IPV perpetration and victimization: higher absolute income predicted lower quality of alternatives, which in turn predicted heightened physical IPV perpetration and victimization.

#### Relative Income and IPV via Decision-making Power: Hypothesis 4

As stated in Hypothesis 4, I hypothesized that decision-making power would explain the link between relative income and IPV (see Figure 4).

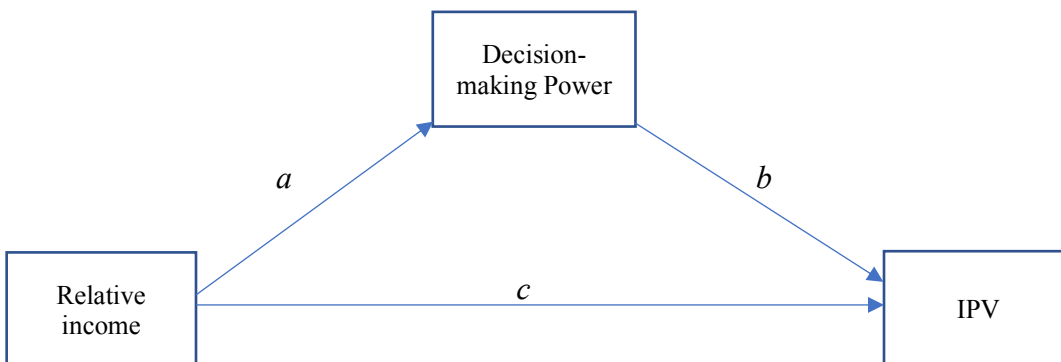


Figure 4. Mediation model where the link between relative income and IPV (pathway  $c$ ) is explained by decision-making (pathway  $a \times b$ ).

I have already tested the link between relative income (i.e., the percentage of the household income each partner makes) and IPV ( $c$  path in Figure 4). Recall that when men were earning a greater proportion of the household income than they normally did there were greater overall levels of physical IPV within the relationship. When women were earning a greater proportion of the household income than they normally did they perpetrated more psychological IPV.

I next modelled relative income predicting decision-making power (*a* path in Figure 4).

Below is the equation used to model the relationship between relative income and decision-making power (a path in Figure 4):

#### Level-1 Model

$$\text{Power}_{ti} = \pi_{1i} * (\text{MALE}_{ti}) + \pi_{2i} * (\text{FEMALE}_{ti}) + \pi_{3i} * (\text{MLTIME}_{ti}) + \pi_{4i} * (\text{FLTIME}_{ti}) + \pi_{5i} * (\text{MQTIME}_{ti}) + \pi_{6i} * (\text{FQTIME}_{ti}) + \pi_{7i} * (\text{M\_HOUSE\_INCOME}_{ti}) + \pi_{8i} * (\text{F\_HOUSE\_INCOME}_{ti}) + \pi_{9i} * (\text{M\_}\% \text{INCOME}_{ti}) + \pi_{10i} * (\text{F\_}\% \text{INCOME}_{ti}) + e_{ti}$$

#### Level-2 Model

$$\pi_{1i} = B_{10} + r_{1i}$$

$$\pi_{2i} = B_{20} + r_{2i}$$

$$\pi_{3i} = B_{30}$$

$$\pi_{4i} = B_{40}$$

$$\pi_{5i} = B_{50}$$

$$\pi_{6i} = B_{60}$$

$$\pi_{7i} = B_{70}$$

$$\pi_{8i} = B_{80}$$

$$\pi_{9i} = B_{90}$$

$$\pi_{10i} = B_{100}$$

Percent income did not predict decision-making power for men or women, nor did an individual's income predict their partner's decision-making power (see Table 12). Because path *a* in this model was not present, I did not continue to test this mediation model.

## **Discussion**

The purpose of the current study was to examine changes in IPV across the transition to parenthood, a time of fluctuating IPV and income levels, and to explore the links between income, power, and IPV at this time. Results from this study concerning changes in the rates of IPV across the transition to parenthood corresponded, for the most part, with hypothesized trends that IPV would peak during early parenthood. The link between IPV and relative income, however, did not feature aspects of male backlash as expected but instead had interesting implications for rates of IPV with relation to the gender wage gap between men and women. Finally, hypotheses concerning links between power, income, and IPV were primarily contrary to what was expected or non-significant.

