Intimate Partner Violence:

Examining Educational Programs & Relationship Length

by

Shelby Weldon

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Graduate Supervisory Committee:

Danielle Wallace, Chair
Jacob Young
Jesenia Pizarro

ARIZONA STATE UNIVERSITY

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ABSTRACT

The question of how to reduce the recidivism rates among IPV offenders is one that plagues criminologists to this day. Though a difficult issue to address, educational treatment programs have started to gain popularity as one idea to achieve this reduction. By examining the dataset from the "Domestic Violence Experiment in King's County (Brooklyn), New York, 1995-1997," conducted by Robert C. Davis et al. (2000), it was found that the results of the educational program showed a great promise in reducing recidivism rates. Though it is important to focus on and analyze the results from this study, it is also important to extrapolate from them by running and examining specific models and variables with the dataset. Focusing on specific variables within the dataset allows researchers to find different themes and results in smaller ideologies of research, versus trying to find one overall answer on how to reduce recidivism.

By examining specific variables such as length of relationship, I wonder how length of relationship between an IPV offender and victim impact recidivism rates? This thesis will discuss IPV history and theoretical perspectives, history of educational programs, length of relationship, and the dataset conducted by Davis et al. (2000).

This thesis examines how the likelihood of IPV recidivism is effected by length of relationship, the different length of treatment programs (overall, eight-week, or twenty-six-weeks), and the interaction between length of relationship and the different treatment programs. The results show overall that length of relationship slightly decreases the rate of recidivism for IPV. When length of relationship is ran in the models with the separate treatment programs, it is found that the overall treatment and twenty-six-week programs have drastic and significant reduction results on recidivism, but that the eight-week

program actually increases recidivism rates slightly. The results also indicate that when examining the interaction between length of relationship and the different treatment programs, length of relationship slightly moderates the reduction of the recidivism rates for the individuals enrolled in the overall treatment and eight-week programs, but slightly increases the rates for those in the twenty-six-week program.

DEDICATION

To my Father and Mother, all of this would not have been possible without you.

Also to Samantha and Dakota, you guys were my rock.

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INTRODUCTION

When discussing Intimate Partner Violence (IPV), it is important to understand the various aspects of IPV and potential reasons this form of victimization is still occurring. As Heise and Garcia (2002) state, "One of the most common forms of violence against women is that performed by a husband or an intimate male partner," (p. 89). Since this form of violence is indeed so common, and it is after the first occurrence that officials can begin to analyze the situation, the question of how to deter the reoccurrence of this victimization is one of the first to arise. A major idea in the vein of accomplishing this goal is through educational/treatment programs (E/TPs) for IPV offenders. Through these E/TPs, perpetrators are able to recognize what they did wrong and are held accountable for the actions that they have committed (Miller et al., 2013).

However, determining the effectiveness of both randomly assigned and quasi-experiment E/TPs can be difficult when it comes to recidivism rates. Many studies examining the E/TPs have methodological deficiencies, such as randomly assigning and compliance with treatment protocol (Davis et al., 2000), and are comparing different issues in what makes the program "effective". For example, a generalizable sample population for these programs is not possible. Samples cannot represent all batterers of IPV or all batterers who are enrolled in an E/TP. As we see in the Davis et al. (2000) study (which is one of the few E/TPs which show effectiveness), programs can usually only be created through the criminal justice court system, in one particular city. Another methodological deficiency is sample selection bias for E/TPs. Many studies do not include difficult batterers in their program. Davis et al. (2000) define a difficult batterer as "… recidivist batterers or those who have substance abuse problems," (p. 9).

Rosenfeld (1992) explains how by not including these difficult batterers in E/TPs, researchers may not be able to report such successful numbers showing that their E/TP was effective. Lastly, Davis et al. (2000) state that many E/TPs "… have serious problems with attrition: Many evaluations report that fewer than half of batterers assigned to treatment ... completed the program," (p.10). When a large amount of the sample does not complete the E/TP, researchers must decide how to compare and show their results. By only including the batterers who complete the program against those who did not, the researchers may be accused of running the results that show that their program is effective; when in truth, it may not be as effective as they portray (Davis et al., 2000).

