2021

Intimate Partner Violence Survivors: The Relationship between Risk Factors and Symptom Severity

Danielle Horrigan Millen
Nova Southeastern University, dm2326@mynsu.nova.edu

INTIMATE PARTNER VIOLENCE SURVIVORS: THE RELATIONSHIP BETWEEN RISK FACTORS AND SYMPTOM SEVERITY

by

Danielle H. Millen

A Dissertation Presented to the College of Psychology of
Nova Southeastern University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

NOVA SOUTHEASTERN UNIVERSITY

2019

APPROVAL PAGE

This Dissertation was submitted by Danielle H. Millen under the direction of the Chairperson of the Dissertation committed listed below. It was submitted to the College of Psychology and approved in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Clinical Psychology at Nova Southeastern University.

Approved:

7/8/2019

Date of Defense

Tom D. Kennedy, Ph.D., Chairperson

Lenore E. Walker, Ed.D., ABPP

Ryan A. Black, Ph.D

David L. Shapiro, Ph.D

9/25/2019

Date of Final Approval

Tom D. Kennedy, Ph.D., Chairperson

Statement of Original Work

I declare the following:

I have read the Code of Student Conduct and Academic Responsibility as described in the *Student Handbook* of Nova Southeastern University. This dissertation represents my original work, except where I have acknowledged the ideas, words, or material of other authors.

Where another author's ideas have been presented in this dissertation, I have acknowledged the author's ideas by citing them in the required style.

Where another author's words have been presented in this dissertation, I have acknowledged the author's words by using appropriate quotation devices and citations in the required style.

I have obtained permission from the author or publisher—in accordance with the required guidelines—to include any copyrighted material (e.g., tables, figures, survey instruments, large portions of text) in this dissertation manuscript.

Danielle H. Millen

_____

June 24, 2019

_____

ACKNOWLEDGEMENTS

There are several individuals that have provided me with guidance, motivation, and assistance over the past four years, without who the completion of this project would not have been possible. I would like to sincerely thank Dr. Tom Kennedy who has provided me with unwavering support and guidance throughout my training. His mentorship and encouragement have allowed me to accomplish more than I thought possible in such a short period of time. I look forward to continuing our work together in the years to come. I would also like to thank Dr. Lenore Walker without whom this work would have never been possible. I am thankful for her entrusting me with the years of data she painstakingly collected. She was the individual who gave me the opportunity to pursue my passion in this field and for that I am eternally grateful. Throughout this program Dr. Ryan Black has provided me with both practical and statistical support as well as the invaluable opportunity of assisting him in both teaching and research. Your time and patience were greatly appreciated. Thank you. I would also like to thank Dr. David Shapiro whose understanding of legal and ethical issues is unparallel and whose classes provided a significant portion of my forensic knowledge for which I am immensely appreciative.

Thank you to my parents, Claudia and Joe, for your unwavering support and encouragement. Nothing I could write here could begin to convey my appreciation. Thank you to my siblings all of whom have continually provided me healthy doses of both support and sarcasm. Special thanks to my friend and colleague Roya Amirniroumand, I am grateful for the endless time and support you have given. Blake, thank you for handling the day to day realities of this process and supporting me throughout all of it.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTIMATE PARTNER VIOLENCE SURVIVORS:
THE RELATIONSHIP BETWEEN RISK FACTORS AND SYMPTOM SEVERITY

by

Danielle H. Millen

Nova Southeastern University

ABSTRACT

While violent crimes have been on a decline since 2005, domestic violence has been increasing steadily over the past decade (Bureau of Justice Statistics, 2005, 2013, and 2014). A number of adult and childhood risk factors are associated with the increased likelihood of intimate partner violence (IPV) victimization. Witnessing interparental violence and experiencing abuse as a child are both linked to increased likelihood of experiencing IPV as an adult. (Ehrenstaft et al., 2003; Magdol, Moffitt, Caspi, & Silva, 1998; Stith et al., 2000; Stith, Smith, Penn, Ward, & Tritt, 2004; Widom et al., 2014). Additionally, relationship factors, including length of IPV relationships, intermittent relationship reinforcement, and having children not related to the perpetrator, are linked to an increased severity of abuse (McFarlane, Pennings, Symes, Maddoux, & Paulson, 2014; Miner, Shackelford, Block, Starratt, & Weekes-shackelford, 2012; Clements, Oxtoby, & Handsel, 2005). Little is known about the relationship between those risk factors and the severity of symptoms survivors of IPV experience. The primary aim of this study is to investigate the constellation of childhood and key adult relationship factors that predict the severity of emotional and behavioral symptoms resulting from IPV.

Chapter 1: Statement of the Problem

Intimate partner violence (IPV) is a pervasive and frequently unrecognized cause of acute and chronic illness among women (Campbell, 2002; Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008). The United States Department of Health and Human services (Criminal Victimization, 2016) report 43.6 million women have experienced sexual violence, physical violence, and/or stalking by an intimate partner during their lifetime. According to the 2010 National Intimate Partner and Sexual Violence Survey, 1 in 3 women in the United states report experiencing rape, physical violence, and/or stalking, and 48.4% report experiencing psychological abuse by an intimate partner in their lifetime (Black et al., 2011). Additionally, it is often theorized that shame or guilt about violent acts may lead to underreporting of domestic violence (Wilt & Olson,1996). Intimate partner violence impacts individuals of all races, ethnicities, socioeconomic status, and education level (Millen, Kennedy, Black, Detullio, & Walker, 2019; Black et al., 2011).

There is large body of evidence demonstrating the relationship between various childhood and adult relationship factors that affect the development of various emotional and behavioral disorders. For example, children who experience child sexual abuse are more likely to experience internalizing and externalizing problem behaviors (Hanson et al., 2015; Bethell, Gombojav, Solloway, & Wissow, 2016). While women with socially or financially strained and unsupportive spouses are significantly more likely to develop depression (Davey-Rothwell, Stewart, Vadnais, Braxton, & Latkin, 2017). However, there is little literature to date that has examined how these types of child and relationship factors are related to the severity of symptoms resulting from IPV. There is a need to further examine variables that may predispose women to be (a) targeted by men who may be more likely to commit IPV, and (b) more

susceptible to emotional and behavioral problems when exposed to IPV. The purpose of the current study is to focus on the latter. More specifically, the primary aim of this study is to investigate the constellation of childhood and key adult relationship factors that predict the severity of emotional and behavioral symptoms resulting from IPV.

To date there have been few formal evaluations of the symptoms experienced by domestic violence survivors and their connection with specific childhood and relationship factors. Even less information is currently available to differentiate those at high risk for severe mental health symptoms due to domestic violence. Women involved in IPV relationships rarely terminate the relationship as soon as it turns abusive (Meyer, 2012). Furthermore, women who remain in these relationships predominately talk to family and friends about these difficulties rather than seeking assistance from formal resources such as medical and mental health services or law enforcement (Kaukinen, Meyer, & Akers, 2013). This data may be important to help identify those in greatest need and guide medical and legal professionals, and social scientists in designing effective intervention strategies to recognize women who are at the highest risk of severe symptomatology and potentially aid these individuals in leaving their abusive partners.

Chapter 2: Literature Review

Prevalence rates of Intimate Partner Violence

An estimated 1 in 3 women will experience IPV throughout their lifetime (Black et al., 2011). Women who experience domestic violence are at greater risk of homicide than any other group of women. The CDC found that over half (55.3%) of female homicides between 2003 and 2014 were related to IPV (Petrosky et al., 2017). Furthermore, psychological and physical effects of IPV include sexual dysfunction, post-traumatic stress, body image distortion, and interpersonal relationship issues (Millen et al., 2019)

Theoretical Underpinnings

Social learning theory. Originally based a model developed by Bandura (Bandura, 1971; Bandura, 1973), social learning theorists hypothesize that IPV is first developed by modeling during an individual's childhood (Bell & Naugle, 2008). This theory postures that children learn ways to settle familial conflict by observing proximal relationships. IPV victims and perpetrators have often witnessed or directly experienced abuse as children (Lewis & Fremouw, 2001). This experiencing or witnessing of abuse may result in the development or tolerance of familial abuse (social learning). In fact, the relationship between witnessing abuse as a child and later victimization or perpetration of IPV is well documented (Stith, et al., 2000; Kerley, Xu, Sirisunyaluck, & Alley, 2009; Madruga, Viana, Abdalla, Caetano, & Laranjeira, 2017; Gomez, 2011; Renner & Whitney, 2012; Widom, Czaja, & Dutton, 2014). Gender socialization is a process, occurring during childhood, where individuals are taught how to behave based on their assigned gender (Stockhard, 2006). Together social learning theory and gender socialization describe a pathway in which women exposed to violence during childhood learn to be victims later in life because they model the behaviors of their victimized mother (Kernsmith, 2006).