### **Changes in Physical IPV over the Transition to Parenthood**

Across the transition to parenthood, both men's and women's physical IPV perpetration increased after pregnancy and then declined by four years postpartum. Men's physical IPV peaked at two years postpartum whereas women's physical IPV peaked at one year postpartum. No formal hypotheses were made regarding women's IPV perpetration because of the paucity of research regarding female IPV at the transition to parenthood, however results for both men and women fit with previous literature suggesting that men's physical IPV worsens after children are born and then declines as children age (Scribano, Stevens, & Kaizar, 2013; Sharps et al., 2016; Slep & O'Leary, 2005; Taillieu & Brownbridge, 2010).

We may see slightly different trends in physical IPV perpetration for men and women at this developmental period because pregnancy and early parenthood may serve as a protective factor against physical IPV for women only. For example, there is research to suggest that overall, women experience less physical IPV while they are pregnant (Taillieu & Brownbridge,

2010). In our sample it appears that that protection may extend throughout the child's infancy. As women tend to be in close physical proximity to the infant at this time, the later peak in violence for men may stem from a desire not to endanger the child. Men's increased perpetration at two years postpartum is contrary to previous research that suggests physical IPV declines linearly as children age (Sharps et al., 2016).

It is important to note that the couples in this study were mainly situationally violent, if they were violent at all and so, base rates of violence were very low. Subsets of women who experience more severe levels of IPV prior to pregnancy may or may not show similar patterns of IPV at the transition to parenthood. For instance, we know that women who were abused by their partner before becoming pregnant are actually at an increased risk of IPV during pregnancy, not a lowered risk (Taillieu & Brownbridge, 2010).

These results add to the scarce literature surrounding women's physical IPV perpetration at the transition to parenthood. They provide evidence to suggest that women's physical IPV perpetration shows a similar curvilinear pattern to men's perpetration with lowered rates of perpetration during pregnancy and peaks in physical IPV when children are young.

### **Changes in Psychological IPV over the Transition to Parenthood**

For psychological IPV, men's perpetration peaked at one year postpartum and declined as children aged. The difference we see between change over time in male physical and psychological IPV lends credence to the hypothesis that men are unwilling to engage in physical IPV while women are pregnant and while children are infants because of strong social taboos surrounding physically harming a pregnant woman or infant. These social taboos are not as strong for psychological IPV, which may be why we see a different pattern for men's physical and psychological IPV.

For women, psychological IPV perpetration did not exhibit a quadratic effect of change over time. Linear effects suggest that women's psychological IPV perpetration declined over time. This is in line with previous research that suggests women's psychological IPV perpetration declines as children age (Sharps et al., 2016). The majority of large-scale studies show lowered rates of IPV perpetration during pregnancy (Taillieu & Brownbridge, 2010). However, because these studies focus on physical IPV they may be missing that pregnancy is actually a time of heightened risk for female psychological IPV perpetration.

### **Changes in Relative Income and Risk for Physical IPV over Time**

At times when women in our sample were making a smaller percentage of the household income than they usually did and when men were making a greater percentage of the household income than they usually did, there was more physical violence overall in the relationship. In other words, both men and women tended to perpetrate more violence and be victimized more under these circumstances.

Interestingly, because men made more than women in this sample on average, when women were making more money than they usually did and men were making less than they usually did, the gender wage gap was closing for those couples. In this sample, men were making more than women at every timepoint on average and were making about 65% of the household income across all timepoints. Thus, when women's income was going up and men's income was going down, the gender wage gap was growing smaller for the average couple and this corresponded to a decline in IPV.

These results conform with marital dependency theory and economic theories of bargaining, which state that when women are more financially independent they are less likely to be victims of IPV (Aizer, 2010; Farmer & Tiefenthaler, 2003; Kaukinen, 2004). Although these

theories apply mostly to male-to-female IPV, in our sample women were also less likely to perpetrate physical IPV at times when the gender wage gap was smaller within couples, so these theories may generalize to female perpetration. However, given the bidirectional nature of situational couple violence when higher female income leads to decreased male IPV perpetration it may also result in less female perpetration because women are less likely to be engaging in defensive violence at this time.

I initially hypothesized that when women's relative income was higher than usual we would see increases in their IPV victimization. This is based on male backlash, a phenomenon where differences in status between men and women that favour women can result in increases in their physical and psychological victimization (Anderson, 1997; Benson & Fox, 2004; Riger & Krieglstein, 2000; Vieraitis, Kovandzic, & Britto, 2008). This does not appear to be the case in our sample. However, because these analyses were run using person-mean centering we are only seeing when individuals are making more or less money compared to themselves. For many couples in this sample, even when a woman's income is higher than her own personal average, she is still making significantly less than her partner. So perhaps women's risk of IPV declines as long as she approaches but does not exceed her partner's income. Additionally, male backlash was found mostly in men who were unemployed or low wage earning (Riger & Krieglstein, 2000). Male backlash may be less common in our sample of predominantly middle class, situationally violent couples.