Though many studies have looked at E/TPs, only a few have shown any real impact on recidivism rates for IPV offenders (Babcock et al., 2004; Miller et al., 2013). One study in particular had significant results that showed E/TPs were a substantial way to reduce recidivism of IPV offenders. This study was the "Domestic Violence Experiment in King's County (Brooklyn), New York, 1995-1997" conducted by Davis et al. (2000). The study separated IPV offenders into a control group and two treatment groups: one that attended an eight-week program and one that attended a twenty-six-week program. The researchers found that after a one-year follow-up that the perpetrators involved in the longer twenty-six-week program were less likely to recidivate than the other groups. For criminal justice related incidents, it was found that after one year 10% of the twenty-six-week group, 25% of the eight-week group, and 26% of the control group reoffended (Davis et al., 2000). The replication of the overall marginal effect of treatment for the Davis et al. (2000) King's County Experiment at the one-year follow-up

Table 1: Replication of Davis et al. (2000) Experiment: One-Year Follow-Up

Variable Name:	Log Odds	Odds Ratio	P> |z|
Assigned to Treatment Program	-0.579**	0.560**	0.005
	(0.206)	(0.115)	
Constant	-1.630**	0.196**	0.000
	(0.194)	(0.038)	
Observations		376	

Note: Standard errors in parentheses: **p<0.01

is below in Table 1. The results replicate that the results are similar in that there is a reduction in recidivism and it is also significant.

The Davis et al. (2000) study also has the additional benefit of its findings on the dataset being publically available. The researchers included many additional variables not considered in the original study. As such, there is room for more intensive evaluations of this program. For instance, the relationship length between the IPV offender and victim is one such variable of particular interest when discussing IPV, and is the starting point for this thesis.

The length of the IPV relationship has been found in many studies to impact IPV and its recidivism rates. Brittany E. Hayes (2016) found that there was an increase of IPV when the relationship between the perpetrator and the victim was over a year. Marcus and Swett (2001) state that "for females, the length of time she had known her partner was positively related to her inflicting and sustaining violence in her relationship," (p. 314). Arias et al. (1987) also found that length of relationship was positively related with victimization in a relationship, as well as the overall perpetration of violence within a relationship. This thesis examines whether the length of relationship moderates the relationship between recidivism and the E/TPs the offenders participate in.

By examining Davis et al.'s (2000) King's County Experiment and focusing on relationship length having an impact on recidivism rates, this thesis seeks to answer two research questions: 1) How does the length of the relationship between the offender and the victim impact the rate of recidivism for IPV offenders?; and 2) How does the length of relationship after being enrolled in the educational/treatment program for both the eight and twenty-six-week programs moderate the recidivism rate for IPV offenders?

In the coming sections, this thesis will discuss the history and theoretical perspectives behind IPV, the history of educational/treatment programs aimed at reducing recidivism among IPV offenders, length of relationship, and the dataset conducted by Davis et al. (2000). This thesis will also provide answers to both the research questions and hypotheses by running specific models with the dataset, show how the models were run, and discuss the findings and future implications from the findings.

BACKGROUND LITERATURE

History of Intimate Partner Violence

The history of IPV, or what was previously called domestic violence, comes from the English common law called the "Rule of Thumb." With this rule, a man had the authority or permission "to beat his wife with a 'rod not thicker than his thumb,'" (Zelcer, 2014, p. 542). This was held true even in court. Clark (1929) annotated that in January of 1868, the Supreme Court of Raleigh, North Carolina overturned an indictment of A. B. Rhodes for an assault and battery charge on his wife, Elizabeth. Both the jury and the judge found that A. B. Rhodes "… had the right to whip his wife with a switch no larger than his thumb…" and that the "… courts will not interfere to punish him for moderate correction of her [Elizabeth], even if there had been no provocation for it," (p. 351). Women clearly had little rights at this point and were legally their husband's property. Husbands had the legal authority to control their wives' behavior in any manner, including physical and violent force. It was also illegal to make these private marital facts public, and could make situations worse and dangerous for women if they attempted to make the abuse public (Zelcer, 2014).

Then, in 1871, legal action against abuse began to be available in some of the states in the United States. Alabama and Massachusetts ruled that husbands were prohibited from physically abusing their wives (Commonwealth v. McAfee, 1871; Fulgham v. State, 1871). In 1883, Maryland made spousal abuse a criminal act (Hafemeister, 2011). By the twentieth century, domestic violence issues could be heard in special family courts. There, social workers used counseling to help married couples

with their domestic violence issues instead of having to get the criminal justice system involved (Hafemeister, 2011; Zelcer, 2014).

In the 1970s, significant strides were made in the anti-domestic violence movement. Domestic violence was a topic that was no longer being silenced, and because of this, many cities began to establish domestic violence shelters for battered women and their children. These shelters were there solely to provide care and aid to these women. In 1979, President Jimmy Carter created the Office of Domestic Violence in the U.S. Department of Justice in order to disperse information throughout the nation about the topic (Hafemeister, 2011). However, even though many criminal and civil strides had been made to show that domestic violence was an act of harm against the public, it was found that in the early 1970s, only nine out of twenty-three men went to jail after being arrested for severely beating their wives (Miccio, 2005).

