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**STRUCTURAL VIOLENCE AND GENDER-BASED VIOLENCE IN THE UNITED
STATES**

by

Sarbinaz Bekmuratova

A DESSERTATION

Presented to the Faculty of
the University of Nebraska Graduate College
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Health Services Research, Administration & Policy
Graduate Program

Under the Supervision of Professor Li-Wu Chen

University of Nebraska Medical Center
Omaha, Nebraska

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STRUCTURAL VIOLENCE AND GENDER-BASED VIOLENCE IN THE UNITED STATES

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University of Nebraska Medical Center, 2017

ABSTRACT

Supervisor: Li-Wu Chen, Ph.D.

Three components of the dissertation project examined the relationship between three different constructs of structural violence and women's experience of different violence types in their lifetime in the United States. The violence types examined in the study included psychological aggression, coercive control and entrapment, physical violence, stalking, sexual violence, and rape. 2010 National Intimate Partner Violence and Sexual Violence Survey with the final sample size of 9,827 was used for all three portions of the study to analyze the association of structural violence with six types of violence. Additional datasets used were Institute for Women's Policy Research's Status of Women Project, the American Association of University Women, NARAL Pro-Choice America Foundation, the Guttmacher Institute, and United States Census Bureau's American Community Survey. A survey design was applied, and logistic regression analysis was performed with each violence type for all three parts of the study. The first research component aimed to examine the relationship between women's status at a state level and violence against women in the United States. The second study focused on the association between women's reproductive rights' status at a state level and violence against women in the United States. The third portion of the study examined the association between reproductive health care resources in a state and violence against women. These study results suggest that different types of women

experienced by women may be associated with different structural factors. It appears that political, legal and economic dimensions of women's status are significant factors associated with women's experience of violence types such as psychological aggression, coercive control and entrapment, and sexual violence in the United States. The study findings also suggest that there is an association between the ability of women to exercise their reproductive rights and the different types of violence experienced by women in those states. It appears that in states where women can exercise their reproductive freedom, they are less likely to report experiencing coercive control and entrapment, sexual violence, physical violence, and rape. Additionally, the study results suggest that non-physical types of violence may be prevalent in the United States, and are strongly associated with structural factors.

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TABLE OF CONTENTS

ABSTRACT.....	ii	
ACKNOWLEDGEMENTS.....	iv	
TABLE OF CONTENTS.....	v	
LIST OF TABLES.....	vii	
LIST OF FIGURES.....	ix	
CHAPTER 1: BACKGROUND AND LITERATURE		
REVIEW.....	1	
CHAPTER 2: CONCEPTUAL FRAMEWORK AND RESEARCH AIMS.....		15
CHAPTER 3: METHODOLOGY.....		28
Study Design.....	28	
Study Sample.....	28	
Data Sources.....	29	
Measures and Variables.....	34	
Data analysis.....	41	
CHAPTER 4: RESULTS.....		43
Descriptive Analysis.....	43	
Multivariate Analysis: Specific Aim 1.....	47	
Multivariate Analysis: Specific Aim 2.....	55	
Multivariate Analysis: Specific Aim 3.....	64	

CHAPTER 5: DISCUSSION.....70

 Major Implications of the Study.....70

 Limitations.....74

 Practice and Policy Implications.....77

 Future Research.....78

BIBLIOGRAPHY.....80

APPENDIX A.....90

LIST OF TABLES

CHAPTER 3: METHODOLOGY

TABLE 1: CONSTRUCTS AND VARIABLES.....	39
--	----

CHAPTER 4: RESULTS

TABLE 2: DATA SUMMARY STATISTICS OF STUDY SAMPLE.....	44
---	----

TABLE 3: BIVARIATE DESCRIPTIVE STATISTICS BY WOMEN'S EXPERIENCE OF PSYCHOLOGICAL AGGRESSION.....	46
---	----

TABLE 4: RELATIONSHIP BETWEEN WOMEN'S STATUS AND PSYCHOLOGICAL AGGRESSION.....	48
---	----

TABLE 5: RELATIONSHIP BETWEEN WOMEN'S STATUS AND COERCIVE CONTROL AND ENTRAPMENT	49
---	----

TABLE 6: RELATIONSHIP BETWEEN WOMEN'S STATUS AND PHYSICAL VIOLENCE.....	51
--	----

TABLE 7: RELATIONSHIP BETWEEN WOMEN'S STATUS AND STALKING.....	52
---	----

TABLE 8: RELATIONSHIP BETWEEN WOMEN'S STATUS AND SEXUAL VIOLENCE.....	53
--	----

TABLE 9: RELATIONSHIP BETWEEN WOMEN'S STATUS AND RAPE.....	54
---	----

TABLE 10: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND PSYCHOLOGICAL AGGRESSION.....	56
---	----

TABLE 11: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND COERCIVE CONTROL AND ENTRAPMENT.....	57
TABLE 12: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND PHYSICAL VIOLENCE.....	59
TABLE 13: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND STALKING.....	60
TABLE 14: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND SEXUAL VIOLENCE.....	61
TABLE 15: RELATIONSHIP BETWEEN REPRODUCTIVE RIGHTS' STATUS AND RAPE.....	63
TABLE 16: RELATIONSHIP BETWEEN REPRODUCTIVE HEALTH CARE RESOURCES AND COERCIVE CONTROL AND ENTRAPMENT.....	65
TABLE 17: RELATIONSHIP BETWEEN REPRODUCTIVE HEALTH CARE RESOURCES AND PHYSICAL VIOLENCE.....	66
TABLE 18: RELATIONSHIP BETWEEN REPRODUCTIVE HEALTH CARE RESOURCES AND SEXUAL VIOLENCE.....	68
TABLE 19: RELATIONSHIP BETWEEN REPRODUCTIVE HEALTH CARE RESOURCES AND RAPE.....	69

LIST OF FIGURES

CHAPTER 1: BACKGROUND AND LITERATURE REVIEW

FIGURE 1: THE LIFE CYCLE OF VIOLENCE AGAINST
WOMEN.....3

FIGURE 2: VIOLENCE AGAINST WOMEN: AN INTEGRATED, ECOLOGICAL
FRAMEWORK.....6

CHAPTER 2: CONCEPTUAL FRAMEWORK AND RESEARCH AIMS

FIGURE 3: ECOLOGICAL MODEL OF MIGRATION, GENDER, AND
HEALTH.....16

FIGURE 4: CONCEPTUAL FRAMEWORK.....19

CHAPTER 1: BACKGROUND AND LITERATURE REVIEW

What is violence against women?

Violence against women is a serious public health problem, and violation of women's human rights (WHO, 2016).

Violence against women is defined by the United Nations as

"any act of gender-based violence that results in, or is likely to result in, physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life."

(United Nations General Assembly, 1993).

Violence against women comes in different forms including physical, sexual, emotional, and economic and these forms may be more or less common depending on the specific settings, countries or regions. The most common types of violence against women are domestic violence and intimate partner violence, sexual violence including rape, sexual harassment, and emotional/psychological violence. Other widespread forms of violence around the world are sexual exploitation, sexual trafficking, and practices considered to be harmful such as female genital mutilation/cutting (FGM), forced and child marriage. Certain groups of women may be more vulnerable than others due to their positions that put them at risk for discrimination and socio-economic exclusion (UN Women, 2013).

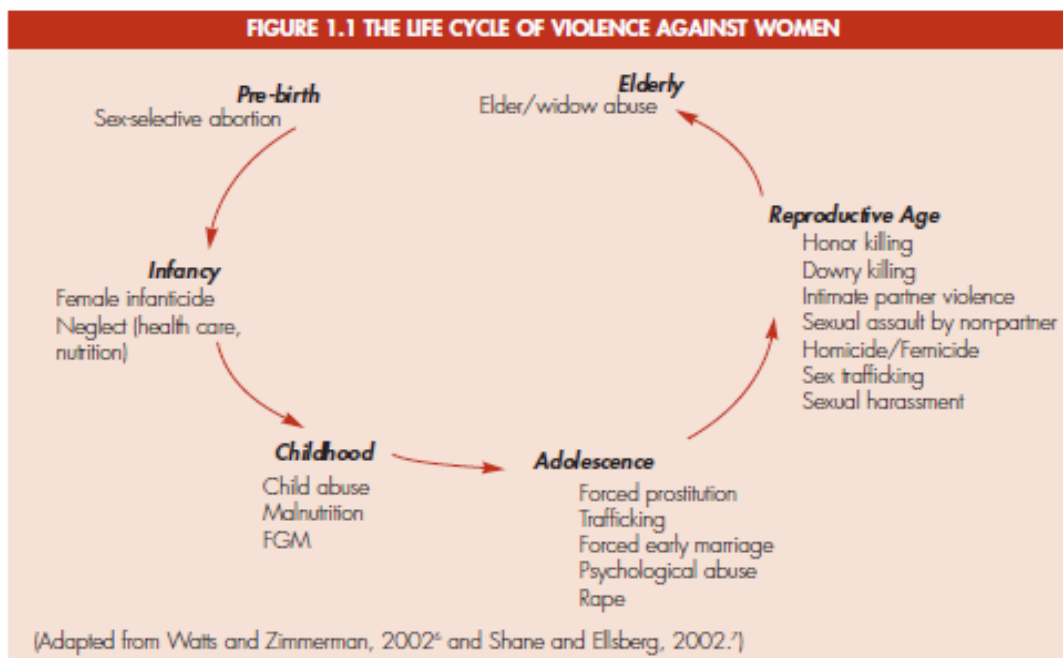
Violence against women around the world

Violence against women cuts across age, socio-economic status, and geographies (United General Assembly, 2006). World Health Organization (WHO) estimates that about 1 in 3 (35%) women have been subjected to either physical and sexual intimate partner or non-partner sexual

violence during their lifetime worldwide. Thirty-eight percent of female deaths take place at the hands of male partners. According to the analysis of data from over 80 countries by WHO with the London School of Hygiene and Tropical Medicine and the Medical Research Council, the prevalence of physical and sexual violence by their intimate partner range from 23.2 % in high-income countries to 24.6% in the Western Pacific region to 37% in the Eastern Mediterranean region, and 37% in the South-East Asia region. In most cases, intimate partner violence and sexual violence is committed by men against women, whereas both girls and boys are affected by child sexual abuse (WHO, 2016). In the United States, about 27.3% of women were subject to contact sexual violence, physical violence, or stalking by their intimate partners (Centers for Disease Control and Prevention, 2003).

Although women of all ages are at risk of violence, women and girls are exposed to different forms of violence at different ages. These differences result from the relationship changes within family members, peers, and authorities, as well as environments at home, in school, at work, and in the communities around girls and women (UN Women, 2013). The Figure 1 (see below) adopted from Watts & Zimmerman (2002), and Shane and Elsberg (2002) illustrates the life cycle of violence against women at each stage of girls' and women's lives.

Figure 1. The life cycle of violence against women



Why is violence against women a public health issue?

Violence against women is recognized as a public health issue due to serious health consequences it imposes on women and girls that are of physical, mental, sexual and reproductive nature. Those health consequences range from short-term to long-term health issues. The most serious consequences of violence against women are lethal that include homicide or suicide. Injuries resulted from violence have been reported among 42% of women who were subjected to intimate partner violence (WHO, 2016). Other than death and injuries, some of the adverse health outcomes of physical violence may include bruises, broken bones, traumatic brain injury, back and pelvic pain as a direct result of physical violence, and cardiovascular and circulatory conditions, central nervous system and gastrointestinal disorders, endocrine and immune system conditions that affect women through chronic stress and other mechanisms (Black, 2011; Crofford, 2007; Leserman & Drossman, 2007).

From the perspective of reproductive health consequences, intimate partner violence and sexual violence may be causes of delayed prenatal care, sexual dysfunction (CDC, 2016), unintended pregnancies, induced abortions, gynecological problems, and sexually transmitted infections, including HIV. Women who experience intimate partner violence during pregnancy are also more likely to have miscarriage, pre-term delivery, stillbirth and low birth weight babies (WHO, 2016).

Psychological health consequences that women who experience intimate partner violence may include depression, post-traumatic stress and other anxiety disorders, difficulties related to sleep, eating disorders, and suicide attempts. Experiencing sexual violence during childhood may lead to misuse of drugs and alcohol and risky sexual behaviors in adult life. Other health consequences may include headaches, back pain, abdominal pain, fibromyalgia, gastrointestinal disorders, limited mobility, and poor overall health (WHO, 2016).

Apart from adverse physical, reproductive, and psychological health outcomes, victims of intimate partner violence may encounter certain social conditions, such as restricted access to services, health providers and employers, isolation from social networks, and homelessness (Heise, & Garcia-Moreno, 2002;Warshaw, Brashler, Gil, 2009; Plitchta, 2004). Women who experienced intimate partner violence are more likely to engage in unhealthy behaviors that will lead to further health risks. Those behaviors can be of sexual nature or related to harmful substance use, unhealthy diet-related behaviors and overuse of health services. Some of the examples of high-risk sexual behavior that females who experienced intimate partner violence may display include unprotected sex, multiple sexual partners, early sexual initiation, trading sex for food, money or other items. Some of the behaviors related to use of the harmful substance may include smoking cigarettes, drinking alcohol, drunk driving, and illicit drug use. Unhealthy diet-related behaviors might include the following: fasting, vomiting, abusing diet pills, and

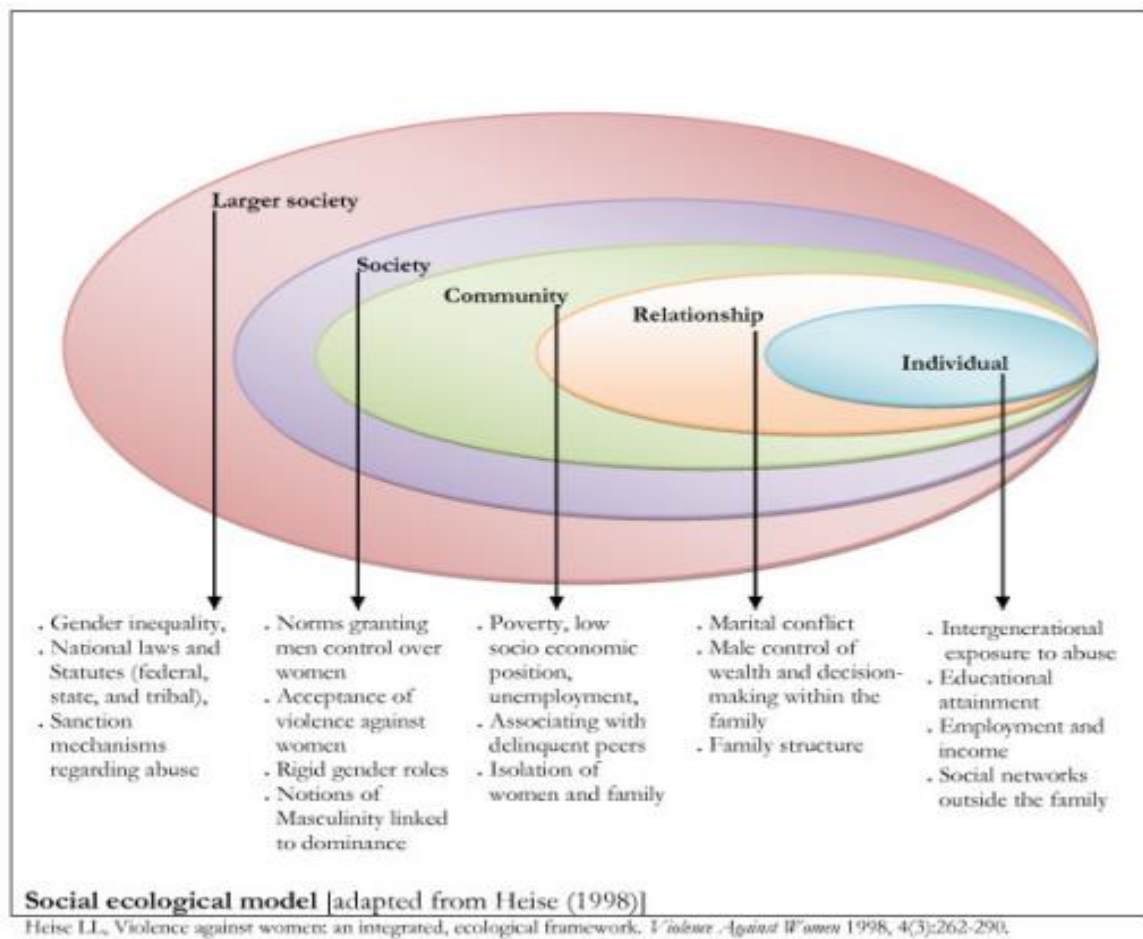
overeating (Heise, Garcia-Moreno, 2002; Plitcha, 2004; Roberts, Auinger, Klein, 2005; Silverman, Raj, Mucci, Hathaway, 2001).