Interestingly, when absolute income rather than relative income was used, only male's income predicted physical IPV. When men's income was higher both men and women perpetrated more physical IPV. Thus, it appears that men's income is a more important driver of physical IPV than women's income. Future research may seek to understand patterns of physical

IPV during this time and investigate whether women's rates of physical IPV also increase when men are making more income than usual because of greater instances of defensive violence.

It is important to keep in mind that base rates of physical IPV were very low in this sample. Individuals reported 1-2 instances of physical IPV within the last year on average. Due to low levels of physical IPV and low variability in the rates of physical IPV, results should be interpreted with caution. Higher base rates and greater variability in rates of psychological IPV allow for more confidence in the results concerning psychological IPV.

### **Changes in Relative Income and Risk for Psychological IPV over Time**

For relative income and psychological IPV perpetration we saw a different trend. When women were making a greater percentage of the household income than they usually did and men were making a smaller percentage than usual, women, but not men, were more likely to perpetrate psychological IPV. Thus, contrary to physical IPV, psychological IPV perpetration increased when the gender wage gap within couples grew smaller. Previous research has suggested that when women's income increases, there is no corresponding increase in men's contributions to household labour (Bittman, England, Sayer, & Matheson, 2003). Perhaps women are responding with psychological IPV to disappointment with continued inequality despite their increased wages relative to their partners'. It may be useful to understand this phenomenon through the lens of the demand-withdraw pattern. The demand-withdraw pattern is a maladaptive communication pattern within couples where one partner seeks change, discussion, and resolution of a problem while the other seeks to avoid the issue and shut down discussion (Christensen, 1988; Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006). Previous research has linked the demand withdraw pattern to physical IPV and characterizes the "demander" as the aggressor in these relationships (Babcock, Waltz, Jacobsen,

& Gottman, 1993; Feldman & Ridley, 2000). Women expressing a desire for change within the household at the transition to parenthood may risk becoming more aggressive if a demand-withdraw pattern is established within the relationship. Future research may seek to examine the relationship between income, the division of household labour, and women's psychological IPV perpetration at this time.

We did not detect any relationship between relative income and quality of alternatives or decision-making power for women, so our data does not suggest that increases in women's power explain her greater willingness to engage in psychological IPV when her economic power has increased. It is difficult to know why decreases in the gender wage gap predicted increased psychological IPV perpetration by women in our sample, but future research might seek to explore potential mediators of this relationship. Little research exists on female psychological IPV perpetration at the transition to parenthood in general and more is needed to better understand the interplay of male and female IPV perpetration at this time.

As opposed to physical IPV, psychological IPV seems to be driven more by women's absolute income than men's. For psychological IPV, when women were earning more money than usual they perpetrated more psychological IPV. So not only do increased wages relative to her partner predict women's increased psychological IPV, but women's increased income in general is predictive. Again, despite increases in income women may continue to face inequality in the division of household labour and power within the relationship (Bittman, England, Sayer, & Matheson, 2003; Tichenor, 1999, 2005). Changes in income without resulting changes in relational power and the division of household labour may lead to frustration, which increases women's risk of psychological IPV perpetration at this time.

### **Changes in Absolute Income and Quality of Alternatives over Time**

There was no link between women's absolute income and quality of alternatives. This was not expected given literature that suggests income and quality of alternatives are conceptually related and should tap similar constructs (Rusbult & Martz, 1995). The association may not have been detected in this study because the measure of quality of alternatives used does not emphasize the ability to leave the current relationship and live on one's own, but instead the ability to have needs for emotional intimacy, companionship, emotional support, and sexual intimacy fulfilled by people other than one's current partner. Questions that assess the ability to meet basic needs for shelter, food, and security without the help of a current partner may have had a stronger association with absolute income.

Further, despite high levels of commitment at the transition to parenthood, self-reported quality of alternatives remained similar to levels seen in research conducted outside of the perinatal period (Rhatigan & Axsom, 2006), instead of decreasing as would have been expected. Also, additional analyses showed that there was no change in self-reported quality of alternatives for either men or women across the transition to parenthood. Thus, notwithstanding other validity concerns, the quality of alternatives subscale did not seem to be sensitive to change over the transition to parenthood in this study.

For men, higher absolute income was associated with lower quality of alternatives. This result was also unexpected but may also be due to the measure that was used. Another reason could be that when men's income is higher they feel more secure and happy in their current relationship because they are fulfilling male breadwinner gender norms (Eirich & Robinson, 2017). Satisfaction with one's current relationship is inversely related to quality of alternatives so

if they are more satisfied when their income is higher they may consequently have lower quality of alternatives at those times (Rusbult, Martz, & Agnew, 1998).

