



LUND UNIVERSITY

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Master in Economic Demography

Does intimate partner violence affect contraceptive use among married women in Cambodia?

A comparative analysis between 2000 and 2014

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Abstract: Cambodia continues to experience a high prevalence of intimate partner violence (IPV) across the country. This may be attributed to the deeply embedded patriarchal customs that emphasize the subservience of women and authority of men. Previous literature has found that IPV may lead to negative health implications among victimized women, such as impaired well-being, unintended pregnancies, and HIV/AIDS. This paper examines the impact of IPV experience –emotional, physical, and sexual– in the past 12 months on the current use of contraception among married women in Cambodia. While more than half of married women of reproductive age in Cambodia currently use contraceptives, this has not always been the case. Using cross-sectional data for 2000 and 2014 from the Cambodian Demographic and Health Surveys (CDHS), the relationship between IPV and contraceptive use will be analyzed and compared. The results show that IPV experience within the past year has a negative impact on contraceptive use in 2000 and no impact in 2014. A negative association is also found between spouse’s controlling behaviors and contraceptive use in 2000. The contraceptive revolution experienced by Cambodia within this time frame is highlighted as an explanation of why several determinants affect contraceptive use in 2000 and not in 2014.

Keywords: contraceptive use, intimate partner violence, Cambodia

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1 Introduction

Domestic violence against women has been an ongoing issue in many developing and developed societies alike (Schelzig, 2014). The World Health Organization (2012) defines intimate partner violence (IPV) as “one of the most common forms of violence against women and includes physical, sexual, and emotional abuse and controlling behaviors by an intimate partner.” Further, findings from empirical research have found the victimization of women, rather than men, to be the most frequent in circumstances of abuse (Diop-Sidibé *et al.*, 2006; MoP, 2015). IPV prevalence may be particularly widespread within culturally traditional societies such as Cambodia, where men possess dominance within the household and women’s obedience toward men is expected (Eng *et al.*, 2010).

Previous analyses have been done concerning the relationship between domestic violence and contraceptive use, most particularly focused on developing and less-developed countries – for example, many studies have been done on India and African countries. Studies have also been done in the West, such as in the United States. Literature covering this issue in the context of Cambodia, however, is greatly lacking in comparison. Using data from the Demographic and Health surveys (DHS), the aim of this study is to examine and compare the relationship between IPV and contraceptive use in 2000 and 2014 among married women of reproductive age in Cambodia. Further, the nationwide expansion of contraceptive use among women makes this time frame and topic particularly interesting to study. A better understanding of the relationship between IPV and contraceptive use in the context of Cambodia is important for several reasons.

Studies have shown that domestic violence causes physical, psychological, and emotional consequences (Campbell, 1995; Eng *et al.*, 2010), and women who experience IPV have a higher risk of suffering serious reproductive health issues, such as unintended pregnancies, sexually transmitted diseases, and HIV/AIDS (Heise, 1998; Campbell, 2002; Pallitto and O’Campo, 2004; Fanslow *et al.*, 2008). Because the growing presence of HIV and non-communicable diseases are of major concern in Cambodia, studying the impact of IPV on women’s contraceptive use is crucial to counteract this phenomenon (MoWA, 2009).

Furthermore, approximately a third of births were described as unexpected in Cambodia in 2000 – 9% were mistimed (preferred to have in the future) and 24% were unwanted (National Institute of Statistics *et al.*, 2001). The difference between desired fertility and actual fertility was the largest among uneducated women residing in rural areas. This suggested a high unmet need for family planning during this time. In 2014, a DHS report found a slight increase in mistimed pregnancies – 7% in 2010 to 10% in 2014. The rate of unintended births also rose with a woman’s parity, with 25% of unwanted births among mothers with 4 or more living children; nevertheless, unwanted births decreased from 9% in 2010 to 6% in 2014. Though there have been many studies linking unintended pregnancies to IPV, transitional variables that may diminish the use of contraception such as power dynamics, reproductive coercion, and discussion of contraceptive use are also instrumental factors (Coker, 2007). Perhaps the inability to negotiate or control their own

contraceptive preferences may be due to the women's fear of repercussions from IPV (Campbell, 1995); thus, this relationship is vital to examine.

Regardless, contraceptive knowledge in Cambodia has been extremely high and contraceptive use among women has been increasing within the country (MoWA, 2009). As Cambodia seems to be undergoing a contraceptive revolution, differences in the determinants of contraceptive use among married women may appear from 2000 to 2014. This is another reason why a better understanding of the relationship between IPV and contraceptive use is necessary.

1.1 Research Questions

The principal research questions that this study will examine are:

- (1) What is the impact of IPV on contraceptive use among married women in Cambodia in 2000 and 2014?
- (2) What differences, if any, can be seen from 2000 to 2014 regarding this relationship and its determinants?

1.2 Outline of the Thesis

This thesis will begin by introducing several economic, feminist, and family violence theories regarding IPV and its determinants in Section 2. Section 3 will include previous literature concerning the impact of male-perpetrated IPV on female contraceptive use, as well as its impact on other reproductive health issues among women. Literature on the status of Cambodian women in education, in the labor market, and in the household will follow in Section 4. Previous studies done on domestic violence and family planning in the context of Cambodia will also be examined. Section 5 will introduce the hypotheses for this thesis. Subsequently, Section 6 will explain the data used for this study, as well as present the descriptive statistics of the sample. The methodology will provide a description of logistic regressions and odds ratios utilized for this analysis in Section 7. Section 8 will analyze the results by revisiting the expected hypotheses introduced in Section 3. Moreover, a discussion of the results and the study's limitations will follow. With the inclusion of practical implications, Section 9 will conclude. Note, domestic violence and IPV will be used interchangeably in this paper.

2 Theory

2.1 Theoretical Approach

There are several theories that explain the gendered nature of domestic violence and its possible layers of influence.

Johnson (1995) argues that there are two unique forms of couple violence – patriarchal terrorism and common couple violence; this theory is based on occurrences of domestic violence observed within the United States and in other Western countries. Patriarchal terrorism, stemming from a feminist perspective, is a product of two beliefs: (1) men hold the economic power within couples and use this power to threaten and coerce women, and (2) patriarchal traditions within societies tolerate, or even encourage, the subordination of women. This phenomenon is almost entirely perpetrated by the husband, with no attempts to strike back from the wife. The second form of couple violence is common couple violence, which was built upon research done by Straus and colleagues (1990) on family violence. This form of violence occurs from time to time when conflicts of day-to-day life occasionally intensify; generally, common couple violence is perceived as non-life-threatening.

One distinction between the two forms is the extent to which women are considered the perpetrators. Common couple violence considers women just as likely as men to resolve couple conflicts with violence, whereas supporters of the feminist perspective seem to strongly disagree. Another important distinction is one of motivation. Common couple violence is presumed to be less motivated and more unintended, whereas patriarchal terrorism is believed to primarily utilize couple violence as a control tactic. As a feminist theory, the most common critique of patriarchal terrorism is the failed explanation of why some men are abusive and others are not (Heise, 1998).

The integrated, ecological model by Heise (1998) explains gender-based violence as a multilayered phenomenon which consists of 4 interconnected levels – “macrosystem” (societal), “exosystem” (community), “microsystem” (relationship), and “ontogenic” (individual). Heise’s theory was constructed from Belsky’s framework (1980), which in turn was originated in the 1970s by Bronfenbrenner. This theory explains why some individual men, and not all men, become abusive, as well as why women become the most common target of domestic abuse. Each level comprises of risk factors which link personal factors within broader situational and sociocultural factors of influence:

- Macrosystem: sociocultural customs supporting patriarchal ideologies such as firm, traditional gender roles, justification and acceptance of violence among women, and notions of masculinity associated with hostility and supremacy.
- Exosystem: insufficient prospects economically for men, seclusion of women and family within the community, and associations with irresponsible peers

- Microsystem: male dominance and control of income within the household, alcohol abuse, and marital conflict
- Ontogenic: witnessing violence between one's parents, experiencing abuse, or having an absent and rejecting father as a child.

Although Heise's (1998) theory is a combination of family violence theory and feminist theory, the framework is very broad and thus, empirical analyses of all individual levels may be difficult. Moreover, having to explicitly separate factors into the 4 levels may be challenging when many are interrelated.

Tauchen's (1991) economic theory of violence as a non-random affair assumes a principal decision-maker, as Becker (1965) does, and examines domestic violence as sourced by various family resources. Tauchen particularly uses family income, as well as willingness to transfer income, to assess the prevalence of domestic violence. She concludes decision-making by the male to be primarily revolved around maximizing his utility.

Goode's (1971) resource theory is one of the most cited theories explaining the occurrence of wife abuse (Atkinson *et al.*, 2005). In this theory, Goode considers violence as a resource, similar to typical material resources such as income, educational attainment, and employment. Goode argues that men desire more control within the household compared to other members. Since more material resources assure more obedience, the resource theory suggests men with the most material resources may be the least likely to abuse their wives; however, when there is a lack of resources, violence can be utilized as its replacement to gain compliance. Studies that support this theory have found that men that earn the least income, have the least amount of education, and have the lowest reputation are at a higher risk of committing wife abuse (Atkinson *et al.*, 2005).

Modifications were made to Goode's resource theory by Macmillan and Gartner (1999) and McCloskey (1996). The relative resource theory focuses on the relative resources within a couple and highlights the lack of men's relative resources as a predictor of abuse. *Status inconsistency* refers to men who result to violence as a means to regain power and reestablish compliance because of their lower status and fewer resources (Atkinson *et al.*, 2005). According to Macmillan and Gartner (1999), wives that worked while their husbands did not were more at risk of wife abuse; McCloskey (1996) found that women who earned more income than their husbands were more at risk of abuse; and Gelles (1974) found that women who received higher educational attainment relative to their husbands were more likely to be abused as well. Nonetheless, there were two assumptions made by the relative resource theory that are often criticized: all men desire to be the breadwinner and have more resources relative to their wives; and all men possess traditional ideologies.

To summarize, both the resource theory and the relative resource theory emphasize the following: (1) the primary role of material resources as a predictor of wife abuse, (2) violence as an alternate resource to gain obedience, and (3) men without resources are more likely to commit wife abuse than their counterparts. However, while resource theorists believe that men with the fewest resources are most at risk to abuse, relative resource theorists believe that men who have fewer resources, relative to their wives, are most at risk to abuse.

Atkinson and colleagues (2005) refined the relative resource theory and constructed the gendered resource theory, which incorporates the husbands' gender ideologies into the previous

framework. Gender ideologies are defined by Atkinson and others as “how one identifies oneself with regard to marital and family roles traditionally linked to gender” (pp. 1138). Traditional gender ideologies depict men as the primary breadwinner, whereas egalitarian gender ideologies may depict men as accepting of shared domestic responsibilities. The theory suggests that those at the greatest risk of abuse are wives who act as the primary breadwinner and have spouses that hold traditional ideologies. Using the gendered resource theory to explain wife abuse, Atkinson and others (2005) found that the husband’s relative resources are negatively associated with wife abuse if the husband was traditional; although, this was not necessarily the case for women with non-traditional husbands.

3 Previous Research

Previous research has been done in various countries regarding the relationship between domestic violence and contraceptive use; most often, these studies have focused on less-developed and developing countries. Previous literature has generally found a negative correlation between IPV and contraceptive use.

Diop-Sidibé and colleagues (2006) conducted a study to examine the effects of wife-beating on women's health consequences. They used the 1995 Egypt DHS data to analyze the relationship between ever-beaten women (women who have experienced IPV in a lifetime), women beaten within the past 12 months, and never-beaten women on contraceptive use. Utilizing multivariate logistic regressions, they found that women who experienced IPV within their lifetime or in the past year reported less contraceptive use.

Stephenson and colleagues (2006) examined the association between domestic violence and the choice of modern contraceptive methods in the context of a rural village in northern India, Uttar Pradesh. Hazard modeling was used on the matched data of married couples from a PERFORM System of Indicators Survey from 1995-1996. A significant, negative association between physical IPV and use of modern contraceptive methods was found; however, the data on IPV occurrences are based on only what the husband has reported and not their victimized wife. Therefore, there may be some reporting biases.