The major turning point in the criminal justice system's response to domestic violence came from the case, *Thurman v. City of Torrington;* a situation coined the *Thurman* tragedy (Zelcer, 2014). In 1984, police did not respond to the ongoing and worsening abuse of Mrs. Tracey Thurman. She had a restraining order against Mr. Charles Thurman, who paid no attention to the order and continued to abuse, harass, and threaten Tracey for months. Finally, one night after Tracey called the police, it took twenty-five minutes for an officer to arrive. When the officer did finally reach the scene, he proceeded to watch Charles kick Tracey in the head until her neck was broken. The officer did not intervene, even when Charles then got angry with his child and verbally abused him. The officers finally stepped in when Charles again tried to attack Tracey as she was being put into an ambulance in order to go to the hospital to receive treatment

(Zelcer, 2014; NCDSV Case Brief, 1985). The court found that Connecticut's Torrington Police Department had not provided Tracey the right to equal protection. The evidence showed that the police had provided protection to people who had been abused by someone where no domestic relationship was taking place. However, "… the police consistently afforded lesser protection when the victim was a woman abused or assaulted by a spouse or boyfriend… The court awarded Tracey $2.3 million," (NCDSV Case Brief, 1985, p. 2).

The *Thurman* tragedy, as well as the mandatory arrest laws for domestic violence cases that stemmed from the results of the Minneapolis Domestic Violence Experiment, created an enormous shift in police responses to domestic violence calls (Saccuzzo, 1999). The Minneapolis Domestic Violence Experiment was the first controlled and randomized experiment in the history of criminology that used mandatory arrests for any type of offense (Zelcer, 2014). Sherman and Berk (1984) "found that arrest was the most effective of three standard methods police use to reduce domestic violence … attempting to counsel both parties or sending assailants away from home for several hours – were found to be considerably less effective in deterring future violence in the cases examined," (p. 1) With these results, by 1991, fifteen states had already enacted mandatory arrest laws, even though the authors cautioned that more studies were necessary to validate their findings (Sherman et al., 1992). Then, when analyzing the Minneapolis Experiment in depth, issues of validity were called into question. A replication of the Minneapolis Experiment of six different cities, three of the cities: Omaha, Charlotte, NC, and Milwaukee, concluded that there was "… no evidence for a long-term deterrent effect of arrest on recidivism. Instead, they found significant long-

term *increases* in subsequent incidents," (Sherman et al., 1992, p. 680). The finding that mandatory arrest reduced the rate of recidivism was not generalizable to all the cities involved in the replication. Researchers did find that the stakes in conformity, such as marital and employment status of the person being arrested, influenced the reoccurrence of domestic violence and was generalizable across cities. The individuals who were arrested but were married and employed had a lower chance of recidivism compared to the individual who were unemployed and not married (Sherman et al., 1992).

Sherman and Berk (1984) also noted in their original study that the Minneapolis Experiment could not be generalizable for a few reasons. First, they used smaller sample sizes when examining race, age, criminal history, etc., which possibly meant that arrest could make situations worse for certain offenders. Second, the researchers did not know the policies of other police departments throughout the United States. They acknowledged that for cities with departments where the offender could be released and back at the same home with the same victim in a matter of hours, may not have a great impact on reducing domestic violence recidivism. Lastly, they recognized that location is a big factor when discussing generalizability. Not every city has the same cultures, weather, and same rates of crime and violence. Generalizing the findings that mandatory arrest is the most effective in all cities would not be accurate (Sherman and Berk, 1984).

Zelcer (2014) continues on to show why mandatory arrest laws are not always the best answer for IPV situations. She makes five arguments as to why this is the case: "… (A) the disempowerment of women; (B) increased arrests of women; (C) adverse effects on women with children; (D) discriminatory consequences for poor, minority, and

immigrant women; and (E) procedural challenges posed by mandatory arrest," (p. 546). Below, these five points are discussed in more detail.

First, women are being disempowered because they are put in a situation where if they call the police, no matter what, their significant other will be arrested. This can result in women not wanting to call the police for help at all (Saccuzzo, 1999). Sometimes women use this tactic to gain control, and it backfires and puts them in a position of prosecuting their significant other when that was never their intention in the first place. Victims definitely want protection, but may not always want an arrest to take place (Zelcer, 2014).

Second, for the increases in arrests of women, many mandatory arrest policies lead to both the perpetrator and the victim being arrested. This occurs if the police cannot fully determine who caused the incident, even when the victim was just defending themselves (Hafemeister, 2011). Consequently, when the victim is arrested, the police are taking away the rights that a victim of domestic violence is entitled to, including seeking help at women's shelters and safe houses (Zelcer, 2014).