### **Changes in Relative Income and Decision-Making Power over Time**

There was no link between relative income and decision-making power for women, which is not entirely surprising given previous research suggesting that women are less able than men to translate greater income into power within the relationship (Bittman, England, Sayer, & Matheson, 2003). Surprisingly, however, there was also no association between relative income and decision-making power for men either, nor was partner's relative income linked to decision-making power for either men or women. The link between income and power is often assumed in IPV research, however, this study fails to support that assumption (Anderson, 1997; Kaukinen, 2004; Dutton, 1988; Bell & Naugle, 2008; Dobash & Dobash, 1978).

Failure to find a link between relative income and decision-making power may stem from the measure of decision-making power used in this study. The measure relied on self-report and thus yielded an individual's account of their own *perceived* decision-making power. Interestingly, both men and women reported that they felt most powerful at the two years postpartum timepoint and declined in perceived decision-making power after that. The measure is inherently relative such that the higher a person rates themselves on decision-making power the lower they are rating their partner; thus, it is interesting that at the same time one partner was rating themselves as high power and their partner as low power the other partner was also rating themselves as high power and their partner as low power. These results suggest that perceptions of power do not conform with actual levels of decision-making power in this sample, but may instead reflect greater feelings of decision-making power during early parenthood. Perhaps, because both

parents are engaging in high levels of problem solving they both feel as if they are taking charge of decisions during this period.

### **Power as a Mediator of the Link between Income and IPV over Time**

Two mediation models were supported by the data. Men's quality of alternatives explained the link between their absolute income and their physical IPV perpetration and victimization. The mediation did not however, conform to previously theorized relationships between income, quality of alternatives and IPV (Rusbult & Martz, 1995). I hypothesized that higher absolute income would lead to better quality of alternatives and that better quality of alternatives would predict more IPV perpetration. In contrast, in our study men's higher income predicted lower quality of alternatives, which in turn predicted higher physical IPV. This may be because the measure of quality of alternatives did not emphasize being able to afford to leave the relationship but rather whether interpersonal needs could be met outside of the relationship. Furthermore, men's quality of alternatives were negatively associated with physical IPV perpetration and victimization such that when quality of alternatives outside of the relationship were higher men perpetrated less physical IPV and had lower rates of physical IPV victimization. This could suggest that when a man has fewer options outside of his current relationship he may use IPV as a means of regaining some power. It may also suggest that possessing better options outside of the relationship is a protective factor against physical IPV victimization for men.

The failure to detect all but two mediations and the non-significant and contradictory findings with regards to the relationship between income and options outside of the relationship are surprising given previous research on income, power, and IPV. Given that results concerning quality of alternatives do not fit with previous theory or other results within these analyses it is

possible that they are spurious. Many analyses were conducted thus increasing the chance of incorrectly rejecting the null and finding spurious results. Again, base rates of physical IPV were also very low in this sample. Further research is needed to understand the validity of these results. Future research should explore different ways of measuring and conceptualizing power in an effort to understand whether there is enough evidence to question the assumption that income impacts IPV because of its relationship with power.

### **Strengths of the Current Study**

This study explored understudied areas of IPV including female IPV perpetration, male IPV victimization, and psychological IPV. Despite the fact that most situational couple violence is bidirectional, and bidirectional IPV tends to be more severe and injurious than unidirectional IPV, most studies on IPV tend to focus only on male perpetration (Capaldi, Kim, & Shortt, 2007; Gray & Foshee, 1997; Palmetto, Davidson, Breitbart, & Rickert, 2013; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). This study, which included both male and female IPV perpetration is important to understanding how IPV presents itself in situationally violent couples. Additionally, this study included psychological IPV as well as physical IPV. It is not surprising that IPV research at the transition to parenthood has focused on physical IPV given the serious health consequences it can have during pregnancy (Alhusen, Ray, Sharps, & Bullock, 2015), however psychological IPV can also have serious impacts on mental and physical health and should not be ignored (Coker et al., 2002; Comecanha, Basto-Periera, & Maia, 2017; Ludermir, Lewis, Valongueiro, de Araújo, & Araya, 2010; Pico-Alfonso, 2015).

The longitudinal nature of this study was also a strength as it allowed for the examination of IPV across the transition to parenthood. Cross-sectional research on rates of IPV during pregnancy and early parenthood provide valuable information but tracking the same individuals

longitudinally can help to clarify trends and rates of change over time. Additionally, looking at within-individual change over time using multilevel modelling means individuals and couples become their own controls and so, average rates of IPV within individuals and couples were controlled for. This is advantageous because once average rates of IPV are controlled for we are better able to isolate change accounted for by the predictor variable. The use of multilevel modelling also allowed us to account for the nestedness of individuals within couples.