Debnath and colleagues (2013) also studied this association in the context of India; although, they used different data compared to Stephenson and others (2006) – the Indian National Family Health Survey (NFHS-III) – and looked at a nationally representative sample of women. The data was analyzed using bivariate and multivariate techniques and found that IPV negatively affected women's use of modern contraceptives. This is consistent with the results of Stephenson and colleagues from the village of Uttar Pradesh. Further, it revealed that women's knowledge of contraceptive methods and level of women's empowerment are influential factors that should be considered. In fact, the study discovered that there was a strong positive association between women's empowerment and traditional contraceptive prevalence rate. It is apparent that IPV preventive measures, as well as increased family planning support, are necessary; however, it may be difficult to resolve an issue with legislation when it is deeply rooted into society, as appears to be the case for India.

Though the examples above have focused on married women of reproductive age (usually 15-49 years old) as the primary sample of interest, studies have also found a negative relationship between IPV and contraceptive use among young women as well. Elouard and co-authors (2018) studied the effects of sexual IPV on modern contraceptive use and unintended pregnancies in Burundi. Using a multistage cluster survey of young women 15-25 years of age, they found that a young woman who has experienced sexual IPV in her lifetime is less likely to use modern contraceptive methods, less likely to have the ability to discuss contraceptive use with her partner, and more likely to have unintended pregnancies. Gomez (2011), using the DHS data for Colombian female youth, also found that sexual IPV has a positive impact on unintended pregnancies and a negative impact on use of modern contraceptive methods.

Contrastingly, there are studies that have also found a positive relationship between IPV and contraceptive use. The mixed results can be attributed to numerous features of a study (Kidman *et al.*, 2015) – inconsistent definitions of emotional, sexual, psychological, and physical violence that exist across cultures, variations in societal norms, differences in context, and differences in methodology are several examples (Alio *et al.*, 2009).

Fanslow and co-authors (2008) found that IPV experience is positively associated with contraceptive use among women in the context of a developed country – New Zealand. Data was collected through personal interviews conducted with a random sample of 2,790 women, 18-64 years old, from urban and rural regions. Logistic regressions and Wald tests were used for analysis. Though contraceptive use and contraceptive methods differed by region, women who had experienced IPV were significantly more likely to ever use contraceptives than those who had not experienced IPV. Furthermore, Fanslow and colleagues found that women who had experienced IPV were also more likely to have experienced partner refusal to use contraceptives or denial from using contraceptives by their partner. Other interesting findings by Fanslow and others include: most women, at one point in their lifetime, have used contraception in New Zealand; nearly half of the women, 18-49 years old, were using contraceptives at the time of survey; and women in rural regions were more likely to report IPV experience, but had fewer health-care accessibilities. Previous research from New Zealand and further developed countries supported the findings of Fanslow and colleagues.

Using DHS data for six Sub-Saharan African countries (Cameroon, Kenya, Malawi, and Rwanda, Uganda, and Zimbabwe) from 2003-2006, Alio and co-authors (2009) sought to determine the effect of IPV on contraceptive use for women ages 15-49. Using logistic regression models, they found that approximately 40% of the 24,311 women had experienced IPV. Moreover, they found that women were significantly more likely to report the use of contraception if they had experienced IPV than not – approximately 66% of African women in the study in comparison to the 59%, respectively. Thus, Alio and colleagues concluded that in the African context, there is a positive association between IPV experience and contraceptive use – particularly, modern contraceptive methods.

Furthermore, related studies done within the same country may also present different findings. For instance, Stephenson and colleagues (2006) and Debnath and colleagues (2013) found IPV to be negatively associated with contraceptive use among women in India; however, other studies have found a positive association in the context of India as well. Forrest and co-authors (2017) who, like Debnath used NFHS data, argued against the negative relationship between IPV and contraceptive use found in previous literature. They considered the ambiguity of the effects of violence on contraceptive use and conflicting attitudes of couples to be a plausible explanation. Forrest and colleagues used a longitudinal follow-up to the Indian National Family Health Survey (NFHS-II) – consisting of a sample of rural, married women of childbearing age. The study inspected the relationship between IPV and contraceptive use depending on whether the women's contraceptive intentions go against men's fertility preferences. The results showed that women experiencing IPV are less likely to go through sterilization, but only if they intended to use contraception and their partners desired more children. Meanwhile, violence had no effect on sterilization among women who did not intend on using contraceptive methods or whose partners did not desire more children. The findings implied that violence allowed some men to resolve disagreements over the use of contraception by placing their fertility preferences on their

partners. The results also showed that the unmet need for contraception could be an intended consequence of violence.

While Forrest and colleagues utilized data from NFHS-II, Reed and co-authors (2016) studied the association among married couples in Maharashtra, India. The cross-sectional study in rural Maharashtra analyzed 2012 survey data of husbands and wives (18-30 years old), fluent in Marathi, not sterilized prior, and no current pregnancy or intentions to conceive. They used crude and adjusted logistic regression models to assess IPV against women in relation to conflicting accounts of contraceptive use. The findings showed that disagreements on the use of contraceptives were significantly associated with wives' experiences of physical IPV. They concluded that women who reported IPV may be more likely to secretly use contraceptives, without informing their husbands.

There have been more studies done on the effects of women's empowerment, pregnancy intendedness, induced abortions, and gender attitudes on contraceptive use, which, according to Coker (2007), were lacking. Kidman and colleagues (2015) studied the impact of IPV and women's empowerment on the use of contraceptives between conflict and non-conflict settings in the Democratic Republic of the Congo. Using nationally representative data and multivariate analysis, they examined this relationship at the individual and community levels, with the effect of conflict exposure. Nationwide, only 6% of women reported to have been using modern methods of contraception at the time of survey. Out of those women, more than half reported experiences of physical IPV and nearly a third reported experiences of sexual IPV. Kidman and co-authors found that, at the individual level, sexual IPV was positively associated with modern contraceptive use. Though, a combined measure of both physical and sexual IPV, however, did not show the same outcome. At the community level, IPV was not associated with individual level use of contraceptives. Furthermore, they found that conflict exposure did not significantly impact contraceptive use in this case. Like Kidman and colleagues (2015), Do and Kurimoto (2012) and Blackstone (2016) conducted separate studies on the effects of women's empowerment on contraceptive use in selected African countries. Both studies found a similar positive relationship using nationally representative DHS data and bivariate and multivariate logistic regressions for analysis.

Gender attitudes concerning domestic violence also influence contraceptive use (Coker, 2007). Nanda and colleagues (2013) studied the relationship in the context of Tanzania among 200 couples. On average, unequal gender ideologies were held by more wives than husbands. Using multivariate logistic regressions, they found that wives who held more egalitarian attitudes were positively associated with contraceptive use; on the other hand, husbands who held egalitarian attitudes showed no significant association with their wives' use of contraception.¹

Raj and McDougal (2015) examined the impact of sexual violence, physical violence, and both on pregnancy intendedness and pre-pregnancy contraceptive use in South Asian countries. They performed a cross-sectional analysis using DHS data on married, pregnant women from Bangladesh (2007), India (2005), and Nepal (2011). Utilizing unadjusted and adjusted logistics regressions, they found that previous IPV experience is not associated with unintended pregnancies in all three countries. In addition, they found that experiencing sexual violence is positively associated with modern contraceptive use before pregnancy. Pregnant women with experience of sexual violence were more likely to use contraception pre-pregnancy than pregnant women with no IPV experience. Sexual and physical violence were both also associated with an increase in traditional contraceptive use before pregnancy.

Nguyen and others (2012) explored the impact of gender-based violence (GBV) on induced abortions, while also studying contraceptive use and unintended pregnancies among married or partnered women in the Thai Nguyen province of Vietnam. They used cross-sectional survey data of 1,281 women of reproductive age and performed bivariate and multivariate logistic regression analyses to assess associations between one's history of GBV, contraceptive use, unintended pregnancies, and induced and repeated abortions while controlling for other variables. The results showed that a history of GBV was associated with induced abortion and

¹ See Akin and Ozaydin (2005) for a study focusing on the male perspective of the relationship between gender attitudes and contraceptive use (withdrawal, condoms, and female-participatory methods) in Turkey. The 1998 Turkish DHS data, along with the DHS husband's questionnaire was utilized. Men who held disapproving attitudes towards domestic violence were found to have a positive association with their own contraceptive use.

repeat abortion. Physical violence was significantly associated with induced abortion, and all three types of violence (physical, sexual, and emotional) were associated with repeat abortion. Women who had experienced abuse were more likely to report using contraceptives and having an unintended pregnancy than non-abused women. Furthermore, these factors were also associated with increased risk of induced abortion. Nguyen and others concluded that GBV is prevalent in the Thai Nguyen province and leads to higher risks of induced and repeat abortions. The increased risk of unintended pregnancies because of ineffective contraceptive use may be an underlying factor.

4 The Cambodian Context

Cambodia was repeatedly invaded by its neighboring countries, Vietnam and Thailand before becoming a French protectorate in 1863 (Chandler, 2008). After finally gaining its independence in 1953, the most devastating period arrived for the Cambodians in April 1975. Under the rule of Pol Pot and the Khmer Rouge regime, Cambodia suffered from high mortality rates, low fertility rates, famine, and long-lasting effects on the country's population and development overall (National Institute of Statistics *et al.*, 2015; Islam *et al.*, 2015). Adult males, educated individuals, and individuals residing in urban areas were targeted as threats against the regime. Recovery began in the 1990s about a decade after the fall of the Khmer Rouge (Schelzig, 2014), who murdered nearly 2 million Cambodians during their reign (Chandler, 2008).² With the sponsorship of the United Nations in 1993, Cambodia was able to hold their first democratic elections. Efforts were made by the government, with international assistance, to reestablish family planning campaigns in the country (Samandari *et al.*, 2010). However, Cambodia's poor infrastructure caused efforts to fall short, leading to low rates of contraceptive use and high rates of maternal mortality and fertility.

Nevertheless, the population of Cambodia has increased from 11.45 million in 1998 to approximately 15.41 million (MOP, 2015). The country has always had a large proportion of children and adolescents; nearly half of the population is 15-49 years old. Though, due to the decline in total fertility rate (TFR), this proportion is also on the decline. The World Health Organization (2015) stated that the TFR decreased by half from 6 children per woman in 1990 to

² See Heuveline (1998) for a demographic reconstruction from 1970-1979, challenging estimates of the "excess" mortality commonly attributed to the Khmer Rouge era (1975-1979).

3 in 2011. Data in the CDHS 2014 showed that the most recently observed fertility rate is 2.7 per woman and is forecasted to continue decreasing (Schelzig, 2014). With life expectancy continuing to rise, Cambodia has been experiencing a slight increase of residents who are 65 years and older – roughly 6% of its current population. Life expectancy for Cambodians is presently 60.5 years for men and 63.5 years for women; thus, the country is encountering changes in the dependency ratio – the proportion of those that produce (working-age population) to those that consume (children and the elderly).

Furthermore, Cambodia's gross domestic product (GDP) per capita has increased from 608\$ in 1993, to 939\$ in 2000, and to 2454\$ in 2012 (2005 constant prices) (WHO, 2015). According to Slocomb (2010), Cambodia's real GDP growth rate reached 13.3% in 2005; the country also averaged a real GDP increase of around 11% from 2005 to 2007. The source of most of this growth came from sectors vulnerable to exogenous shocks – the textile industry, construction industry, and tourism. Despite such a drastic increase in GDP, Cambodia remains a relatively poor country. The development that occurred is unevenly distributed with poverty still predominantly concentrated in the rural areas (Schelzig, 2014; Slocomb, 2010).

While agriculture remains the main source of income in rural regions, however, while the Ministry of Planning (MoP) reported an increase in agricultural income by 3% in 2015. The proportion of total income due to agriculture is actually decreasing. This is a concerning issue for Cambodia where human capital investments in education and skill-based training are inadequate to aid residents in diversifying income. An increase in human capital investments, along with technological advancements in the agriculture sector may assist in the reduction of poverty (Schelzig, 2014). Meanwhile, in urban areas such as Phnom Penh, the majority of income seems to be based on non-agricultural occupations. Since 2011, this type of income has increased by 62%. Although agriculture continues to be dominant, there has been a gradual shift towards the industry, services, and garments sectors.