However, recent studies have failed to support the impact of gender-role socialization on domestic violence (Giordano, Copp, Longmore, & Manning, 2016; Chen & White, 2004)

The outcome of early episodes of IPV in dating relationships or violence with peers may have an impact on whether or not IPV carries out into adulthood (Bell & Naugle, 2008). Additionally, it is theorized that domestic violence is maintained if it is positively reinforced or serves a purpose for the individual. If the abused individual experiences consequences of a perceived positive nature after the abuse it is theorized that the it will be the individual's expectation that future incidents of IPV will result in similar circumstances (Riggs & O'Leary, 1989). Social learning theorists' postulate that direct reinforcement is not required to maintain the behavior. Witnessing either positive or negative consequences of abusive behavior may predict the future occurrence of similar behavior. However, research also indicates that many IPV victims and perpetrators do not endorse experiencing or witnessing domestic violence as a child, and conversely many individuals who witnessed or were victims of domestic violence as a child do not become victims or perpetrators of IPV (Bell & Naugle, 2008). While social learning theory may not account for these findings, learned helplessness may provide a framework for understanding those individuals who never witnessed or experienced domestic violence as children.

Theory of learned helplessness. Seligman (1975) first introduced learned helplessness as a psychological trait, which he theorized resulted from repeated exposures to uncontrollable and aversive events. First observed in laboratory animals, learned helplessness includes a significant decrease in associating action with positive outcome, which leads to a marked reduction in the range of responses to external demands. In other words, learned helplessness is a behavioral response that occurs when an individual experiences repetitively painful or aversive stimuli that

they are incapable of escape. Eventually, the individual stops trying to escape or avoid the situation. Seligman suggested that depression is the result of a perceived absence of control over the outcome of a situation and that individuals will implement coping responses, like avoidance, rather than try to escape in the face of an unpleasant, harmful or damaging interaction, even if they have the ability to change their situation (Seligman, 1975). The theory of learned helplessness may help explain the compliance experienced by victims of IPV and their fear to leave the abusive relationship (Walker, 1978, 1979, 2017). It is thought that with more violent relationships a woman's experience of learned helplessness is increased (Walker, 1984, Wilson, Versella, Brems, Benning, & Renfro, 1993). More recently, researchers found that learned helplessness mediates the relationship between violence exposure and PTSD in IPV survivors, as learned helplessness magnifies the effect of domestic violence (Bargai, Ben-Shakhar & Shalev, 2007). Learned helplessness has been found to be a common and predictable response of IPV victims to their situation. In relation to the social learning theory, learned helplessness has applicability. For example, negative interpersonal schemas developed in childhood that are later brought into romantic relationships may contribute to learned helplessness and the acceptance of abuse by an intimate partner (Valdez, Lim, & Lilly, 2013). While learned helplessness and social learning theory have examined IPV from both childhood and adult relationship angles, evolutionary theorists have examined the evolved function of domestic violence.

Evolutionary theory. Evolutionary theories have allowed social scientists to predict a wide variety of human behaviors including mating and violence (Goetz, Shackelford, Romero, Kaighobadi, & Miner, 2008). Finding the "ultimate explanation" or evolved function of a behavior, mechanism, or trait is the primary focus of evolutionary psychologists (p. 487). Aggression is theorized to have evolved as a solution to multiple adaptive problems including;

defending attacks from others, discouraging partners from sexual infidelity, and reducing resources used on offspring that are genetically unrelated (Buss & Shackelford, 1997). For male ancestors, unknowingly investing resources into genetically unrelated offspring is thought to be the second most profound and recurring threat to their genetic fitness, only second to death (Goetz et al., 2008). While ancestral women's jealousy was aimed at securing paternal investment, male sexual jealousy functions to reduce paternity uncertainty (Daly, Wilson, & Weghorst, 1982), and is one of the most commonly cited attributions for IPV (Goetz et al., 2008; Rodriguez, DiBello, & Neighbors, 2015; Neal & Edwards, 2017). Abusive male behavior toward their female mate may be an attempt to control the female's sexual behavior during her prime reproductive years (Wilson & Daaly, 1993). This is supported by recent research which indicates that IPV rates decrease as females approach 45 years-old, which corresponds with menopause and low reproductive rates (Peters, Shackelford, & Buss, 2002). Regardless of male age women of reproductive age are approximately 10 times more likely to be current victims of intimate partner abuse than women past reproductive age. Taken together these three theories allow for a more complete understanding of intimate partner violence because both distal and proximal explanations of a trait, behavior, or mechanism can be examined empirically (Figure 1). Learned helplessness and social learning theory inform our understanding of an individual's childhood and adult circumstances that are related to domestic violence, while evolutionary theory informs our understanding of IPV as an evolved function of the behavior.

This research aims to examine specific factors experienced in childhood and during the abusive relationship itself to determine if these factors lead to a more severe symptom presentation in female survivors of IPV. Childhood risk factors include witnessing domestic violence and experiencing physical, sexual, or emotional abuse as a child. Relationship factors

include women whose children were not fathered by the abuser, intermittent relationship reinforcement, perceived threat of death, the duration and timing of the abusive relationship, and whether the woman was in a singular or multiple IPV relationships.

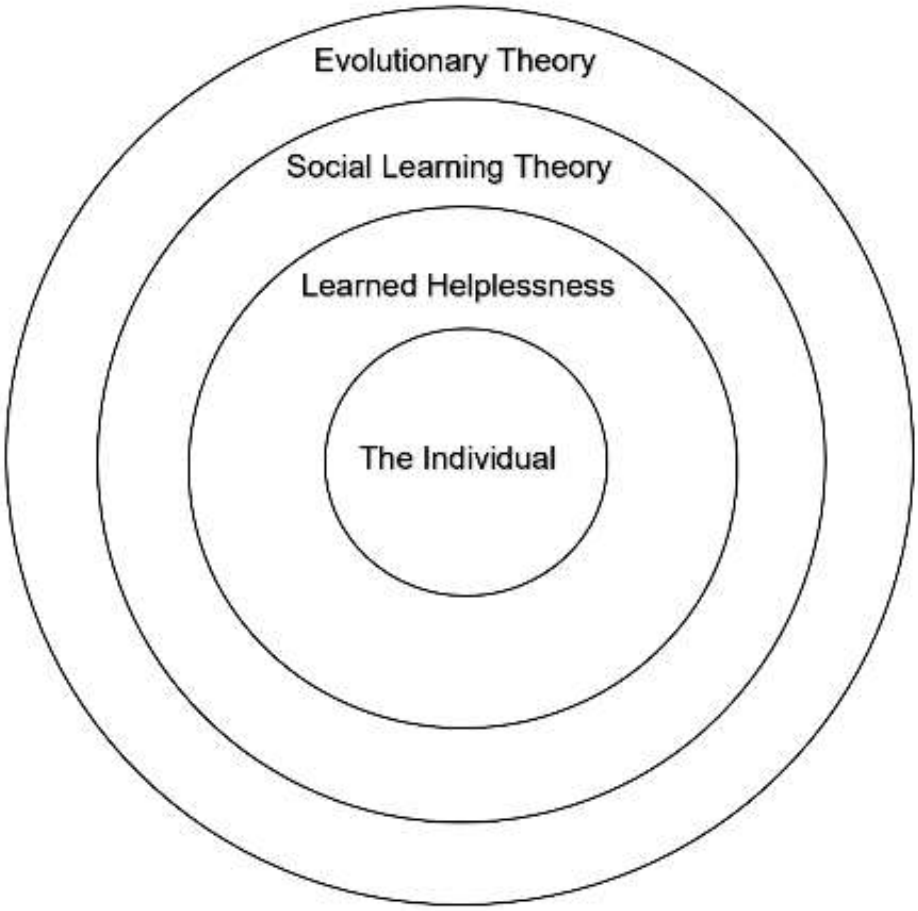

Figure 1. Theoretical Underpinnings: From distal to proximal impact on the individual

Childhood Risk Factors

Witnessing IPV. Witnessing domestic violence as a child or adolescent is associated with multiple negative health and social outcomes (Dube, Anda, Felitti, Edwards, & Williamson, 2002; Kitzmann, Gaylord, Holt, & Kenny, 2003; Tomoda, Polcari, Anderson, & Teicher, 2012;

Choi, Jeong, Polcari, Rohan, & Teicher, 2012; Gooding, Milliren, Austin, Sheridan, & McLaughlin, 2015; Howell, Barnes, Miller, & Graham-Bermann, 2016). The relationship between witnessing domestic violence as a child and later family violence has been well documented by researches focused on IPV. Stith and her colleagues (2000) performed a meta-analysis of 39 studies examining the relationship between exposure to domestic violence in childhood and becoming involved in an abusive marital relationship later in life. The researchers computed 40 effect-size estimates and found a significant relationship (mean $r = .17$, $p < .001$) between having grown up in a violent home and later IPV victimization.

These results also generalize outside of the United States suggesting that IPV is a global public health crisis. Survey data analyzed on a sample of 816 married women residing in Thailand found that as the frequency of a child witnessing parental violence increased, the likelihood of IPV victimization as an adult increase by 39% (Kerley, Xu, Sirisunyaluck, & Alley, 2009). More recently, researchers who examined a sample of 2120 Brazilians found that those who reported witnessing IPV as a child were almost four times more likely to be an IPV victim as an adult than individuals who did not endorse witnessing parental violence (Madruga, Viana, Abdalla, Caetano, & Laranjeira, 2017). The research suggests that there are long-term consequences of exposure to violence in early stages of life that is associated with subsequent exposure to IPV later in life, sometimes referred to as intergenerational transmission of IPV (Madruga, et al., 2017; Widom, 1989).