Violence against women also has a significant impact on children; children who were exposed to violence in their families may experience a range of behavioral and emotional disturbances. This may lead to perpetuation or experience of violence in later stages of their lives. Higher rates of infant and child mortality and morbidity have been related to intimate partner violence (WHO, 2016).

Violence against women and girls also impacts women and girls' general well-being and prevents them to be active participants of their societies (United Nations General Assembly, 1993). There is an enormous social and economic cost that societies bear as consequences of intimate partner violence and sexual violence. Isolation, inability to work, loss of wages, lack of participation in regular activities and limited ability to care for themselves and their children are some of the consequences that women may suffer as a result of intimate partner violence and sexual violence (WHO, 2016). In the United States, intimate partner rape, physical assault, and stalking are estimated to cost more than \$ 5.8 billion including direct medical and mental health care services annually. In addition to that, the indirect cost for lost productivity from paid work and household chores for victims of nonfatal intimate partner violence comprises \$0.9 billion, and lifetime earnings lost by IPV victims of homicide is estimated to be \$0.9 billion (Department of Health and Human Services, 2003).

There are factors at each level of the Social Ecological Model (see figure below) that contribute to the risk of becoming an intimate partner perpetrator or victim.

Figure 2. Violence against women: An integrated, ecological framework



Individual risk factors for intimate partner violence may include low self-esteem, low income, unemployment, low academic achievement, young age, aggressive or delinquent behavior as a youth, heavy use of alcohol and drugs, depression, anger and hostility, prior history of being physically abusive, antisocial and borderline personality traits, being isolated from other people and having few friends, emotional dependency and insecurity, belief in strict gender roles, desire for power and control in relationships, being a victim of physical or psychological abuse, history of poor parenting experience in childhood, and history of physical discipline experience in childhood (CDC, 2016).

At the relationship level, factors that may contribute to intimate partner violence are marital conflict-fights, tension and struggles, marital instability (divorces and separations), dominance and control of the relationship by one partner over the other, economic stress, and unhealthy family relationships and interactions (CDC, 2016), and relationship dissatisfaction (Smith Slep, Foran, Snarr, 2010).

Community factors such as poverty and associated factors including overcrowding, low social capital including lack of institutions, relationships, and norms that shape a community's social interactions, as well as weak community sanctions against intimate partner violence (e.g., unwillingness of neighbors to intervene in situations where they witness violence) were found to be contributing risk factors for intimate partner violence. At a societal level, traditional gender norms that dictate women to stay at home without entering the workforce and take the submissive role, while men support the family and make the family decisions are considered to be the main risk factor for intimate partner violence (CDC, 2016).

Why is violence against women a human rights issue?

Through grass-roots work of women's organizations and movements around the world, the problem of violence against women has started receiving attention as a form of discrimination and a violation of women's human rights. Along with advocacy campaigns, research evidence on the pervasive nature and multiple forms of violence against women draw the attention to the fact that violence against women was global, systemic and the outcome deeply rooted in power imbalances and structural inequality between women and men rather than being the random, individual acts of misconduct. The key element was the recognition of this connection between violence against women and discrimination (United Nations, General Assembly, 2006).

In 1979, The United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) which is often referred to as an international bill of rights for women (UN Women, 2007).

It is stated in the Declaration on the Elimination of Violence against Women that violence against women is

“a manifestation of historically unequal power relations between men and women, which have led to domination over and discrimination against women by men and the prevention of the full advancement of women.”

(United Nations, General Assembly, 2006).

It provides a definition of discrimination against women and establishes agenda for national action to eliminate such discrimination. It also offers the foundation for recognizing equality between women and men through the provision of equal access to, and equal opportunities in, political and public life, education, employment and health for women. It is the only human rights treaty that supports women’s reproductive rights and recognizes tradition and culture as significant factors influencing gender roles and family relations (UN Women, 2007).

Different sites of violence against women are emphasized in the Declaration including violence in the family, violence in the community, and violence perpetrated or condoned by the State. States are required to condemn violence against women and not appeal to tradition, custom, or religion for the avoidance of their obligations to eliminate such discrimination (United Nations, General Assembly, 2006). The convention obligates States to commit to carrying out measures to eliminate discrimination against women. By ratifying or acceding to the Convention, countries are legally responsible for complying with their treaty obligations by putting provisions into practice, while providing national reports at least every four years describing their actions (UN

Women, 2007). There are 185 countries that ratified the CEDAW worldwide as of 2009 (Amnesty International USA, 2005).

Understanding gender and power

The term “gender” and “sex” do not have the same meaning, although they are used interchangeably. Gender refers to the roles, behaviors, activities, and attributes constructed by the given society to women and men, while sex refers to the anatomic and physiological attributes and differences between women and men. In other words, “male” and “female” are categories of sex, whereas “masculine” and “feminine” are categories of gender (WHO, 2017a). Since gender is socially constructed attributes of women and men assigned by each given society, it may differ from society to society, and hence can be altered. While sex being either female or male is assigned to most people when they are born, gender norms and behaviors that are considered to be appropriate to each society are taught throughout their lives. Norms, roles, and relations associated with gender have an impact on people’s vulnerability to different health conditions and diseases, as well as their enjoyment of good mental, physical health and overall well-being (WHO, 2017b).

Gender and power are the two key elements that should be taken into account to understand violence against women. Complex nature of gender is required to be analyzed for developing a theoretical, empirical, political and personal understanding of violence which may include the perpetrator and victim psychologies and their interactions, gendered expectations about family relationships and dynamics, as well as patriarchal ideology and structure of society where individuals and relationships are embedded. Violence against women in the home is a critical component of the system of male power. Violence takes place as a consequence of inequality in the family and emphasizes male dominance and female subordination in the home

and outside it. Violence against women is not gender neutral and is part of male control (Loseke, Gelles, & Cavanaugh, 2005).

The term “gender-based” violence also used in international policy statements to pinpoint that violence against women is the formed through gendered arrangements of power in societies. UN’s Declaration was the first international statement where gender-based framework was defined, and where different levels are recognized as sites of gender-based violence (United Nations, 1993). The term is a broad term that encompasses all forms of violence including sexual violence or other types. It also refers to the violence that expresses and preserves unequal power relations based on oppressive gender roles (Montesanti, & Thurston, 2015).

Current gap in the literature

Much research was done that contributed to the current evidence on prevalence and consequences of violence against women. However, the research on interpersonal violence has mainly concentrated on determinants related to violent acts at the individual or proximate-level factors (Anderson, 2007; Dominguez & Menjivar, 2014). Indisputably, the contribution of the research focused on individual and proximate-level factors is invaluable. Nevertheless, by focusing on individual and proximate-level determinants about violent acts, the roles of larger structural systems such as economic, legal, and political factors that form interpersonal violence are ignored. These factors are known to have a significant impact in determining women’s health (Dominguez & Menjivar, 2014). There were arguments by scholars in the past decade that factors at multiple levels are required to be recognized to complete our understanding of violence against women (Heise, 1998).

Structural forms of violence refer to the invisible manifestation of violence or any harm that is embedded into the political and economic organization of the society that forms and preserves inequalities within and between different various social groups, gender, and ethnic-

cultural groups. Unlike physical violence, structural violence is invisible and may have an impact indirectly (Dominguez & Menjivar, 2014). Multiple vulnerabilities around the world have been explained through structural violence (Farmer, 2005; Scheper-Hughes, 1992). In addition to that, focusing on structural violence shifts our attention away from dichotomized notions of “victims and perpetrators” where individuals are in the center of the issue considered as good or bad, violent and non-violent and look at the problem of violence from the perspective of political, social, historical, and economic processes. Unemployment, unequal access to goods and services and exploitation that affects a range of determinants of health are some of the examples that structural violence is expressed by (Montesanti, & Thurston, 2015).

Several scholars explored the structural correlates of gender-based violence through analysis of international population-based surveys and systematic reviews. Heise and Kotsadam (2015) examined how macro-level factors in combination with individual-level factors contribute to women’s risk of intimate partner violence. They compiled data from 66 surveys from 44 countries. According to their study findings, several national and subnational level gender-related factors can predict the geographical distribution of intimate partner violence across countries. Those factors include norms related to male authority over female behavior, norms justifying wife beating, and the extent to which law and practice disadvantage women in accessing land, property, and other productive resources than men. Although they found a strong negative association between gross domestic product (GDP) per person and current partner violence, with the presence of norm-related measures, the association became non-significant. Furthermore, they also revealed that there is a strong association between girl’s education with reduced risk of partner violence in societies where wife beating was normative compared to the ones where it was not. The countries with a high proportion of women in the formal workforce are more likely to have less prevalence of intimate partner violence (Heise & Kotsadam, 2015).

Another study from 10 countries participating in Demographic and Health Survey Program that explored predictors of intimate partner violence at different levels found that women residing in communities where a higher proportion of men accept attitudes about spousal violence are more likely to be subjected to violence (Hindin, Kishor, & Ansara, 2008). Likewise, WHO's multi-country study on women's health and domestic violence also found that women who had attitudes that supported wife-beating by their spouses were more likely to experience intimate partner violence in almost all settings included in the study (Abramsky, et.al, 2011).

Through conducting a systematic review to map the role of structural violence in gender-based violence against women, Montesanti and Thurston (2015) found that structural violence is manifested by unequal access to the determinants of health that creates an environment conducive to occurrence of interpersonal violence and hence puts women of vulnerable social positions at risk for violence. Specifically, their findings from scoping review suggest that structural factors affect the social determinants of health for women which in hence lead to violence against women. They specifically identified nine groups of social determinants of health that reflect structural violence and how it impacts women's experience of violence. Those social determinants of health included social support, personal health practices and coping, education, healthy child and development, social status, employment and working conditions, social environment, culture, and civil society. They concluded that examination of the effect of structural and social forms of violence demonstrate that violence does not take place only in interpersonal relations, and thus the term interpersonal should be altered in a way to reflect the reality around violence against women.

There is also limited evidence on the effect of structural violence on interpersonal violence coming from individual countries. A study that examined the intersections of gender and other social institutions in constructing gender-based violence in Guangzhou, China revealed that gender role expectations and gendered institutions contributed to family relationships and the

extent of support women could receive. Women who participated in the study with domestic violence experience reported that they could expect very little support from systems in their society, namely from health care professionals, lawyers, police officers, and neighborhood committees (Thurston, Tam, Dawson, Jackson, & Kwok, 2016).

Similarly, the study conducted in the North England examined the factors that maintain the situations of abuse confirmed that ineffective protection, failure in addressing the costs of leaving and lack of recognition of the unacceptability of abuse were main contributors that perpetuated abusive circumstances. On the contrary, these systems of support further continued views and practices to reinforce male privilege (Bostock, Plumpton, & Pratt, 2009).

Evidence from Nigeria on multilevel analysis of community level influences on women's experience of intimate partner violence demonstrated that there is a strong positive association between women's acceptance of violence and their intimate partner violence experience. This finding reflects societies' acceptance of conventional gender role attitudes where men are allowed to discipline their partners and women's subordination to men is accepted, expected and attractive to some men (Antai, & Adaji, 2012).

In the United States, Anderson (2007) applied a structural perspective on gender to examine the predictors of marital dissolution among heterosexual men and women who experienced intimate partner violence. Their analyses revealed that economic dependency and the structuralist hypothesis of gendered expectation of breadwinning and caregiving responsibility put women in a position that limits their ability to leave the violent relationships. In conclusion, the author suggested that understanding of gender in the context of domestic violence should encompass not only the distinction of men and women but also in what ways their behaviors and actions are formed based on their positions in society by gender inequality.

Recently, Dominguez and Menjivar (2014) also attempted to redirect the focus from individual explanations of violence to the broader contexts and inequalities through examination of interconnected forms of violence in the women's lives who are in vulnerable positions. They claimed that violence structures are either unrecognized or misrecognized. Through analyzing the interconnectedness of structural, interpersonal, and symbolic violence, they examined the lives of minority women living in low-income neighborhoods in three cities of Boston, Los Angeles and New York. They found that women in similar vulnerable positions across three cities experienced multiple forms of violence including structural, symbolic, and interpersonal violence. Likewise, they suggested that focusing on structures that generate social suffering in violence research may lead to new ways of violence conceptualization and hence new approaches to examining it (Dominguez & Menjivar, 2014).

Still, most of the national gender-based violence research in the United States are limited to individual prevalence and risk factors (Breiding, Black, & Ryan, 2008), and neighborhood level factors (Frye, et.al., 2014; Jain, Buka, Subramanian, Molnar, 2010) There is still limited evidence in the gender-based violence research on the role of broader context factors in interpersonal violence. In addition to that, there is a lack of literature that explored state-to-state variations in the context of the relationship between gender-based violence and structural factors in the United States.

Why does the U.S. offer good context to study this topic?

There are several reasons why the United States provides a good context to study the role of structural violence in gender-based violence. First of all, the United States is one of the few countries along with Iran and Sudan that did not ratify the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). CEDAW is considered to be the only international instrument that comprehensively recognizes women's rights in the forms of

political, civil, cultural, economic and social rights. Despite the proof of CEDAW's contribution to the advancement of women's positions in the societies that ratified the treaty, the U.S. remains the only country in the Western Hemisphere and the only industrialized democratic country that did not ratify the CEDAW (Amnesty International USA, 2005).

Secondly, the United States is a large country with diverse populations. Previous research shows that structural factors, such as gender inequality, are found to be the variable measured at the state, not community level (Ackerson, & Subramanian, 2008). Moreover, researchers also found that the extent of gender inequality and gender norms may have community variations within the same country or culture (Koenig et al., 2003). Division of the country into multiple states that has their subcultures and their set of structures will provide a good ground for the research to explore the state-to-state variations of the effect of structural violence on gender-based violence in the United States.

Purpose of the study

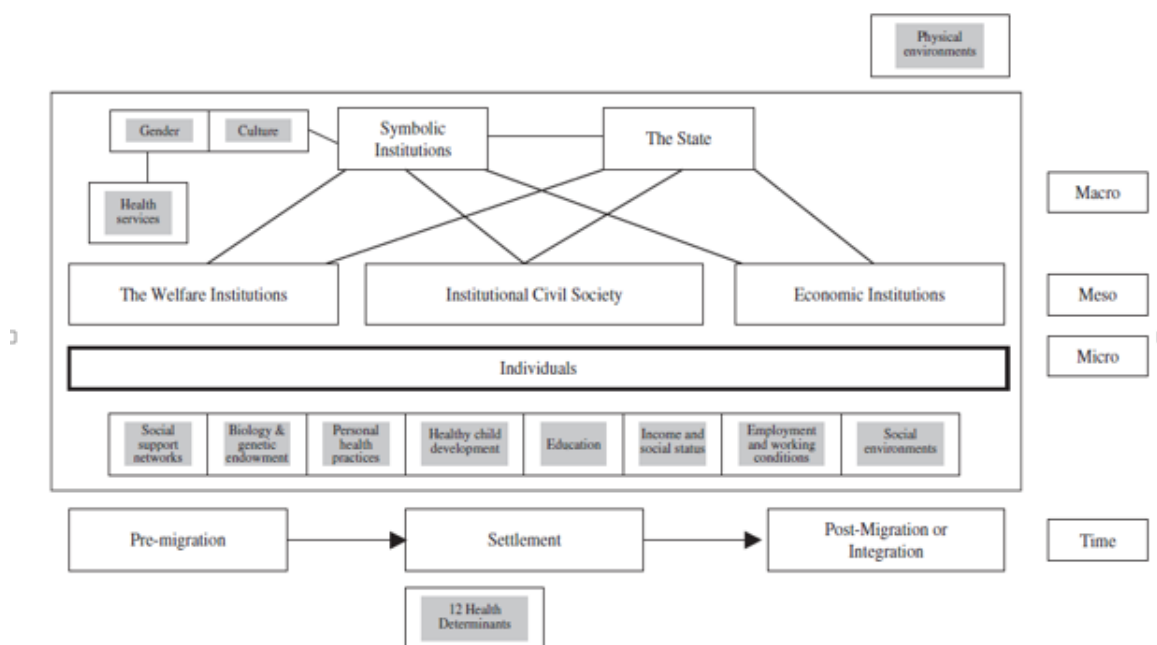
The proposed study, therefore, aims to contribute to the existing literature by filling the identified gaps in the literature. The purpose of the proposed study is to examine the relationship between structural forms of violence and gender-based violence in the United States.