4.1 The Status of Women

4.1.1 In the Household

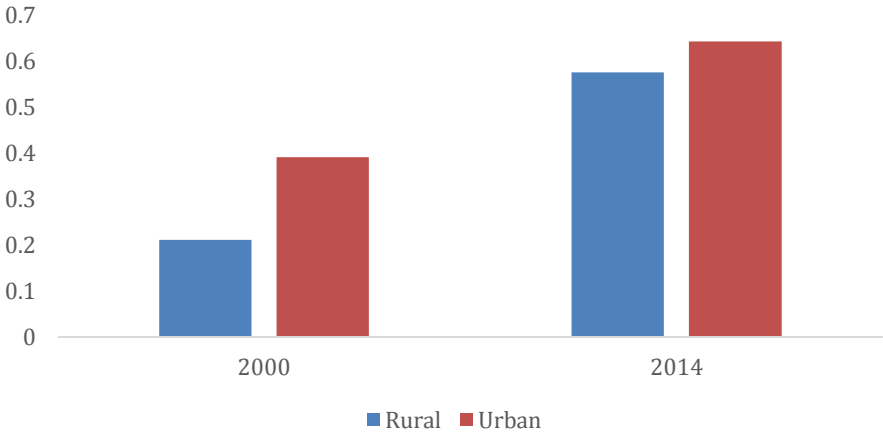
Favoring men over women has been the cultural norm in Cambodia and has continued to keep women at a disadvantage. Societally, it is perceived that women must fulfill their traditional roles within the household; however, this hinders the empowerment of women by continuing to bind them to domestic responsibilities. Countless Cambodian parents consider men as reasonable and powerful figures, compared to women who they consider sensitive and feeble (Smith-Heffner, 1999). Therefore, Cambodian parents generally raise their children within a household exhibiting traditional gender norms. With more time and energy attributed to daily household tasks, women may be less likely to participate in the labor force or receive any practical training.

Brickell (2012) studied the inequality in housework under male-headed households in Siem Reap, Cambodia. She found that women do most of the housework, whereas men justify their non-participation in domestic work by alluding to tradition and historical reasonings. Moreover,

Brickell found that the women assume domestic responsibilities not only because it is necessary, but also in an effort to ensure marriage stability. Presently, marriage stability is lower than those of earlier cohorts; though, divorce remains uncommon and heavily stigmatized (Heuveline and Hong, 2017). With such high rates of women accepting violence and submissiveness, a more equal distribution of household responsibilities is a vital step that can contribute greatly to the empowerment of women (ADB, 2015).

In contrast to Brickell’s (2012) study on gender roles in male-headed households in Siem Riep, an interesting study was done by Kusakabe (2002) on female-headed households in the most urban city of Cambodia, Phnom Penh. She found that women who were the head of the household were generally stigmatized, especially so if they were of reproductive age. There was a higher proportion of female-headed households in the urban area of Phnom Penh relative to the rural areas. With her finding, she concluded several things concerning the trend of household structures and women’s social status in Phnom Penh: an increased prominence in divorce, a reduced stigmatization towards female-headed households in Phnom Penh, a casualization of married couples, and an improvement in women’s income to support a family by herself. Heuveline and Hong (2017) discovered analogous findings years later. Figure 1 shows a large gap in current contraceptive use among married women in Cambodia, dependent upon rural or urban residence in 2000; however, in 2014 there is a large increase in contraceptive use overall; moreover, the gap in contraceptive use between rural and urban dwellers reduced significantly – with only slightly more urban residents using contraceptives.

Figure 1. Current contraceptive use among married women based on place of residence



Data source: CDHS 2000 and 2014. Author’s calculations, weights were applied.

In Cambodia, marriage is still largely regarded as a traditional institution. Cambodians value nuclear families to such an extent, that they compare an individual not belonging to a nuclear family as “missing a limb” (Ovesen *et al.*, 1996). Arranged marriages are very common in Cambodia and have been so prior to the Khmer Rouge era, a time in which they desired to disintegrate familial networks by cutting family ties. The Khmer Rouge accomplished this by physically splitting them apart and by taking away their roles within the household – for example,

the women's position as mothers (Brickell, 2012). Women were also forced to endure involuntary marriages and rape (Heuveline and Poch, 2006).

As living with one's nuclear family is the social norm, newly-wedded couples generally reside with the bride's parents temporarily after marriage. However, pragmatism is not uncommon when it comes to living arrangements in Cambodia. Better work or educational opportunities may require couples to live in more practical areas outside the city or near the groom's parents. This is more common in the urban areas where generally, more opportunities are available. Housing shortages may also lead to a larger household with more members being non-nuclear, again, more conventional in urban areas. Regardless of living situations, the binary gender roles assigned within a household in Cambodia have stayed rather consistent.

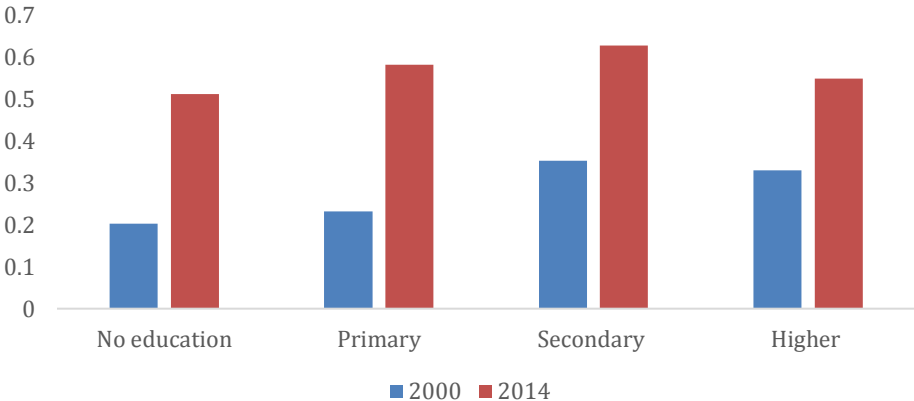
A woman's kin and community have a strong influence on her overall decision-making in Cambodia; Samandari and co-authors (2015) found that Cambodian women's reproductive health choices were specifically influenced by their husbands, elders, and peers. While pre-martial childbearing is highly looked down upon in Cambodia (Heuveline and Hong, 2017), couples are typically suggested to have their first child within the first two years of marriage (Hukin, 2014). The median age at first marriage in Cambodia, 20 years old, and the median age of first birth, 22 years old, have been consistent for the last two decades. Furthermore, Hukin (2014) mentioned that there has been an increase in birth intervals – from a median of 34 months to 40, from 2000 to 2010, respectively. It is interesting to note that Hukin, during the 21 months of fieldwork in Cambodia, barely found women that expressed a desire to remain childless. As childbearing at a young age is customary, but this may be due to parental persuasion. Hukin (2014) found several reasons Cambodian women choose to have, or are pressured into having, children early. First, it is the least physically draining to have them younger – one will have more energy to raise children. Second, since newly-wedded couples temporarily reside with one set of parents, the couple's parents can serve as a source of child care and lift a bit of burden off their shoulders. Third, there is pressure to marry early; getting married is seen as one of the ways a child can repay their parents. Fourth, is the idea of children as helpers, a rather generally perceived advantage to rearing children in developing countries. Having them at a young age would mean they would grow up sooner and can then assist their parents with tasks. Lastly, parents of a newly-wedded couple tend to strongly desire grandchildren. The enjoyment of being around children is enough for the parents to put pressure on the couple to have children more quickly.

4.1.2 In Education

Not only is the women's dependence on men firmly embedded into society through the country's familial ideologies, but it was also taught through their educational curriculum. *Chbab Srey*, or women's law (CAMBOW, 2007), is a female's rule of conduct within a household. Several examples of what are considered "rules for girls" include speaking softly, walking silently, not yelling, sitting properly, keeping family issues private, and submitting to her spouse (HRN, 2011; Eng *et al.*, 2010). Though *Chbab Srey* has not been part of the curriculum since 2007, the gender norms that originated from it still clearly exist in the culture. *Chbab Srey* supported gender inequality in Cambodia and may have led men to justify violence as a response towards women's "disobedient" behaviors.

Presently, the educational gender gap, typically in favor of boys, has gradually been diminishing in Cambodia (MoWA, 2014). Enrolment at the preschool level has increased for both boys and girls over the past few years and has equalized at the primary and secondary school levels. The proportion of girls receiving a higher education, as well as receiving technical and vocational training, has increased as well; though, their enrolment remained below 40% in 2011. Based on Figure 2, it can be argued that a married woman whose highest education level attended was secondary education or higher in 2000, was more likely to use contraceptives than women who attended lower levels of education. However, in 2014, not only did the use of contraceptives among married women drastically increase, but the differences between no education and higher educational attainment groups appear less extreme.

Figure 2. Contraceptive use among married women based on their highest education level attended



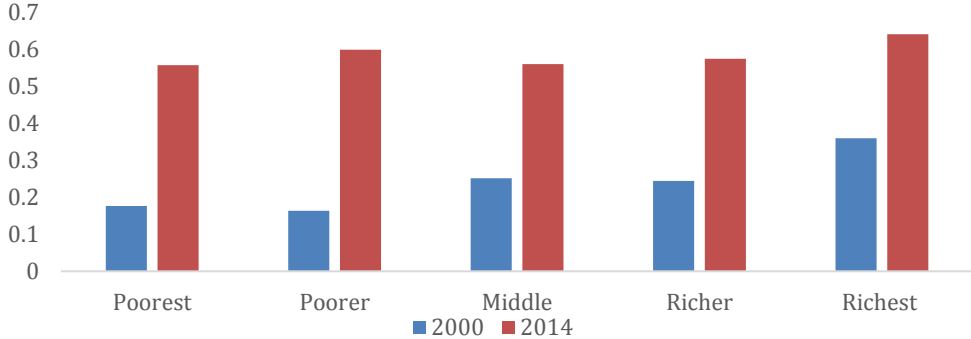
Data source: CDHS 2000 and 2014. Author’s calculations, weights were applied.

4.1.3 In the Labor Market

According to ADB (2015), Cambodian women are disadvantaged due to traditional social norms, higher inaccessibility to resources, and lack of non-vulnerable employment opportunities compared to their male counterparts. Although female labor force participation in Cambodia is relatively high, nearly 70% of working women in Cambodia held vulnerable occupations in 2012. Defined by the International Labour Organization (ILO), *vulnerable employment* is employment with poor working conditions, lack of benefits (social security, representation), and often contributing family workers that are unpaid. Growth in the services sector has increased non-vulnerable employment opportunities for women; although, the shift from agriculture to services and industries have been made by more men than women. With nearly half of the women in the labor force still working in agriculture. Unfortunately, this may reinforce women’s financial dependence on their spouses. In instances of divorce, Hotte and King Ruel (2007) found that more women than men were requested by kin and community members to dismiss proceeding with their divorce cases. Once again, this is due to the commonality of women being more economically dependent on their husband than vice versa. As seen in Figure 3, household wealth in 2000 show a higher proportion of contraceptive use among women who belong in the middle to richest quintiles; however, 2014 shows a large increase in women’s use of contraception across wealth quintiles and only a slight variance between them. The converging use of contraceptive use

among married women with differing residence, education, or wealth (Figure 1-3) is consistent with the findings of Dingle and co-authors (2013). Regardless of the large inequities in the unmet need of contraception dependent on socioeconomic characteristics found in CDHS 2000, 2005, and 2010, the met need was essentially equitable across these various groups by 2010.

Figure 3. Current contraceptive use among married women based on household wealth quintiles



Data source: CDHS 2000 and 2014. Author’s calculations, weights were applied.

4.2 Domestic Violence and Family Planning

Two studies have been done in Cambodia regarding the effects of household resources on the occurrences of IPV. Yount and Carrera (2006) used the CDHS 2000 data set to study the relationship of family resources and life experiences on recent experiences of IPV and attitudes on wife abuse. Their sample of study contained 2,074 married women of childbearing age in Cambodia. Overall, they found a higher likelihood of experiencing IPV with factors such as lower educational attainment (particularly compared to their spouses’), high parities (higher number of children tend to justify wife-beating), and a lower standard of living. They also found that women more financially dependent on their spouses may be more tolerant of IPV, and thus, more at risk of experiencing IPV. According to Ledgerwood (1994), Cambodian women have a history of being involved in economic activities and practice more autonomy when compared to their Asian counterparts; however, this does not suggest that women in Cambodia are more financially capable to live independently without a spouse.