Experiencing abuse. Physical, sexual, and emotional abuse towards children and adolescents occur at high rates across the United States (Finkelhor, Turner, Shattuck, & Hamby, 2015; Stoltenborgh, Bakermans-Kranenburg, Alink, & van Ijzendoorn, 2015). In a sample of 4,191 young adults, females who endorsed childhood abuse victimization were found to have a

210% increase in the likelihood of being IPV victims when compared to females who did not experience abuse as a child (Gomez, 2011). In contrast, Renner and Whitney (2012) examined a sample of 10,187 young adults aged 18-27 and did not find a statistically significant relationship between reports of childhood sexual abuse and later partner violence. Examining data from a prospective cohort, researchers compared individuals with documented histories of physical and sexual abuse and/or neglect, with individuals without an abuse history (Widom, Czaja, & Dutton, 2014). After controlling for age, gender, and race, a history childhood maltreatment and neglect predicted an increased risk for IPV victimization. Notably, this study found that abuse in childhood increases the risk for more serious form of IPV in adulthood which results in physical injury.

Adult Relationship Risk Factors

Women with children not genetically fathered by the abuser. The makeup of a woman's household may prompt her male partner's jealousy and intensify abuse (Daly, Wiseman, & Wilson, 1997). While little information is known about IPV victims with genetic children fathered by previous partners, the available research indicates they are overrepresented as victims of lethal IPV relative to women living with children who were all fathered by their current partner (Miner, Shackelford, Block, Starratt, & Weekes-Shackelford, 2012). Data from 2,740 women from the Chicago Women's Health Risk Study indicates that children fathered by a previous partner is a common risk factor for increased severity of abuse in lethal and non-lethal IPV (Miner et al., 2012).

Intermittent relationship reinforcement. IPV is generally intermittent in nature and occurs with unpredictable timing, and abusive episodes are typically followed by "honeymoon periods" where the perpetrator apologizes and changes behavior for a period of time (Walker,

1989). It was hypothesized that these peaceful periods of time aid in maintaining the relationship by acting as an intermittent reinforcer (Clements, Oxtoby, & Handsel, 2005). Using data collected form 71 IPV victims, Handsel (2007) found that the odds of returning to or remaining with the abuser was predicted by greater intermittent relationship reinforcement. Longer time in the abusive relationship may result in additional abusive episodes and more severe abuse. In persons who have experienced prolonged child abuse, children that were given gifts and rewards by childhood abuser presented with more severe complex traumatization as adults (Gold, 2000).

Perceived threat of death. Risk factors associated with severe and/or lethal IPV include threats to life and threats with a gun (McLuckey & Teska, 2016). Fear of imminent death and perceived threat to life are related to multiple negative outcomes including anxiety disorders, PTSD, and insomnia (Holbrook, Hoyt, Stein & William, 2001; Miller, 2014; Psarros et al., 2017) Suffering certain forms of IPV, including physical abuse, lethality threats, and sexual abuse are associated with unsafe feelings and perceived risk of future violence (Dichter & Gelles, 2012). In a qualitative study examining the experiences of rural, low-income, pregnant and postpartum IPV victims, life threatening conditions were explained in a way that minimized the perceived level of danger they faced (Burnett et al., 2016). This desensitization and numbing of experiences are considered features of PTSD, although the exposure to violence for these women was ongoing.

Duration and timing. When measuring length of relationship with binary indicators (i.e., 0 = less than 1 year, 1 = more than one year), Hayes (2016) found that relationships longer than a year increased the risk of abuse for 4,960 women who accessed a healthcare facility over a one-year period of time. Hayes (2016) hypothesized this is due to the abuser having more opportunities to come into contact with the victim during longer relationships. Bonomi and

colleagues (2006), assessed 3,429 women between the ages of 18 and 64 in order to examine the relationship between their health and IPV timing, type, and duration. A longer duration of IPV resulted in worse health outcomes, while women who reported 10 years or more of IPV victimization presented with the worst health outcomes in comparison to women who denied a history of IPV. Although both women who reported 10 years or more of IPV victimization and those that reported IPV within the last five years had a similar level of negative health outcomes, more recent IPV exposure was found to have a stronger association with negative health outcomes than the duration of IPV victimization. In contrast, a study examining 369 Spanish speaking adult women found a small but negative relationship ($r = -.18$, $p < .05$) between length of IPV and feelings of rejection (Torres, et al., 2013).

Multiple and single IPV relationships. While IPV has received much attention by researchers, less is known about the differences between women that have been in multiple IPV relationships and those with a singular IPV relationship. Kemp and colleagues (1995), studied a sample of 179 IPV victims with 41% of the population reporting more than one IPV relationship. While 81% of these individuals met diagnostic criteria for PTSD no significant relationship was found between the existence of PTSD and the number of violent relationships. In a study focused on the personality profile differences between women with multiple abusive relationships (N =42), one abusive relationship (N = 33), or no history of abuse (N = 52), Coolidge and Anderson (2002) found that women with multiple abusive relationships exhibited higher levels of depression, PTSD, and overall psychological maladjustment and clinical elevations on dependent and paranoid personality scales. Of note, women in single IPV relationships did not present as significantly different from their matched control group. While this study design was not able to determine cause and effect, it was hypothesized that women in IPV relationships may take on

these personality features as a protective response to their atypical relationship settings. More recently, Alexander (2009) assessed 97 IPV victims who were seeking services in the Mid-Atlantic area, with 56% reporting more than one IPV relationship. Multiple IPV abused women were more likely to report witnessing and experiencing abuse as a child. These individuals were also more likely to be categorized with an unresolved attachment when compared the women that had experienced a singular abusive relationship.

Theorized Protective Factors

Help seeking. Notwithstanding the serious impact of IPV on the survivor's lives, research suggests that these women are unlikely to seek help (Hyman, Forte, Mont, Romans, & Cohen, 2006). In an examination of data across 30 countries only 40% of females who experience IPV sought support of any kind (Klugman et al., 2014). Seeking help, from either family and friends or official sources, is associated with improved mental health for IPV survivors (McCleary-Sills et al., 2016).

Education level. Education level is commonly shown to be a protective factor, with higher levels of education showing improved mental health outcomes for those that have experienced violence or trauma (Anderson & Bang, 2012; Ullman, Filipas, Townsend, & Starzynski, 2007). For females exposed to IPV, a higher education level has shown to serve as a statistically significant protective factor (Spencer, Stith, & Cafferky, 2019). Completion of secondary education is shown to act as a protective factor against risk for intimate partner abuse (Yakubovich et al., 2017) and the strength of the protective factor increases when both partners completed secondary education (Yakubovich et al., 2017 Abramsky et al, 2011). For female survivors of abuse by an intimate partner, lower education level is associated with an increased frequency of abuse (Miller-Graff & Graham-Bermann, 2016). Although higher educational

attainment serves as a protective factor (Yakubovich et al., 2017; Abramsky et al, 2011), education level was found to become a risk factor when the woman achieved a higher level of education than the male abuser (Ackerson, Kawachi, Barbeau, & Subramanian, 2008).

Physical, sexual, and psychological abuse by an intimate partner is a pervasive problem facing women worldwide. The aim of this research is to examine specific factors experienced in childhood and during the abusive relationship itself to determine if these factors lead to a more severe symptom presentation in female survivors of IPV. Childhood risk factors include witnessing domestic violence (Stith et al., 2000; Madruga, Viana, Abdalla, Caetano, & Laranjeira, 2017) and experiencing physical, sexual, or emotional abuse (Widom, Czaja, & Dutton, 2014; Gomez, 2011) as a child. Key adult relationship factors consist of women whose children were not fathered by the abuser (Miner et al., 2012), intermittent relationship reinforcement (Handsel, 2007), perceived threat of death (Burnett et al., 2016), the duration and timing of the abusive relationship (Bonomi et al., 2006; Torres et al., 2013), and whether the woman was in a singular or multiple IPV relationships (Alexander, 2009).

Research Objectives

This research project has three research objectives:

1. To determine whether childhood factors and adult factors have an association with severity of symptoms in women who have experienced IPV.
2. To determine whether the association between childhood factors and severity of symptoms is mediated by adult factors.
3. To determine the effect help seeking and education level as moderators on the relationship between key adult relationship factors and symptom severity.

Research Hypotheses

H1: Childhood factors impact on symptom severity is partially explained by its indirect influence through key adult relationship factors (Figure 2).

H2: Childhood factors impact on symptom severity depends on severity of key adult relationship factors (Figure 3).

H3: The impact of key adult relationship factors on symptom severity depends on help seeking behaviors, education (Figure 4).

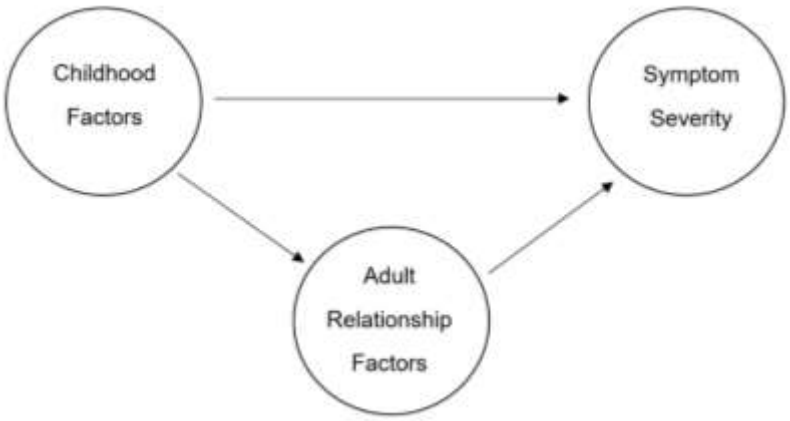

Figure 2. Proposed conceptual model where adult factors mediates the negative relationship between childhood factors and symptom severity in female victims of IPV.