CHAPTER 2: CONCEPTUAL FRAMEWORK AND RESEARCH AIMS

Scholars argue that factors at multiple levels should be taken into consideration to complete our understanding of violence against women (Heise, 1998). Ecological frameworks, commonly applied to population health promotion, have also been used in research on violence against women to describe how external factors may affect and position women to be vulnerable to violence. Thurston and Vissandjee (2005) adapted an ecological model of health to explain

immigrant women's health in the context of gender and migratory experience while taking into account individual factors and focusing on social factors at meso- and micro-levels (Figure 3). While this model initially was used to illustrate immigrant women's health, the model is particularly beneficial for gender-based violence research in demonstrating how factors at a personal, situational, and sociocultural level that have an impact on violence against women come into play and their effect on women's health. Particularly, the model draws attention to social determinants of health in the context of structural factors with the emphasis on gender and other social institutions, and environments such as social and physical where interpersonal violence may be perpetuated (Thurston and Vissandjee, 2005).

Figure 3. An ecological model of migration, gender, and health.



Bronfenbrenner's (1986) systems theory in combination with Howard and Hollander's (1997) work on theories of social cognition, social exchange, and symbolic interaction were used to expand the ecological model of health. The model includes the elements such as macro

(structural, & symbolic institutions), meso (group), and micro (individual) levels of analysis, time and life course analysis, and the determinants of health. Each level is an open system that is connected and interacts with each other. The micro system encompasses relationships where violence may occur in the immediate context such as interpersonal violence which often takes place in intimate and close relationships and the families. The mesosystem refers to the social environment of women where various factors may come into play. Therefore, it includes the connection between the family and other aspects of a social environment where an individual woman will come in contact with, including workplace, extended family, network of peers, or services available in the community. Macro-system represents the social structures and social institutions where the other systems such as world of gender, social expectations, cultural practices and identity groups are embedded. This particular ecological model is chosen over other ecological models to develop conceptual framework for this research project due to the following reasons: (1) the model illustrates the complexity and interconnectedness of different factors at different levels to explain violence against women issue compared to other ecological models, (2) the model specifically illustrates the role of various institutions at meso- and macro-levels which is the focus of this dissertation project, and also (3) the model takes into account the role of gender, culture and physical environment, which are also essential components to be considered in addressing violence against women issue.

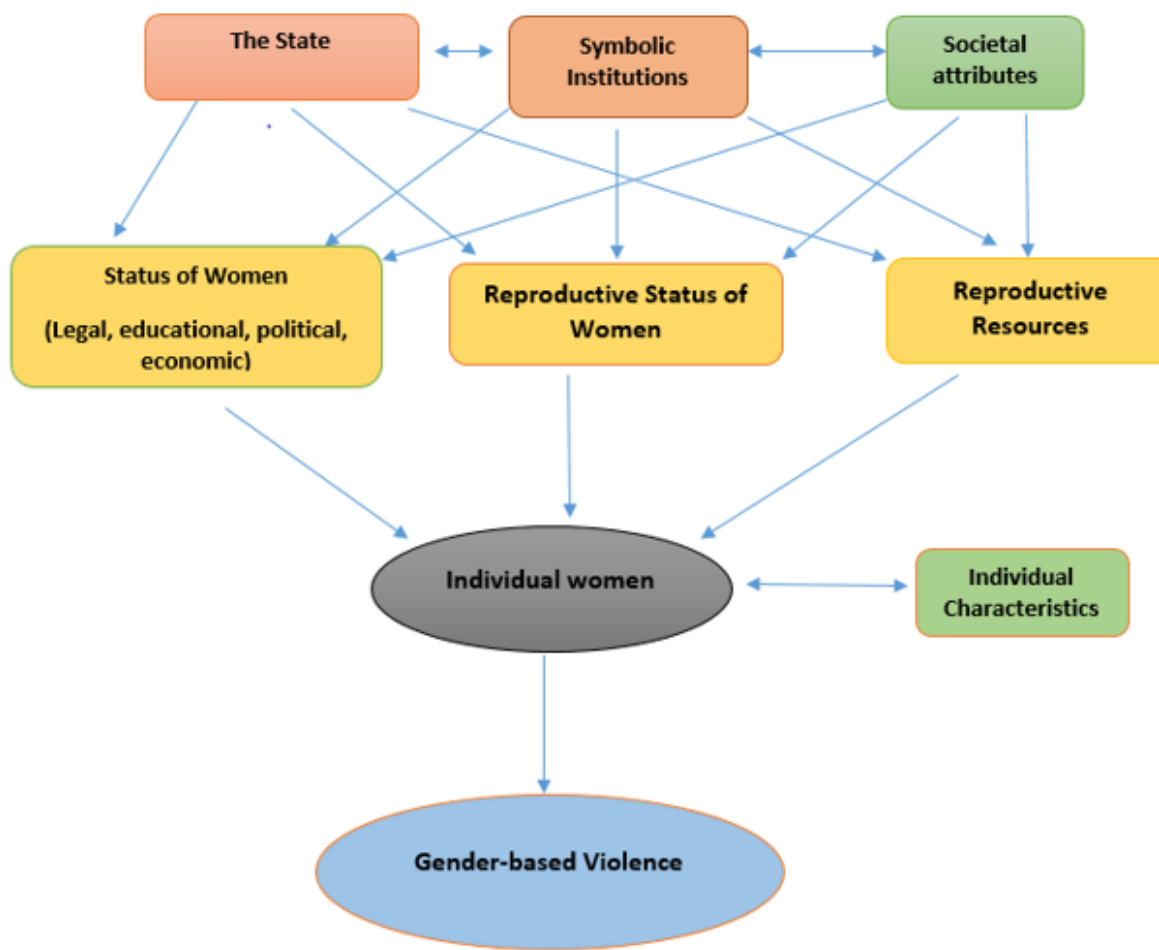
As this dissertation project aims to explore the role of structural forms of violence in women's life through examining violence against women in the United States, the main focus of this research will be macro-level analysis. Structural forms of violence refer to the invisible manifestation of violence or any harm that is embedded into the political and economic organization of the society that forms and preserves inequalities within and between different various social groups, gender, and ethnic-cultural groups. Unlike physical violence, structural violence is invisible and may have an impact indirectly. (Dominguez & Menjivar, 2014).

Structural violence expresses itself in a range of factors including unemployment, unequal access to good and services, and exploitation, which in turn will have an impact on determinants of health (Montesanti & Thurston, 2015). Symbolic violence, which also takes place at macro-level, also is an invisible means of domination. It refers to ideologies, words, nonverbal communications and behaviors which in turn are expressed through stereotypes, hegemonies creating stigma and humiliation. Symbolic violence stems from social institutions including the family, religion, education, economic, and political. That is why it is often viewed as normal and natural (Montesanti & Thurston, 2015).

In this study, the role of structural forms of violence will be examined through the status of women, reproductive status of women, reproductive health care resources for women at a state level (Figure 4). In Figure 4, at a macro level, the box “The State” represents structural violence, whereas box “Symbolic Institutions” represents symbolic violence. The box “Societal attributes” represents the factors at a societal level such as state poverty, violent climate and others which may be associated with the violence against women in the state. Therefore those factors were controlled for in the study. Under macro level, three main constructs of the study are placed which included the status of women, reproductive rights’ status of women, as well as reproductive health care resources. All three constructs are influenced by and reflect structural forms of violence as they indicated by the arrows linked to them. Women’s status may be mostly reflective of the political and economic organization of the society, as well as social institutions such as education, economic, and family. Women’s reproductive rights’ status and distribution of reproductive health care resource may reflect mainly the ideology of the state and social institutions such as family and religion. Under the three constructs of the study, the box “Individual women” is placed. As indicated by arrows, individual women and their experience of violence are affected by structural forms of violence at a macro level through the expression of the three constructs of the study focus. Next to the box “Individual women” the box for

“Individual Characteristics” is positioned. Since there are individual level factors that put women at risk to experience violence as the current evidence posits, to examine the true association between structural forms of violence and violence against women at an individual level, those individual factors were adjusted for. They included factors such as age, race, and education status of women.

Figure 4. Conceptual Framework



SPECIFIC AIMS AND HYPOTHESES

The conceptual framework will divide the proposed study into three specific aims.

Specific Aim 1: To examine the association between women's status and gender-based violence in the United States.

The first aim of the dissertation project is to examine the association between women's status and gender-based violence in the United States. Researchers dedicated to gender-based violence research have made considerable progress in identifying factors at multiple levels that contribute to women's victimization to violence. At a societal level, the intersection of women's status and gender-based violence has been the focus of many researchers for several decades. International scholars have made great contribution to illustrate particularly the role of women's status in violence against women. Through compiling data from 44 countries, Heise and Kotsadam (2015) found that the extent to which women as compared to men are disadvantaged by law and practice having access to land, property and other productive resources, and proportion of women in the formal workforce were predictive of the geographical distribution of partner violence against women worldwide. Similarly, through cross-national analysis, Yodanis (2004) revealed that educational and occupational status of women in a country was related to the prevalence of sexual violence against women. Also, they observed that countries with the low status of women, the prevalence of sexual violence against women was higher. Women's status was measured by three dimensions including educational, occupational, and political. In the United States, scholars also examined this relationship though state-level comparison. The study findings by Yllo (1983) suggest that many wives are more likely to experience violence from their spouses in the states where women's status is lowest, while the increase in women's status decreases violence to a point. She measured women's status through four dimensions including economic, educational, political and legal dimensions. Contrary to the expectation, violence

against wives was the highest in the states with the highest women's status. Another study by Yllo (1984) suggests that wives are more likely to be subjected to violence by their spouses in the states where general status of women was high compared to men but where husbands still dominated the household. A decade later, Straus (1994) conducted a study analyzing state-to-state differences in gender inequality and income inequality in relation to assaults on wives in the United States. According to Straus, the higher the status of women in a state, the lower the probability of wives being assaulted by their husbands. Dugan and colleagues (1999) explored the factors contributing to the decline in intimate partner homicide based on two-decades long data and found that improved economic status of women along other factors averts intimate homicides. Studies in recent years, Vieraitis and colleagues (2007; 2008) also analyzed the impact of women's status on homicide victimization among U.S. women and suggested that absolute women's status is associated with variation in female homicide rates across U.S. counties, as well as homicide victimization rates by intimate partners.

The mixed results of studies above on the association between women's status and violence against wives in the United States could be attributed to different methodological approaches. Firstly, previous studies mainly examined physical violence through analyzing wife beating/wife assault rates which represent physical violence or homicide at a state level. Secondly, there is inconsistency in the measurement of women's status in previous studies; some studies used one, or more as opposed to four dimensions to measure women's status/gender equality including economic, political, educational and legal where the status of women/gender inequality index was calculated based on those dimensions. Thirdly, the studies that examined women's experience of violence used questions that measured only women's experience of violence that took place only in the last 12 month period. Questions related to women's past 12-month experience will only reflect women's recent experience, and hence women who did not

experience violence in the past 12 months but had one or more before will not be captured by this approach.

This research study will take a different methodological approach compared to the previous scholars' approach in examining the association between women's status and gender-based violence. First, gender-based violence will be measured not based on women's experience in only the last 12 months, but their lifetime experience, as it will help to capture a full picture of women's experience of violence. Secondly, although four dimensions such as economic, educational, political, and legal, will be used to measure women's status at a state level, they will not be combined into one index of women's status as was done in previous studies. Instead, one index for each dimension, a total of four indexes, will be calculated to explore if any dimension has more or less effect on gender-based violence or if all the dimensions have an equal effect on gender-based violence. Third, unlike previous studies, this study will not be limited to only physical violence or wife beating to measure gender-based violence but will include several types such as physical violence, sexual violence, rape, stalking, psychological aggression and coercive control. Therefore, the first aim of the study will have the following hypotheses:

Hypothesis 1: All things being equal, women who reside in the states with low women's status are more likely to experience psychological aggression in their lifetime

Hypothesis 2: All things being equal, women who reside in the states with low women's status are more likely to experience coercive control and entrapment in their lifetime

Hypothesis 3: All things being equal, women who reside in the states with low women's status are more likely to experience physical violence in their lifetime

Hypothesis 4: All things being equal, women who reside in the states with low women's status are more likely to experience stalking in their lifetime

Hypothesis 5: All things being equal, women who reside in the states with low women's status are more likely to experience sexual violence in their lifetime

Hypothesis 6: All things being equal, women who reside in the states with low women's status are more likely to experience rape in their lifetime

Specific aim 2: To examine the association between women's reproductive rights; status and gender-based violence in the United States.

The second aim of the dissertation project is to examine the association between the state's status of women for reproductive rights and gender-based violence at a state level in the United States. Practices, laws, and policies constraining women's access to reproductive rights are considered violence against women (Center for Reproductive Rights, 2015). Status of women's reproductive rights will be measured through state's status on women's reproductive rights ranking. Although international and national level studies examined extensively the association between women's status and gender-based violence, status of women has been mainly measured based on one or more or four dimensions including women's economic, educational, political, and legal indicators (Yllo, 1983; Dugan & Rosenfeld, 1999; Vieraitis, Britto, & Kovandzic, 2007; Vieraitis, Kovandzic, Britto, 2008; Xie, Heimer, & Lauritsen, 2012). While these indicators are important and served as a good measurement for women's status, there could be more indicators that might serve as an additional measurement to represent a full picture of women's status at a state level, such as the status of women on reproductive rights.

In addition to that, since the focus of this study is the United States, geographical context should also be taken into consideration. Two sociologists, Wright and Rogers (2010) in their book "American Society: How it really works", describe that sexuality has an extremely complex relation to gender and gender inequality in particular. Historically, female fertility has been one of the central motives for male domination, thus controlling female sexuality and fertility was a

fundamental component of the social processes. The controversies around certain forms of contraception and abortion that we observe currently in American society are a reflection of age-old issue of the social processes (Wright & Rogers, 2010). This is also evidenced by the fact that the United States remains one of the only three countries along with Iran and Sudan that did not ratify the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the only international instrument that comprehensively recognizes women's rights in the forms of political, civil, cultural, economic and social rights (Amnesty International USA, 2005). The reasons for the reluctance of the U.S. government to ratify the documents stems from concerns mainly related to the implementation of CEDAW in the United States. One of the concerns is that CEDAW is viewed as a threat to the traditional family structure in the U.S., as it may redefine "family" and the roles of men and women in the families. While this myth is not true (Amnesty International, 2005), this shows that this concern is significant for the U.S. government. Dugan and colleagues (1999) attempted to examine the effect of patriarchal culture on female homicide victimization in the U.S. linking it to the ideology of wifely submission among conservative populations as they measured patriarchal culture along two dimensions- conservative Protestantism and voting behavior. However, their analysis of this relationship failed to achieve statistical significance. While the concept to use the variable of patriarchal culture in Dugan and colleagues' study is similar to the motivation of the current dissertation project, their non-significant results may have been due to measurement. Therefore, I suggest that status of women's reproductive rights may be a better measurement that may capture conservativeness of the state.