While Yount and Carrera (2006) analyzed the relationship between physical marital resources and IPV, the relationship between social marital resources and IPV was later examined by Eng and others (2010) using CDHS data from 2005. They found that: spouse’s control was positively associated with physical and emotional violence; the frequency of communication was positively associated with emotional violence; and the increased regularity of communication was associated with greater spouse control. Gender issues explain the association of the spouse’s control with physical and emotional violence; men assume dominance over their wives and use violence to maintain or regain their control. Cambodian women are often discouraged from voicing their opinions toward their spouses, because this behavior may be perceived as implementing egalitarian ideologies, which is in opposition to cultural norms. Frequent communication is discouraged as more communication may simply result in more conflicts. Eng and co-authors

concluded that Cambodians promote male-dominant gender roles and consequently, IPV becomes the norm for victimized women as prevalence increases.

Eng and colleagues (2010) agreed with the conclusions made by the Cambodian Ministry of Women's Affairs (MoWA) (2009) – gender-based violence, particularly against women, is culturally tolerated and widely accepted in Cambodia. Lower educational attainment, experiences of violence during adolescence, and spousal alcohol abuse places women in vulnerable positions within society, most likely contributed to the acceptance and tolerance of gender-based violence against women. Not only do a large proportion of men justify wife-beating, but a surprisingly larger proportion of women do as well. More than half of the women who answered MoWA's follow-up survey in 2009 agreed that challenging the supremacy of men justifies acts of extreme violence.

In 2014, a DHS multi-country study regarding domestic violence used Cambodia as one of the 9 countries for analysis; although, Cambodia had the lowest proportion of ever-married women who reported IPV out of the group, 18% – with the highest proportions found in Zambia (48%), Colombia (44%), and Peru (42%). Instances of IPV have been decreasing in Cambodia; according to MoWA, however, the country's inclusion in this report highlights the ongoing prevalence of IPV in the country (2009).

In 2016, Cambodia was chosen by another DHS report as one of 11 countries (also including Egypt, Honduras, Jordan, Kenya, Kyrgyz Republic, Rwanda, Tajikistan, Uganda, Zambia, and Zimbabwe) for analysis regarding the effect of IPV on discontinuation of contraceptives while still in need (DWSIN). The report compared DWSIN and complete discontinuation, and IPV was categorized into physical, sexual, and emotional violence, as well as any combination of IPV. A criterion for selection into the study was the rate of modern contraceptive prevalence within the country – which must be equal to or larger than 25%. Though the year of survey was inconsistent among the 11 countries, the 2014 Cambodian DHS was used for this report; this is also one of the two data sets that will be used for this paper. Overall, findings varied with the form of violence in question. Women who experienced sexual violence had considerably lower odds of discontinuing due to no further need – over 90% lower compared to women not suffering sexual violence. Regardless of IPV experience, Cambodian women seem to use more non-LARC (long-acting reversible contraception) methods than LARC methods. Cambodia also had one of the lowest total discontinuation levels out of the other 10 countries. The study found no association between emotional violence experience and DWSIN among Cambodian women. The study also found a positive relationship between education and discontinuing due to no further need. Additionally, women in higher age groups were found to have significantly lower odds of discontinuing due to no further need when compared to younger age groups. All in all, the report found little evidence of association between IPV and discontinuation of contraceptives while still in need (DWSIN). When associations were present, there were only weakly significant for the case of Cambodia. Furthermore, the report concluded that findings were country-specific rather than consistent universally. Thus, country-specific approaches to family planning must be heavily considered when including IPV occurrence. Although this paper does not consider DWSIN, as it focuses instead on the current use or non-use of any contraceptive method, it has been reflected upon literature relating to similar topics.

In Cambodia, there are three laws that concern the situation of marriage, divorce, and domestic violence: *Convention of the Elimination of all Forms of Discrimination Against Women* (CEDAW), the *Law on the Prevention of Domestic Violence and the Protection of Victims* (DV law), and the *Law of*

Marriage and Family. Firstly, CEDAW was an international bill of rights ratified by Cambodia in 1992 – particularly to protect the rights of women and eradicate violence against women. (CAMBOW, 2007). The *Law of Marriage and Family* was enacted in 1989. If a woman desired to divorce her spouse due to instances of IPV victimization, this law does not make that process an easy one. Several attempts at reconciling the couple are made by the court before the process of divorce is even begun. This may be harmful to the women who wish to be freed from their destructive or violence marriage. The reconciliation attempts may influence women to reconsider the idea of divorce by coercing them to outweigh other factors over IPV, such as their financial needs or their duty to maintain “harmony within the household” (HRN, 2011). Secondly, the DV law was passed in 2005. This law expresses a woman’s intrinsic right to be “free from violence;” however, this law is far from perfect. There are flaws found with the wording of the law itself, and flaws found within the authoritative enforcement of this law within societies. Article 1 of the DV law identifies one of its goals as to “preserve the harmony within the households in line with the Nations’ good custom and tradition...” (RGC, 2005, p.3). Priority seems to be put upon mending the disharmony within households rather than, as the DV law is entitled – the “protection of victims.” This law has lacked proper implementation since its enactment in 2005 (HRN, 2011, p. 33). The authorities and the residents themselves do not understand the law to its entirety; because of this ineffectiveness, its possible benefits may be understated. Likewise, with only some knowledge about the mechanisms of the DV law, the process of reporting domestic violence may seem even more difficult. Perhaps it will seem useless to women who cannot report instances of IPV due to fear of their abuser.

The lack of law enforcement and peer pressure among men may play a role in influencing traditional ideologies upon men (MoWA, 2009). In 2009, approximately 40% of the local authorities accepted acts of extreme violence (for example, threatening with a weapon, throwing acid, or shooting) as an accepted response towards wives that showed disobedience or challenged their male dominance. Justification of a spouse’s controlling behavior was found most prominent among the poorest population. These attitudes are also found in today’s younger generation, showing the prolonging acceptance of gender inequality in Cambodian culture. Despite innovative efforts to change gender attitudes about the roles of men and women and boys and girls, women still disproportionately carry a heavier workload. They earn an income, provide labor for their family farms or businesses, and feed and care for their families.

5 Hypotheses

Based on theories and previous literature mentioned in Section 2 and 3, several hypotheses may be expected in the context of Cambodia. Though there have been mixed results regarding the relationship between contraceptive use and IPV in previous literature, it seems to suggest that IPV is associated with contraceptive use. Commonly, this association is found to be negative. Moreover, the development and economic growth Cambodia has experienced from the turn of the century has led to some progression in society, for example the empowerment of women and increased availability and accessibility to family planning. Therefore, the expected negative effect of IPV on contraceptive use is also expected to be weaker in 2014 due economic growth and development within the country. Thus,

H1. Married women who have experienced any form of IPV in the last 12 months are less likely to use contraceptives. This effect is greater in 2000 than in 2014.

The empowerment of women is often hypothesized to be associated with higher education and lower fertility. This is true in the case of Cambodia according to the Statistics Bureau of Japan (no date). Mason and Smith (2000) found that women who have more autonomy and more decision-making power within the household generally have more control over their use of contraceptives as well. Therefore, women's high decision-making power is expected to be positively associated with contraceptive use. Thus,

H2. Married women who have high decision-making power have a higher likelihood of contraceptive use. This effect is greater in 2000 than in 2014.

In the same way, spouses that utilize controlling behaviors over their wives may be more likely to force their fertility preferences on their partners. This may be due to several reasons such as suspicion of infidelity or promoting their fertility preferences over the woman's (Mason and Smith, 2000). Furthermore, since domestic violence (which can be argued as a form of controlling behavior men utilize to maintain dominance) is generally associated with women's negative health outcomes,

H3. Women with spouses that utilize more controlling behaviors are less likely to use contraceptives. This effect is greater in 2000 than in 2014.

Recent studies have shown that women who experience IPV and their spouses' controlling behaviors are more likely to encounter interruptions in their contraceptive use. They also have a higher likelihood of experiencing unintended pregnancy (Silverman and Raj, 2014). Additionally, previous literature has found an increase in contraceptive use among women after having terminated a pregnancy (Delvaux *et al.*, 2008; McDougall *et al.*, 2009). This was mainly due to the women's desire to avoid pregnancy in the near future. Thus,

H4. Married women who have had a terminated pregnancy have a higher likelihood of contraceptive use.

6 Data

This study uses quantitative methods to examine the relationship between IPV and use of contraceptives by Cambodian women of childbearing ages. The primary data source for this thesis is the Cambodian Demographic and Health surveys (CDHS) for the years 2000 and 2014. DHS collects nationally representative data through a multistage sampling technique. There are slight differences in geographical distinction, as well as differences in the number of stages in which the stratified sample was selected for both surveys. Nonetheless, the data is nationally representative, sampled across numerous provinces in Cambodia, and should not affect the results of this study. A more detailed explanation of the differences can be found in the Appendix.

Most country surveys collect information on basic demographic and health topics. Generally, women of childbearing age (15-49) are eligible for participation, as well men ages 15-49, 15-54, or 15-59. Individual questionnaires include information on fertility, mortality, family planning, marriage, reproductive health, child health, nutrition, and HIV/AIDS; this study is particularly interested in data gathered from the domestic violence module. One eligible woman per household is randomly selected to participate in the domestic violence module. Precautionary measures were taken by DHS staff members due to the sensitivity of the survey content. All staff members underwent special training, such as how to properly administer the survey, how to react to emergency situations, and how to be emotionally prepared for the task. Interviews were conducted in private and were discontinued once interrupted. Women who were selected were asked to categorize their experience of IPV into the following categories: physical (ie. acts of pushing or shoving, slapping, kicking, dragging, trying to strangle or burn, threatening or attacking with a weapon), emotional (ie. humiliation whether it be physical or verbal, verbal threats), and sexual (ie. forced to have sex or perform unwanted sexual acts). The specific questions included in the domestic violence module can be found in Appendix B.

The CDHS 2000 was the first ever nationally representative survey that was conducted in Cambodia to collect information on population and health issues. Its main purpose was to provide updated data on mortality rates (infant and maternal), fertility preferences, reproductive health, marriage, nutrition, women's status, HIV/AIDS, and domestic violence to the Cambodian Ministry of Health, Cambodian Ministry of Planning (MoP), and other institutions. Cambodia used this new information to assist the country's policy-making decisions, program evaluations, and development at the national and local levels of government (National Institute of Statistics *et al.*, 2001).

Before performing the analyses, the data was cleaned up and narrowed to acquire the appropriate sample. The subpopulation of interest are married women who were (1) selected to answer the domestic violence module and (2) answered survey questions regarding current contraceptive use. Therefore, single and divorced/widowed women, women who were not selected to participate in the violence module, and women who did not respond to questions regarding their status of contraceptive use were excluded from this analysis. The sample is further restricted to women who answered survey questions regarding their spouse's controlling behaviors, as well as their own decision-making power. Subsequently, the sample that is left for analysis becomes 1911

women in 2000 and 3029 in 2014, from ages 16-49. It should be noted that all data used in this analysis, including questions regarding spouses, are self-reported by women.

Table 1 shows descriptive statistics for these two samples. According to the data, the average Cambodian woman from the sample in 2000 is 34 years old, with a likelihood of having attended primary education or having had no education, lives in a rural region, earns cash (as opposed to not earning cash), has approximately 1.8 living children, and is not likely to have had a terminated pregnancy. On the other hand, the average Cambodian woman from the 2014 sample is 33 years old. Compared to 2000, this woman has a higher likelihood of having attended secondary education or primary education, still lives in a rural region, earns cash, has 1.4 living children instead of 1.8, and though still unlikely to have had a terminated pregnancy, there is a slight increase of having had one.

Table 1. Descriptive Statistics - Married Women (weighted)		
Variables	2000 (n=1912)	2014 (n=3029)
Contraceptive use		
Non-user (ref. cat.)	0.762	0.415
Current user	0.238	0.585
IPV experience (last 12 mo.)		
None (ref. cat.)	0.787	0.806
Any	0.213	0.194
Emotional violence	0.150	0.171
Physical violence	0.138	0.088
Sexual violence	0.028	0.037
Age	34.001	33.085
Highest edu. level attended		
No education (ref. cat.)	0.309	0.141
Primary	0.566	0.539
Secondary	0.123	0.301
Higher	0.002	0.019
Residence		
Rural (ref. cat.)	0.846	0.853
Urban	0.154	0.147
Earnings		
Not cash (ref. cat.)	0.726	0.290
Cash	0.274	0.710
No. of living children	1.828	1.430
Years married	14.543	13.078
Wealth quintile		
Poorest (ref. cat.)	0.192	0.191
Poorer	0.210	0.188
Middle	0.207	0.211
Richer	0.194	0.204
Richest	0.197	0.206
Spouse's age	37.035	36.175
Spouse's highest edu. level attended		
No education (ref. cat.)	0.144	0.094
Primary	0.555	0.455
Secondary	0.295	0.396

Higher	0.006	0.054
Spouse drinks alcohol		
No (ref. cat.)	0.318	0.152
Yes	0.682	0.848
No. of spouse's controlling behaviors		
0 (ref. cat.)	0.733	0.756
1-2	0.186	0.195
3+	0.081	0.050
Woman's decision-making power		
Low: 1-2 (ref. cat.)	0.194	0.094
High: 3	0.806	0.906
Ever had a terminated pregnancy		
No (ref. cat.)	0.792	0.686
Yes	0.208	0.314

Data source: CDHS 2000 and 2014. Author's calculations, weights were applied.