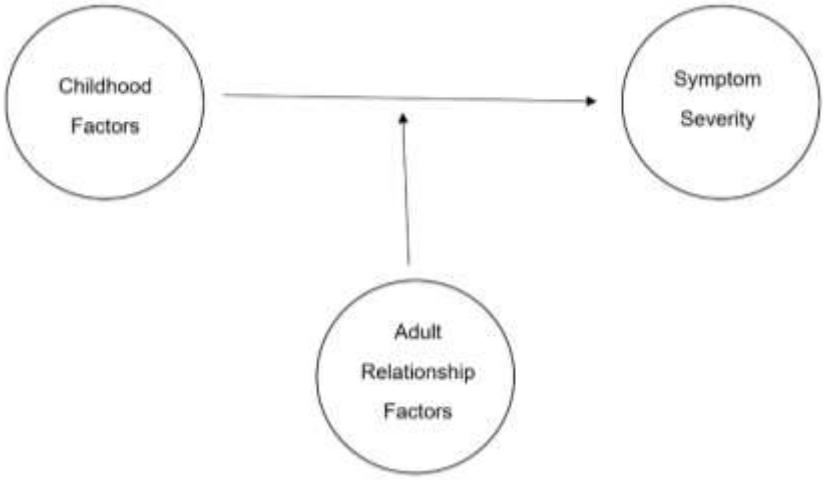

Figure 3. Proposed conceptual model where adult factors moderates the negative relationship between childhood factors and symptom severity in female victims of IPV

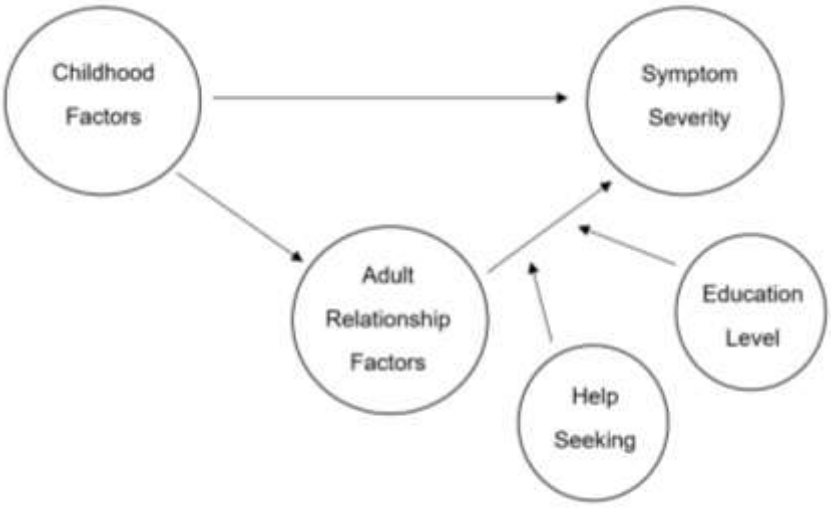

Figure 4. Proposed conceptual model where adult factors mediates the negative relationship between childhood factors and symptom severity in female victims of IPV, moderated by help seeking and education level.

Chapter 3: Methodology

The aim of this study was to examine the extent to which experiencing specific childhood and relationship risk factors increases an intimate partner violence victim's symptom presentation (Table 1). Childhood factors of focus included both experiencing abuse and witnessing parental IPV as a child. Key adult relationship factors included having children that were not fathered by the abuser, intermittent relationship reinforcement, the perceived threat of death, the duration of the abusive relationship, the number of IPV relationships, and whether or not the most recent relationship was abusive.

Table 1.

Childhood and key adult relationship factors: breakdown

Variables
Childhood Factors
Witnessing parental IPV
Experiencing abuse
Key Adult Relationship Factors
Children not fathered by the abuser
Intermittent relationship reinforcement
Perceived threat of death
Duration of IPV relationship
Number of IPV relationships
Most recent relationship involves IPV

Participants

Participants were originally recruited from a variety of settings using nonprobability sampling. Some responded to written advertisements posted in community mental health facilities; others were recruited from correctional facilities. The entire sample was instructed to

complete the full Battered Woman Syndrome Questionnaire (BWSQ). Participants included 288 females (48.6% Caucasian) ranging in age from 17 to 69 years (M = 36.4, SD = 10.9). Participants' education levels ranged from 2 to 20 years (M = 11.9, SD = 2.8) of formal schooling (Table 2). Only participants who completed all sections necessary for this studies purpose were included in the analyses. Limitations to external validity will be discussed later in this document. Participants signed informed consent forms and were assigned subject numbers in order to protect their identity and insure privacy.

Table 2.

Demographic Profile of the Sample: Percentages for Categorical Data and Means and Standard Deviation for Continuous Variables

Variable	n	Mean	Frequency(SD/%)
Age	278	36.4	10.9
Race			
Caucasian	137		48.6
Hispanic	15		5.3
African American	31		11.0
American Indian	8		2.8
Asian American	1		.4
Other	41		14.9
Multiracial	26		9.2
African	9		3.2
East Indian	7		2.5
Missing	6		2.1
Years of Schooling	277	11.9	2.8

Measures

Severity of symptoms. Battered Woman Syndrome Questionnaire (BWSQ) subscales were used to measure different aspects of the participants' current functioning (Millen et al., 2019). This is divided into four separate measures including: BWSQ Interpersonal relationship scale (BWSQ-IR); BWSQ Sexual Dysfunction scale (BWSQ-SD); BWSQ Body Image Distortion scale (BWSQ-BID), BWSQ Post-Traumatic Stress Checklist (BWSQ-PTSC). After identified items are reverse coded, all items are added together, creating a composite score, with higher total scores representing more severe overall symptom presentations and lower scores indicating a less severe symptom presentation. Details of each subscale are included below.

BWSQ interpersonal relationship scale. The BWSQ-IR contains 10 questions relating to current interpersonal functioning (i.e., How often do you feel you have difficulty making friends?) (Millen et al., 2019). All questions were rated by the participants in accordance with the Likert scale with 1 = "never", 2 = "rarely", 3 = "occasionally", 4 = "often", and 5 = "most times". Questions 7 and 8 require reverse coding when scored. The BWSQ-IR has good internal consistency ($\alpha = .82$) and test-retest reliability ICC=.76 (95% CI: .61 to .86), $p < .001$.

BWSQ sexual dysfunction scale. The BWSQ-SD contains 10 questions relating to current problems with sexual activity (i.e., How often do you find yourself interested in sexual activity?) (Millen et al., 2019). All questions were rated by the participants in accordance with the Likert scale with 1 = "never", 2 = "rarely", 3 = "occasionally", 4 = "often", and 5 = "most times". Question 6 requires reverse coding when scored. The BWSQ-SD has good internal consistency ($\alpha = .94$) and test-retest reliability ICC=.82 (95% CI: .72 to .89), $p < .001$.

BWSQ body image distortion scale. The BWSQ-BID contains 10 questions relating to feelings associated with an individual's body image (i.e., I am happy with the way that I look)

(Millen et al., 2019). All questions were rated by the participants in accordance with the Likert scale with 1 = “never”, 2 = “rarely”, 3 = “occasionally”, 4 = “often”, and 5 = “always”. Questions 4, 6, 7, 8, 9, and 10 require reverse coding when scored. The BWSQ-BID has good internal consistency (α = .90) and test-retest reliability ICC=.86 (95% CI: .71 to .92), $p < .001$.

BWSQ post-traumatic stress checklist. The BWSQ-PTSC is a three-part section, with 17 Yes-No questions modeled after the DSM-IV-TR (APA, 2000) criteria for PTSD (Millen et al., 2019). The three sections are Re-experiencing, Avoidance and Numbing, and Arousal. It is important to bear in mind that although these sections were developed using DSM-IV-TR criteria, the symptom endorsement is self-reported by the participant and therefore does not constitute a formal diagnosis. The BWSQ-PTSC has good internal consistency (α = .82) and test-retest reliability ICC=.77 (95% CI: .64 to .85), $p < .001$.

Childhood factors. To measure whether or not an individual witnessed IPV in childhood or adolescence, participants were asked if they observed physical, sexual, or verbal abuse between their parents. Results were coded as “0” indicating the participant did not witness any form of abuse between parents, “1” indicated the participants witnessed one parent abusing the other, and “2” indicated that the participant witnessed abuse between both parents who were abuser and victim. When assessing whether an individual was abused by their parents in childhood or adolescence, participants were asked if they experienced physical, sexual, or verbal abuse in childhood. Results were coded as “0” indicating the participant did not experience any form of abuse by parents, “1” indicated the participants experienced abuse by one parent, and “2” indicated that the participant experienced abuse by both parents. Witnessing and experiencing abuse scores were summed with higher scores indicate more forms of abuse.