Finally, this study explored the links between power, income, and IPV, an area that receives little attention despite its ubiquity in the literature (Babcock, Waltz, Jacobson & Gottman, 1993). Beginning to tease apart this overlooked area could have major implications for the way income and power and their association with IPV are discussed in the literature.

### **Limitations of the Current Study**

Looking at individual change over time has both advantages and drawbacks. When examining individual change in income or, in this case, the percentage of the household income earned by an individual, we are unable to pinpoint when this change results in one couple members' income surpassing the other. For instance, we know if a woman's income goes up that she is at a smaller risk of physical IPV however, we do not know what this increase in income signifies. Is this woman now making more money than her partner? Is she still making less but closing the income gap between her and her partner? Or, did she already make more than her partner and now she is making more still? We are unable to answer these questions using within-person methods and so we are not directly testing the degree of equality in a relationship just the extent to which men's and women's incomes fluctuate.

Also, average wages for men and women in Canada, and British Columbia in particular, were not factored in to the current analyses. In this way we were not accounting for whether an

individual is making a great deal or very little in comparison with others of their gender. For this reason, we were unable to consider to what extent individuals were flouting gender norms. The level of equality within the relationship and the degree to which individuals are flouting gender norms have important implications based on theoretical understandings of IPV such as male backlash. If a woman's income increases we may expect to see resultant backlash from her partner, however if her income remains significantly less than that of her partner we may not see backlash.

As previously mentioned, measures of both quality of alternatives and decision-making power may not have been measuring the intended constructs. The measure of quality of alternatives emphasized the ability to have needs for emotional intimacy, companionship, emotional support, and sexual intimacy fulfilled by people other than one's current partner. Questions that assessed the ability to support oneself financially outside of the relationship may have been more appropriate when considering how changes in income impact the ability to exit a relationship. Additionally, the Marital Power Scale that was employed may have been too narrowly focused. A measure of power that also included more traditionally feminine areas of decision-making such as child-rearing and household management may have given a greater wealth of information (Shu, Zhu, & Zhang, 2012). Furthermore, the self-report nature of the Marital Power Scale may not have been able to capture actual decision-making within couples. Both couple members consistently rated themselves as more powerful than their partners indicating a mismatch in how partners view their own power within the relationship. Future research examining decision-making power could look at actual decisions made within the relationships and who they were made by in order to avoid self-report bias.

Other measures of financial power could also have been explored. Who manages the money within the relationship, access to money (i.e., joint or separate bank accounts), and conflict over money may have given further insight into the financial power wielded by couple members beyond their own personal income (LeBaron, Holmes, Yorgason, Hill, & Allsop, 2019).

In addition, although this study examined both male and female IPV perpetration we were unable to document if female perpetration followed male perpetration or vice versa. Cross-lagged actor-partner interdependence modelling is able to model how changes in the behaviour of one partner are related to changes in the behaviour of another partner over time. Modelling of this nature may have shed light on the interplay between male and female IPV at the transition to parenthood. Overall the relationship between income, power, and IPV is likely more complex, dynamic, and reciprocal than our data and methods of analyses are able to capture. As stated earlier, analyses involving physical IPV may have failed to capture meaningful links between physical IPV and other variables in the analyses because of low base rates of physical IPV in this sample.

Additionally, these analyses may not have been able to capture the nuance of the developmental time period because only income and power were measured. There are many other risk factors for IPV found that this time such as high levels of stress, lack of sleep, and conflict in relationships (Cowan & Cowan, 1992; Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005; Song & Woodin, in preparation). Many of these other risk factors may be confounded with income considering that income for both men and women is lowest at one year postpartum, the same developmental time period where parenting stress, lack of sleep, and conflict would be highest. Other analyses performed using this dataset found that both parenting

stress and life stress predicted increased psychological IPV (Song & Woodin, in preparation). Accounting for additional risk factors may have better reflected the nuance of this multifaceted developmental time period.

This dataset was comprised almost entirely of women in relationships with men. Two same-gender couples were excluded from the analyses due to the nature of the hypotheses, which relied on heteronormative phenomena such as male backlash. More IPV research with sexual and gender minority individuals is needed, especially bisexual and transgender people who may be at an increased risk for IPV (Edwards, Sylaska, & Neal, 2015; Finneran, Chard, Sineath, Sullivan, & Stephenson, 2012; Landers & Gilsanz, 2009; Messinger, 2011). This study also did not include information on the racial/ethnic background of participants in the analyses. Previous research has suggested that racial/ethnic differences in rates of IPV may stem from economic disparities between groups, however, other research contests this notion (Benson & Fox, 2004; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; Cho, 2012; Powers & Kaukinen, 2012; Rennison & Planty, 2003). Teasing apart economic and demographic correlates of IPV has important real-life implications and warrants further research.