Several features are important to note from Table 1. First, a large increase is seen in contraceptive use among married women from 2000 to 2014 (24% to 59%). Second, there is a slight decrease in the share of women in the sample who have experienced any form of IPV in the past 12 months; however, there is a slight increase in the share of women who have reported emotional or sexual IPV in the past year. The only form of IPV that has decreased in prevalence is physical IPV. A shift in wealth distribution is seen from 2000 to 2014. The share of women in the poorer wealth quintile has trickled into the middle, richer, and richest quintiles over the years. The average age of the spouse is 37 years old in 2000 and 36 in 2014, with fewer years of marriage on average in 2014 than in 2000. The proportion of spouses with primary education and above as their highest level of education attended is increasing; this increase is particularly concentrated in the attendance of secondary education. Interestingly, the proportion of spouses that consume alcohol has increased from 68% to 85%, which may be attributed to the economic growth of the country. There is also a higher proportion of women in 2014 than in 2000 whose spouses do not practice any controlling behaviors and whose spouses practice 1 to 2 controlling behaviors. A slight decrease is shown in the proportion of women who encounter 3 or more controlling behaviors from their spouses in 2014. Further, there is an increase in woman's decision-making power in 2014, though slight compared to 2000. The variables seen in Table 1 and their significance to the analysis will be elaborated on in the following subsection.

6.1 Variables

The primary dependent variable of this study is *current contraceptive use* among married women in Cambodia of childbearing ages. Women who responded that they were contraceptive users were further asked to specify the method in use at the time of survey— modern (daily and monthly pills, injections, intrauterine devices (IUD), male and female condoms, implants, the lactational amenorrhea method (LAM), and emergency contraception), traditional (periodic abstinence and withdrawal), or folkloric (herbal plants and other). However, this analysis will not be differentiating between method-type and will only take into account if the respondent is a user or a non-user. The primary independent variable is the *occurrence of any type of IPV* in the last 12 months before the survey. The variable is labeled 0 if the woman reported no emotional, physical, or sexual abuse in the past year, and 1 if the woman reported at least one incident of

IPV in the past year. The secondary independent variables of interest are the individual IPV types – *emotional, physical, and sexual IPV*. Similarly, it will take on the value of 0 if the woman has not encountered the certain IPV type and 1 if she has in the past 12 months. The results can be found in Tables 4 and 5 in Appendix B.

Covariates found in the final model (Model 5) are described below:

- *Age*: This is an essential demographic variable when conducting analyses with a population sample. Previous literature generally theorized IPV prevalence to increase with age, as this implies a longer period of exposure to the risk of abuse (Kishor and Johnson, 2004). On the other hand, McCloskey (1996) and Macmillan and Gartner (1999) argued that a status inconsistency may put women at a higher risk of abuse from their spouses. Although not discussed in this study, Barbieri and Hertrich (2005) also examined the effect of an age difference between partners on contraceptive use. They found that the closer couples were in age, modern contraception was most commonly used. On the other hand, women wedded to older men were less likely to use contraceptives. They argued that the age difference, where the male is older, leads to a disadvantage for women's decision-making power.
- *Highest education level attended*: The Statistics Bureau of Japan (no date) found that literate women in Cambodia were associated with lower fertility compared to their illiterate counterparts; fertility decreased further among literate women with higher levels of educational attainment. Yount and Carrera (2006) found that a wife that is less educated than her spouse may be more at risk of experiencing physical and psychological IPV. According to Vyas and Watts (2009), women with higher educational attainment in low- and middle-income countries are less likely to experience IPV than women with low educational attainment. This categorical variable is labeled 0 if the respondent has no education and 1 to 3 if the highest level of education the individual has attended is either primary, secondary, or higher, respectively.
- *Urban*: Kishor and Johnson (2004) mention in their findings that non-Western women who reside in rural areas have a lower risk of wife abuse than women who reside in urban areas. Since the poverty rate is higher in rural regions than in the urban regions for Cambodia, accessibility to certain institutions regarding education and health care may differ depending on the area of residence (ADB, 2015). Loun *et al.*, (2013) found that women who resided in the urban areas of Cambodia, such as Phnom Penh, were slightly more likely to use any contraceptive method. For this study, women who reside in the rural regions are marked with 0 and those who reside in urban regions are marked with 1.
- *Cash earnings*: There are several forms of earnings that working women receive in Cambodia– in kind, in cash and kind, or in cash. This variable is coded 0 if women do not receive any sort of monetary compensation and 1 if women receive monetary compensation, even if with kind. Kishor and Johnson (2004) found mixed results concerning the association between cash earnings and IPV experience among women. While cash-earning women in Egypt experienced less physical IPV, the same category of women experienced more physical violence in Indian and Peru. They further found that earning cash was positively associated with physical and sexual IPV among women in Colombia, Dominican Republic, and Nicaragua. In the Cambodian context, Yount and Carrera (2006) found that women are more at risk of experiencing IPV if they are financially dependent on their spouse; thus, Cambodian women who do not earn cash may be more financially dependent on their spouses and more at risk.
- *Number of living children*: Married women with a higher parity, compared to women with no children, are more at risk of IPV experience, particularly physical IPV (Yount and

Carrera, 2006). Previous research has also shown that there is a positive association between women's parity and use of contraceptives (Khan *et al.*, 2007), and this is consistent in the case of Cambodia (Samandari *et al.*, 2010). Therefore, it is an important variable to add to the model.

- *Years married*: Kishor and Johnson (2004) found a significant relationship between marital duration and IPV prevalence for ever-married women in Cambodia. Compared to women with a longer marital duration (5 more years), women with a shorter marital duration (0-4 years) were less likely to report any experience of abuse. The longer a couple had been married, the longer a partner is exposed to the possibility of being abused.
- *Wealth quintile*: The household wealth index is created by DHS using various household assets and material living standards in the context of Cambodia. Ownership of household items such as a car, television, or bicycle are taken into consideration, as well as household features such as flooring and roofing, electricity, type of drinking water, or hygiene facilities (National Institute of Statistics, 2015). Kishor and Johnson (2006) found that wealth is significantly associated with violence within the household, though the association may vary by country. In low- and middle-income countries, Vyas and Watts (2009) found that more household assets were associated with an increase in protection against IPV occurrence. Moreover, Sedgh and colleagues (2016) found household wealth in developing countries to be associated with contraceptive use, specifically the unmet need for contraception. Women who were labeled *poorest* or *poorer* experienced a greater unmet need of contraceptives than those of higher wealth quintiles.
- *Spouse age*: With the end of the Khmer Rouge regime, the excess mortality of men altered the population structure and altered the composition of married couples; age differentials between couples narrowed compared to previously. See the description of the *Age* variable above for an explanation regarding the impact of a couple's age differentials on the risk of IPV and contraceptive use (McCloskey, 1996; Macmillan and Gartner, 1999; Barbieri and Hertrich, 2005).
- *Spouse's highest educational level attended*: According to the findings of Blackstone (2016), a spouse's educational attainment is found to be positively associated with a woman's contraceptive use. Akin and Ozaykin (2005) also found that men's education influences their gender ideologies and found that men's negative attitudes toward abuse have a positive impact on couple's contraceptive use. This variable is labeled 0 if the spouse has no education, 1 if the spouse's highest educational level attended is primary education, 2 if secondary education is the highest, and 3 if the spouse has attended higher.
- *Woman's decision-making power*: This dummy variable consists of several survey questions: (1) final say on own health care; (2) final say on making large household purchases; and (3) final say on visits with friends and relatives. These were chosen to create this variable because they were the only three questions consistent across both surveys. The variable is labeled 0 for low decision-making power, if the woman is able to participate in making 0-2 decisions, and 1 for high decision-making power if the woman has a say in all 3 decisions. It can be argued that women with less decision-making power may be more dependent on their spouses (by choice or by force) and thus, may be more vulnerable to realizing their spouses' preferences over theirs. Furthermore, previous studies have found that women's household and economic decision-making is positively associated with contraceptive use (Yount and Carrera, 2006; Do and Kurimoto, 2012; Blackstone, 2016).
- *No. of spouse's controlling behaviors*: Several questions from the domestic violence module were used to create this variable of controlling behavior: (1) husband get jealous if their

partner is talking with other men; (2) husband accuses their partner of unfaithfulness; (3) husband does not permit their partner to meet her girl friends; (4) husband tries to limit contact with their partner's family; (5) husband insists on knowing where she is; and (6) husband doesn't trust her with money. If none of these apply to the women, they are labeled 0, 1 if the spouse practices 1-2 of the aforementioned controlling behaviors, and 2 if the spouse practices 3 or more of the controlling behaviors. This variable is created based on CDHS summary reports (National Institute of Statistics, 2001; —2014). Eng and others (2010) found that greater spousal control in Cambodia was positively associated with physical and sexual violence; thus, if violence is negatively associated to contraceptive use, as was hypothesized in this study, then greater spousal violence is also expected to be negatively associated with contraceptive use. The variable of spousal control used by Eng and colleagues is similar to this variable but comprises only of questions (1)-(3).

- *Ever had a terminated pregnancy*: Previous literature has found a positive impact of domestic violence on unintended pregnancies (Elouard *et al.*, 2018; Gomez, 2011; Nguyen *et al.*, 2012); hence, pregnancy termination is a variable of interest in this analysis. Previous research has also observed a positive effect of having terminated a pregnancy on post-termination contraceptive use (Delvaux *et al.*, 2008; McDougall *et al.*, 2009). This variable was included to explore the relationship between having had a terminated pregnancy and current contraceptive use among married women in Cambodia. It is labeled 0 if women have not experienced a terminated pregnancy and 1 if they have.

7 Methodology

First, descriptive statistics were calculated from the study sample of married Cambodian women. This was done for both CDHS 2000 and CDHS 2014 (Table 1). For the sake of analysis, appropriate sampling weights were applied to adjust to features of the DHS data. The weights are unique to each survey and are used to allow for the sample data to become nationally representative of the whole population. Domestic violence module weights were used in all calculations for the data. Next, the same multivariate logistic regressions were estimated to obtain comparable results for the two data sets.

Logistic models estimate the probability of an event occurring only between 0 to 1 (Verbeek 2012, pp.262); this is unlike linear models which can estimate probabilities that are smaller than 0 or larger than 1. The logistic distribution function, with $w = x_i'\beta$, is given by:

$$F(w) = \frac{e^w}{1 + e^w}$$

The models used to compare the two cross-sections in this thesis are multivariate logistic models with the following specifications:

$$y_i = \beta_1 x_{iIPV} + X_i'\beta + u_i,$$

where y is the likelihood of current contraceptive use among married women in Cambodia (0 for non-user and 1 for current use regardless of contraceptive method), x_{iIPV} is if the individual has experienced some form of IPV a year prior to the survey and is also the independent variable, vector $X_i'\beta$ contains the control variables for an individual, married women i , and lastly, the error term is u_i .