Third, for the adverse effects on women with children, with mandatory arrests, child custody laws become complicated (Miccio, 2005). There are laws stating that even if there is IPV present in the home, the child can be taken away, even if the mother is only the victim (Zelcer, 2014). If a mother is arrested because the officers cannot figure out who started the incident, the child can still be removed from the home, since it does not look good if the mother is arrested. This makes her situation much worse than before. Also, as mentioned above, if both the perpetrator and victim are arrested if the police

cannot fully determine who caused the incident, then the child loses both of their parents, as well as their home (Zelcer, 2014).

Fourth, mandatory arrest laws tend to have a disproportionate negative effect on unemployed, minority, and immigrant communities. When these populations are mandatorily arrested, the recidivism rate seems to heavily backfire and will increase, instead of decrease. For example, Zelcer (2014) refers to the "proud and angry" effect, where in a study of mandatory arrest laws for whites, the frequency of repeat violence was cut in half. However, among blacks, the violence was increased by one third. This finding suggests that among blacks, "… arrest encourages higher rates and severity of violence among batterers who repeat their violence behavior," (p. 551). The same pattern follows when examining unemployed and employed batterers. After arrest, employed batterers decrease in repeat violence, while unemployed batterers increase. Because of this, "… mandatory arrest laws have an adverse effect on poor communities with a higher than average unemployment rate," (Zelcer, 2014, p. 552). Finally, in regards to immigrant communities, immigrant women fear calling the police in the case they or their partner will be deported. They also fear that by reaching out to the police, they could possibly be exiled or banished from their culture and community if an arrest were to occur (Pavlidakis 2009).

Lastly, for procedural challenges, mandatory arrests do not usually lead to prosecution since the district attorneys' offices lack the resources to prosecute every case (Saccuzzo, 1999). Also, not every victim actually wants to go through with pressing charges against their partner. Overcrowding in jails and prisons may become an issue,

and recidivism rates tend to increase and cause more problems for the victims of IPV (Zelcer, 2014).

As of today, IPV is much more acknowledged in society and is no longer in the private sphere. Twenty-nine states have mandatory arrest laws for cases when there is probable cause that perpetrators have violated a protective order. Twenty-one states as well as the District of Columbia have mandatory arrest laws for situations when a protective order has or has not been violated (Miccio, 2005). These laws are a step in the right direction in attempting to reduce the occurrence and recidivism rates of IPV.

Theoretical Perspective

To educate perpetrators about IPV and provide information to effectively reduce its occurrence, it is imperative to first understand the criminological theories behind IPV incidents. As Li Eriksson and Paul Mazerolle (2015) state, "The theoretical principles underpinning the intergenerational transmission of violence thesis can be found in social learning theories" (p. 947). This is shown in their study, where they found that men who witnessed IPV as a child were more likely to engage in violent IPV behaviors in their own relationships as an adult, compared to those who had not witnessed that kind of violence when growing up. However, another important finding of theirs is that actually experiencing abuse as a child was not a predictor for IPV in relationships when they were an adult. This finding ties into Ronald L. Akers and Wesley G. Jennings Social Learning Theory (SLT).

Akers and Jennings (2009) discuss the four central concepts of SLT: differential association, definitions, differential reinforcement, and imitation. First, Akers and Jennings (2009) state that "the individuals with whom a person decides to differentially

associate and interact (either directly or indirectly) play an integral role in providing the social context wherein social learning occurs," (p. 325). They explain further that if an individual has a direct interaction with other individuals who partake in criminal, deviant, or conforming behaviors, and show this individual the norms, values, and attitudes that support these kinds of behaviors, that this could affect the decisions of the individual about whether they want to participate as well.

Akers and Jennings (2009) state that there are two kinds of definitions: (1) general beliefs and (2) specific beliefs. General beliefs are an individual's personal definitions based off of religious, moral, and other conventional values. Specific beliefs are an individual's personal definitions that guide that individual into either participating in deviant and criminal acts, or avoiding them.

Next, Akers and Jennings (2009) explain that differential reinforcement is when the likelihood that an individual will commit a given behavior increases. This likelihood will increase because of the past, present, and future anticipated and/or experienced rewards and punishments that affect the possibility that the individual will partake in the behavior; whether in the first place, continuing, or avoiding this behavior in the future. Differential reinforcement operates in four modes: positive reinforcement, negative reinforcement, positive punishment, and negative punishment.

Lastly, the fourth central concept in Akers and Jennings (2009) SLT is imitation. Imitation occurs when an individual partakes in a behavior that is modeled after another individual's behavior or actions. This can be done directly, face to face, or indirectly, such as through the media. The process of imitation may also be referred to as vicarious reinforcement.