Finally, because these are not experimental data it is important to recall that findings indicate a correlation between variables not a causal relationship.

### **Future Research Directions**

In this study, changes in the gender wage gap within couples were associated with IPV. However, our sample included mostly women who earned less than their partners. It would be interesting to expand this research to a sample of female breadwinners to see if similar trends exist when women are making more than men.

Another area for further exploration is power differentials within couples. The literature suggests that income disparities and power differentials within couples that favour either men or women are linked to IPV (Babcock, Waltz, Jacobson & Gottman, 1993; Hindin & Adair, 2002; Kaukinen, 2004; Kim & Emery, 2003; Vives, Gil-González, & Carrasco-Portino, 2009). Future research could include income and power differences between partners as a quadratic variable to see if IPV increases when there is inequality within couples favouring either men or women. Research of this nature has already been done with the link between income and household labour and found that women completed more household labour when they made significantly less than their partners but also when they made more (Bittman, England, Sayer, Folbre, & Matheson, 2003; Mannino & Deutsch, 2007).

As previously discussed, other ways of measuring power within relationships may be more appropriate and yield richer results. Given the ubiquity of power in the IPV literature, this is an area that requires much further exploration.

### **Clinical Implications**

Clinicians should note that early parenthood is a time of elevated risk for physical IPV perpetrated by both men and women and psychological IPV perpetrated by men. Interventions to combat risk factors for IPV such as stress and conflict, should be employed at this time (Cowan & Cowan, 1992; Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005; Song & Woodin, in preparation). Additionally, although rates of IPV are lower during pregnancy, clinicians should be aware that pregnancy may be a time of elevated psychological IPV perpetration for women based on these data.

In addition, economic inequality appears to be a risk factor for physical IPV at the transition to parenthood. Macro level changes that help to close the gender wage gap between

male and female parents may help to alleviate violence at this time. Policies such as Canada's newly implemented incentives for non-birthing parents to take parental leave may help lessen the gender wage gap during the transition to parenthood (Magnusson & Neramo, 2017; Sanchez & Thomson, 2017).

### **Summary**

In this sample, IPV fluctuated significantly across the transition to parenthood, with IPV peaking during the stressful early parenthood phase and lowering as couples adjusted to parenthood. The link between income and IPV did not reflect aspects of male backlash as expected, but instead showed lowered rates of physical IPV for both men and women and increased rates of female psychological IPV as the gender wage gap closed. When aspects of relationship power were examined as mediators of the link between income and IPV, results were contradictory or non-significant. This may be the result of the way in which power was conceptualized and measured in this study. Measures tapping into different facets of power may uncover more about the relationship between income, relational power, and IPV in future.

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Table 1  
*Demographics*

	Time 1	Time 2	Time 3	Time 4
<b>Men</b>				
Age	32.03 (5.51)	33.92 (4.91)	34.71 (5.00)	36.77 (5.188)
<b>Race/Ethnicity</b>				
White	87	66	60	39
Asian	4	4	4	0
Indigenous	3	2	3	0
Latino	1	1	0	0
Other	3	2	2	0
<b>Marital Status</b>				
Legally married	68	60	46	35
Unmarried	30	17	9	4
Years of education	14.77 (2.38)	15.16 (2.24)	15.14 (2.25)	15.18 (2.15)
Annual Income	\$51, 716 (\$35, 254)	\$49, 598 (\$26, 704)	\$55,485 (\$29,751)	\$60, 730 (\$31, 026)
<b>Women</b>				
Age	29.98 (5.49)	31.02 (5.07)	32.34 (4.78)	34.64 (4.77)
<b>Race/Ethnicity</b>				
White	86	75	63	39
African	1	0	0	0
Asian	7	6	5	0

East Indian	1	1	1	0
First Nations	2	2	2	0
Latina	1	1	0	0
Marital Status				
Legally married	68	65	48	33
Unmarried	30	22	11	6
Years of education	15.28 (2.31)	15.34 (2.45)	15.70 (2.19)	15.95 (2.10)
Annual Income	\$35,019 (\$24,825)	\$27,962 (\$23,689)	\$31,705 (\$25,483)	\$29,347 (\$24,455)

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Table 2.  
*Descriptive statistics*