Also, previous studies point out that the reproductive coercion is associated with physical and sexual violence and hence has an impact on reproductive outcomes (Miller, et al., 2010; Miller et al., 2014). Previous studies also reported that male reproductive control involves pregnancy-promoting behaviors and control and abuse during pregnancy to influence the

pregnancy outcome (Moore, Frohwirth, Miller, 2010). Clark, et. al.'s study findings (2014) also suggest that among women who were subjected to reproductive coercion in the relationship, 32% reported experiencing intimate partner violence as well. While these studies examined the association between reproductive coercion and violence against women at an individual level, it is reasonable to assume that there are some structural level factors that contribute/influence such behaviors among men. Based on assumption above and given the U.S. context for women's reproductive rights, the second aim of the study will have the following hypothesis:

Hypothesis 7: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience psychological aggression in their lifetime

Hypothesis 8: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience coercive control and entrapment in their lifetime

Hypothesis 9: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience physical violence in their lifetime

Hypothesis 10: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience stalking in their lifetime

Hypothesis 11: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience sexual violence in their lifetime

Hypothesis 12: All things being equal, women who reside in the states with low women's reproductive rights status are more likely to experience rape in their lifetime

Specific aim 3: To examine the association between reproductive health care resources at a state level and violence types among women in the United States.

Continuing the focus of specific aim 2, the third aim of the dissertation project is to examine the association between reproductive health care resources related to abortion and family planning and violence experienced by women in the United States. The topic of abortion is central to the most of the debates between political parties and one of the most controversial topics. Wright and Rogers (2010) stated that controversies around abortion as a way to control female fertility reflects a social process that generates male domination. Moreover, abortion also is listed as one of the concerns related to the reluctance of the U.S. government for not ratifying the CEDAW. It is believed that through CEDAW abortion will be supported through the promotion of access to “family planning” (Amnesty International USA, 2005).

Furthermore, growing body of literature has determined a range of male partner pregnancy-controlling behaviors associated with contraception and making decisions related to pregnancy. Reproductive coercion was found to be one mechanism that may explain the known relationship between intimate partner violence and unintended pregnancy (Miller, Silverman, 2010). Women who experienced violence also reported that they were subjected to birth control sabotage, and forced sex by their spouses (Bocanegra, Rostovtseva, Khera, & Godhwani, 2010). Another study suggests that abusive men are more likely to be involved in pregnancies that end in abortion, as well as being involved in conflicts with pregnant partners in relation to decisions of seeking an abortion (Silverman, et al., 2010).

Although the aforementioned research findings are coming from the studies with micro-level focus, it is evident that reproductive coercion is more likely to be present in abusive relationships. This data also illustrates the significant threat to the ability of women’s reproductive control which is essential to break the cycle of violence. Since the focus of this

dissertation project is macro-level, the research will be directed to explore if the restrictions for reproductive health care related to abortion and family planning at a structural level contribute to women's experience of violence. Thus, the third aim of the dissertation will have the following hypothesis:

Hypothesis 13: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience psychological aggression

Hypothesis 14: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience coercive control and entrapment.

Hypothesis 15: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience physical violence

Hypothesis 16: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience stalking

Hypothesis 17: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience sexual violence

Hypothesis 18: All things being equal, women who reside in the states with limited resources for reproductive health care are more likely to experience rape.

CHAPTER 3: METHODOLOGY

The main purpose of this chapter is to describe the research design, data sources, study sample, key variables and measures used in this study. The chapter also describes the analytical methods utilized to answer the study's research questions.

Study Design

The purpose of this research is to examine the association between structural forms of violence and interpersonal violence against women in the United States. The study design is a cross-sectional correlational design. This study design allows the study to determine if there is a relationship between structural forms of violence measured through women's status, reproductive rights' status, and reproductive health care resources and different types of gender-based violence among women in the United States.

Study Sample

The study sample will be non-institutionalized English and/or Spanish speaking women aged 18 or older who reside in the 50 states and District of Columbia in the United States. The data were collected through by obtaining IRB-approved verbal informed consent from respondents. The consent forms provided info on the volunteer and confidentiality of the survey, benefits, and risks of participation, the topic of the survey, incentive amount, telephone numbers to speak with project staff from the contract vendor, the IRB, as well as CDC about their participation. The National Intimate Partner and Sexual Violence Survey used a dual-frame, stratified digit dial sampling design. To address non-coverage rates in the U.S. landline-based telephone surveys, a dual-frame design was applied where both landline and cell phone frames were sampled simultaneously. A total of 18,049 adults participated in the interviews nationally (9,970 women and 8,079 men). The range of overall weighted response rate for the 2010 data collection for NISVS was from 27.5% to 33.6% (National Institute of Justice, 2014).

With the dual objective of providing national and state-level estimates, survey samples of the National Intimate Partner and Sexual Violence Survey were stratified by state to balance stable state-level estimates and weight variation for the national estimates to prevent from oversampling of smaller states. Also, the disproportionate sampling to maximize the stability of state-level estimates was taken into consideration by applying a weighting to each case with the inverse of the state-level probability of selection. Applying the weighted case counts, the American Association for Public Opinion Research (AAPOR) Response Rate 4 was calculated separately for each combination of sample and phase (National Institute of Justice, 2014).

Sample weights are important to compute national estimates using these data as weights reflect features of sampling, non-response, coverage, and sampling variability. Several main weight components such as selection, multiplicity, non-response, and post-stratification may impact the final sampling weights. To analyze data from the National Intimate Partner and Sexual Violence Survey, two main sets of weights were computed. The same principles to construct the various weight components were applied where one set of weights were calculated for all the partial and complete interviews, while another set of weights were calculated for the complete interviews only (National Institute of Justice, 2014).

Data Source

The dataset used in the final analysis was created by merging several secondary data sources including 2010 National Intimate Partner and Sexual Violence Survey, Institute for Women's Policy Research's Status of Women Project, the American Association of University Women, NARAL Pro-Choice America Foundation, the Guttmacher Institute, and United States Census Bureau's American Community Survey databases.

National Intimate Partner and Sexual Violence Survey

The primary data source for this study is 2010 National Intimate Partner and Sexual Violence Survey (NISVS). NISVS is an ongoing nationally representative survey that collects data on experiences of sexual violence, stalking, and intimate partner violence among adult women and men in the United States. The focus of the survey is exclusively on violence, specifically sexual violence by any perpetrator, including rape, stalking, physical violence by intimate an partner, psychological aggression by an intimate partner, control of reproductive or sexual health by an intimate partner. The data collection for the NISVS project was overseen by the Centers for Disease and Prevention and sponsored in collaboration with the Department of Defense, and the National Institute of Justice. NISVS used a dual-frame, stratified digit dial sampling design. To address non-coverage rates in the U.S. landline-based telephone surveys, a dual-frame design was applied where both landline and cell phone frames were sampled simultaneously. A total of 18,049 adults participated in the interviews nationally (9,970 women and 8,079 men). The range of overall weighted response rate for the 2010 data collection for NISVS was from 27.5% to 33.6%. The questionnaire is broken down into several sections and incorporates information on demographic characteristics of the respondent, health conditions, experiences of victimization including psychological aggression, coercive control and entrapment, physical violence by an intimate partner, stalking, and sexual violence. For this study, we will use the questions from demographic and victimization sections (National Institute of Justice, 2014).

Institute for Women's Policy Research's Status of Women Project

To provide information on women's status for the first component of the study, the data were obtained from the Institute for Women's Policy Research (IWPR)'s Status of Women's Project. IWPR is the leading think tank in the United States on the quantitative and qualitative

analysis of public policy applying a gendered lens. IWPR focuses on research and dissemination of its findings to address the needs of women, promoting public dialog, and strengthening families, communities, and societies. IWPR's Status of Women reports provides comprehensive information on women since 1996. A wide range of local, state, national and international indicators have been analyzed by IWPR including demographics, economic security, education, reproductive rights, political participation, civic engagement, and access to health care and work supports (Institute for Women's Policy Research, 2017).

The American Association of University Women

The American Association of University Women is the nation's leading voice that promote equity and education for women and girls. Since foundation in 1881, the American Association of University Women have explored and taken positions on the issues such educational, social, economic, and political (American Association of University Women, 2017). The data on the existence of laws on equal pay in each US state for the legal dimension of states' women's status were obtained from this source. . The states were broken down into four categories: Category A states with strong equal pay protection, Category B states with moderate equal pay protection, Category C with poor equal pay protection, and Category D states with no equal pay protection (The American Association of University Women, 2017). Due to the smaller number of states in Category D, Category C and D states were combined in the study into Category C as states with poor or no equal pay protection.

NARAL Pro-Choice America Foundation

The ranking system and national grade on the position of each state on women's reproductive rights are used for the second component of the study based on the report by NARAL Pro-Choice America Foundation. Established in 1977, NARAL Pro-Choice America Foundation provides policy and educational element to the efforts of their sister organization,

NARAL Pro-Choice America. NARAL Pro-Choice America Foundation aims to give voice to the 7 out of 10 women who support the idea that abortion should remain legal and accessible (NARAL Pro-Choice America, 2017). For the last 12 years, NARAL Pro-Choice America Foundation publishes a report “Who Decides? The Status of Women’s Reproductive Rights” that reflects the status of women’s reproductive rights in the United States. The report uses a ranking system that illustrates the cumulative burdens each state enacts regarding accessing reproductive-health care. The ranking system is calculated through adding points for anti-choice restrictions on abortion and other aspects of reproductive-health care while subtracting points for pro-choice laws. The laws that impose a greater burden on women are most penalized by the ranking system. The nationwide grade is the reflection of restrictions by states on the right to choose, as well as federal anti-choice measures. The measures used to calculate final grade and ranking system in the report include abortion bans, biased counseling and mandatory delays, contraceptive equity, counseling ban/gag rule, emergency contraception, Freedom of Choice Act, guaranteed access to prescriptions, insurance prohibition for abortion, low-income women’s access to abortion, low-income women’s access to family planning, other anti- or pro-choice law, post-viability abortion restriction, protection against clinic violence, public facilities and public employees restrictions, refusal to provide medical services, restrictions on young women’s access to abortion, spousal consent/notice, state constitutional protection, targeted regulation of abortion providers. The five letter grades were assigned to states including Grade A, B, C, D, F. The states that were assigned Grade A are the states with least restrictions on reproductive rights, whereas states that were assigned Grade F are the states with most restrictions on reproductive rights. Some of the states with Grade A included California, Connecticut, Maine, Hawaii and others, while the states with Grade B included District of Columbia, Illinois, Massachusetts, and others. States with Grade C were Delaware, Iowa, Minnesota, and others, whereas states with Grade D were Florida, Arizona, Rhode Island and others. The states with most restrictions on women’s reproductive rights

assigned Grade F included Ohio, Arkansas, Idaho, Louisiana and others (NARAL Pro-Choice America Foundation, 2010).

The Guttmacher Institute

For the third component of the research study, the data obtained from the Guttmacher Institute that identified the availability of resources in each state for reproductive health care. The Guttmacher Institute is one of the leading organizations on, and a primary source of research and policy focused on advancing sexual and reproductive health and rights in the United States and worldwide. Specifically, the focus of the Guttmacher Institute is abortion, contraception, HIV and STIs, and pregnancy and teens in the United States and globally. The Institute also provides an evidence-based perspective to significant policy discussions through ensuring that sexual and reproductive health indicators are given special attention in the emerging global development agenda. The data center of the Institute provides information on aforementioned sexual and reproductive health indicators broken down by each state in the United States (Guttmacher Institute, 2017). Specifically, the indicators of reproductive health care resources such as state expenditure levels of abortion and family planning, percentage of women aged 14-55 without abortion providers and percentage of women in need of contraceptive services were extracted from this source.

United States Census Bureau's American Community Survey

Lastly, 2010 American Community Survey data was used as to provide the environmental control variables for all three parts of the research study. American Community Survey is maintained by the United States Census Bureau and an ongoing survey that provides national key information on the populations on a yearly basis (United States Census Bureau, 2016). It contains information on social, economic, housing, and demographic statistics for nations' communities. From this database, several environmental control variables such as state

violent climate, state income per capita, the percentage of people living in poverty and others were extracted.

Measures and Variables

The model to be tested refers to how structural forms of violence are associated with gender-based violence among individual women in the United States, and states will be used as a societal unit to conduct the analysis. Based on its history, physical environment and resources, the level of economic development, racial and ethnic composition and other factors, each state has distinctive characteristics. Previous studies show that using American states as societal units is appropriate for investigating macro-sociological theories. Macro-sociological research that involves state-level comparison analysis has consistently illustrated that social characteristics such as marriage, fertility rates, divorce rates, mortality rates from disease, per capita alcohol consumption of alcohol and cigarettes have large state-to-state differences (Baron & Straus, 1989; Linsky & Straus, 1986).

Dependent Variables

The dependent variable for all three components of the research study is various types of gender-based violence. Since the National Intimate Partner and Sexual Violence Survey is a secondary dataset collected at an individual level, the unit of analysis is individual women in the dissertation. The types of gender-based violence are broken down into several categories: physiological aggression, coercive control, and entrapment, physical violence, stalking victimization, sexual violence and rape. Psychological aggression included the behaviors such as acting dangerous, name calling, insults, and humiliation. Coercive control and entrapment included behaviors related to monitoring and controlling an intimate partner such as threats, interference with family and friends, and limiting access to money. It also included behaviors related to control of reproductive or sexual health. Physical violence included behaviors such as

slapping, pushing or shoving, being hurt by pulling hair, being hit by something hard, being kicked, being slammed against something, attempts to hurt by choking or suffocating, being beaten, being burned on purpose, and having a partner use a knife or gun against the victim. Stalking included the patterns of behaviors such as unwanted harassing or threatening tactics used by a perpetrator that causes fear or concern for the safety of oneself or others, such as unwanted phone calls or emails, watching or following from a distance, technology assisted tactics, and leaving strange and potentially threatening items for the victim. The sexual violence included attempted or completed penetration, sexual coercion, unwanted sexual contact, and non-contact unwanted sexual experiences. Unwanted experiences that do not involve any touching or penetration may include someone exposing their sexual body parts, flashing, or masturbating in front of the victim, making the victim shows her body parts, making a victim look at or participate in sexual photos or movies, or someone harassing the victim in a public place in a way that made the victim feel unsafe. Rape included completed forced penetration, attempted forced penetration, and alcohol or drug facilitated completed penetration (National Institute of Justice, 2014).

Although the questions on violence experience of the respondents were asked quantitatively in the survey, the variable was transformed into a dichotomous categorical variable: those who responded “yes” to any questions under each type of violence related to their experience with that type of violence, and those who answered “no” to all questions under each violence type. The reason for converting the variable into a categorical variable is due to the focus of the study, which is to explore the relationship between structural and types of violence. Also, constructing a composite indicator is recommended to handle missing data from the principal investigators for users of the data (National Institute of Justice, 2014). The category of responses including “Don’t know”, “Not administered”, “Refused to answer” were excluded from the analysis.

Independent Variables

There are several primary independent variables for each component of the study. The first group of independent variables is related to women's status at a state level. Women's status is measured based on four dimensions including economic, educational, political, and legal dimensions. Each dimension had several indicators that represent the status of women related to that dimension and is a continuous variable. The individual indicators were standardized through a modified z-score technique where each indicator was given equal weight to create a summated score that will represent economic, educational, and political dimensions.

Economic dimension was measured through indicators including the percentage of women's share of managerial and professional jobs, women labor force participation rate, employed women in STEM occupations, women's unemployment rate, female median income, and percentage of women who own their business in the state. Educational dimension was measured through percentage of women's high school graduation and possession of bachelor's degree or higher in a state. The indicators used to measure political dimension included women in elected office index, women who registered to vote and those who voted, women's institutional resources index, the proportion of women U.S. representatives, the proportion of women State Senators, the proportion of women State Representatives, and proportion of Statewide elected executive officers held by women. Legal dimension was measured through the existence of laws on equal pay in each state. Selection of indicators for each dimension of women's status was based on the indicators used in two studies by Yllo (1983, 1984). Also, those indicators were selected as state-level data was available on them. The states were broken down into 4 categories: Category A states with strong equal pay protection, Category B states with moderate equal pay protection, Category C with poor equal pay protection, and Category D states with no equal pay protection. (The American Association of University Women, 2017). Due to the smaller number

of states in Category D, Category C and D states were combined in the study into Category C as states with poor or no equal pay protection.