Alternatively, many criminological theorists claim that Robert Agnew's (1992) General Strain Theory (GST) provides possible explanations as to why IPV occurs. Agnew (1992) describes the three main kinds of strain that may explain why IPV occurs: "Other individuals may (1) prevent one from achieving positively valued goals, (2) remove or threaten to remove positively valued stimuli that one possesses, or (3) present or threaten to present one with noxious or negatively valued stimuli," (p. 50). According to GST, the nature of the social relationship is the factor that leads to and is the motivation for delinquency. Because of this, it is important to establish (1) the type of social relationship that leads to delinquency and (2) the motivation for delinquency. GST (Agnew, 1992) also states that an individual is pushed into deviance by negative states, such as anger, and that this results from negative relationships. These negative states may lead an individual to (1) make use of illegitimate channels of goal achievement, (2) attack or escape from the source of their negative emotions, and/or (3) managing their negative states through the use of drugs.

GST postulates that negative relationships with other individuals correlate with a person's decision to act out. Strain within the relationship begins to occur because the individual feels that they are being prevented from achieving positively valued goals (Agnew, 1992). GST also states that an individual is pushed into deviance by negative personal states, such as anger, and that the negative state is a direct result of negative relationships. These negative states may lead an individual to make use of illegitimate channels of goal achievement, such as attacking or escaping from the source of their negative emotions.

Another criminological theory that can be used to explain IPV occurrence is Social Control Theory (Hirschi, 1969). Hirschi's (1969) SCT explains that previous "control theories assume that delinquent acts result when an individual's bond to society is weak or broken," (p. 16). He acknowledges that an individual's bond to society is determined through conformity, which is determined through socialization. Socialization is defined as "the formation of a bond between individual and society comprised of four major elements: attachment, commitment, involvement, and belief," (Wiatrowski et al., 1981, p. 525). If these four elements are considered to be weak within an individual, the weaker their societal bonds are. This then leads to an increase in the possibility of delinquent behavior.

Attachment is the element that discusses the individual's formation of ties to significant others, mainly the family. Parents are to act as guides or role models for the individual when they are a child, demonstrating the behaviors that are the norms of society, or socially accepted behavior. This then allows the individual to form the appropriate attachments to these individuals (Wiatrowski et al., 1981). If proper attachments are not formed through demonstrating accepted societal norms, the odds of delinquent behavior occurring begins to increase.

Commitment explains an individual's goals and aspirations. Commitments tend to specifically be discussing educational and occupational opportunities. It is believed that individuals avoid actions that could prohibit the achievement of these opportunities, meaning they would not risk these opportunities by engaging in delinquent behavior (Wiatrowski et al., 1981). By engaging in delinquent behavior and putting these goals at risk, the individual is also putting their stake in conformity at risk (Hirschi, 1969).

Involvement discusses ways an individual takes the opportunities provided to them, mainly by partaking in socially accepted activities that lead to the completion of their goals. As Wiatrowski et al. (1981) state, "The quality of a youth's activities and their relationship to future goals and objectives are important in preventing delinquency," (p. 525). For example, an individual completing their homework may lead to the success of achieving their educational goals. However, it is important to note that involvement does discuss that not everyone has the opportunity to partake in socially accepted activities, creating the lack of involvement which may lead to delinquent behavior (Hirschi, 1969).

Lastly, belief discusses "… a person's beliefs in the moral validity of norms…," (Hirschi, 1969, p. 23). Meaning, if an individual has a high belief in the moral validity of norms presented to them by society, the less likely they are to participate in delinquent behavior. If an individual believes that there is room for variation of the social norms, the more likely they are to engage in delinquent activity to break them (Wiatrowski et al., 1981). Hirschi (1969) also notes that delinquent individuals may understand that their actions are wrong and go against societal norms, but their altered beliefs now stem from their weakened societal bonds.

Other criminological theories can be applied to explaining the occurrence of IPV. Some of these theories may include power theory, feminist theory, and personality/typology theories. Power theory examines the power imbalances between the offender and victim, usually husband and wife. This theory focuses on this idea of the power imbalance to explain why the tension within a family may increase, causing the risk for IPV occurrence to also increase (Straus, 1969). Feminist theory focuses on the

way relationships are formed in terms of sociocultural terms (Bell & Naugle, 2008). The theory looks at the way that women are viewed in what they view as a patriarchal society, usually focusing on sexism and inequality. It is found that "… families are at a greater risk for experiencing IPV when husbands hold traditional sex-role attitudes and when there are greater discrepancies between the husbands' and wives' acceptance of patriarchal values," (Bell, & Naugle, 2008, p. 1097). Lastly, personality/typology theories focus on trying to pin down specific characteristics that could cause an individual to be more predicative of partaking in IPV behavior (Bell & Naugle, 2008). Dutton (1995) found that individuals who have attachment issues coupled with anger issues will strike out in IPV behavior when they feel threatened or feel like they have failed in the relationship.