	Time 1	Time 2	Time 3	Time 4	Total
Household Income	\$86,735 (\$48,959)	\$78,147 (\$34,147)	\$84,645 (\$35,983)	\$89,055 (\$39,396)	\$84,130 (\$40,936)
Men	N=98	N=77	N=72	N=43	
Annual Income	\$51,716* (\$35,254)	\$49,747* (\$26,741)	\$55,092* (\$29,682)	\$60,731* (\$31,026)	\$53,260* (\$31,169)
% of Household Income Earned	61.1%* (21.65%)	61.97%* (26.12%)	66.07%* (24.43%)	69.01%* (22.58%)	63.63%* (23.78%)
Instances of IPV Perpetration					
Physical	1.47 (6.04)	1.00 (3.63)	1.62 (6.02)	1.21 (3.27)	1.34 (5.13)
Psychological	17.88 (20.63)	15.80 (18.89)	17.56 (22.64)	9.23 (11.28)	16.09* (19.88)
Quality of Alternatives (max. score of 60)	23.27 (10.36)	24.43 (10.34)	24.87 (13.23)	25.41 (11.30)	24.28 (11.25)
Decision-Making Power (max. score of 30)	13.74* (5.39)	17.94 (1.91)	17.82 (1.32)	17.64 (2.62)	16.46 (3.98)
Women					
	N=98	N=85	N=74	N=40	
Annual Income	\$35,019* (\$24,825)	\$28,476* (\$23,806)	\$31,246* (\$25,178)	\$29,347* (\$24,455)	\$31,458* (\$24,611)
% of Household Income Earned	38.89%* (21.65%)	38.03%* (26.12%)	34.51%* (24.75%)	30.99%* (22.58%)	36.51%* (23.86%)
Rates of IPV Perpetration					
Physical	2.92 (8.88)	1.68 (4.08)	1.96 (5.89)	0.56 (1.73)	2.01 (6.31)
Psychological	22.44 (25.45)	20.43 (24.42)	19.89 (24.67)	14.00 (19.80)	20.11* (24.32)
Quality of Alternatives (max. score of 60)	22.92 (11.64)	24.07 (11.20)	22.57 (11.28)	25.56 (12.88)	23.50 (11.58)
Decision-Making Power (max. score of 30)	11.76* (5.15)	18.07 (1.96)	17.95 (1.80)	17.74 (2.28)	15.91 (4.45)

*Note.* An asterisk (\*) has been placed beside any variable where paired t-tests showed a significant difference between men and women.

Table 3

*Physical IPV Over Linear and Quadratic Time*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	-1.320410	0.254923	<0.001
Women	-0.653501	0.236442	0.007
Male Linear Time	0.015728	0.005967	0.009
Female Linear Time	-0.005394	0.004525	0.234
Male Quadratic Time	-0.000591	0.000191	0.002
Female Quadratic Time	-0.000682	0.000190	<0.001

Table 4

*Psychological IPV Over Linear and Quadratic Time*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	2.202649	0.135950	<0.001
Women	2.313327	0.134958	<0.001
Male Linear Time	-0.000943	0.001562	0.546
Female Linear Time	-0.003561	0.001421	0.013
Male Quadratic Time	-0.000382	0.000060	<0.001
Female Quadratic Time	-0.000063	0.000052	0.227

Table 5

*Percent Income Predicting Physical IPV*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	-1.299684	0.406681	0.002
Women	-0.595442	0.365579	0.107
Male Linear Time	0.011486	0.006302	0.069
Female Linear Time	-0.001708	0.004818	0.723
Male Quadratic Time	-0.000446	0.000202	0.028
Female Quadratic Time	-0.000784	0.000199	<0.001
Male Household Income	-0.000001	0.000004	0.779
Female Household Income	0.000001	0.000004	0.901
Male % Income	0.031908	0.005306	<0.001
Female % Income	-0.015918	0.003963	<0.001

Table 6

*Percent Income Predicting Psychological IPV*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	2.687757	0.160038	<0.001
Women	2.770435	0.157702	<0.001
Male Linear Time	0.001189	0.001698	0.484
Female Linear Time	0.002822	0.001558	0.071
Male Quadratic Time	-0.000390	0.000064	<0.001
Female Quadratic Time	-0.000208	0.000056	<0.001
Male Household Income	-0.000005	0.000001	<0.001
Female Household Income	-0.000005	0.000001	<0.001
Male % Income	0.001316	0.001311	0.316
Female % Income	0.005486	0.001095	<0.001