Key adult relationship factors. Number of children not genetically related to the abuser was assessed by subtracting the number of children with the abuser from the total number of children the woman reports. Participants with one or more children who were not genetically fathered by the abuser were coded as "1" and individuals with no children genetically fathered by the abuser were coded as "0". Intermittent relationship reinforcement was assessed with the question "Would he ever apologize or make gestures to show that he was sorry for the typical incident?" having binary responses options of "Yes" or "No". Participants who answered "Yes" were given a value of "1" and participants who responded "No" were given a "0". Perceived threat of death was measured by asking if the individual thought the abuser "would or could kill you?" with "yes" responses coded as perceived threat of death. Participants who answered in the affirmative were coded with a "1", while "No" responses were coded as "0".

To assess for number of IPV relationships, the participants were asked to work backwards from their most recent relationship to the fifth most recent and indicate whether or not each relationship would be identified as IPV. Those IPV relationships were then totaled indicating the number of IPV relationships the individual had out of their five most recent relationships. Participants who reported two or more IPV relationships within the last five relationships were coded as "1", while those who reported one or none were coded as "0" Additionally, this process would identify whether the most recent relationship was an IPV relationship. Participants who reported the most recent relationship as IPV were coded as "1", while participants who did not report their most recent relationship were coded as "0". Duration of most recent IPV relationship was assessed by asking the individual how long the relationship lasted in years and months. Relationships lasting 0-24 months were coded as "0", while participants who reported relationships lasting longer than 24 months were coded with a "1". All

categories within key adult relationship factors were totaled with higher scores indicating more severe key adult relationship factors.

Procedures

Participants were selected from volunteers who met criteria in the recruitment locations so long as they were a female who experienced domestic abuse in any form, including verbal, physical, psychological and/or sexual. The purpose of the study and limits of confidentiality were discussed with each participant, who in turn provided written consent to participate in the research project. Subsequently, a psychologist or a doctoral student in clinical psychology facilitated the interview using the BWSQ. Each interviewer completed a thorough standardized training prior to administration wherein they were walked through the assessment step by step and then observed giving the BWSQ by the trainer prior to the completion of training. Each assessment was given in a private one on one setting with only the participant and interviewer present. The full battery took approximately three hours to complete.

Design. The study was quantitative in nature, and is considered non-experimental research, using an observational approach with a cross-sectional design. The research is non-experimental because it lacks both the manipulation of an independent variable and random assignment of participants to conditions (Edmonds & Kennedy, 2016). A cross-sectional study involves observing participants who differ on one key characteristic at one specific point in time. Cross-sectional studies are observational in nature and are known as descriptive research.

Statistical Analysis

The macro PROCESS (Hayes, 2017) in SPSS (IBM Corp, 2017) was utilized to evaluate the direct and indirect effects across all variables of interest. PROCESS uses a regression-based

approach to evaluate the effects in models that include mediating and moderating variables (Hayes, 2017).

Preliminary analysis. Mean, standard deviations, and range were calculated for the variables of interest and associations among variables of interests were reported (Tables 3 and 4). Additionally all assumptions were met as sampling residuals came from an independent, normal population of errors with constant variance.

Primary analysis. To test Hypothesis One, the macro PROCESS was employed to evaluate the association of childhood factors to symptom severity with key adult relationship factors as the mediator. A mediation model is any causal system in which an antecedent variable (X) is proposed to affect an outcome variable (Y) through an intervening variable (M). The size of the indirect effect is determined by two relations: the impact of the antecedent on the mediator (the X- M relation), or the "a" path, and the effect of the mediator on the outcome after controlling for the antecedent (the M [X]-Y relation), or the "b" path. In this type of analysis, the significance of the indirect effect is tested via the cross product of the a and b coefficients (a*b) (Hayes, 2017), which is recognized as the optimal and most direct test of mediation (MacKinnon, Fritz, Williams, & Lockwood, 2007). See Appendix A for the statistical equations for this model.

Hypothesis Two was tested by examining the moderating effect of key adult relationship factors in the relationship of childhood factors on a symptom severity. See Appendix B for the statistical equation for these models. In order to test Hypothesis Three a model was estimated in PROCESS examining the moderating effects of key adult relationship factors in the relationship of childhood factors and symptom severity. See Appendix C for the statistical equation for this model.

Chapter IV: Results

Missing Data

All variables were analyzed for missing data prior to running the primary analyses. Data missing for childhood factors included experiencing abuse (11.5%) and witnessing abuse (12.5%). Missing data for the individual key adult relationship factors were as follows: children not fathered by the abuser (3.8%), intermittent relationship reinforcement (15.3%), perceived threat of death (21.2%), duration (12.5%), timing (5.6%), number of IPV relationships (5.6%). Missing data for symptom severity was 2.1%. Missing data for moderating variables were as follows: help seeking (24%) and education (2.1%). Cases that have over 20% missing data might not accurately reflect the construct being measured (Dong & Peng, 2013; Peng, Harwell, Liou, & Ehman, 2006), resulting in the removal of one variable for adult factors (e.g., perceived threat of death) and no imputation for help seeking since it was a standalone moderator.

Before carrying out the primary analyses, we used imputation to deal with the missing data. In single regression imputation, the imputed value is predicted from a regression equation where the data in the completed observations are used to predict the values of the missing observations (Fox-Wasylyshyn & El-Masri, 2005). During research simulations single regression imputation has been shown to perform well when producing data that closely resembles known values (Shrive, Stuart, Quan, & Ghali, 2006).

Associations among variables of interests are reported in Table 3. Mean, standard deviations, and range were calculated for the variables of interest and are summarized in Table 4.

Table 3

Correlations between Variables of Interest

	Childhood Factors	Symptom Severity	Key Adult Relationship Factors	Help Seeking	Education Level
Childhood Factors	---	---	---	---	---
Symptom Severity	.213**	---	---	---	---
Key Adult Relationship Factors	.163**	.216**	---	---	---
Help Seeking	.018	.068	.147	---	---
Education Level	-.109	-.139*	-.167**	.064	---

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Table 4

Means and Standard Deviations for Variables of Interest

Variable	N	M	SD
Childhood Factors	257	1.81	1.26
Symptom Severity	282	50	10
Key Adult Relationship Factors	288	2.95	1.11
Help Seeking	219	.49	.50
Education Level	282	.58	.49

Mediation Analysis

Hypothesis 1: As childhood abuse increases (independent variable), symptom severity during adulthood increases (dependent variable), as a result of the effect of childhood abuse on intimate partner violence experiences (mediator variable), which in turn influences symptom severity. Mediation Analysis using the bootstrap methodology was utilized to examine the direct and indirect influence of childhood factors on symptom severity (i.e., BWSQ current functioning) through adult relationship factor. Mediation analysis was performed using PROCESS 3.3 (Hayes, 2017) in SPSS. Type I error was set at the .05 level. To guarantee the replicability of results, the seed was set to a random integer produced by SPSS when performing all bootstrap analyses. For the statistical models constructed to address the research questions see Appendix A.

Mediation analysis revealed that as childhood factors indirectly affects symptom severity through its effect on key adult relationship factors. Specifically, there was an indirect effect of childhood factors on symptom severity through key adult relationship factors ($\beta = 1.742$), which was significant based on a 95% bias-corrected bootstrap interval (.057 to .560), generated from 5,000 samples. Upon examination of the completely standardized indirect effect, it was revealed that a one standard deviation unit increase in key adult relationship factors resulted in a .033 increase of a standard deviation in symptom severity as a result of childhood factors on key adult relationship factors, which, in turn, influenced an increase in symptom severity. There was also evidence that childhood factors influenced symptom severity ($c' = 1.401$, $p = .004$). See table 5 and 6.

Table 5

Model Coefficients for all Predictor Variables

Consequent		M (Key Adult Relationship Factors)				Y (Symptom Severity)		
Antecedent		Coefficient	SE	*p*		Coefficient	SE	*p*
X (Childhood Factors)	*a*	.150	.054	.006*	*c'*	1.401	.4813	.004*
M (Key Adult Relationship Factors)					*b*	1.742	.552	.002*
constant	i_1	2.696	.121	<.001**	i_2	42.802	1.821	<.001**

* - significant at $p < .05$
** - significant at $p < .001$

Table 6

Indirect effects on Dependent Variable: Symptom Severity

Consequent: Symptom Severity								
Antecedent	β	SE	LLCI	ULCI	β*	SE*	LLCI*	ULCI*
X (Childhood Factors)	.261	.131	.057	.560	.033	.017	.007	.071

* – Completely standardized (i.e., removes scaling from X and Y and expresses effect in terms of standard deviations in Y between two cases that differ by one standard deviation in X)
Note: all significant at p < .05 level

Moderation Analysis

Hypothesis 2: As childhood abuse increases (independent variable), symptom severity during adulthood increases (dependent variable), dependent on intimate partner violence experiences (moderator variable). The moderating effect of key adult relationship factors on the relationship between childhood factors and symptom severity was not significant,

(β = -.227, *p* = .625; See Table 7). The effect of childhood factors on symptom severity does not differ based on level of key adult relationship factors.