Although the main ideas from the theories above can be used to support the ideas of why IPV occurs, SLT, GST, and SCT are being focused on in this thesis for a few different reasons. First, the four concepts of SLT all relate back to IPV. As a child, that individual may see how their parents argue and fight both physically and verbally, and could potentially grow up imitating and associating themselves with these actions (Akers & Jennings, 2009). The abuse does not have to happen directly to the perpetrator for them to continue the abuse in the future. As Bell and Naugle (2008) state, "… simply witnessing either positive or negative consequences of violent behavior may be sufficient in determining whether or not an individual will engage in future violent episodes," (p. 1098).

By doing so, these actions and behaviors could be used later on in their own adult relationships. SLT can be applied when examining the length of relationship for IPV

offenders. If offenders grow up seeing violent behavior for a long period of time, they will consider this to be normal behavior in their relationships. By continuing the pattern of IPV behavior in their relationships for a long period of time, especially over a year (Hayes, 2016), the likelihood of IPV reoccurring increases. Also, it has been found that SLT is beneficial to the development and treatment of perpetrators in E/TPs, as SLT focuses on building cognitive skills to change perceptions (Bell & Naugle, 2008). As Scott (2004) confirms, IPV educational "treatments organized according to social learning theory focus on men's understanding of the consequences of abuse, on the development and practice of more adaptive communication skills, and on strategies for dealing appropriately with conflict," (p. 270).

Second, for GST, perpetrators in IPV relationships feel as though they are not being treated as they should be in the relationship, and will purposely victimize their significant other by using illegitimate channels to achieve their goal, such as abusing their partner (Agnew, 1992). By using IPV as their illegitimate channel, over the length of the relationship the perpetrator has with their partner, the more likely they will turn to IPV behavior any time they feel a negative state. Longer lengths of relationship show that a batterer has started committing IPV when they are feeling negativity and cannot achieve their goals. When doing this for a prolonged period of time, the more likely this pattern of illegitimate channels will be used, meaning more likely for repeat victimization to occur. Mason and Smithey (2012) tested this, seeing if combined intimate partner strain measured as the length of relationship is considered a cause for using IPV in a relationship. They found that IPV has a higher chance of being used in a relationship if both intimate partner strain and general strain are present in the relationship, specifically

in longer relationships. As for E/TPs, GST is administered in the curriculums when the batterers discuss their understandings and feelings of domestic violence. In the Davis et al. (2000) study, the batterers were taught to take responsibility for their feelings and actions, usually caused by their anger. They were able to learn how their anger stemmed from their strain, whether it is strain from the negative relationship itself or strain from not achieving their goals within the negative relationship (Agnew, 1992).

Lastly, for SCT, Hirschi (1969) explains how an individual may partake in delinquent behavior. An individual's socialization is determined through the elements of their levels of attachment, commitment, involvement, and belief. If their socialization is weakened, so is their level of conformity, which determines their bonds to society. If their societal bonds are weakened, that individual will then engage in delinquent behavior. Weakened societal bonds can relate to IPV and IPV relationships. As mentioned by Hayes (2016), IPV relationships that continue to last over a year are at a higher risk for IPV reoccurrence. However, for SCT, longer lengths of relationship are not likely. It is still true that individuals with weak societal bonds in an IPV relationship will have a higher chance of partaking in delinquent behavior, i.e. IPV behavior. Although, it is possible that the individual is not interested in the relationship itself; they may only be interested in being able to exercise delinquent behavior. As mentioned, Hirschi (1969) demonstrates that individuals who have high levels of attachment stem from the family. In this study, length of relationship is being tested as the measure of their societal bonds, or attachment to the relationship. SCT demonstrates that individuals who partake in longer relationships should engage in less IPV. Because of this,

individuals who receive treatment from the E/TP should be less likely to recidivate in the future, as treatment should have more of an impact on reducing recidivism.

In regards to E/TPs, SCT is also similar to SLT and GST. In the Davis et al. (2000) study, the batterers were taught to take responsibility for their actions and feelings. Education on SCT (Hirschi, 1969), or more specifically, providing lessons on societal bonds and their causation of delinquent behavior, could be broken down and analyzed to the batterers. By providing the batterers an opportunity to understand their youth and how their societal bonds, or lack thereof, were formed, they can begin to understand their actions that have led them to this point, and how not to give into future delinquent behavior. This would allow for the reforming of strong societal bonds. Stronger societal bonds could then improve future relationships, hopefully lowering the chances of engaging in IPV behavior to begin with.