For the second component of the dissertation, the state's status on women's reproductive rights will be used as a main independent variable. The national grade assigned to each state will be utilized as a measurement of each state's status on women's reproductive rights. The independent variable was retrieved from the report by NARAL Pro-Choice America Foundation. Five letters A, B, C, D, F are assigned to each state that indicates the position of the state nationally on women's reproductive rights. The national grade for each state is based on a ranking system that is calculated by adding points for anti-choice restrictions on abortion and other aspects of reproductive-health care while subtracting points for pro-choice laws. The letter grade A indicates that the state has least restrictions on reproductive health, while letter grade F indicates that the state has the most restrictions on women's reproductive health care. Some of the measures used to calculate final grade and ranking system in the report include abortion bans, biased counseling and mandatory delays, contraceptive equity, counseling ban/gag rule, emergency contraception, Freedom of Choice Act, guaranteed access to prescriptions, insurance prohibition for abortion, low-income women's access to abortion, low-income women's access to family planning, other anti- or pro-choice law, post-viability abortion restriction, protection against clinic violence, restrictions on young women's access to abortion, spousal consent/notice, state constitutional protection, targeted regulation of abortion providers and others.

The group of independent variables used for the third component of the study is related to resources available at a state level on reproductive health care. The reproductive resources were measured through variables including state expenditures on abortion and family planning estimated using the average spending per abortion in the other nonrestrictive states, indicators such as the percentage of women aged 14-55 without abortion providers, and percentage of women in need of contraceptive services and supplies.

Control Variables

Control variables for this study were measured at the individual and state levels. The study controlled for demographic characteristics of the survey participants that were available in the National Intimate Partner and Sexual Violence Survey such as age, race and education level of participants. Marital status was available in the data, however, since the focus of the study was to explore the association between structural factors and violence among women residing in those states irrespective of their marital status, variable “marital status” was not used in the study. Also, in examining the association between structural factors and violence against women, it is important to eliminate competing explanations/factors by testing for spurious relationships at a state level. Therefore, several state-level control variables were chosen based on a review of literature that examined the relationship between domestic violence/wife beating and women’s status/gender inequality. They were obtained from the 2010 United States Census Bureau’s American Community Survey to control the variation between states. They included state’s violence climate, state poverty, state education level, state income level, and state male population aged 16 and older. State’s violent climate was measured by crime rate in a state per 100,000 population based on 2009 Census Bureau estimates. State’s violent climate was taken into consideration due to the fact that violent crime or culture of violence in certain states may partially explain the violence that women experience residing in those states. Yllo (1983) included state’s violent climate for the similar reason in their study that examined the relationship between women’s equality and wife beating in the U.S. states. Although they found that violent crime and rate of wife-abuse were negatively correlated, their correlation analysis indicated that controlling for this factor did not affect the focal relationship. State’s poverty level was measured by the percentage of population living below poverty line. This variable was considered as an important control variable based on the previous research that suggested that poverty level is an important determinant of women’s homicide victimization (Vieraitis, 2007). Male population

aged 16 and older is another important control variable that was chosen based on the previous studies on rape and other violent crimes (Straus, 1994). States' population median income was selected as a control variable as previous research has shown that state per capita income has strong impact on women's status and violence against wives (Yllo, 1983). Unemployment level of state population was also considered as a control variable in previous studies with similar research focus (Straus, 1994), and was also selected to be included in the analysis. The same set of control variables were used across all three portions of the study, except for two control variables in the first component. Control variables such as state median income and state population unemployment were not used in the first portion of the study, as similar indicators were included in economic dimension of women's status at a state level. Since similar indicators were used to reflect women's economic dimension at a state level, these two variables were not used to avoid multicollinearity in the model.

Table 1: Constructs and Variables

Construct	Variable	Operationalization	Source
Gender-based violence	Categorical	Psychological aggression experienced by a woman at any point in their life	2010 National Intimate Partner and Sexual Violence Survey
Gender-based violence	Categorical	Coercive control and entrapment experienced by a woman at any point in their life	2010 National Intimate Partner and Sexual Violence Survey
Gender-based violence	Categorical	Physical violence experienced by a woman at any point in their life	2010 National Intimate Partner and Sexual Violence Survey
Gender-based violence	Categorical	Stalking experienced by a woman at any point in their life	2010 National Intimate Partner and Sexual Violence Survey
Gender-based violence	Categorical	Sexual violence experienced by a woman at any point in their life	2010 National Intimate Partner and

			Sexual Violence Survey
Gender-based violence	Categorical	Rape experienced by a woman at any point in their life	2010 National Intimate Partner and Sexual Violence Survey
Women's status	Continuous	State's economic dimension of women's status	Institute for Women's Policy Research's Status of Women Project
Women's status	Continuous	State's educational dimension of women's status	Institute for Women's Policy Research's Status of Women Project
Women's status	Continuous	State's political dimension of women's status	Institute for Women's Policy Research's Status of Women Project
Women's status	Continuous	State's legal dimension of women's status	Institute for Women's Policy Research's Status of Women Project
Women's reproductive rights status	Categorical	State's reproductive rights status of women	NARAL Pro-Choice America Foundation
Resources allocation/availability for reproductive health	Continuous	State expenditure level for abortion in 000s of dollars	The Guttmacher Institute
Resources allocation/availability for reproductive health	Continuous	State's percentage of women 14-55 in need of abortion providers	The Guttmacher Institute
Resources allocation/availability for reproductive health	Continuous	State expenditure level for family planning in 000s of dollars	The Guttmacher Institute
Resources allocation/availability for reproductive health	Continuous	State's percentage of women in need of contraceptive services and supplies	The Guttmacher Institute
Control	Categorical	Women's age	2010 National Intimate Partner and Sexual Violence Survey
Control	Categorical	Women's education level	2010 National Intimate Partner and Sexual Violence Survey
Control	Categorical	Women's race	2010 National Intimate Partner and Sexual Violence Survey

Control	Continuous	State's violence climate	2010 United States Census Bureau's American Community Survey
Control	Continuous	State's population below poverty line	2010 United States Census Bureau's American Community Survey
Control	Continuous	State's male population aged 16 and older	2010 United States Census Bureau's American Community Survey
Control	Continuous	State's population median income	2010 United States Census Bureau's American Community Survey
Control	Continuous	State population unemployment	2010 United States Census Bureau's American Community Survey

Data Analysis

SAS 9.4 statistical software package was used to carry out all of the data analysis.

Statistical significance was assessed at the p-value of 0.05. Frequencies, means, and percentages were carried out for descriptive analysis of the study sample. Bivariate analysis was carried out using T-tests and chi-squared statistical tests.

Multivariate Analysis

Logistic regression was completed to answer all research questions and test all corresponding hypotheses. Logistic regression is the most appropriate test for the research study as the dependent variables of interest are dichotomous variables. Also, logistic regression was selected for the analysis due to the nature of the data. Initially, the two-part model was considered for the analysis which would have allowed examining the severity of violence among women. However, since the variation among women who experienced was not sufficient to apply the two-part model, logistic regression was selected for final data analysis.

The dependent variables were converted from continuous into dichotomous categorical variables (0=if a woman answered 0 to any of the questions under each violence type, 1=if a woman answered at least 1 to any of the questions under each violence type). To balance between stable state-level estimates and weight variation for the national estimates from oversampling of smaller states, the survey samples in 2010 National Intimate Partner and Sexual Violence Survey were stratified by state. To analyze data from the National Intimate Partner and Sexual Violence Survey, two main sets of weights were computed. The same principles to construct the various weight components were applied where one set of weights were calculated for all the partial and complete interviews, while another set of weights were calculated for the complete interviews only (National Institute of Justice, 2014). Thus, the “design” and “stratum” specifications were provided, and correct weights were applied in producing estimates in the data analysis process.

The following regression equation will be used to answer all three specific aims of the research study:

Regression Model 1:

$$\ln (p_i/1-p_i)=\beta_0+ X\beta+Y\beta+Z\beta+\varepsilon$$

Here, X includes all the variables that are used to measure different violence types experienced by women in each state including psychological aggression, coercive control, and entrapment, physical violence, stalking, sexual violence and rape.

Y includes the variables in each state that measures states’ women’s status, women’s reproductive rights status and availability of reproductive health resources across three components of the study.

Z includes the variables that measure women's characteristics such as age, race and education level as well as states' violent climate, poverty, income level, unemployment level and male population of aged 16 and older.

CHAPTER 4: RESULTS

This chapter includes the results of the empirical analyses. In the first section, descriptive statistics of study participants and bivariate results for one of the violence types are presented. In the following sections, the empirical models that tested each research question are presented.

Descriptive Analysis

Table 2 shows the characteristics of U.S. women who participated in the 2010 National Survey on Intimate Partner Violence and Sexual Violence Survey. Among women who responded to the survey, the majority are women aged 55 and older (34.9%), followed by women aged 45 to 55 (18.5%), women aged 25 to 34 (16.6%), women aged 35 to 44 (17.6%) and followed by women aged 18 to 24 (12.5%). In terms of racial group breakdown, the majority of the study participants is comprised of White (77%), followed by African American (12.9%), Hispanic or Latina (11.6%), Asian women (4.4%), American Indian or Alaskan Native (1.2%), and Native Hawaiian or other Pacific Islanders (0.5%), and other (4%) respectively. Among the total study population, only 13.8% are women with a postgraduate degree, while 46.7% are women with college graduate degree including technical and vocational degrees, and 29% are women with high school degree, and 10.4% of them are women who did not graduate from high school.

Regarding different violence types experienced, 43.3% women indicated that they experienced some psychological aggression in their lifetime. Almost 45% of women reported that they experienced some coercive control and entrapment in their lifetime. Thirty-seven percent of women indicated they were affected by physical violence at some point in their lifetime. Nearly 44% of the women reported experiencing stalking. Women who reported a sexual violence experience comprised 43.8% of the study group. Rape experience was reported by 16.8% of women in their lifetime.

Table 2: Data Summary Statistics of Study Sample (n = 9827)

Variables	Mean/n	SD/%
Psychological Aggression		
No	5570	56.7%
Yes	4257	43.3%
Coercive Control and Entrapment		
No	5534	55.4%
Yes	4293	44.6%
Physical Violence		
No	6157	63.6%
Yes	3670	37.4%
Stalking		
No	5561	56.2%
Yes	4266	43.8%
Sexual Violence		
No	5797	56.2%
Yes	4266	43.8%
Rape		
No	7437	83.2%
Yes	1541	16.8%
Age		
18-24	856	12.5%
25-34	1486	17.6%
35-44	1482	16.6%
45-54	1927	18.5%
55 or older	4076	34.9%
Race		
White	8289	77%
Black or African American	908	12.9%
Asian	194	4.4%
Native Hawaiian or other Pacific Islander	30	0.5%
American Indian or Alaskan Native	172	1.2%
Other	234	4%
Hispanic or Latino		

Yes	706	12%
No	9121	88.4%
Education Level		
Less than high school	757	10.4%
High school graduate	2874	29%
College graduate	4750	46.7%
Postgraduate	1446	13.8%

Descriptive results from the comparison of the women who reported psychological aggression and those who did not report psychological aggression are presented in Table 3. Age appears to have a significant association with experiencing psychological aggression among women ($X^2(4) = 268.57, p < .0001$). Also, a significant association between race and women's experience of psychological aggression was observed, $X^2(5) = 109.43, p < .0001$. However, no association was found between women of Hispanic race as compared to non-Hispanic women, $X^2(1) = 2.40, p = 0.37$. There was also not a significant association between education level and women's experience of psychological aggression, $X^2(3) = 14.34, p = 0.12$. No association found for all four dimensions of women's status including economic, educational, political and legal status of women's experience of psychological aggression. Women's reproductive rights' status in a state also was not found significantly associated with women's experience of psychological aggression, $X^2(4) = 2.73, p = 0.86$. Among independent variables for reproductive health care resources at a state level, state expenditure for abortion was significantly higher in the states where women did not report psychological aggression (5929.32 ± 216.88) compared with women who reported psychological aggression (5067.81 ± 222.80), $t(8009) = 5.07, p = 0.02$.

Table 3: Bivariate descriptive statistics by women's experience of psychological aggression

(N=9827)

Variables	Women who experienced psychological aggression	Women who did not experience psychological aggression	p-value
Age			<.0001
18-24	14.42%	10.96%	
25-34	19.32%	16.32%	
35-44	19.33%	14.44%	
45-54	21.02%	16.58%	
55 or older	25.91%	41.70%	
Race			<.0001
White	77.63%	76.57%	
Black or African American	14.57%	11.65%	
Asian	2.12%	6.21%	
Native Hawaiian or other Pacific Islander	0.42%	0.59%	
American Indian or Alaskan Native	1.28%	1.07%	
Other	3.98%	3.92%	
Hispanic or Latino			
Yes	4.79%	6.81%	0.37
No	38.59%	49.82%	
Education Level			0.12
Less than high school	11.36%	9.68%	
High school graduate	29.06%	28.98%	
College graduate	46.94%	46.58%	
Postgraduate	12.64%	14.75%	
Economic dimension	0.14	0.17	0.11
Educational dimension	-0.06	-0.05	0.56
Political dimension	-0.01	-0.02	0.71
Legal dimension			0.15
Category A (with strong protection)	18.84%	21.34%	
Category B (with moderate protection)	42.33%	40.95%	
Category C (with poor or no protection)	38.83%	37.71%	
Reproductive Rights Status			0.86
Grade A (with least restrictions on reproductive health)	30.07%	31.10%	
Grade B	7.12%	7.46%	
Grade C	4.77%	5.04%	
Grade D	20.04%	19.38%	

Grade F (with most restrictions on reproductive health)	38.00%	37.02%	
Women aged 15-44 without abortion clinics	35.21	34.36	0.24
State expenditure for abortions	5067.81	5929.32	0.02
State expenditure for family planning	12.98	12.78	0.53
Percentage of women in need of contraceptive services	0.23	0.23	0.41

Multivariate Analyses

The first specific aim of the research project was to examine the association between women's status and gender-based violence in the United States. Tables 4-9 show the result of the logistic regression analyses for the first specific aim. Each table describes the results from logistic regression models examining the relationship between women's status and gender-based violence for each violence type. Table 4 presents the results for association between women's status and psychological aggression. For the political dimension, the test results indicated that women living in the states where women's political status was high had lower odds (OR=0.80, p=0.03) of experiencing psychological aggression. Also, for the legal dimension's category B states, the test results indicated that women living in the states where women's legal status was higher had lower odds (OR= 0.86 p=0.03) of experiencing psychological aggression.

All other things being equal, it appears that women 55 and older (OR=2.23, [95% CI 1.78, 2.8]) had significantly higher odds of reporting psychological aggression compared to women aged 18 to 24. Also among racial groups, compared with White women, Asian women had significantly higher odds (OR=.31 [95% CI: 2.07, 5.31]) of reporting psychological aggression. Also, Hispanic women had higher odds of (OR=1.54, [95% CI: 1.17, 2.03]) reporting psychological aggression compared with non-Hispanic women.

Table 4: The relationship between women's status and psychological aggression among women (N=9827)

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	0.99	(0.87, 1.14)	0.96
Educational Dimension	1.08	(0.92, 1.26)	0.34
Political Dimension	0.80	(0.66, 0.97)	0.03
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	1.13	(0.86, 1.50)	0.38
Category B (with moderate protection)	0.86	(0.75, 0.99)	0.03
Category C (with poor or no protection)	Ref	Ref	Ref
Age			
18-24	ref	ref	ref
25-34	1.01	(0.78, 1.30)	0.95
35-44	0.96	(0.75, 1.24)	0.77
45-54	1.06	(0.83, 1.36)	0.63
55 or older	2.23	(1.78, 2.80)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.97	(0.79, 1.19)	0.76
Asian	3.31	(2.07, 5.31)	<.0001
Native Hawaiian or other Pacific Islander	1.47	(0.48, 4.45)	0.49
American Indian or Alaskan Native	0.91	(0.58, 1.43)	0.68
Other	0.90	(0.58, 1.40)	0.64
Hispanic or Latino			
Yes	1.54	(1.17, 2.03)	0.01
No	Ref	Ref	Ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.20	(0.93, 1.54)	0.15
College degree (including technical or vocational school)	1.24	(0.97, 1.59)	0.08
Postgraduate	1.27	(0.96, 1.69)	0.09
State Violent Climate	1.00	(0.99, 1.00)	0.37
State Poverty	0.98	(0.95, 1.01)	0.20
State male population aged 16 and older	1.05	(1.00, 1.10)	0.05

Table 5 describes the results for the association between women's status and coercive control and entrapment. For the political dimension, the test results indicated that women

residing in the states where women's political status is high had lower odds (OR= 0.81 p=0.03) of experiencing coercive control and entrapment in the states.