Table 7

Moderation Analysis

Consequent: Symptom Severity					
Predictor	β	SE	*p*	LLCI	ULCI
Constant	50.580	.612	<.001	49.374	51.786
X (Childhood Factors)	1.434	.487	.004	.475	2.392
W (Key Adult Relationship Factors)	1.707	.558	.003	.609	2.805
X*W	-.227	.464	.625	-1.142	.687
R^2 = .29					
F(3, 248) = 7.470, *p* < .001					

Moderated Mediation

Hypothesis 3: As childhood abuse increases (independent variable), symptom severity during adulthood increases (dependent variable), as a result of the effect of childhood abuse on intimate partner violence experiences (mediator variable), which in turn influences symptom severity, dependent on help seeking behaviors and education (moderators). The moderating effect of help seeking on the relationship of key adult relationship factors to symptom severity was not significant, (β = -.542, *p* = .672; See Table 8). The effect of key adult relationship factors on symptom severity does not depend on one's level of help seeking. Education level was not a significant moderator of the relationship key adult

relationship factors to symptom severity (β = 1.703, *p* = .190; See Table 8). The effect of key adult relationship factors on symptom severity does not differ based on education level.

Table 8

Moderated Mediation

Consequent: Symptom Severity					
Predictor	β	SE	*p*	LLCI	ULCI
Constant	48.471	1.243	<.001	46.019	50.924
X (Childhood Factors)	1.324	.568	.021	.204	2.443
M (Key Adult Relationship Factors)	1.478	.646	.023	.205	2.752
W (Help seeking)	2.262	1.387	.105	-.474	4.997
M*W	-.542	1.279	.672	-3.064	1.981
Z (Education)	-2.773	1.437	.055	-5.608	.061
M*Z	1.703	1.296	.190	-.854	4.261
$R^2 = .34$					
$F(6, 190) = 4.132$, $p < .001$					

Chapter V: Discussion

The purpose of this study was to examine specific factors experienced in childhood and during the abusive relationship itself to determine whether these factors lead to a more severe symptom presentation in female survivors of IPV. The primary aim of the current study was to better understand the moderating and mediating factors of the relationship between childhood factors and symptom severity. Taken together, the results reveal several interesting outcomes. First, key adult relationship factors partially mediate the relationship of childhood factors and symptom severity. In contrast, key adult relationship factors does not moderate the relationship of childhood factors and symptom severity. Further, help seeking behaviors and education level did not moderate the meditated relationship between key adult relationship factors and symptom severity within the full model. The current study addresses the gap in the literature by providing a novel conceptual model describing the mechanism by which childhood factors increase adult symptom severity in female survivors of IPV through specific key adult relationship factors.

First, it was hypothesized that as childhood abuse increases (independent variable), symptom severity during adulthood would increase (dependent variable), as a result of the effect of childhood abuse on intimate partner violence experiences (mediator variable), which in turn influences symptom severity. Results indicated that the indirect effect of childhood factors through key adult relationship factors on symptom severity was significant. Specifically, childhood factors significantly increased key adult relationship factors, which, in turn, increased symptom severity in female IPV survivors. Childhood factors also possessed a significant direct effect with symptom severity independent of key adult relationship factors. Hypothesis One was supported in that key adult relationship factors play a significant mediating role between childhood factors in increasing symptom severity in female survivors of IPV. These findings

confirmed the extensive literature identifying key adult relationship factors such as; having children not fathered by the abuser, the existence of intermittent relationship reinforcement, and the duration, timing, and number of IPV relationships as risk factors for symptom severity in adulthood (Alexander, 2009; Bonomi et al., 2006; Coolidge & Anderson, 2002; Handsel, 2007; Hayes, 2016; Miner et al., 2012; Torres et al., 2013; Walker, 2017)

Additionally, it was hypothesized that as childhood abuse increases (independent variable), symptom severity during adulthood increases (dependent variable), dependent on intimate partner violence experiences (moderator variable). The current study demonstrated that key adult relationship factors did not moderate the relationship of childhood factors to symptom severity. Hypothesis Two was not supported, in that, key adult relationship factors does not change the direction or magnitude of the relationship between childhood factors and symptom severity.

Furthermore, it was hypothesized that as childhood abuse increases (independent variable), symptom severity during adulthood increases (dependent variable), as a result of the effect of childhood abuse on intimate partner violence experiences (mediator variable), which in turn influences symptom severity, and dependent on help seeking behaviors and education (moderators). Hypothesis One revealed that key adult relationship factors have a significant mediating role between adult childhood factors and symptom severity. However, in the moderated mediation model, level of help seeking and education level did not moderate the relationship between key adult relationship factors and symptom severity. These findings do not support Hypothesis Three, in that, the link between key adult relationship factors and symptom severity was not significantly impacted by the participants level of help seeking or education.

In summary, there is an indirect effect of childhood factors on symptom severity through key adult relationship factors however, the effect of childhood factors on symptom severity does not depend on the level of key adult relationship factors. Taken together, it may be concluded that the primary model is confirmed which postulated that witnessing and experiencing abuse as a child increases symptom severity in female survivors of intimate partner abuse through specific key adult relationship factors.

Clinical Implications

The current results have broad implications for the development of preventive measures and clinical interventions. It had been theorized that shame or guilt about violent acts may lead to underreporting of domestic violence (Wilt & Olson,1996) and research suggests that these women are unlikely to seek help (Hyman, Forte, Mont, Romans, & Cohen, 2006). The incorporation of known adult relationship risk factors into clinical training programs can aid clinicians in identifying women that are currently experiencing negative symptoms due to intimate partner abuse. Additionally, clinicians should include a history of witnessing or experiencing abuse in childhood when examining risk for abuse and victimization as it has shown to be strong risk factor for later abuse and increased symptom severity in adulthood. As supported by these research findings, programs designed to identify female survivors of IPV should evaluate: (a) whether she has children not fathered by the abuser (Miner et al., 2012), (b) the existence of intermittent relationship reinforcement (Handsel, 2007; Walker, 2017), (c) the duration of the relationship (Hayes, 2016; Torres et al., 2013), (d) timing of the relationship (Bonomi et al., 2006), and (e) the number of IPV relationships the woman has been in (Alexander, 2009; Coolidge & Anderson, 2002). Cultivating clinicians and medical professionals

understanding of these risk factors may improve the rates at which these survivors are identified and could lower the risk of continued abuse.

The findings of this study offer important implications for clinicians working with female survivors of intimate partner abuse. This study supports the indirect and direct relationship between abuse factors in childhood and symptom severity in adulthood. Therefore, clinicians who work with this population should assess their clients' relationship experiences in order to determine if their relationship experiences are a risk factor for symptom severity. This information could also be helpful in hospitals and health clinics to aid is assessing women who could benefit from preventative interventions; young women who are in their first IPV relationships may benefit from targeted interventions to decrease the likelihood of staying in that relationship or involving herself in additional abusive relationships. This information could also be added to current screeners used to identify those at risk for abuse and possibly prevent further harm (Millen et al., 2019).

In consideration of the present results, it is recommended that these key adult relationship factors be incorporated into treatment development. Additionally, the symptoms experienced by this population should be assessed as a measure of treatment outcome. A focus on symptom severity, measured by the BWSQ, when assessing IPV survivors throughout therapy would allow the clinician to address what is currently impacting the client and more accurately measure changes in their current experiences. Exploring the IPV survivor's relationship factors would provide a clinician with a greater understanding of the presentation of current symptoms as well as past experiences.

Although education level and help seeking were not found to be significant moderators in this study, these factors are associated with improved mental health outcomes (Anderson &

Bang, 2012; McCleary-Sills et al., 2016; Ullman, Filipas, Townsend, & Starzynski, 2007) and should be looked at in the context of interventions and treatment with these survivors. While their effect on symptom severity in adulthood was not measurable in this study, it is possible that help seeking behaviors and level of education may have an impact on treatment outcomes and success for survivors of IPV.

Limitations

Although the results of this study have the potential to add to the scientific literature, the findings should be interpreted with caution due to certain limitations including sample selection and the use of cross-sectional data. The participants were recruited from convenience sampling and therefore random selection of participants was not achieved. This leaves the results vulnerable to subject selection bias. Additionally, this study does not provide a stratified representation of the population which potentially allows for sample characteristics bias. Future research should aim to replicate this research using random sampling of a population that is more stratified.

Furthermore, due to the cross-sectional nature of the study design, the temporal precedence of the variables cannot be established indisputably. Although these analyses do not guarantee temporality of the variables examined, their proposed order and relationship are based on extensive previously stated theoretical underpinnings. Hayes (2013) has asserted that temporal precedence between variables in mediation can be, and is often, established by the underpinning theory utilized to draw inferences about their relationship. Furthermore, childhood factors were obtained through the participants recall and may not be completely accurate. Other potential threats such as history, experimenter expectancies, cues of the experimental situation, reactivity to assessment, and timing of measurement are unknown.

Although some research has shown that single regression imputation can be as effective as multiple imputation when dealing with missing data up to 20% (Shrive, Stuart, Quan, & Ghali, 2006), inferences based on single imputation techniques are found to be artificially ‘‘precise,’’ and standard errors are too small because they do not accurately reflect uncertainty about the actual values of the missing observations (Fox-Wasylyshyn, S. M., & El-Masri, M. M. (2005). Limiting missing data during future research would remove this issue. Future studies replicating this model may benefit from including the participants perceived threat of death because it could potentially strengthen the model if missing data were eliminated.

Finally, it is important to examine the multiplicative impact of the severity of childhood or relationship factors and not just the additive nature. Future research should examine severity on a continuum taking into account both the number of abusive domains and the severity of the experience. For example, two very severe abusive situations experienced by one participant may be more severe than four abusive situations experience by another participant. Looking at the childhood and key adult relationship factors from a multiplicative approach could allow for clinicians to better assess the severity of the factors more accurately.