Previous Research:

Educational/Treatment Programs

Within the criminal justice system, courts have begun to heavily rely on group treatment and education programs as the most popular sentencing choice for an effective sanction, and there seem to be some interesting reasons why (Davis et al., 2000). The first group of E/TPs began to form in the late 1970s, which, as mentioned before, is when laws on domestic violence really started to take effect. It was becoming clear that providing victims information and services and then sending them back to their abusive situations was not working. Therefore, the group treatment of perpetrators began to take place. Group E/TPs were also more cost efficient versus individual E/TPs. These first groups had anti-sexist messages to promote, but eventually, the programs began to blend

in cognitive and behavioral therapeutic techniques as well as skill-building exercises (Davis et al., 2000).

However, it has been found that even in the more serious IPV cases, victims voluntarily choose to stay with their abusive perpetrator. As mentioned previously, victims still want protection and safety from violent situations, and are interested in sanctions that provide them these aspects. Victims are not interested in sanctions that will punish or interfere with their partner's ability to work and make a living for them (Zelcer, 2014). For example, fines, community service, or probation without special conditions are sanctions that are not likely to deter these abusive perpetrators from abusing their partners again. Still, there seems to be no shortage of evaluations for these E/TPs, and the greater the reliance is for these programs, the more important it is to show that progress is being made to effectively reduce the recidivism rates of these perpetrators (Davis et al., 2000).

IPV E/TPs, while being a way to hold the perpetrators responsible for their own actions without incarcerating them (Jackson et al., 2003), are also a way for them to focus on the psychological aspects of offending, by modeling themselves after the Duluth model. The Duluth model was developed by the Domestic Abuse Intervention Project in Duluth, Minnesota (Davis et al., 2000). This model stems from feminist theory, and states that a man wanting to control their partner is what causes domestic violence or IPV. This model allows men the opportunity to face their attitudes about control and provides them with the skills and techniques to deal with their partner in a non-violent manner (Davis et al., 2000). Many states have mandated laws that their E/TPs follow and conform to the Duluth Model. However, another common approach to this kind of

education is through cognitive-behavioral interventions, or psychoeducational programs. With this approach, the program teaches the perpetrators that their offending comes from issues in their thinking, or cognitive and mental states. They are still provided with the skills and techniques to help with anger management issues, as well as ways to practice changing their thinking habits in certain situations (Jackson et al., 2003).

As previously mentioned, though there are many datasets from studies that examine IPV E/TPs, the difficulty in evaluating the programs stems from the multiple ways of determining program effectiveness. However, in these types of studies, the researchers tend to follow the same E/TP model to try and produce the best results for reducing the rate of recidivism. In the majority of the studies that are examining the effectiveness of IPV programs, the researchers tend to break down each experiment by separating them into different categories, such as the sample size and type, the treatment type and length, follow-up measures, as well as other components (Babcock et al., 2004; Feder et al., 2008). Looking at the reviews of E/TPs, a picture develops of the type of program that tends to have the most success in reducing IPV recidivism. Much like the Davis et al. (2000) King's County experiment, the more effective IPV E/TPs tend to be those that are randomized, use a Duluth or psychoeducational treatment model, and have longer treatment length and follow-up measures.

For example, the Babcock and Steiner (1999) and Feder and Forde (2000) studies had similar treatment protocols as the Davis et al. (2000) study, and had promising results as well. Babcock and Steiner (1999) ran their program for 39 weeks in Seattle, while Feder and Forde (2000) ran their program for 26 weeks in Broward County, Florida. Both programs used a Duluth and psychoeducational model, and relied on police records

and reports for their beginning and follow-up measures. Babcock and Steiner (1999) had a sample size of 106 in their treatment program, and it was found that only 8% reoffended, compared to the 62% of their 55 sample control group. Feder and Forde (2000) had a sample size of 174, and it was found that only 4.8% reoffended. Their control sample was 230, and it was found that 5.7% reoffended.

However, determining if there is a "best" E/TP length seems difficult to determine. For example, a study conducted by Palmer et al. (1992), shows that their program was ran for a relatively short amount of time compared to the others, yet still had what could be considered positive results for reducing recidivism for IPV. They ran their program for 10 weeks in Ontario, Canada. The programs used a psychoeducational model, and relied on police records and reports for their beginning and follow-up measures. Palmer et al. (1992) had a sample size of 30, and it was found that 10% reoffended, compared to the 31% of their 26 sample control group.