All things being equal, women 55 and older had significantly higher odds (OR=2.13, [95% CI: 1.70, 2.66]) of reporting coercive control and entrapment compared to women aged 18 to 24. Among racial groups, African American women had lower odds (OR=0.65 [95% CI: 0.53, 0.79]) of reporting coercive control and entrapment compared to White women. On the other hand, Asian women had higher odds (OR=3.04, [95% CI: 1.84, 5.03]) of reporting coercive control and entrapment than White women. Women with a postgraduate degree had significantly higher odds (OR=1.45, [95% CI: 1.10, 1.93]) of reporting coercive control and entrapment compared with women with less than high school education.

Table 5: The relationship between women's status and coercive control and entrapment among women (N=9827)

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	1.01	(0.88, 1.15)	0.89
Educational Dimension	0.99	(0.85, 1.16)	0.94
Political Dimension	0.81	(0.66, 0.98)	0.03
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	1.01	(0.77, 1.34)	0.92
Category B (with moderate protection)	0.97	(0.84, 1.12)	0.67
Category C (with poor or no protection)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.12	(0.87, 1.44)	0.39
35-44	1.04	(0.80, 1.33)	0.79
45-54	1.08	(0.85, 1.38)	0.54
55 or older	2.13	(1.70, 2.66)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.65	(0.53, 0.79)	0.01

Asian	3.04	(1.84, 5.03)	<.0001
Native Hawaiian or other Pacific Islander	1.20	(0.39, 3.65)	0.75
American Indian or Alaskan Native	0.82	(0.52, 1.31)	0.42
Other	0.71	(0.45, 1.10)	0.12
Hispanic or Latino			
Yes	1.18	(0.89, 1.55)	0.25
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.15	(0.90, 1.49)	0.27
College degree (including technical or vocational school)	1.19	(0.93, 1.53)	0.16
Postgraduate	1.45	(1.10, 1.93)	0.01
State Violent Climate	0.99	(0.99, 1.00)	0.05
State Poverty	0.97	(0.94, 0.99)	0.04
State male population aged 16 and older	1.04	(0.99, 1.09)	0.10

Tables 6-7 show the results for the association between women's status and physical violence and stalking. As indicated by test results, none of the four dimensions of women's status were significantly associated with neither physical violence nor stalking.

All things being equal, compared with White women, African American (OR= 0.77 [95% CI: 0.63, 0.94]), and American Indian or Alaska Native women (OR=0.56 [95% CI 0.35, 0.89]) had significantly lower odds of reporting physical violence, while Asian women (OR=3.69 [95% CI: 2.18, 6.25]) had significantly higher odds of reporting physical violence. Also, women with college (OR=1.32 [95% CI: 1.03, 1.70) and postgraduate degree (OR=1.70 [95% CI: 1.27, 2.28]) had significantly higher odds of reporting physical violence compared with women with lower than high school education degree.

Compared with White women, Asian women had significantly higher odds (OR=1.68 [95% CI: 1.07, 2.63]) of reporting stalking. Women with college (OR=0.70 [95% CI: 0.54, 0.92) and postgraduate degree (OR=0.54 [95% CI: 0.40, 0.72]) had significantly lower odds of reporting stalking compared with women with lower than high school education degree.

Table 6: The relationship between women's status and physical violence among women

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	1.03	(0.90, 1.18)	0.68
Educational Dimension	0.99	(0.84, 1.15)	0.85
Political Dimension	0.87	(0.71, 1.07)	0.19
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	1.09	(0.82, 1.45)	0.56
Category B (with moderate protection)	0.98	(0.85, 1.14)	0.81
Category C (with poor or no protection)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	0.94	(0.72, 1.23)	0.64
35-44	0.73	(0.56, 0.96)	0.02
45-54	0.70	(0.54, 0.91)	0.01
55 or older	1.17	(0.92, 1.49)	0.20
Race			
White	ref	ref	ref
Black or African American	0.77	(0.63, 0.94)	0.01
Asian	3.69	(2.18, 6.25)	<.0001
Native Hawaiian or other Pacific Islander	0.94	(0.31, 2.88)	0.90
American Indian or Alaskan Native	0.56	(0.35, 0.89)	0.01
Other	0.90	(0.58, 1.40)	0.64
Hispanic or Latino			
Yes	1.19	(0.90, 1.59)	0.23
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.28	(0.99, 1.66)	0.06
College degree (including technical or vocational school)	1.32	(1.03, 1.70)	0.03
Postgraduate	1.70	(1.27, 2.28)	0.01
State Violent Climate	1.00	(0.99, 1.00)	0.13
State Poverty	0.99	(0.96, 1.03)	0.71
State male population aged 16 and older	1.04	(0.99, 1.09)	0.12

Table 7: The relationship between women's status and stalking among women

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	1.12	(0.99, 1.29)	0.08
Educational Dimension	0.94	(0.81, 1.10)	0.46
Political Dimension	0.86	(0.70, 1.05)	0.14
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	0.93	(0.71, 1.24)	0.63
Category B (with moderate protection)	0.99	(0.85, 1.14)	0.85
Category C (with poor or no protection)	Ref	ref	Ref
Age			
18-24	ref	ref	ref
25-34	1.32	(1.02, 1.71)	0.04
35-44	1.38	(1.06, 1.80)	0.02
45-54	1.62	(1.26, 2.08)	0.01
55 or older	3.10	(2.45, 3.91)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.83	(0.67, 1.02)	0.07
Asian	1.68	(1.07, 2.63)	0.02
Native Hawaiian or other Pacific Islander	2.35	(0.64, 8.61)	0.20
American Indian or Alaskan Native	0.67	(0.42, 1.08)	0.10
Other	1.10	(0.69, 1.76)	0.69
Hispanic or Latino			
Yes	1.24	(0.94, 1.64)	0.13
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.82	(0.63, 1.08)	0.15
College degree (including technical or vocational school)	0.70	(0.54, 0.92)	0.01
Postgraduate	0.54	(0.40, 0.72)	<.0001
State Violent Climate	1.00	(1.00, 1.001)	0.93
State Poverty	0.98	(0.95, 1.01)	0.14
State male population aged 16 and older	1.01	(0.97, 1.06)	0.60

Table 8 describes the results for the association between women's status and sexual violence. For the economic dimension, the test results showed that women living in the states with high economic status had lower odds (OR=0.81, p=0.01) of reporting sexual violence.

All things being equal, compared with White women, African American (OR=1.45 [95% CI: 1.16, 1.81]), Asian (OR=2.42 [95% CI: 1.44, 4.09]) had significantly higher odds of reporting sexual violence. Also, Hispanic women (OR=1.47 [95% CI: 1.08, 2.01]) had significantly higher odds reporting sexual violence compared with non-Hispanic women. Women with college (OR=0.57 [95% CI: 0.42, 0.76) and postgraduate degree (OR=0.38 [95% CI: 0.28, 0.53) had significantly lower odds of reporting sexual violence than women with less than high school education level.

Table 8: The relationship between women's status and sexual violence among women

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	0.81	(0.70, 0.93)	0.01
Educational Dimension	0.97	(0.83, 1.14)	0.74
Political Dimension	0.93	(0.75, 1.14)	0.47
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	1.18	(0.88, 1.57)	0.27
Category B (with moderate protection)	0.98	(0.84, 1.14)	0.81
Category C (with poor or no protection)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.04	(0.79, 1.37)	0.77
35-44	0.86	(0.66, 1.13)	0.28
45-54	0.79	(0.61, 1.02)	0.07
55 or older	1.37	(1.07, 1.74)	0.01
Race			
White	ref	ref	ref
Black or African American	1.45	(1.16, 1.81)	0.01
Asian	2.42	(1.44, 4.09)	0.01
Native Hawaiian or other Pacific Islander	1.15	(0.35, 3.77)	0.82
American Indian or Alaskan Native	0.84	(0.51, 1.41)	0.51
Other	1.27	(0.79, 2.04)	0.33
Hispanic or Latino			
Yes	1.47	(1.08, 2.01)	0.02
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.74	(0.55, 1.00)	0.05

College degree (including technical or vocational school)	0.57	(0.42, 0.76)	0.01
Postgraduate	0.38	(0.28, 0.53)	<.0001
State Violent Climate	1.00	(0.99, 1.00)	0.55
State Poverty	0.99	(0.96, 1.02)	0.41
State male population aged 16 and older	1.04	(0.99, 1.10)	0.12

Table 9 presents the results of the association between women's status and rape. Contrary to our prediction, it appears that in the states with highest women's legal status, women had higher odds (OR=1.52, p=0.04) of reporting rape.

All things being equal, women aged 55 and older (OR=1.71 [95% CI: 1.27, 2.30]) had significantly higher odds of reporting rape in their lifetime compared with women aged 18 to 24. Compared with White women, Asian women (OR=4.18 [95% CI: 1.79, 9.78]) had significantly higher odds of reporting rape. Also, Hispanic women (OR=1.65 [95% CI: 1.13, 2.41]) had significantly higher odds of reporting rape compared with non-Hispanic women.

Table 9: The relationship between women's status and rape among women

Variables	Odds Ratio	95% CI	p-value
Economic Dimension	0.95	(0.79, 1.13)	0.54
Educational Dimension	1.12	(0.91, 1.39)	0.29
Political Dimension	0.77	(0.59, 1.01)	0.06
Legal Dimension (Equal Pay Laws)			
Category A (with strong protection)	1.52	(1.02, 2.26)	0.04
Category B (with moderate protection)	0.85	(0.70, 1.03)	0.10
Category C (with poor or no protection)	ref	ref	Ref
Age			
18-24	ref	ref	ref
25-34	1.19	(0.86, 1.66)	0.30
35-44	0.91	(0.66, 1.25)	0.56
45-54	0.81	(0.60, 1.10)	0.09
55 or older	1.71	(1.27, 2.30)	0.01
Race			

White	ref	ref	ref
Black or African American	0.96	(0.73, 1.25)	0.73
Asian	4.18	(1.79, 9.78)	0.01
Native Hawaiian or other Pacific Islander	0.49	(0.14, 1.76)	0.27
American Indian or Alaskan Native	0.62	(0.36, 1.06)	0.08
Other	0.93	(0.50, 1.71)	0.81
Hispanic or Latino			
Yes	1.65	(1.13, 2.41)	0.01
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.95	(0.66, 1.36)	0.77
College degree (including technical or vocational school)	0.94	(0.66, 1.34)	0.74
Postgraduate	1.31	(0.86, 1.98)	0.21
State Violent Climate	1.00	(0.99, 1.00)	0.39
State Poverty	0.98	(0.94, 1.02)	0.29
State male population aged 16 and older	1.05	(0.98, 1.12)	0.18

Part 2

The second specific aim of the research project was to examine the association between women's reproductive rights' status and gender-based violence in the United States through a state-level comparison. Table 10-15 present the results of the logistic regression analyses for the second specific aim. Each table describes the results from logistic regression models examining the relationship between women's reproductive rights' status and gender-based violence for different violence types. Table 10 presents the results of the association between women's reproductive rights' status and psychological aggression. As indicated by results, there is no significant association between women's reproductive rights' status in a state and women's experience of psychological aggression.

All things being equal, compared with White women, Asian women (OR=3.47 [95% CI: 2.16, 5.59]) had significantly higher odds of reporting psychological aggression. Also, Hispanic

women (OR=1.61 [95% CI: 1.22, 2.12]) had significantly higher odds of reporting psychological aggression compared with non-Hispanic women.

Table 10: The relationship between women’s reproductive rights’ status and psychological aggression among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.85	(0.70, 1.02)	0.08
Grade B	0.87	(0.61, 1.25)	0.45
Grade C	0.96	(0.74, 1.25)	0.76
Grade D	0.96	(0.81, 1.15)	0.66
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.00	(0.78, 1.29)	1.00
35-44	0.96	(0.74, 1.23)	0.73
45-54	1.05	(0.83, 1.35)	0.68
55 or older	2.23	(1.78, 2.80)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.98	(0.80, 1.20)	0.82
Asian	3.47	(2.16, 5.59)	<.0001
Native Hawaiian or other Pacific Islander	1.60	(0.51, 4.96)	0.42
American Indian or Alaskan Native	0.92	(0.58, 1.45)	0.71
Other	0.90	(0.58, 1.41)	0.66
Hispanic or Latino			
Yes	1.61	(1.22, 2.12)	0.01
No	ref	Ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.20	(0.93, 1.54)	0.17
College degree (including technical or vocational school)	1.24	(0.97, 1.59)	0.08
Postgraduate	1.28	(0.96, 1.69)	0.09
State Violent Climate	1.00	(0.99, 1.00)	0.69
State Poverty	0.99	(0.95, 1.04)	0.74
State male population aged 16 and older	1.03	(0.99, 1.08)	0.15
State Median Income	1.00	(1.00, 1.00)	0.43
State Unemployment	1.00	(0.97, 1.05)	0.83

Table 11 describes the results of the association between women’s reproductive rights’ status and women’s experience of coercive control and entrapment. Test results for Category A states indicate that in the states where women’s reproductive rights’ status is highest, women had lower odds (OR=0.80, p=0.02) of reporting coercive control and entrapment.

All things being equal, among racial groups, African American women had significantly lower odds (OR=0.65 [95% CI: 0.53, 0.79]) of reporting coercive control and entrapment, whereas Asian women had significantly higher odds (OR=3.12 [95% CI: 1.88, 5.18]) of reporting coercive control and entrapment compared with their White counterparts. Women with a postgraduate degree had significantly higher odds (OR=1.46 [95% CI: 1.10, 1.94]) of reporting coercive control and entrapment compared with women with lower than high school degree.

Table 11: The relationship between women’s reproductive rights’ status and coercive control and entrapment among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.80	(0.66, 0.96)	0.02
Grade B	0.84	(0.59, 1.20)	0.34
Grade C	1.07	(0.82, 1.40)	0.60
Grade D	0.86	(0.73, 1.03)	0.10
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.12	(0.87, 1.44)	0.40
35-44	1.03	(0.80, 1.33)	0.81
45-54	1.08	(0.84, 1.37)	0.56
55 or older	2.13	(1.71, 2.67)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.65	(0.53, 0.79)	<.0001
Asian	3.12	(1.88, 5.18)	<.0001
Native Hawaiian or other Pacific Islander	1.28	(0.41, 3.95)	0.67
American Indian or Alaskan Native	0.84	(0.53, 1.40)	0.46
Other	0.70	(0.45, 1.09)	0.12
Hispanic or Latino			

Yes	1.20	(0.91, 1.58)	0.19
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.15	(0.89, 1.48)	0.29
College degree (including technical or vocational school)	1.19	(0.93, 1.53)	0.16
Postgraduate	1.46	(1.10, 1.94)	0.01
State Violent Climate	1.00	(0.99, 1.00)	0.10
State Poverty	1.00	(0.96, 1.04)	0.90
State male population aged 16 and older	1.03	(0.99, 1.07)	0.21
State Median Income	1.00	(1.00, 1.00)	0.07
State Unemployment	1.00	(0.96, 1.05)	0.84

Table 12 describes the results for the association between women's reproductive rights' status and physical violence. The results indicated that there is no significant association between women's reproductive rights' status and women's experience of physical violence in those states.

All things being equal, among age groups, women in age groups of 35-44 (OR=0.73 [95% CI: 0.56, 0.96]), and 45-54 (OR=0.70 [95% CI: 0.54, 0.90]) had significantly lower odds of reporting physical violence compared to women aged 18 to 24. African American (OR=0.77 [95% CI: 0.63, 0.94]) and American Indian women (OR=0.57 [95% CI: 0.36, 0.91]) had significantly lower, while Asian women (OR=3.83 [95% CI: 2.26, 6.50]) had significantly higher odds of reporting physical violence compared with their White counterparts. Also, women with a college degree (OR=1.33 [95% CI: 1.03, 1.71]) and postgraduate degree (OR=1.71 [95% CI: 1.27, 2.29]) had significantly higher odds of reporting physical violence than women with less than high school education level.