Despite these limitations, these findings fit together with existing literature and have identified adult and childhood factors that are important for clinicians and medical professionals to recognize in survivors of intimate partner abuse in order to provide proper intervention and treatment.

Future Research

There are several recommendations for future research studies focused on examining symptom severity in IPV survivors. Future studies should attempt to include more moderating variables in order to develop a more comprehensive understanding of the possible pathways

between childhood factors and adult symptom severity in survivors of IPV. Additionally, it would be useful for researchers to go beyond the cross-sectional design and carry out studies of a longitudinal nature. This would allow for the establishment of the temporal order underlying the dynamics of the numerous variables involved in the symptom severity of female IPV survivors. Further, revealing the role of demographic data such as gender, age, race, and sexual orientation will contribute to a greater understanding of survivors of IPV and the diversity in which intimate partner abuse impacts (Millen et al., 2019). It would also be useful to conduct future investigations with a broader sample of IPV survivors with regard to geographic location, ethnic background, and position in the community. This study confirmed previously reported links between childhood abuse factors, key adult relationship factors, and symptom severity in female survivors of intimate partner abuse. The findings presented can be utilized to inform clinical interventions with this vulnerable population.

References

Abramsky, T., Watts, C. H., Garcia-Moreno, C., Devries, K., Kiss, L., Ellsberg, M., ... & Heise, L. (2011). What factors are associated with recent intimate partner violence? Findings from the WHO multi-country study on women's health and domestic violence. *BMC public health*, *11*(1), 109.

Ackerson, L. K., Kawachi, I., Barbeau, E. M., & Subramanian, S. V. (2008). Effects of individual and proximate educational context on intimate partner violence: a population-based study of women in India. *American journal of public health*, *98*(3), 507-514.

Alexander, P. C. (2009). Childhood trauma, attachment, and abuse by multiple partners. *Psychological trauma: Theory, research, practice, and policy*, *1*(1), 78.

Anderson, K. M., & Bang, E. J. (2012). Assessing PTSD and resilience for females who during childhood were exposed to domestic violence. *Child & Family Social Work*, *17*(1), 55-65.

Bandura, A. (1971). *Psychological modeling.* Chicago, IL: Aldine – Atherton.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Cliffs, NJ: Prentice Hall

Bargai, Neta & Ben-Shakhar, Gershon & Shalev, Arieh. (2007). *Posttraumatic Stress Disorder and Depression in Battered Women: The Mediating Role of Learned Helplessness.* Journal of Family Violence. 22. 267-275. 10.1007/s10896-007-9078-y.

Bell, K. M., & Naugle, A. E. (2008). Intimate partner violence theoretical considerations: Moving towards a contextual framework. *Clinical psychology review*, *28*(7), 1096-1107.

Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Walters, M. L., Merrick, M. T., & Stevens, M. R. (2011). The national intimate partner and sexual violence survey: 2010 summary report. *Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention*, *19*, 39-40.

Bonomi, A. E., Thompson, R. S., Anderson, M., Reid, R. J., Carrell, D., Dimer, J. A., & Rivara, F. P. (2006). Intimate partner violence and women's physical, mental, and social functioning. *American journal of preventive medicine*, *30*(6), 458-466.

Burnett, C., Schminkey, D., Milburn, J., Kastello, J., Bullock, L., Campbell, J., & Sharps, P. (2016). Negotiating peril: The lived experience of rural, low-income women exposed to IPV during pregnancy and postpartum. *Violence against women*, *22*(8), 943-965.

Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary psychological perspective. *Clinical psychology review*, *17*(6), 605-619.

Campbell, J. C. (2002). Health consequences of intimate partner violence. *The lancet*, *359*(9314), 1331-1336.

Chen, P. H., & White, H. R. (2004). Gender differences in adolescent and young adult predictors of later intimate partner violence: A prospective study. *Violence Against Women*, *10*(11), 1283-1301.

Choi, J., Jeong, B., Polcari, A., Rohan, M. L., & Teicher, M. H. (2012). Reduced fractional anisotropy in the visual limbic pathway of young adults witnessing domestic violence in childhood. *Neuroimage*, *59*(2), 1071-1079.

Clements, C. M., Oxtoby, C. S., & Handsel, V. (2005). The role of intermittent reinforcement in abusive relationships. In *International Association for Behavioral Analysis Conference. Beijing, China*.

Coolidge, F. L., & Anderson, L. W. (2002). Personality profiles of women in multiple abusive relationships. *Journal of Family Violence*, *17*(2), 117-131.

Criminal Victimization, 2016 (NCJ 250180, October 2016)

Daly, M., Wilson, M., & Weghorst, S. J. (1982). Male sexual jealousy. *Ethology and Sociobiology*, *3*(1), 11-27.

Daly, M., Wiseman, K. A., & Wilson, M. I. (1997). Women with children sired by previous partners incur excess risk of uxoricide. *Homicide Studies, 1*, 61–71.

Davey-Rothwell, M. A., Stewart, J., Vadnais, A., Braxton, S. A., & Latkin, C. A. (2017). The role of partner support among women with depressive symptoms. *Community mental health journal*, *53*(4), 415-419.

Dong, Y., & Peng, C. Y. J. (2013). Principled missing data methods for researchers. *SpringerPlus*, *2*(1), 222.

Dube, S. R., Anda, R. F., Felitti, V. J., Edwards, V. J., & Williamson, D. F. (2002). Exposure to abuse, neglect, and household dysfunction among adults who witnessed intimate partner violence as children: implications for health and social services. *Violence and victims*, *17*(1), 3-18.

Edmonds, W. A., & Kennedy, T. D. (2016). *An applied guide to research designs: Quantitative, qualitative, and mixed methods*. Sage Publications.

Ellsberg, M., Jansen, H. A., Heise, L., Watts, C. H., & Garcia-Moreno, C. (2008). Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. *The Lancet*, *371*(9619), 1165-1172.

Enders, C. K. (2010) *Applied Missing Data Analysis.* Guilford Publications.

Finkelhor, D., Turner, H. A., Shattuck, A., & Hamby, S. L. (2015). Prevalence of childhood exposure to violence, crime, and abuse: Results from the national survey of children's exposure to violence. *JAMA pediatrics*, *169*(8), 746-754.

Fox-Wasylyshyn, S. M., & El-Masri, M. M. (2005). Handling missing data in self-report measures. *Research in nursing & health*, *28*(6), 488-495.

Giordano, P. C., Copp, J. E., Longmore, M. A., & Manning, W. D. (2016). Anger, control, and intimate partner violence in young adulthood. *Journal of family violence*, *31*(1), 1-13.

Goetz, A. T., Shackelford, T. K., Romero, G. A., Kaighobadi, F., & Miner, E. J. (2008). Punishment, proprietariness, and paternity: Men's violence against women from an evolutionary perspective. *Aggression and Violent Behavior*, *13*(6), 481-489.

Gooding, H. C., Milliren, C., Austin, S. B., Sheridan, M. A., & McLaughlin, K. A. (2015). Exposure to violence in childhood is associated with higher body mass index in adolescence. *Child abuse & neglect*, *50*, 151-158.

Gold, S. (2000). Not trauma alone. *Therapy for child abuse survivors in family and social context.* Philadelphia: Brunner Routledge.

Gómez, A. M. (2011). Testing the cycle of violence hypothesis: Child abuse and adolescent dating violence as predictors of intimate partner violence in young adulthood. *Youth & Society*, 43, 171–192.

Handsel, V. A. (2007). *Psychological Variables in Battered Women's Stay/leave Decisions: Risk-taking Perceived Control, and Optimistic Bias* (Doctoral dissertation, University of North Carolina at Wilmington).

Hanson, J. L., Nacewicz, B. M., Sutterer, M. J., Cayo, A. A., Schaefer, S. M., Rudolph, K. D., ... & Davidson, R. J. (2015). Behavioral problems after early life stress: contributions of the hippocampus and amygdala. *Biological psychiatry*, *77*(4), 314-323.

Hayes, A.F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.

Howell, K. H., Barnes, S. E., Miller, L. E., & Graham-Bermann, S. A. (2016). Developmental variations in the impact of intimate partner violence exposure during childhood. *Journal of injury and violence research*, *8*(1), 43.

Hyman, I., Forte, T., Mont, D., Romans, S., & Cohen, M. (2006). Help-Seeking Rates for Intimate Partner Violence (IPV) Among Canadian Immigrant Women. *Health Care for Women International*, *27*(8), 682–694.

IBM Corp. (2017). IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.

Kaukinen, C. E., Meyer, S., & Akers, C. (2013). Status compatibility and help-seeking behaviors among female intimate partner violence victims. *Journal of interpersonal violence*, *28*(3), 577-601.

Kemp, A., Green, B. L., Hovanitz, C., & Rawlings, E. I. (1995). Incidence and correlates of posttraumatic stress disorder in battered women: Shelter and community samples. *Journal of Interpersonal Violence*, *10*(1), 43-55.

Kennedy, T. D., Millen, D. H., Walker, L. E. A., Black, R., & Detullio, D. (2019). Battered Woman Syndrome Questionnaire (BWSQ) Development, Reliability, and Validity. Manuscript in preparation.

Kerley, K. R., Xu, X., Sirisunyaluck, B., & Alley, J. M. (2010). Exposure to family violence in childhood and intimate partner perpetration or victimization in adulthood: Exploring intergenerational transmission in urban Thailand. *Journal of Family Violence*, 25(3), 337-347.