The control variables found in the vector $X_i'\beta$ have been previously mentioned in detail and include: *age, highest education level attended, place of residence (urban or rural), cash earnings, number of living children, years married, household wealth quintile, spouse's age, spouse's highest education level attended, number of spouse's controlling behaviors, woman's decision-making power, and ever had a terminated pregnancy.*

Instead of interpreting log coefficients, the odds ratios are calculated and interpreted. Odds ratios for logistic regressions explain the effect of a predictor X , which is held constant regardless of values taken by the other variables in a model, on the likelihood that an event will occur (Verbeek 2012, pp.263). The fact that these variables are held constant is an important feature of odds ratios. Additionally, the effect of the selected variables on the outcome are individually distinct. The log odds ratio is expressed as follows:

$$\log \frac{p_1}{1 - p_1} = x_i'\beta$$

8 Results

Results from a series of stepwise logistics regressions are presented in Table 2 (CDHS 2000) and Table 3 (CDHS 2014). For both 2000 and 2014, the women's age (OR=1.558 and OR=1.636, respectively), cash earnings (OR=1.480 and OR=1.379), and number of living children (OR=1.782 and OR=1.915) were significant and had a positive impact on contraceptive use. Women who dwelled in urban regions showed a higher likelihood of contraceptive use in 2000 (OR=1.480), where in 2014, the place of residence did not have an effect. On the other hand, wives' highest educational attainment, spouses' age and years married had significant effects on women's contraceptive use only in 2014. Primary education and secondary education as one's highest educational attainment positively influenced contraceptive use (OR=1.575 and OR=2.157). Additionally, in 2014, each increase in spouse's age was marginally associated with lower odds of the wife's current use of contraception (OR=0.978), and each increase in years married is associated with slightly higher odds of contraceptive use among women (OR=1.075). The wealth index seemed to significantly and positively influence contraceptive use of only the richest married women in 2000 (OR=1.643), whereas the household wealth had no effect on contraceptive use among women in 2014. Having a spouse that has attended secondary education as their highest level of education positively affected contraceptive use only in 2000. Moreover, there was a negative relationship between experiencing IPV in the past 12 months and contraceptive use in 2000 (OR=0.748). The association was insignificant in 2014.

The findings from the final model in CDHS 2000 (Table 2, Model 5) suggest that the more controlling behaviors a spouse utilizes, the higher likelihood his wife will use contraceptives. Relative to no controlling behaviors taken by the spouse, 1-2 increases the likelihood of contraceptive use by an odds ratio of 1.417. If 3 or more controlling behaviors are practiced by the husband, this increases to 2 times the likelihood of contraceptive use among wives (OR=2.047). This variable, along with woman's decision-making power, shows no impact on contraceptive use in 2014 (Table 3, Model 5). A woman's decision-making power also showed no significant effect in 2000. Lastly, having had a terminated pregnancy increases the likelihood of current contraceptive use among married women in Cambodia in 2000 only (OR=1.654).

Studies have argued for substance abuse to be a determinant of IPV occurrence and possibly affecting contraceptive use indirectly; however, this paper was unable to find conclusive evidence linking a spouse's consumption of alcohol to a woman's contraceptive use in Cambodia for 2000 and 2014. The results can be found in Table 6 in Appendix B.

Table 2. CDHS 2000 odds ratios for any IPV experience (last 12 mo.)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Outcome: Contraceptive use										
Age	1.584***	(0.136)	1.587***	(0.137)	1.596***	(0.136)	1.587***	(0.136)	1.558***	(0.133)
Age ²	0.993***	(0.001)	0.993***	(0.001)	0.993***	(0.001)	0.993***	(0.001)	0.993***	(0.001)
<i>Highest edu. level attended (ref. No edu)</i>										
Primary	0.921	(0.146)	0.922	(0.147)	0.906	(0.143)	0.913	(0.144)	0.891	(0.140)
Secondary	1.064	(0.261)	1.061	(0.260)	1.049	(0.258)	1.058	(0.259)	1.075	(0.265)
Higher	0.906	(1.068)	0.921	(1.095)	0.789	(0.856)	0.844	(0.896)	0.970	(1.048)
Urban	1.634***	(0.267)	1.630***	(0.266)	1.625***	(0.265)	1.640***	(0.268)	1.548***	(0.257)
Cash earnings	1.571***	(0.252)	1.573***	(0.252)	1.533***	(0.247)	1.520***	(0.245)	1.480**	(0.236)
No. of living children	1.736***	(0.181)	1.740***	(0.181)	1.738***	(0.181)	1.753***	(0.184)	1.782***	(0.187)
Spouse's age	1.000	(0.014)	1.000	(0.014)	1.000	(0.014)	1.000	(0.014)	0.998	(0.014)
<i>Spouse's highest edu. level attended (ref. No edu)</i>										
Primary	1.236	(0.248)	1.233	(0.248)	1.269	(0.256)	1.260	(0.255)	1.249	(0.255)
Secondary	1.822**	(0.429)	1.814**	(0.428)	1.888***	(0.442)	1.868***	(0.438)	1.881***	(0.440)
Higher	1.573	(1.276)	1.568	(1.280)	1.614	(1.278)	1.667	(1.351)	1.772	(1.387)
Years married	0.989	(0.020)	0.989	(0.020)	0.986	(0.020)	0.986	(0.020)	0.982	(0.019)
<i>Wealth index quintile (ref. Poorest)</i>										
Poor	0.874	(0.190)	0.873	(0.190)	0.849	(0.184)	0.842	(0.182)	0.829	(0.178)
Average	1.435*	(0.293)	1.431*	(0.293)	1.407	(0.291)	1.400	(0.290)	1.398	(0.292)
Richer	1.513*	(0.378)	1.509*	(0.376)	1.499	(0.377)	1.505	(0.379)	1.493	(0.380)
Richest	1.724**	(0.438)	1.721**	(0.437)	1.677**	(0.425)	1.689**	(0.428)	1.716**	(0.435)
IPV experience (last 12 mo.)			0.942	(0.139)	0.770*	(0.121)	0.773	(0.121)	0.748*	(0.119)
<i>No. of controlling behaviors taken by spouse (ref. 0)</i>										
1-2					1.411**	(0.238)	1.430**	(0.242)	1.417**	(0.241)
3+					2.148***	(0.469)	2.154***	(0.470)	2.047***	(0.457)
Woman's decision-making power							1.199	(0.215)	1.257	(0.227)
Ever had a terminated pregnancy									1.654***	(0.277)
Observations	1912		1912		1912		1912		1912	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

Table 3. CDHS 2014 odds ratios for any IPV experience (last 12 mo.)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Outcome: Contraceptive use										
Age	1.622***	(0.084)	1.621***	(0.084)	1.628***	(0.084)	1.628***	(0.084)	1.636***	(0.085)
Age²	0.992***	(0.001)	0.992***	(0.001)	0.992***	(0.001)	0.992***	(0.001)	0.991***	(0.001)
Highest edu. level attended (ref. No edu)										
Primary	1.575***	(0.263)	1.577***	(0.264)	1.573***	(0.262)	1.571***	(0.262)	1.575***	(0.262)
Secondary	2.163***	(0.483)	2.172***	(0.489)	2.167***	(0.487)	2.161***	(0.485)	2.157***	(0.482)
Higher	1.512	(0.675)	1.515	(0.678)	1.507	(0.672)	1.517	(0.675)	1.500	(0.671)
Urban	1.255	(0.220)	1.254	(0.219)	1.236	(0.218)	1.228	(0.221)	1.239	(0.224)
Cash earnings	1.369**	(0.169)	1.372**	(0.169)	1.368**	(0.169)	1.372**	(0.169)	1.379***	(0.170)
No. of living children	1.922***	(0.200)	1.920***	(0.200)	1.911***	(0.200)	1.911***	(0.200)	1.915***	(0.200)
Spouse's age	0.978*	(0.011)	0.978*	(0.011)	0.978**	(0.011)	0.978**	(0.011)	0.978*	(0.011)
Spouse's highest edu. level attended (ref. No edu)										
Primary	0.875	(0.167)	0.876	(0.168)	0.879	(0.168)	0.877	(0.168)	0.878	(0.168)
Secondary	1.083	(0.234)	1.087	(0.235)	1.090	(0.235)	1.088	(0.234)	1.091	(0.234)
Higher	0.814	(0.275)	0.821	(0.277)	0.830	(0.279)	0.822	(0.275)	0.829	(0.279)
Years married	1.070***	(0.020)	1.070***	(0.020)	1.071***	(0.020)	1.071***	(0.020)	1.072***	(0.020)
Wealth index quintile (ref. Poorest)										
Poor	1.134	(0.187)	1.134	(0.188)	1.137	(0.187)	1.138	(0.187)	1.143	(0.188)
Average	0.983	(0.173)	0.986	(0.174)	0.996	(0.175)	0.997	(0.175)	1.002	(0.177)
Richer	0.981	(0.185)	0.984	(0.185)	0.990	(0.185)	0.992	(0.185)	0.994	(0.185)
Richest	1.306	(0.308)	1.311	(0.307)	1.320	(0.309)	1.320	(0.309)	1.326	(0.309)
IPV experience (last 12 mo.)			1.058	(0.154)	1.003	(0.158)	1.003	(0.158)	1.010	(0.160)
No. of controlling behaviors taken by spouse (ref. 0)										
1-2					1.146	(0.151)	1.145	(0.151)	1.154	(0.151)
3+					1.173	(0.338)	1.165	(0.339)	1.178	(0.344)
Woman's decision-making power							0.934	(0.162)	0.924	(0.161)
Ever had a terminated pregnancy									0.898	(0.107)
Observations	3029		3029		3029		3029		3029	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

7.1 Revisiting hypotheses

H1. *Married women who have experienced any form of IPV in the last 12 months are less likely to use contraceptives. This effect is greater in 2000 than in 2014.*

The findings in Table 1, Model 5, show a negative relationship between IPV experience and contraceptive use in 2000. Married women in Cambodia who had experienced any form of IPV in the past year was approximately 25% less likely to be using contraceptives than their counterparts who had not experienced any IPV within the past year. This is consistent with the previous literature which generally found a negative relationship between domestic violence and contraceptive use among women.

In 2014, the impact of IPV experience in the last 12 months on contraceptive use proved insignificant. Different forms of IPV were included in a separate analysis to examine if they independently affected contraceptive use; though, the effects of emotional violence, physical violence, and sexual violence alone on contraceptive use were insignificant for both years (Table 4-5, Appendix B).

H2. *Married women who have higher decision-making power also have a higher likelihood of contraceptive use. This effect is greater in 2000 than in 2014.*

According to previous literature, a woman's decision-making is often associated with women holding a higher socioeconomic status, which also is attributed to a higher likelihood of contraceptive use (Dingle *et al.*, 2013). However, this study does not have enough evidence to conclude a positive association between a woman's decision-making power and her contraceptive use. The effect of decision-making on the likelihood of contraceptive use remained insignificant with models that included separate forms of IPV as well (Tables 4-5, Appendix). Therefore, this hypothesis must be rejected for both 2000 and 2014 since a woman's decision-making power had no significant impact on contraceptive use. Results were consistent when contraceptive use was regressed on different forms of IPV for both years.

Table 7 in Appendix B shows the alternative output of Model 5 when *woman's decision-making power* is categorized differently but formed using the same survey questions—0 if no decision-making, 1 if the woman had power over 1-2 decisions, and 2 if the woman had power over all 3 decisions. This variable shows that women who had the final say on 1-2 decisions out of 3 (on her own health care, on large household purchases, or on visits to family and relatives), had 4.34 higher odds of using contraception compared to those who had no say in these decisions. Furthermore, women who had the final say on all 3 of the decisions were 5.27 times more likely to use contraception. The number of decisions women were able to make, however, remained insignificant in 2014. The effects of different forms of IPV on contraceptive use showed similar findings for 2000 and 2014 (Table 4-5 in Appendix B). The odds of contraceptive use among married women increased as more decisions were made jointly or fully by the women. Table 7 was not used as part of the main analysis due to the insufficient amount of observations in the reference category (1.2%-1.3% of the sample) of the *woman's decision-making power* variable. The reference group was too small to make a proper comparison between groups.

H3. *Women with husbands that utilize more controlling behaviors are less likely to use contraceptives. This effect is greater in 2000 than in 2014.*

Spouses that tend to control their partners may be more likely to also control their partner's reproductive health choices such as contraceptive use; thus, it was expected that women with husbands that utilize more controlling behaviors have a lower likelihood of current contraceptive use. The analysis found that in 2000, women whose spouses showed 1-2 controlling behaviors were associated with higher odds of current contraceptive use (OR=1.306), relative to having spouses with no controlling behaviors. Women with spouses that showed at least half of the 6 controlling behaviors experienced even higher odds of contraceptive use compared to the same reference group (OR=1.750). Hence, this hypothesis must be partially rejected, as men's controlling behaviors on women's contraceptive use showed no significant impact in 2014. Moreover, the negative relationship that was expected was a positive one. When contraceptive use was separately regressed on emotional IPV, physical IPV, and sexual IPV (Tables 3-4 in Appendix B), the direction and magnitude of the findings were similar to the final models (Table 1-2, Model 5) in both 2000 and 2014

H4. *Married women who have had a terminated pregnancy have a higher likelihood of contraceptive use.*

According to Delvaux and colleagues (2008) and McDougall and colleagues (2009), women are more likely than not to start using contraceptives after having had a terminated pregnancy. This study has found evidence of a positive association between terminated pregnancies and contraceptive use in 2000 only. However, since this analysis does not include when a pregnancy was terminated and when contraceptives were first used, causality cannot be assessed.