Table 12: The relationship between women’s reproductive rights’ status and physical violence among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.86	(0.71, 1.05)	0.13
Grade B	1.11	(0.77, 1.59)	0.59
Grade C	1.06	(0.81, 1.38)	0.68
Grade D	0.95	(0.80, 1.14)	0.60
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	0.94	(0.72, 1.22)	0.63
35-44	0.73	(0.56, 0.96)	0.02
45-54	0.70	(0.54, 0.90)	0.01
55 or older	1.18	(0.93, 1.50)	0.18
Race			
White	ref	ref	ref
Black or African American	0.77	(0.63, 0.94)	0.01
Asian	3.83	(2.26, 6.50)	<.0001
Native Hawaiian or other Pacific Islander	1.00	(0.32, 3.12)	1.00
American Indian or Alaskan Native	0.57	(0.36, 0.91)	0.02
Other	0.90	(0.57, 1.40)	0.64
Hispanic or Latino			
Yes	1.23	(0.92, 1.63)	0.16
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.28	(0.99, 1.66)	0.06
College degree (including technical or vocational school)	1.33	(1.03, 1.71)	0.03
Postgraduate	1.71	(1.27, 2.29)	0.01
State Violent Climate	1.00	(0.99, 1.00)	0.14
State Poverty	1.02	(0.97, 1.06)	0.44
State male population aged 16 and older	1.02	(0.97, 1.07)	0.36
State Median Income	1.00	(1.00, 1.00)	0.10
State Unemployment	1.01	(0.97, 1.05)	0.80

In Table 13, the results of the association between women's reproductive rights' status and women's experience of stalking are described. No significant association was found between reproductive rights' status of women and their experience of stalking.

All things being equal, compared with White women, Asian women had significantly higher odds (OR=1.68 [95% CI: 1.07, 2.63]) of reporting stalking. Women with a college degree (OR=0.70 [95% CI: 0.54, 0.92]) and postgraduate degree (OR=0.54 [95% CI: 0.40, 0.72]) had significantly lower odds of reporting staking compared with women with less than high school degree.

Table 13: The relationship between women's reproductive rights' status and stalking among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.92	(0.76, 1.12)	0.40
Grade B	1.04	(0.73, 1.49)	0.81
Grade C	1.01	(0.77, 1.32)	0.94
Grade D	0.92	(0.77, 1.09)	0.33
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.32	(1.02, 1.72)	0.03
35-44	1.38	(1.06, 1.80)	0.02
45-54	1.62	(1.26, 2.09)	0.01
55 or older	3.10	(2.46, 3.92)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.83	(0.68, 1.02)	0.08
Asian	1.68	(1.07, 2.63)	0.02
Native Hawaiian or other Pacific Islander	2.43	(0.66, 8.92)	0.18
American Indian or Alaskan Native	0.67	(0.42, 1.08)	0.10
Other	1.09	(0.68, 1.75)	0.71
Hispanic or Latino			
Yes	1.25	(0.94, 1.65)	0.12
No	ref	ref	ref
Educational Level			

Less than high school	ref	ref	ref
High school graduate	0.82	(0.63, 1.07)	0.15
College degree (including technical or vocational school)	0.70	(0.54, 0.92)	0.01
Postgraduate	0.54	(0.40, 0.72)	<.0001
State Violent Climate	1.00	(1.00, 1.00)	0.52
State Poverty	0.10	(0.95, 1.04)	0.92
State male population aged 16 and older	0.99	(0.95, 1.03)	0.65
State Median Income	1.00	(1.00, 1.00)	0.06
State Unemployment	1.01	(0.97, 1.05)	0.68

Table 14 presents the results for the association between women's reproductive rights' status and sexual violence. No significant difference was found between women's reproductive rights' status and women's experience of sexual violence.

All things being equal, among racial groups, African American (OR=1.43 [95% CI: 1.14, 1.79]) and Asian (OR=2.56 [95% CI: 1.52, 4.33]) women had significantly higher odds of reporting sexual violence compared with their White counterparts, while Hispanic women had significantly higher odds (OR=1.55 95% CI: 1.14, 2.12)) of reporting sexual violence compared with non-Hispanic women.

Table 14: The relationship between women's reproductive rights' status and sexual violence among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.87	(0.71, 1.06)	0.17
Grade B	1.20	(0.82, 1.74)	0.36
Grade C	1.24	(0.94, 1.63)	0.13
Grade D	0.89	(0.74, 1.07)	0.20
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.03	(0.79, 1.36)	0.83
35-44	0.85	(0.65, 1.12)	0.25

45-54	0.78	(0.60, 1.01)	0.06
55 or older	1.37	(1.08, 1.75)	0.01
Race			
White	ref	ref	ref
Black or African American	1.43	(1.14, 1.79)	0.01
Asian	2.56	(1.52, 4.33)	0.01
Native Hawaiian or other Pacific Islander	1.23	(0.36, 4.21)	0.74
American Indian or Alaskan Native	0.89	(0.53, 1.48)	0.63
Other	1.29	(0.80, 2.08)	0.30
Hispanic or Latino			
Yes	1.55	(1.14, 2.12)	0.01
No	Ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.74	(0.55, 1.00)	0.05
College degree (including technical or vocational school)	0.57	(0.42, 0.77)	0.01
Postgraduate	0.39	(0.28, 0.54)	<.0001
State Violent Climate	1.00	(0.99, 1.00)	0.51
State Poverty	1.00	(0.95, 1.05)	0.97
State male population aged 16 and older	1.04	(0.99, 1.08)	0.12
State Median Income	1.00	(1.00, 1.00)	0.31
State Unemployment	1.00	(0.96, 1.04)	0.88

Table 15 describes the results of the association between women's reproductive rights' status and women's experience of rape. Based on our analysis, no significant association was found between reproductive rights' status of women and their experience of rape.

All things being equal, compared with White women, Asian women (OR=4.52 [95% CI: 1.92 10.61]) had significantly higher odds of reporting rape, while Hispanic women had significantly higher odds (OR=1.78 [95% CI: 1.20, 2.63]) of reporting rape compared with non-Hispanic women.

Table 15: The relationship between women’s reproductive rights’ status and rape among women

Variables	Odds Ratio	95% CI	p-value
Reproductive Rights Status			
Grade A (with least restrictions on reproductive health)	0.88	(0.68, 1.14)	0.34
Grade B	1.07	(0.64, 1.78)	0.80
Grade C	0.98	(0.69, 1.40)	0.92
Grade D	0.99	(0.77, 1.27)	0.92
Grade F (with most restrictions on reproductive health)	ref	ref	ref
Age			
18-24	ref	ref	ref
25-34	1.17	(0.83, 1.64)	0.37
35-44	0.90	(0.65, 1.23)	0.50
45-54	0.81	(0.59, 1.10)	0.18
55 or older	1.71	(1.27, 2.31)	0.89
Race			
White	ref	ref	ref
Black or African American	0.96	(0.73, 1.25)	0.75
Asian	4.52	(1.92, 10.61)	0.01
Native Hawaiian or other Pacific Islander	0.55	(0.14, 2.11)	0.38
American Indian or Alaskan Native	0.63	(0.36, 1.09)	0.10
Other	0.95	(0.51, 1.75)	0.87
Hispanic or Latino			
Yes	1.78	(1.20, 2.63)	0.01
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.95	(0.66, 1.36)	0.76
College degree (including technical or vocational school)	0.94	(0.66, 1.35)	0.75
Postgraduate	1.30	(0.86, 1.98)	0.21
State Violent Climate	1.00	(0.99, 1.00)	0.59
State Poverty	0.99	(0.94, 1.06)	0.86
State male population aged 16 and older	1.02	(0.96, 1.08)	0.46
State Median Income	1.00	(1.00, 1.00)	0.67
State Unemployment	1.00	(0.95, 1.07)	0.90

Part 3

The third specific aim of the research project was to examine the association between resources for reproductive health care and gender-based violence in the United States. For this portion of the research project, the association between four main independent variables related to reproductive health care resources and gender-based violence was examined. The independent variables related to reproductive health care resources included the percentage of women without abortion providers, the percentage of women who are in need of contraceptive services, state expenditure levels for abortion, and state expenditure levels for family planning. Similar two variables on health care resources related to abortion and two variables on health care resources related to family planning were selected to have consistency among variables. They were also chosen due to availability of the variables from the database. Additionally, these variables were chosen as they were believed to be the best reflection of reproductive health care resources at a state level available from the database they were extracted. Due to collinearity among them, each independent variable was run with outcome variables in a separate model and a total of 24 models were analyzed in this portion of the study. The results of the logistic regression analyses where significant associations were found are presented in the Tables 16-20. The results of logistic other regression analyses where the significant association between independent and dependent variables were not found are presented in Appendix A.

Table 16 presents the results for the association between the percentage of women aged 14-55 without abortion providers and women's experience of coercive control and entrapment. As indicated by odds ratio test results, there is a marginally significant association between the percentage of women aged 14-55 without abortion providers in a state and women's experience of coercive control and entrapment in that state. Women had higher odds (OR=1.01, p=0.05) of reporting coercive control and entrapment in the states where the percentage of women who did not have abortion providers was higher.

All things being equal, among racial groups, African American women had lower odds (OR=0.65 [95% CI: 0.53, 0.79]) of reporting coercive control and entrapment compared with White women. On the other hand, Asian women had higher odds (OR=3.13 [95% CI: 1.89, 5.19]) of reporting coercive control and entrapment compared with their White counterparts. Also, women with a postgraduate degree had higher odds (OR=1.46 [95% CI: 1.10, 1.93]) of reporting coercive control and entrapment compared with women with less than high school degree.

Table 16: The relationship between reproductive health care resources and coercive control and entrapment among women

Variables	Odds Ratio	95% CI	p-value
Percentage of women aged 14-55 without abortion providers	1.01	(1.00, 1.01)	0.05
Age			
18-24	ref	ref	ref
25-34	1.12	(0.87, 1.44)	0.39
35-44	1.03	(0.80, 1.33)	0.80
45-54	1.08	(0.85, 1.37)	0.54
55 or older	2.14	(1.71, 2.67)	<.0001
Race			
White	ref	ref	ref
Black or African American	0.65	(0.53, 0.79)	<.0001
Asian	3.13	(1.89, 5.19)	<.0001
Native Hawaiian or other Pacific Islander	1.31	(0.43, 4.02)	0.64
American Indian or Alaskan Native	0.83	(0.52, 1.33)	0.44
Other	0.71	(0.46, 1.11)	0.13
Hispanic or Latino			
Yes	1.22	(0.92, 1.60)	0.17
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.15	(0.89, 1.48)	0.28
College degree (including technical or vocational school)	1.20	(0.94, 1.53)	0.16
Postgraduate	1.46	(1.10, 1.93)	0.01
State Violent Climate	1.00	(0.99, 1.00)	0.18
State Poverty	0.99	(0.95, 1.03)	0.61
State male population aged 16 and older	1.02	(0.98, 1.06)	0.36
State Median Income	1.00	(1.00, 1.00)	0.10

State Unemployment	1.00	(0.96, 1.05)	0.85
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Table 17 presents the association between state expenditures for family planning and women's experience of physical violence. As indicated by odds ratio, there is a marginally significant association between the state's expenditure for family planning and women's experience of physical violence in that state. Women had lower odds (OR=0.99 [95% CI: 0.99, 1.00]) of reporting physical violence in the states where the expenditures for family planning services was higher.

All things being equal, among racial groups, African American (OR=0.77 [95% CI: 0.62, 0.95]) and American Indian or Alaska Native women had lower odds (OR=0.53 [95% CI: 0.33, 0.86]) of reporting physical violence compared with White women. On the other hand, Asian women had higher odds (OR=3.63 [95% CI: 2.13, 6.18]) of reporting physical violence compared with their White counterparts. Also, women with postgraduate (OR=1.69 [95% CI: 1.25, 2.28]) and college degree (OR=1.34 [95% CI: 1.03, 1.73]) had higher odds of reporting physical violence compared with women with less than high school degree.

Table 17: The relationship between reproductive health care resources and physical violence among women

Variables	Odds Ratio	95% CI	p-value
State expenditure on family planning services	0.99	(0.99, 1.00)	0.05
Age			
18-24	ref	ref	ref
25-34	0.98	(0.74, 1.29)	0.88
35-44	0.78	(0.59, 1.02)	0.07
45-54	0.73	(0.56, 0.95)	0.02
55 or older	1.20	(0.94, 1.54)	0.15
Race			
White	ref	ref	ref
Black or African American	0.77	(0.62, 0.95)	0.01
Asian	3.63	(2.13, 6.18)	<.0001

Native Hawaiian or other Pacific Islander	0.91	(0.29, 2.91)	0.89
American Indian or Alaskan Native	0.53	(0.33, 0.86)	0.01
Other	0.95	(0.60, 1.49)	0.81
Hispanic or Latino			
Yes	1.20	(0.90, 1.59)	0.22
No	Ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	1.30	(0.10, 1.69)	0.05
College degree (including technical or vocational school)	1.34	(1.03, 1.73)	0.03
Postgraduate	1.69	(1.25, 2.28)	0.01
State Violent Climate	1.00	(0.99, 1.00)	0.28
State Poverty	1.02	(0.97, 1.06)	0.51
State male population aged 16 and older	1.03	(0.99, 1.07)	0.14
State Median Income	1.00	(1.00, 1.00)	0.32
State Unemployment	1.00	(0.96, 1.04)	0.79

Note: Expenditure are estimated using the average spending in the other non-restrictive states

Table 18 describes the results of the association between the state expenditure for family planning and women's experience of sexual violence. As indicated by odds ratio test results, there is a significant negative association between the state expenditures for family planning and women's experience of sexual violence. Women had lower odds (OR=0.99 [95% CI: 0.98, 0.99]) of reporting sexual violence in states where the expenditures for family planning services by the state is higher.

All things being equal, among racial groups, African American (OR=1.40 [95% CI: 1.11, 1.77]) and Asian women had higher odds (OR=2.57 [95% CI: 1.51, 4.38]) of reporting sexual violence compared with White women. Also, Hispanic women had higher odds (OR=1.55 [95% CI: 1.13, 2.12]) of reporting sexual violence compared with non-Hispanic women. Also, women with postgraduate (OR=0.37 [95% CI: 0.26, 0.52]) and college degree (OR=0.55 [95% CI: 0.41, 0.75]) had lower odds of reporting sexual violence compared with women with less than high school degree.

Table 18: The relationship between reproductive health care resources and sexual violence among women

Variables	Odds Ratio	95% CI	p-value
State expenditure for family planning	0.99	(0.98, 0.99)	0.04
Age			
18-24	ref	ref	ref
25-34	1.03	(0.78, 1.37)	0.82
35-44	0.86	(0.65, 1.15)	0.31
45-54	0.77	(0.59, 1.02)	0.06
55 or older	1.35	(1.06, 1.74)	0.02
Race			
White	ref	ref	ref
Black or African American	1.40	(1.11, 1.77)	0.01
Asian	2.57	(1.51, 4.38)	0.01
Native Hawaiian or other Pacific Islander	1.10	(0.32, 3.81)	0.89
American Indian or Alaskan Native	0.82	(0.48, 1.41)	0.49
Other			
Hispanic or Latino	1.24	(0.77, 2.01)	0.38
Yes	1.55	(1.13, 2.12)	0.01
No	ref	ref	ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.74	(0.54, 1.00)	0.05
College degree (including technical or vocational school)	0.55	(0.41, 0.75)	0.01
Postgraduate	0.37	(0.26, 0.52)	<.0001
State Violent Climate	1.00	(0.99, 1.00)	0.97
State Poverty	0.99	(0.94, 1.04)	0.66
State male population aged 16 and older	1.05	(1.01, 1.09)	0.03
State Median Income	1.00	(1.00, 1.00)	0.08
State Unemployment	0.98	(0.94, 1.02)	0.34

Note: Expenditure are estimated using the average spending in the other non-restrictive states

Table 19 describes the results of the association between the state expenditure for family planning and women's experience of rape. As indicated by odds ratio test results, there is a marginally significant association between the state expenditure levels for family planning and women's experience of rape. Women had lower odds (OR=0.99 [95% CI: 0.98, 1.00]) of

reporting rape in state states where the expenditures for family planning services by the state is higher.

All things being equal, Asian women had higher odds (OR=4.43 [95% CI: 1.88, 10.43]) of reporting rape compared with White women. Also, Hispanic women had higher odds (OR=1.77 [95% CI: 1.19, 2.61]) of reporting rape compared with non-Hispanic women.