Kernsmith, P. (2006). Gender differences in the impact of family of origin violence on perpetrators of domestic violence. *Journal of Family Violence*, *21*(2), 163-171.

Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child witnesses to domestic violence: a meta-analytic review. *Journal of consulting and clinical psychology*, *71*(2), 339.

Lewis, S. F., & Fremouw, W. (2001). Dating violence: A critical review of the literature. *Clinical psychology review*, *21*(1), 105-127.

Madruga, C. S., Viana, M. C., Abdalla, R. R., Caetano, R., & Laranjeira, R. (2017). Pathways from witnessing parental violence during childhood to involvement in intimate partner violence in adult life: The roles of depression and substance use. *Drug and alcohol review*, *36*(1), 107-114.

McCleary-Sills, J., Namy, S., Nyoni, J., Rweyemamu, D., Salvatory, A., & Steven, E. (2016). Stigma, shame and women's limited agency in help-seeking for intimate partner violence. *Global public health*, *11*(1-2), 224-235.

McLuckey, L., & Teska, J. (2016). Intimate Partner Violence: Effects on Health.

Manly, C. A., & Wells, R. S. (2015). Reporting the use of multiple imputation for missing data in higher education research. *Research in Higher Education*, *56*(4), 397-409.

Meyer, S. (2012). Why women stay: A theoretical examination of rational choice and moral reasoning in the context of intimate partner violence. *Australian & New Zealand Journal of Criminology*, *45*(2), 179-193.

Millen, D. H., Kennedy, T. D., Detullio, D. Black, R., & Walker, L. E. A., (2019). Battered Woman Syndrome Questionnaire (BWSQ) Subscales: Development, Reliability, and Validity.

Miller, L. E. (2015). Perceived threat in childhood: A review of research and implications for children living in violent households. *Trauma, Violence, & Abuse*, *16*(2), 153-168.

Miller-Graff, L. E., & Graham-Bermann, S. A. (2016). Individual-and community-level predictors of victimization frequency in a sample of women exposed to IPV. *Psychology of violence*, *6*(1), 172.

Miner, E. J., Shackelford, T. K., Block, C. R., Starratt, V. G., & Weekes-Shackelford, V. A. (2012). Risk of death or life-threatening injury for women with children not sired by the abuser. *Human Nature*, *23*(1), 89-97.

Neal, A. M., & Edwards, K. M. (2017). Perpetrators' and victims' attributions for IPV: A critical review of the literature. *Trauma, Violence, & Abuse*, *18*(3), 239-267.

Peng, C. Y. J., Harwell, M., Liou, S. M., & Ehman, L. H. (2006). Advances in missing data methods and implications for educational research. *Real data analysis*, *3178*.

Peters, J., Shackelford, T. K., & Buss, D. M. (2002). Understanding domestic violence against women: Using evolutionary psychology to extend the feminist functional analysis. *Violence and Victims*, *17*(2), 255-264.

Petrosky, E., Blair, J. M., Betz, C. J., Fowler, K. A., Jack, S. P., & Lyons, B. H. (2017). Racial and ethnic differences in homicides of adult women and the role of intimate partner violence—United States, 2003–2014. *MMWR. Morbidity and mortality weekly report*, *66*(28), 741.

Psarros, C., Theleritis, C., Economou, M., Tzavara, C., Kioulos, K. T., Mantonakis, L., Soldatos, C. R., & Bergiannaki, J. D. (2017). Insomnia and PTSD one month after wildfires: evidence for an independent role of the "fear of imminent death". *International journal of psychiatry in clinical practice*, *21*(2), 137-141.

Renner, L. M., & Whitney, S. D. (2012). Risk factors for unidirectional and bidirectional intimate partner violence among young adults. *Child abuse & neglect*, *36*(1), 40-52.

Rodriguez, L. M., DiBello, A. M., & Neighbors, C. (2015). Positive and negative jealousy in the association between problem drinking and IPV perpetration. *Journal of family violence, 30*(8), 987-997.

Seligman, M. (1975). *Helplessness: On depression, development and death.* San Francisco: Freeman

Sharon G. Smith, Xinjian Zhang, Kathleen C. Basile, Melissa T. Merrick, Jing Wang, Marcie-jo Kresnow, Jieru Chen (2015) National Intimate Partner and Sexual Violence Survey: 2015 Data Brief National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA

Spencer, C. M., Stith, S. M., & Cafferky, B. (2019). Risk markers for physical intimate partner violence victimization: A meta-analysis. *Aggression and violent behavior, 44, 8-17*

Stith, S. M., Rosen, K. H., Middleton, K. A., Busch, A. L., Lundeberg, K., & Carlton, R. P. (2000). The intergenerational transmission of spouse abuse: A meta-analysis. Journal of Marriage and the Family, 62, 640–654.

Stockard, J. (2006). Gender socialization. In *Handbook of the Sociology of Gender* (pp. 215-227). Springer, Boston, MA.

Stoltenborgh, M., Bakermans-Kranenburg, M. J., Alink, L. R., & van Ijzendoorn, M. H. (2015). The prevalence of child maltreatment across the globe: Review of a series of meta-analyses. *Child Abuse Review*, *24*(1), 37-50.

Riggs, D. S., & O'Leary, K. D. (1989). A theoretical model of courtship aggression. In M. A. Pirog-Good & J. E. Stets (Eds.*), Violence in dating relationships: Emerging social issues (*53−71). New York: Praeger Publishers

Tomoda, A., Polcari, A., Anderson, C. M., & Teicher, M. H. (2012). Reduced visual cortex gray matter volume and thickness in young adults who witnessed domestic violence during childhood. *PloS one*, *7*(12), e52528.

Torres, A., Garcia-Esteve, L., Navarro, P., Tarragona, M. J., Imaz, M. L., Ascaso, C., Gelabert, E., Plaza, A., Subirà, S., Valdés, M., & Martín-Santos, R. (2013). Relationship between intimate partner violence, depressive symptomatology, and personality traits. *Journal of family violence*, *28*(4), 369-379.

Ullman, S. E., Filipas, H. H., Townsend, S. M., & Starzynski, L. L. (2007). Psychosocial correlates of PTSD symptom severity in sexual assault survivors. *Journal of traumatic stress*, *20*(5), 821-831.

Valdez, C. E., Lim, B. H. P., & Lilly, M. M. (2013). "It's going to make the whole tower crooked": Victimization trajectories in IPV. *Journal of Family Violence*, *28*(2), 131-140.

Walker, L. E. (1978). Treatment alternative for battered woman. In J.R. Chapman & M. Gates (Eds.) *The victimization of women; Sage Yearbooks in Women's Policy Studies* (Vol. 3). Beverly Hills, CA: Sage.

Walker, L. E. (1979). *The battered woman.* New York, NY: Harper & Row.

Walker, L. E. (1989). Psychology and violence against women. *American Psychologist*, *44*(4), 695.

Walker, L. E. (2017). *The battered woman syndrome*. New York, NY; Springer publishing company.

Widom, C. S. (1989). The cycle of violence. *Science*, *244*(4901), 160-166.

Widom, C. S., Czaja, S., & Dutton, M. A. (2014). Child abuse and neglect and intimate partner violence victimization and perpetration: A prospective investigation. *Child abuse & neglect*, *38*(4), 650-663.

Wilson, K., Varcella, R., Brems, C., Benning, D., & Renfro, N. (1993). Levels of learned helplessness in abused women. *Women & Therapy*, *13*(4), 53-67.

Wilson, M., & Daly, M. (1993). An evolutionary psychological perspective on male sexual proprietariness and violence against wives. *Violence and Victims*, *8(3)*, 271-294.

Wilt, S., & Olson, S. (1996). Prevalence of domestic violence in the United States. *JAMWA*, 51(3), 77-82.

Yakubovich, A. R., Stöckl, H., Murray, J., Melendez-Torres, G. J., Steinert, J. I., Glavin, C. E., & Humphreys, D. K. (2017). Prospective risk and protective factors for intimate partner violence victimization among women: a systematic review and meta-analysis. *The Lancet*, *390*, S13.

Appendix A

Equation for Mediation Analyses

Mediation model for key adult relationship factors:

$$M = i_1 + aX + e_M$$

$$Y = i_2 + c'X + bM + e_Y$$

Where

X = Childhood Factors (independent variable)

Y = Symptom Severity (dependent variable)

M = Key adult relationship factors (mediator)

i_1, i_2 = intercepts (regression constants)

a, *b*, and *c'* = (regression) coefficients given to antecedent variables in estimation of consequents

e = error

Appendix B

Equation for Moderation Analysis

Moderation model for key adult relationship factors:

$$Y = i_Y + b_1X + b_2W + b_3XW + e_Y$$

Where

Y = Symptom Severity (dependent variable)

X = Childhood Factors (independent variable)

W = Key adult relationship factors (moderator)

Appendix C

Equation for Moderated Mediation Analysis

Moderated Mediation model for key adult relationship factors:

$$M = i_1 + aX + e_M$$

$$Y = i_2 + c'X + b_1M + b_2W + b_3Z + b_4MW + b_5MZ + e_Y$$

Where

M = Key adult relationship factors (mediator)

X = Childhood Factors (independent variable)

Y = Symptom Severity (dependent variable)

W = Help Seeking (moderator)

Z = Education level (moderator)