Table 7

*Absolute Income Predicting Physical IPV*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	1.044449	0.607821	0.089
Women	1.233398	0.585154	0.038
Male Linear Time	0.004336	0.006585	0.511
Female Linear Time	-0.005572	0.005026	0.268
Male Quadratic Time	-0.000576	0.000206	0.005
Female Quadratic Time	-0.000848	0.000200	<0.001
Male Household Income	-0.000031	0.000007	<0.001
Female Household Income	-0.000023	0.000007	<0.001
Male Absolute Income (actor)	0.000070	0.000011	<0.001
Female Absolute Income (actor)	0.000008	0.000009	0.373
Male Absolute Income (partner)	0.000046	0.000010	<0.001
Female Absolute Income (partner)	-0.000001	0.000010	0.973

Table 8

*Absolute Income Predicting Psychological IPV*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	2.958767	0.329325	<0.001
Women	2.957198	0.339287	<0.001
Male Linear Time	0.001994	0.001724	0.248
Female Linear Time	0.003345	0.001583	0.035
Male Quadratic Time	-0.000394	0.000065	<0.001
Female Quadratic Time	-0.000185	0.000057	0.001
Male Household Income	-0.000009	0.000004	0.504
Female Household Income	-0.000007	0.000004	0.055
Male Absolute Income (actor)	0.000003	0.000004	0.316
Female Absolute Income (actor)	0.000009	0.000004	0.035
Male Absolute Income (partner)	-0.000003	0.000004	0.497
Female Absolute Income (partner)	0.000006	0.000004	0.169

Table 9

*Absolute Income Predicting Quality of Alternatives*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	19.464102	2.130664	<0.001
Women	22.639649	1.878404	<0.001
Male Linear Time	0.088007	0.049655	0.077
Female Linear Time	-0.018903	0.051762	0.715
Male Quadratic Time	-0.000840	0.001725	0.627
Female Quadratic Time	0.000845	0.001751	0.630
Male Household Income	0.000056	0.000023	0.014
Female Household Income	0.000005	0.000019	0.808
Male Absolute Income (actor)	-0.000097	0.000034	0.004
Female Absolute Income (actor)	-0.000046	0.000049	0.348

Table 10

*Absolute Income and Quality of Alternatives Predicting Physical IPV*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	0.854097	0.575951	0.141
Women	1.061714	0.582845	0.072
Male Linear Time	-0.002890	0.006924	0.677
Female Linear Time	-0.009175	0.005297	0.084
Male Quadratic Time	-0.000017	0.000231	0.942
Female Quadratic Time	-0.000614	0.000215	0.005
Male Household Income	-0.000029	0.000007	0.453
Female Household Income	-0.000003	0.000007	<0.001
Male Absolute Income (actor)	0.000056	0.000011	<0.001
Female Absolute Income (actor)	0.000007	0.000009	0.438
Male Absolute Income (partner)	0.000036	0.000010	<0.001
Female Absolute Income (partner)	0.000007	0.000010	0.453
Male Quality of Alternatives (actor)	-0.048740	0.007835	<0.001
Female Quality of Alternatives (actor)	0.016856	0.009108	0.065
Male Quality of Alternatives (partner)	-0.037312	0.006835	<0.001
Female Quality of Alternatives (partner)	-0.012530	0.010987	0.255

Table 11

*Sobel's Tests of the Indirect Path: Quality of Alternatives Explaining the Link Between Income and IPV*

	<u>t-statistic</u>	<u>Standard error</u>	<u>p-value</u>
Men			
Physical IPV Perpetration	2.59323377	0.00000182	0.010
Physical IPV Victimization	2.52846443	0.00000143	0.011
Psychological IPV Perpetration	1.6117122	0.00000024	0.107
Psychological IPV Victimization	-1.05662263	0.00000018	0.291

Table 12

*Percent Income Predicting Decision-Making Power*

	<u>Coefficient</u>	<u>Standard error</u>	<u>p-value</u>
Men	16.845481	0.515551	<0.001
Women	16.567902	0.506613	<0.001
Male Linear Time	0.187795	0.021690	<0.001
Female Linear Time	0.276280	0.021721	<0.001
Male Quadratic Time	-0.004178	0.000736	<0.001
Female Quadratic Time	-0.006004	0.000744	<0.001
Male Household Income	-0.000003	0.000005	0.567
Female Household Income	-0.000006	0.000005	0.260
Male % Household Income	-0.006782	0.016232	0.676
Female % Household Income	-0.006737	0.015897	0.672

## Appendix A

### Marital Power Scale

“Who has the final say” in making decisions about the following issues:

	Partner only	Partner more than me	Partner and me equally	Me more than partner	Me only
Buying a car					
Having children					
What house or apartment to take					
What job either partner should take					
Whether a partner should go to work or quit work					
How much money to spend each week on food					