Table 19: The relationship between reproductive health care resources and rape among women

Variables	Odds Ratio	95% CI	p-value
State expenditure for family planning	0.99	(0.98, 1.00)	0.05
Age			
18-24	ref	ref	ref
25-34	1.19	(0.84, 1.69)	0.32
35-44	0.87	(0.64, 1.23)	0.47
45-54	0.81	(0.59, 1.11)	0.18
55 or older	1.71	(1.25, 2.32)	0.01
Race			
White	ref	ref	ref
Black or African American	0.94	(0.71, 1.24)	0.66
Asian	4.43	(1.88, 10.43)	0.01
Native Hawaiian or other Pacific Islander	0.51	(0.13, 1.94)	0.32
American Indian or Alaskan Native	0.58	(0.33, 1.01)	0.05
Other	0.98	(0.53, 1.84)	0.96
Hispanic or Latino			
Yes	1.77	(1.19, 2.61)	0.01
No	ref	ref	Ref
Educational Level			
Less than high school	ref	ref	ref
High school graduate	0.92	(0.63, 1.34)	0.66
College degree (including technical or vocational school)	0.91	(0.63, 1.31)	0.61
Postgraduate	1.29	(0.84, 1.98)	0.25
State Violent Climate	1.00	(0.99, 1.00)	0.94
State Poverty	0.98	(0.93, 1.05)	0.72
State male population aged 16 and older	1.03	(0.98, 1.09)	0.27
State Median Income	1.00	(1.00, 1.00)	0.85
State Unemployment	1.01	(0.95, 1.06)	0.94

Note: Expenditure are estimated using the average spending in the other non-restrictive states

CHAPTER 5: DISCUSSION

Major Implications of the Study

The purpose of the study was to determine the association between structural violence expressed through women's status, reproductive rights' status and reproductive health care resources and gender-based violence in the United States.

The findings of the study indicate that different types of violence experienced by women may be associated with different structural forms of violence. It appears that political, legal and economical dimensions of women's status are significant factors among four dimensions of women's status in a state that had a significant association with women's experience of violence, particularly psychological aggression, coercive control and entrapment, and sexual violence in those states.

The finding related to women's reporting of rape in the states where women's legal status was highest is consistent with the finding of the study by Yllo (1983). Yllo found that in the states where the status of women is highest, women reported having a high level of violence. Yllo suggested that violence decreases as the status of women increase to a point and the high rate of violence against women in the states with high women's status. He posits that it may be attributed to some other factors such as the rapid social change and the breakdown of traditional husband-wife roles where males may feel threatened, and the violence could be the consequence of women's move toward equality (Yllo, 1983).

Unlike previous studies (Yllo, 1983, Straus, 1994), this study did not find any significant association between women's status and physical violence. Since the studies above were conducted two to three decades ago, it may be reasonable to assume that it may be because U.S. society and culture have changed since then. It appears that women may not be affected by physical violence to the extent that they were to two to three decades ago. This decrease in

physical violence may be attributed to changes in legislation and other policy changes. For example, some scholars explain the two-decades long decline in intimate partner homicide with societal changes such as shifts in marriage (Rosenfeld, 1997), divorce, the improved economic status of women, and rise in the availability of domestic violence services (Dogun, Nagin, & Rosenfeld, 1999).

However, the findings of this study suggest that there are other forms of violence experienced by women that need to be addressed. Although there is a decline in physical violence in the last several decades in the United States, the study findings suggest that psychological types of violence such as psychological aggression and coercive control and entrapment may be more prevalent than physical types of violence in the modern U.S. society. Since these two types of violence were strongly associated with structural forms of violence across all three components of the study, this may indicate that psychological types of violence should be recognized and require attention from the legislative perspective.

This study contributes to the gender-based violence literature from the perspective of violence types. Gender-based violence has been mainly viewed in the realm of physical violence and hence most of the previous studies on gender-based violence, particularly the studies that examined the impact of structural factors on gender-based violence primarily concentrated on physical violence, and few on sexual violence. This study explored the effect of structural violence on six types of violence including psychological aggression, coercive control, and entrapment, physical violence, stalking, sexual violence and rape. It also contributes to the current evidence on specific aspects of women's status that are associated with various types of violence in the United States.

Another finding of the study is related to the association between the ability of women to exercise their reproductive rights and the different types of violence experienced by women in

those states. It appears that in the states where women can exercise their reproductive freedom, they are less likely to report experiencing coercive control and entrapment, sexual violence, physical violence, and rape. This study is the first of its kind to use women's reproductive freedom measured through reproductive rights status and availability of reproductive health care resources to test their relationship with different types of violence experienced by women. Furthermore, this is the first study to our knowledge that utilized a nationally representative sample data base to empirically examine the relationship between reproductive freedom and individual women's experience in relation to multiple types of violence in the United States.

This study adds to the growing body of literature on the relationship between structural factors and gender-based violence. Gender-based violence has been studied extensively in the literature. However, the focus of the previous studies has been on examining the factors at an individual or proximate levels. Some researchers have examined the structural level factors, but most of the research conducted in third world countries where demographics, culture, economic and political environment vary considerably from the United States. Studies conducted in the United States on structural violence and gender-based violence are limited, and those studies mainly focused on domestic violence or wife beating.

This study also revealed interesting findings with regards to the experience of violence by women of different racial groups. According to current evidence, African American females experience intimate partner violence at a higher rate than that of white females (Women of Color Network, 2006). However, when women's status and reproductive freedom factors were taken into account, African American women were less likely to experience physical violence and coercive control and entrapment compared with White women across all three portions of the study. However, they were more likely to report sexual violence even after adjustments were made for women's status and reproductive freedom in their status. Similarly, the current evidence posits that American Indian or Alaska Native women are at greater risk for intimate partner

violence, rape, and stalking (Centers for Disease Control and Prevention, 2014). This study found that they are less likely to experience physical violence compared with White women when women's status and reproductive freedom factors were taken into account. Unlike women who belong to aforementioned racial groups, the similar scenario was not observed among Asians and Hispanic women. In this study, these groups were more likely to experience psychological aggression, sexual violence, physical violence and rape compared with their White counterparts even after structural violence factors were accounted for.

The study also revealed some findings related to violence experience of women with different education status. Current evidence posits that low academic achievement is a risk factor at an individual level for experiencing violence among women (CDC, 2016). However, the study findings suggest that women with a college degree and postgraduate degree are more likely to report physical violence when structural factors in a state were accounted for. The study by Yllo (1984) reported that in the states where women's status was highest, women were more likely to report intimate partner violence if the male was still dominating the household. Based on Yllo's (1984) findings related to the context of intimate partner violence, the findings of this study may suggest that women with a high educational degree still may report violence if males dominate their households, despite the fact that women's status and reproductive rights status are high in the states they reside.

This study is likely to be of interest to researchers focused on gender-based violence and reproductive health, but also to policy makers that are interested in understanding the macro level factors that are associated with gender-based violence. The findings of the study would be of particular interest to human rights advocates in the United States, especially to those who are involved in research and advocacy for women's rights and reproductive freedom, as well as violence against women.

Limitations

There are some limitations associated with this study. To examine all research questions, this study used secondary data that was collected through a cross-sectional study design. True cause and effect relationships cannot be established with this research design. Secondly, with this research design, there are some threats to internal validity. More specifically, because the study focused on the impact of macro level factors on micro level outcomes, there is a possibility that some of the critical confounding factors at these levels and levels in between that are unknown to the current evidence were not included in the analysis. Furthermore, it is also challenging to establish the direct impact of structural violence on women's violence. That is because unlike physical violence, structural violence is invisible, and may have influence indirectly. However, it is important to note that this limitation is present in topics similar to ours that are considered complex and multidimensional issues, where there are different factors at multiple levels that are interconnected, and there is no single cause of the problem.

There are also some limitations related to the data and methodologies used in the study. The data were collected at a point in time and only captures the experience of women at the certain time. To address this issue, the questions that asked about the experience of women at any point in their lifetime were selected over questions of their violence experience over the last 12 month period. Most of the previous studies on gender-based violence have used questions that only asked violence experiences over the last 12 months. The major limitation of this approach is that women who did not have violence experience over the last 12 months but had one or more before that time would not be captured. While lifetime questions allow us to capture more violence cases, it created the limitation regarding women's experience of violence which may not have happened in the same state where they were surveyed. Due to that, a sensitivity analysis was

conducted using questions related to past 12 months experience, and no significant association was found between structural forms of violence and gender-based violence. Also, according to the United States Census Bureau (2016), the percentage of people moving to different state per year for the period of 1948-2016 is around 2-3%. Based on that, assuming the majority of the women survey participants were living in the same state when they experienced violence where they took part in the survey, those questions were appropriate for this study.

Another limitation of the 2010 National Intimate Partner and Sexual Violence Survey, the main dataset used to retrieve dependent variables is that among women who reported violence experience in their lifetime, there was not much variation to analyze severity of violence which could potentially allowed to explore the association between severity of violence and structural forms of violence in the United States.

There were limitations related to several independent variables used in the study at a state level that were not available for the year 2010, so they were not consistent with dependent variables in the study. The independent variables that were used to calculate four dimensions of women's status retrieved from the Institute for Women's Policy Research's Status of Women Project database were available for the year 2013 only. Furthermore, some of the independent variables retrieved from the Guttmacher Institute on reproductive resources in each state were available for 2014. Those variables included the percentage of women aged 15 to 44 years who are without abortion providers and percentage of women in need of contraceptive services. The only control variable that was not available for the year 2010 was state's violence climate, so the data for 2009 were used instead. Although using the variables above for the year of 2010 would have been ideal regarding consistency of all data used in the study, we assume that the status of women or availability of reproductive resources at a state level did not change drastically over the study period. Therefore, the variables were appropriate for this study.

Another limitation of the study was the use of equal pay laws in each state to measure the legal dimension of women's status. Previous studies (Straus, 1994; Yllo, 1983) have used multiple variables to measure the legal dimension of women's status including the equal pay laws in the states. Although using multiple variables would improve the measurement of the legal dimension of women's status, it was the only variable available.

Another potential limitation is related to underreporting of rape and sexual assault. According to the U.S. Department of Justice, Bureau of Justice Statistics, the majority of rape and sexual assault cases against women in the United States were not reported to the police based on the data for the period of 1992-2000 (U.S. Department of Justice, 2002). This may suggest that rape and sexual violence may have been underreported by respondents of 2010 National Intimate Partner Violence and Sexual Violence Survey and create limitation due to the potential impact on the study findings. However, in order to determine contexts affecting the reporting of sexual assault, the National Institute of Justice and the Bureau of Justice Statistics conducted the National College Women Sexual Victimization Study in 2000 where methodologies of National Crime Victimization Survey (NCVS), National Intimate Partner and Sexual Violence Survey (NISVS) and the Campus Sexual Assault Study (CSA). The study revealed that despite being conducted at different times, with different samples and reference periods, both NISVS and CSA produced rates of prevalence of sexual assault substantially higher than the prevalence rates reported in NCVS. The key measurement differences that contributed to this different estimate were survey context and scope, how rape and sexual assault were defined in the surveys, and wording of the questions related to sexual assaults are asked. The NISVS and CSA are presented as a survey about public health rather than a survey about crime. The NISVS and CSA use a broader definition of sexual violence rather than a shaped definition from a criminal justice perspective. Also, NISVS and CSA use specific questions to behaviors to determine if the respondent experienced rape or sexual assault (U.S. Department of Justice, 2014). Given the

results of the above study, underreporting of rape and sexual assaults is not a major limitation of the NISVS, and we assume that it did not affect the findings of this research study.

Practice and Policy Implications

There are several practice and policy implications of the study. It appears that aspects of women's status such as political, legal and economical, as well as women's reproductive freedom have significant associations with women's experience of certain types of violence. Policy makers that wish to address the issue of violence against women should consider reviewing and addressing policies and practices in their respective states that promote gender equality and women's freedom to exercise their reproductive rights.

Additionally, it appears that psychological forms of violence such as psychological aggression and coercive control and entrapment are strongly associated with structural forms of violence. This may suggest that these forms of violence may be prevalent among women in the modern United States. Thus, policy makers that wish to address violence against women issue in their states may also bring their attention to psychological types of violence, and address them from the legislative and practical standpoint.

These study findings convey several important messages to public health researchers who are involved in designing, developing and testing interventions related to violence against women in the United States. Gender is an embedded element of institutions and social systems that we live in. Although structural violence is an invisible form of violence, it creates conditions conducive to interpersonal violence to occur, which leads to shaping gendered forms of violence which position women to be vulnerable. Violence against women is a multifaceted issue that cannot be explained by a single cause. The prevalence of many complex public health problems similar to violence against women was reduced by public health efforts when a population health lens was applied. This study suggests that public health strategies that fail to address structural

violence factors and power relations between genders in the society will continue to fall short regarding addressing all the multiple factors contributing to violence against women (Montesanti & Thurston, 2015).

The finding related to the differences observed in women's experience of violence among racial minority women, when structural violence factors were accounted for, may also serve as an important message to public health researchers and practitioners. The findings related to racial groups may offer an avenue for public health researchers to further explore the differences in violence experience among racial groups when structural factors were adjusted for, as well as specific violence interventions that affect women across all racial groups.

Future Research

Future studies could improve upon this study by using longitudinal data to examine the relationship between structural violence and gender-based violence in the United States. This dataset is the most recently available National Intimate Partner and Sexual Violence Survey, and combining the datasets of this survey for the years before and after 2010 will strengthen the study by providing researchers greater statistical power to determine the relationship between structural violence and gender-based violence. Specifically, a longitudinal dataset may provide a larger sample for the study, as well as opportunity to examine the trends in different types of violence across different groups of women populations over time. Future studies also could benefit from using the county as a unit of analysis to further explore gender-based violence types within each state, particularly to investigate the association between reproductive resource availability and gender-based violence. This may also help to determine the areas within each state may be mostly affected by structural violence, and target those areas for further research and intervention programs.

From the perspective of methodology, future studies could also improve upon this study by further exploring and adjusting the measurements used in the study. This is the first study that used women's reproductive rights status as a measure of women's status in addition to four dimensions of women's status that previous studies have used. The use of the status of reproductive rights' as a measure could be further tested and improved by breaking down the elements of reproductive rights into different categories and test each category separately, as well as exploring why certain aspects of women's reproductive rights' status have more or less impact on particular violence types.

Another opportunity for new research exists within the 2010 National Intimate Partner and Sexual Violence Survey. This survey includes follow-up questions on all types of violence asked in the survey, as well as details of perpetrators. With this additional information, the survey provides an opportunity to further explore the context when the violence occurred to women. Furthermore, the findings of our study indicate that women of various racial groups could be affected differently by different aspects of structural violence. These particular findings could be further investigated with regards to the effect of structural violence on gender-based violence in the multicultural country like the United States. This will be one of the future studies I plan to conduct upon completion of my dissertation project.

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APPENDIX A: THE RELATIONSHIP BETWEEN REPRODUCTIVE HEALTH CARE RESOURCES AND VIOLENCE AGAINST WOMEN (ODDS RATIO REPORTED)

Variables	Psychological Aggression	Coercive Control and Entrapment	Physical Violence
Percentage of women in need of contraceptive services	1.08	0.11	0.16
Level of state expenditure for family planning	0.99	1.00	1.00+
Women aged 14-55 without abortion providers	1.00	1.01+	1.00
Level of state expenditure for abortions	1.00	1.00	1.00

Control variables: Age, Race, Education level, State Violent Climate, State Poverty, State Male Population aged 16 and older, State Median Income, and State Unemployment

Note: Significant at * $p < 0.05$; + Significant at $p < 0.1$

Variables	Stalking	Sexual Violence	Rape
Percentage of women in need of contraceptive services	0.70	0.43	0.55
Level of state expenditure for family planning	1.00	0.99*	0.99+
Women aged 14-55 without abortion providers	1.00	1.00	1.00
Level of state expenditure for abortions	1.00	1.00	1.00

Control variables: Age, Race, Education level, State Violent Climate, State Poverty, State Male Population aged 16 and older, State Median Income, and State Unemployment

Note: Significant at * $p < 0.05$; + Significant at $p < 0.1$