8.1 Discussion

Several questions developed after reviewing the results:

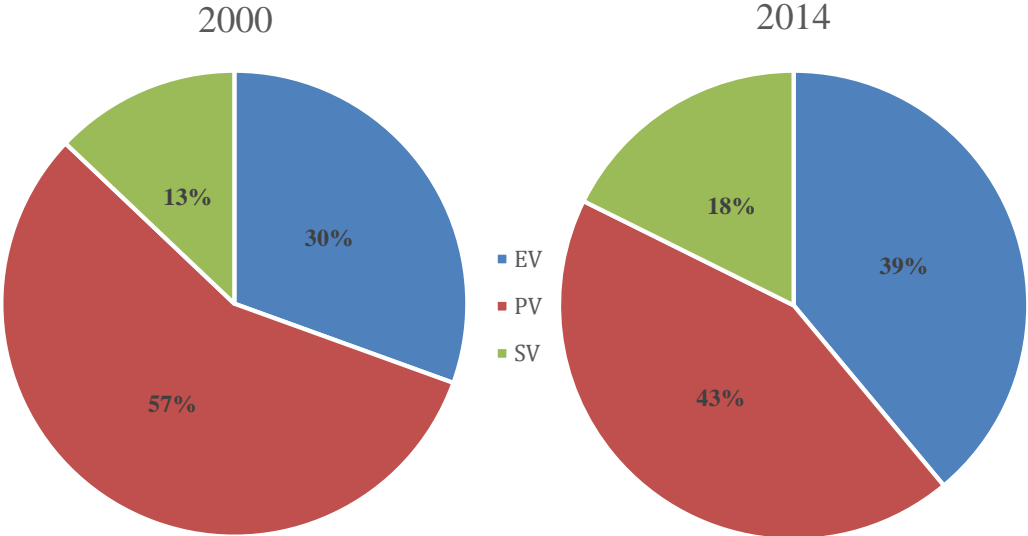
Do the findings support theories or previous literature?

In accordance to previous literature, this study found a negative relationship between IPV and contraceptive use among Cambodian women; though, this was only the case in 2000 and not 2014. The relationship found between the following covariates and contraceptive use in 2000 were also consistent with earlier studies: (positive) *spouse's highest educational level attended, urban residence, wealth quintile (richest), woman's decision-making power* (Table 7), and *have experienced a terminated pregnancy*. In 2014, *(respondent's) highest educational level attended* was found to be positively associated with contraceptive use – consistent with previous literature. A longer marital duration was also positively associated with contraceptive use as well; however, it could be argued that this is inconsistent with the previous literature since marital duration was expected to be negatively associated with the use of contraception, due to its negative relationship with IPV (Kishor and Johnson, 2004). Lastly, *age, number of children, and cash earnings* were positively associated with the dependent variable, *contraceptive use (in the past 12 months)*, for both years – again, in accordance to previous research.

Furthermore, the average prevalence of any form of IPV in the past 12 months has decreased from 2000 to 2014 (Table 1). As physical violence decreased in mean prevalence from 2000 to 2014, emotional IPV increased noticeably and sexual IPV increased slightly (Figure 4). The shift in most prevalent form of IPV, from physical IPV to emotional IPV, was to be expected. Eng

and colleagues (2010) and Yount and Carrera (2006) found that women’s empowerment is associated with emotional violence. According to the resource theory, men, particularly those with the fewest resources, view violence as an alternative resource to maintain dominance in the relationship and gain compliance from their partners. Men may have more difficulty in maintaining a patriarchal relationship if the women receive more education, income, or other resources relative to theirs. The empowerment of women is associated with an increase of women’s autonomy and enables women to be less dependent of their spouses. Therefore, men

Figure 4. Type of IPV experienced by married women in the past 12 months.



Note: EV – emotional violence, PV – physical violence, SV – sexual violence
 Data source: CDHS 2000 and 2014. Author’s calculations, weights were applied.

may become more emotionally abusive, rather than physically abusive, towards their partners to maintain authority in a different way.

While many Cambodians are not completely informed of the DV law enacted in 2005, perhaps the ratification of this law could have had some influence in this shift as well. Though, Eng and colleagues (2010) found that emotional violence is strongly linked to physical violence, emotional violence may be more difficult to prove. Conversely, the aftermath of physical abuse may be more visible to others. Women in Cambodia who have experienced emotional IPV are not safe from also experiencing physical IPV in the future.

Why are various determinants of contraceptive use significant in 2000 and not in 2014?

Compared to 2000, married women of childbearing age in Cambodia had a higher average of contraceptive use, level of education attended, women earning cash, and decision-making power by 2014. The average number of spouse’s controlling behavior slightly diminished as well. Besides the increase in average occurrences of emotional IPV, as previously mentioned, these may be indicators of a society that is becoming more culturally progressive. Controlling behaviors of men toward their partners may have also had a larger impact on contraceptive use in 2000

than in 2014 due to cultural norms. Since Cambodia is perceived as a patriarchal society, men generally have influence over the activities of women. While women are often expected to be submissive to their spouses, women who are able to finalize more decisions jointly or by themselves may be considered more empowered or non-traditional. Approximately 96% of women knew of a contraceptive method by 2000 (National Institute of Statistics *et al.*, 2001); yet, actual use of contraceptive methods remained low (24%). While there have been several improvements from 2000 to 2014 seen in several demographical variables for married women in Cambodia (Table 1), it can be argued that Cambodia is progressing toward a more non-traditional society. One such improvement was the increase in current contraceptive use by married women in Cambodia. This growth may be accredited to the contraceptive revolution experienced within the country. As seen in Figure 2 and 3, the frequency of contraceptive use has not only increased, but has become more widely distributed among women who have varying household wealth and highest educational attainment.

Why does an increase in the number of controlling behaviors exhibited by the spouse suggest a higher likelihood of contraceptive use in 2000 (Table 2)?

Alio and others (2009) suggested several reasons as to why the experience of IPV may have increased the likelihood of contraceptive use among women in several Sub-Saharan countries. First, it should be noted that since *spouse's controlling behaviors* was referred to by a DHS analytical report (MacQuarrie *et al.*, 2016) on IPV and DWSIN as *marital control*, a form of IPV in addition to physical, sexual, and emotional, *spouse's controlling behaviors* and *marital control* will be used analogously for this discussion. Foremost, women may not want to become pregnant during times of difficulty. Previous literature has found that women who have reported IPV experience were more likely to have terminated a pregnancy (Nguyen *et al.*, 2012). Second, women increase their use of contraceptives with IPV experience to protect themselves from becoming infected with HIV/AIDS. Though a possible explanation for the context of Cambodia, it is not the most likely due to the low prevalence of condom use— 1% in 2000 out of the total proportion of contraceptive use among married women and 2% in 2014. In 2000, however, after almost a decade after the first discovery of the HIV virus in Cambodia, the country became the fastest growing HIV/AIDS case in Asia (USAID, 2001).

Reed and colleagues (2016) argued for a different explanation. They suggested that the increase in likelihood of contraceptive use among women with any form of IPV experience can be explained by the increase in women using female-controlled contraceptives without their spouse's knowledge. In patriarchal societies, such as Cambodia, a woman's reproductive behavior can often be controlled and manipulated by their spouse with the use of violence; as a result, this can be considered one approach taken by women to counteract the men's dominance over her fertility. Reed's reasoning is plausible in the context of Cambodian women. Injectables were the most popular contraceptive method by married women in 2000 according to the CDHS 2000 (modern, 7%). This was followed by the daily pill (modern, 5%). Both of these methods are female-controlled and can be taken without the husband's knowledge. In 2014, daily pills became the most popular contraceptive method in use (modern, 18%), followed by withdrawal (traditional, 15%), and injectables (modern, 9%) (National Institute of Statistics *et al.*, 2015). Although withdrawal is not a female-controlled contraceptive method, the others are. Therefore, the argument provided by Reed and others is a possible explanation of the increased likelihood of contraceptive use among married women who have experienced IPV in the past year.

8.2 Limitations

This study contains several limitations. First, due to the cross-sectional nature of the data, the causal direction of the relationship between IPV experience and contraceptive use cannot be determined. The temporal aspect of longitudinal studies becomes essential for future studies in determining the presence of causation. Again, one must note that the data used in this analysis are completely based on self-reported responses of the women; this includes all information used on spouses. Therefore, false reporting may be plausible. The inclusion of data reported by the spouse on their perspectives may be useful in future research for a more accurate understanding of the household and social context from both sides.

Second, the ambiguity concerning reported accounts of domestic violence in Cambodia is of concern. Differing values have been reported for domestic violence in Cambodia throughout the 2000s according to HRN (2011). Some NGOs, for example the Cambodian League for the Promotion and Defense of Human Rights (LICADHO), stated an incremental increase in reported cases of domestic violence from 75 in 2000 to 220 in 2006 (HMR, 2000, p. 9). Another NGO, the Cambodian Association for Human Rights and Development (ADHOC), conducted an independent survey with the same findings as well (HMR, 2000, p. 9). In 2005, 364 domestic violence cases were reported; in 2006, 531 were reported in which 501 of those reported injured victims. Most victims in both years seemed to have been injured; though, 30 cases reported the death of victims. This number remained constant in the two years in which the survey was conducted. Alternatively, in 2010 the Ministry of Women's Affairs in Cambodia concluded that the domestic violence cases have been decreasing based on several surveys: the Cambodian National Institute of Statistics and the Cambodian Demographic and Health Survey (CDHS). The CDHS (2000-2005) showed a 15.8% decrease of women who experienced domestic violence 12 months prior to the survey (HRN, 2011). The Commune Database complements the findings of the CDHS and shows a continued decrease of domestic violence cases from 2006-2009. Likewise, the findings of this study found an approximated 2% decrease in mean IPV from 2000 to 2014 among married women in Cambodia (Table 1).

Third, is purely the case of underreporting domestic violence occurrences. Due to the stigmatized nature of IPV and the privacy of the matter, many women underreport IPV occurrences to the local authorities. In some cases, women are said to only disclose the issue to family members (MoWA, 2009). Women who have endured domestic violence may very reasonably fear repercussions from their abuser compared to women who have never experienced any domestic violence; thus, women who are victims may be more hesitant to disclose their traumatic experiences themselves.

Fourth, is the inconsistency in what may be defined as emotional, physical, or sexual IPV across cultures (Alio *et al.*, 2009). Without universally-accepted definitions of IPV, results must be considered contextually. In the case of Cambodia, domestic violence is still widely tolerated, and women justify violence in many instances; thus, their idea, or what they define as violence, may be more severe compared to women in developed countries.

9 Conclusion

From 2000 to 2014, Cambodia seems to have experienced an overall decrease in IPV prevalence and a nationwide contraceptive revolution. This study found a significant negative association between IPV and contraceptive use in 2000 alone; hence, H1 is partially rejected. Since a *woman's decision-making* showed no effect on contraceptive use in 2000 and 2014, H2 is rejected. However, if Table 7 is taken into consideration, it can be argued that there was a positive association between a *woman's decision-making* and contraceptive use in 2000 but not in 2014.

Several other notable findings were discovered. One such finding was the change in association between *number of controlling behaviors taken by spouse* and contraceptive use from 2000 to 2014. Because the positive association in 2000 was insignificant in 2014, H3 must be partially rejected. The changes in significance between 2000 and 2014 can be explained by the overall increase in contraceptive use across the country during this period (Figure 1-3). Furthermore, having a terminated pregnancy was found in this analysis to be related to a higher likelihood of contraceptive use among married women in Cambodia. As this is consistent with previous literature, H4 must be accepted.

Numerous demographic characteristic variables showed significant associations with contraceptive use in 2000, while other variables showed significance in 2014. This illustrates the need to consider what factors are most influential to contraceptive use, and how the impact of those factors has changed and will change in significance, within the context of the country.

Another notable finding is the shift in the most common form of IPV encountered by married women in Cambodia. Although physical IPV was the most prominent form reported in 2000, by 2014, the average occurrence of physical IPV decreased and was surpassed by the prevalence of emotional IPV. There was also an increase in reported sexual IPV. The growth in incidents of emotional IPV may show an increase in women's egalitarian behaviors, found by Eng and colleagues (2010) to be associated with an increase in spouse's controlling behaviors. Men who have the need to maintain dominance in the household typically may use physical violence as a resource to do so; however, if the woman is more enabled and has more resources than the spouse, the spouse may assert their authority through verbal abuse (emotional). Nonetheless, the analysis obtained inconclusive evidence concerning the impact of experiencing an individual IPV form (emotional, physical, or sexual) within the past year on a woman's current use of contraception in Cambodia for 2000 and 2014 (Table 4-5).

This study has contributed to the literature by examining the relationship between IPV and contraceptive use among women in the context of Cambodia. Moreover, a comparison of this association between two time periods has not yet been done. This comparison has shown the change in influential determinants, with a specific focus on IPV, of a woman's contraceptive use in Cambodia over time.

9.1 Practical Implications

General IPV prevalence has slightly decreased in Cambodia but remains a major concern. This study has found that while physical IPV remains prevalent, more focus must be placed on intervention measures for emotional and sexual IPV in Cambodia. Moreover, it is crucial to understand that the relationship between IPV and contraceptive use is greatly based on the context, and intervention methods must also take this into consideration. Another crucial goal for Cambodian society would be to devalue patriarchy by empowering women and creating an environment where egalitarian behaviors are accepted and not stigmatized or punished. Since there is a larger proportion of children, and a growing portion of girls entering primary education, public schools are the perfect place to nurture future change in culturally embedded ideologies.

10 References

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11 Appendix A

Domestic Violence Module questions

Questions (a)-(g) concern the occurrence of physical IPV; questions (h) and (i) concern the occurrence of sexual violence; lastly, questions (j) and (k) concern emotional violence.

(Does/did) your (last) husband/partner ever:

- a) Push you, shake you, or throw something at you?
- b) Slap you or twist your arm?
- c) Punch you with his fist or with something that could hurt you?
- d) Kick you or drag you?
- e) Try to strangle you or burn you?
- f) Threaten you with a knife, gun, or other type of weapon?
- g) Attack you with a knife, gun, or other type of weapon?

(Does/did) your (last) husband/partner ever:

- h) Physically force you to have sexual intercourse with him even when you did not want to?
- i) Force you to perform other sexual acts you did not want to?

(Does/did) your (last) husband/partner ever:

- j) Say or do something to humiliate you in front of others?
- k) Threaten you or someone else close to you with harm?

Detailed explanation of geographical differences between CDHS 2000 and 2014

There are slight differences in geographical distinction, as well as differences in the number of stages in which the stratified sample was selected for both surveys. In CDHS 2000, data for 12 separate provinces (Banteay Meanchey, Kampong Cham, Pampong Chhnang, Kampong Speu, Kampong Thum, Kandal, Koh Kong, Phnom Penh, Prey Veng, Pursat, Svay Rieng, and Takaey) and 5 province groups (Battambang and Pailin; Kampot, Preah Sihanouk, and Kep; Kracheh, Preah Vihear, and Stung Treng; Modul Kiri, and Ratanak Kiri; and Otdar Meanchey and Siem Reap) were gathered. In CDHS 2014, Siem Reap and Otdar Meanchey were considered separate provinces and not a part of a group as in CDHS 2000; thus, there were 14 distinct provinces where surveys were conducted. Though, the 5 province groups slightly differ (Battambang and Pailin; Kampot and Kep; Preah Sihanouk and Koh Kong; Preah Vihear and Stung Treng; and Modul Kiri and Ratanak Kiri). Note that province names, and the spelling of them, have altered from 2000 to 2014 and this paper will use the most contemporary name. Compared to CDHS 2000, this survey selected its stratified sample in 2 stages and not 3.

12 Appendix B

Table 4. CDHS 2000 odds ratios for any IPV experience (last 12 mo.)

	EV		PV		SV	
Outcome: Contraceptive use						
Age	1.548***	(0.133)	1.550***	(0.132)	1.548***	(0.131)
Age²	0.993***	(0.001)	0.993***	(0.001)	0.993***	(0.001)
Highest edu. attainment (ref. No edu)						
Primary	0.894	(0.140)	0.887	(0.140)	0.895	(0.140)
Secondary	1.091	(0.268)	1.081	(0.267)	1.095	(0.270)
Higher	0.929	(0.986)	0.976	(1.057)	0.941	(0.997)
Urban	1.566***	(0.261)	1.568***	(0.260)	1.577***	(0.263)
Cash earnings	1.478**	(0.235)	1.475**	(0.236)	1.464**	(0.232)
No. of living children	1.769***	(0.186)	1.782***	(0.188)	1.765***	(0.185)
Spouse's age	0.999	(0.014)	0.999	(0.014)	0.999	(0.014)
Spouse's highest edu. attainment (ref. No edu)						
Primary	1.255	(0.252)	1.260	(0.256)	1.252	(0.251)
Secondary	1.898***	(0.440)	1.895***	(0.443)	1.894***	(0.439)
Higher	1.782	(1.378)	1.810	(1.414)	1.705	(1.304)
Years married	0.982	(0.019)	0.982	(0.019)	0.983	(0.019)
Wealth index quintile (ref. Poorest)						
Poor	0.832	(0.178)	0.826	(0.176)	0.835	(0.179)
Average	1.418*	(0.296)	1.386	(0.293)	1.433*	(0.300)
Richer	1.510	(0.384)	1.484	(0.378)	1.528*	(0.388)
Richest	1.735**	(0.440)	1.712**	(0.435)	1.754**	(0.445)
IPV experience (last 12 mo.)	0.966	(0.177)	0.769	(0.141)	1.303	(0.546)
No. of controlling behaviors taken by spouse (ref. 0)						
1-2	1.339*	(0.230)	1.379*	(0.234)	1.317*	(0.218)
3+	1.837***	(0.408)	1.974***	(0.438)	1.764***	(0.383)
Woman's decision-making power	1.263	(0.227)	1.256	(0.226)	1.278	(0.228)
Ever had a terminated pregnancy	1.630***	(0.273)	1.636***	(0.275)	1.628***	(0.272)
Observations	1912		1912		1912	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

Table 5. CDHS 2014 odds ratios for any IPV experience (last 12 mo.)

	EV		PV		SV	
Outcome: Contraceptive use						
Age	1.637***	(0.085)	1.640***	(0.085)	1.636***	(0.086)
Age²	0.991***	(0.001)	0.991***	(0.001)	0.991***	(0.001)
Highest edu. attainment (ref. No edu)						
Primary	1.574***	(0.261)	1.567***	(0.262)	1.575***	(0.261)
Secondary	2.155***	(0.482)	2.138***	(0.482)	2.157***	(0.479)
Higher	1.499	(0.671)	1.493	(0.669)	1.499	(0.669)
Urban	1.239	(0.224)	1.235	(0.225)	1.240	(0.224)
Cash earnings	1.378***	(0.170)	1.374**	(0.170)	1.378***	(0.170)
No. of living children	1.915***	(0.200)	1.915***	(0.200)	1.915***	(0.200)
Spouse's age						
Spouse's highest edu. attainment (ref. No edu)	0.978*	(0.011)	0.978*	(0.011)	0.978*	(0.011)
Primary	0.878	(0.168)	0.876	(0.166)	0.880	(0.170)
Secondary	1.090	(0.234)	1.085	(0.231)	1.093	(0.238)
Higher	0.828	(0.279)	0.822	(0.277)	0.831	(0.283)
Years married						
Wealth index quintile (ref. Poorest)	1.072***	(0.020)	1.072***	(0.020)	1.072***	(0.020)
Poor	1.143	(0.188)	1.137	(0.188)	1.144	(0.189)
Average	1.001	(0.177)	0.995	(0.177)	1.002	(0.177)
Richer	0.994	(0.185)	0.986	(0.183)	0.994	(0.185)
Richest	1.325	(0.309)	1.312	(0.303)	1.326	(0.310)
IPV experience (last 12 mo.)	0.993	(0.171)	0.855	(0.216)	1.054	(0.371)
No. of controlling behaviors taken by spouse (ref. 0)						
1-2	1.159	(0.150)	1.183	(0.149)	1.153	(0.144)
3+	1.187	(0.347)	1.256	(0.362)	1.171	(0.317)
Woman's decision-making power	0.925	(0.161)	0.934	(0.162)	0.924	(0.161)
Ever had a terminated pregnancy	0.899	(0.107)	0.902	(0.109)	0.899	(0.106)
Observations	3029		3029		3029	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

Table 6. Odds ratios for *Spouse drinks alcohol*

	2000		2014	
Outcome: Contraceptive use				
Age	1.580***	(0.136)	1.623***	(0.0842)
Age²	0.993***	(0.00125)	0.992***	(0.000751)
Highest edu. attainment (ref. No edu)				
Primary	0.920	(0.147)	1.578***	(0.264)
Secondary	1.069	(0.262)	2.185***	(0.492)
Higher	0.925	(1.124)	1.533	(0.684)
Urban	1.620***	(0.264)	1.251	(0.218)
Cash earnings	1.562***	(0.249)	1.372**	(0.169)
No. of living children	1.743***	(0.182)	1.926***	(0.201)
Spouse's age	1.000	(0.0142)	0.978**	(0.0112)
Spouse's highest edu. attainment (ref. No edu)				
Primary	1.231	(0.247)	0.876	(0.167)
Secondary	1.802**	(0.423)	1.089	(0.235)
Higher	1.654	(1.343)	0.821	(0.277)
Years married	0.988	(0.0198)	1.070***	(0.0200)
Wealth index quintile (ref. Poorest)				
Poor	0.879	(0.190)	1.129	(0.187)
Average	1.443*	(0.293)	0.978	(0.174)
Richer	1.534*	(0.382)	0.979	(0.184)
Richest	1.756**	(0.445)	1.305	(0.305)
IPV experience (last 12 mo.)	0.934	(0.138)	1.068	(0.154)
Spouse drinks alcohol	1.110	(0.168)	0.903	(0.139)
Observations	1911		3029	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

Table 7. Alternative Model 5 using ordered categorical variable for *woman's decision-making*

	Model 5			
	2000		2014	
Outcome: Contraceptive use				
Age	1.556***	(0.134)	1.637***	(0.0854)
Age²	0.993***	(0.001)	0.991***	(0.001)
Highest edu. attainment (ref. No edu)				
Primary	1.556***	(0.134)	1.637***	(0.0854)
Secondary	0.993***	(0.001)	0.991***	(0.001)
Higher	0.916	(0.998)	1.497	(0.669)
Urban	1.551***	(0.257)	1.232	(0.222)
Cash earnings	1.484**	(0.235)	1.378***	(0.170)
No. of living children	1.783***	(0.188)	1.915***	(0.200)
Spouse's age	0.999	(0.014)	0.978*	(0.011)
Spouse's highest edu. attainment (ref. No edu)				
Primary	1.259	(0.257)	0.878	(0.167)
Secondary	1.900***	(0.444)	1.090	(0.234)
Higher	1.748	(1.360)	0.829	(0.278)
Years married	0.980	(0.020)	1.072***	(0.020)
Wealth index quintile (ref. Poorest)				
Poor	0.836	(0.179)	1.144	(0.188)
Average	1.393	(0.291)	1.004	(0.178)
Richer	1.501	(0.382)	0.998	(0.186)
Richest	1.715**	(0.434)	1.327	(0.309)
IPV experience (last 12 mo.)	0.749*	(0.119)	1.009	(0.160)
No. of controlling behaviors taken by spouse (ref. 0)				
1-2	1.422**	(0.242)	1.155	(0.151)
3+	2.067***	(0.465)	1.175	(0.343)
Woman's decision-making power (ref. None: 0)				
Low: 1-2	4.845*	(4.587)	1.307	(0.648)
High: 3	5.792*	(5.448)	1.164	(0.537)
Ever had a terminated pregnancy	1.647***	(0.275)	0.896	(0.107)
Observations	1912		3029	

Note: Standard error in parentheses

*p<.10, **p<.05, *** p<.01