Length of Relationship:

Multiple studies include relationship length as a predictor of IPV. Four major studies: Arias et al. (1987), Chan and Murray (2011), Mason and Smithey (2012), and Rusbult and Martz (1995), focus on length of relationship as an independent variable to conclude how it impacted the rate of IPV occurrence or recidivism.

The studies all used surveys to collect their data at universities, except for Rusbult and Martz (1995), who administered their survey at a shelter for battered women. The surveys for all of the studies sought to ask questions regarding the respondents' relationships. The questions ranged from details about physical aggression in their past or current relationships (Arias et al., 1987; Chan & Murray, 2011), to their lengths of

relationships and how that impacted their overall commitment level to the relationship (Rusbult & Martz, 1995). Mason and Smithey (2012) also asked students about their relationships, but in terms of strain, in order to test whether or not Merton's Classical Strain Theory was a causal aspect of IPV. They also examined if combined intimate partner strain, measured as length of relationship, caused the use of IPV in relationships.

There are several themes in the findings of these studies, which all showed similar effects. First, lengths of relationship, specifically longer relationships, are associated with higher chances of aggression and IPV occurring within the relationship (Arias et al., 1987; Mason & Smithey, 2012). Another theme from these studies showed that emotional commitment played a factor in continuing the relationship (Chan & Murray, 2011; Rusbult & Martz, 1995). If there was a high level of emotional commitment, the relationship would continue, allowing for more opportunities of emotional attachment, aggression, and IPV to occur.

There were several other variables in these studies that are worth noting as many of them will be used in the upcoming analyses. Specifically, these variables include the batterer's age, race, education level, and prior arrests. These variables have been found in studies before to be predictors for IPV offenders.

Batterer's age is an important demographic to measure when thinking about what age IPV is likely to begin. As mentioned before with SLT, witnessing or experiencing violence as a child or adolescent can impact future relationships for that individual. Studies show that IPV begins usually when individuals are adults and declines with age (Kim et al., 2008). This is proven true within the dataset being used as well. The average age of the offender is just above 33 years old (Davis et al., 2000).

Batterer's race is another key demographic to consider when running models for IPV offenders. As previously discussed, mandatory arrest laws for IPV offenders demonstrate that recidivism for white offenders was cut in half, while it was increased by one third for black offenders (Zelcer, 2014). This is proven true in other studies as well, such as Capaldi et al. (2012) and Huang et al. (2010). The studies both found that being a minority is a risk factor for IPV, and that African Americans are at the greatest risk of becoming an IPV offender.

Next, education level seems to have an association for predicting IPV (Capaldi et al., 2012). A study done by Cunradi et al. (2012) that looked at socioeconomic factors found that a batterer's level of education was a significant predictor for IPV offenders.

Lastly, prior arrests for IPV have been shown to be a predictor for IPV recidivism. As Campbell (2004) states, "Prior arrest for violent crime is one of the most trusted and frequently mentioned risk factors for DV reassault," (p. 1470-1471). Wooldredge and Thistlewaite (2005) also found number of prior violent arrests to be a significant predictor of IPV offenders. This study also found that along with prior arrests, offenders who were younger and had a lower level of education were significant predictors as well, further proving the findings of the studies above.

Overall, when studying how to reduce IPV recidivism rates, it is imperative to look at the research on previous studies. From the previous studies on E/TPs, it is shown that shorter program lengths can be shown to have promising reducing effects on recidivism just like longer treatment programs. This is important to note since we know that the Davis et al. (2000) study was effective in reducing recidivism rates, but which program will be more effective when factoring in length of relationship? As shown

above, previous studies for length of relationship show that longer relationships tend to be much less effective in the reduction of IPV recidivism. The control variables being run have been proven to be predictors of IPV. The hypotheses in relation to the research questions are discussed below.

HYPOTHESES

This thesis will test the following research questions: 1) How does the length of the relationship between the offender and the victim impact the rate of recidivism for IPV offenders?; and 2) How does the length of relationship after being enrolled in the educational/treatment program for both the eight and twenty-six-week programs impact the recidivism rate for IPV offenders?

As previously discussed, longer relationships between a perpetrator of IPV and the victim is predicative of higher risk for IPV occurrence and recidivism (Chan & Murray, 2011; Mason & Smithey, 2012; Rusbult & Martz, 1995). E/TPs have been seen to be influential and have an impact on developing and treating perpetrators of IPV. Connecting these previous findings, it is possible that treatment for batterers in a longer relationship could be potentially less effective in reducing recidivism rates. However, since the Davis et al. (2000) study has two different treatment program lengths, an eight-week and twenty-six-week program, the length of relationship could be impacted by the treatment length, therefore impacting recidivism in a way that has not been seen in the literature thus far.

Because of this, two hypotheses have been deduced from the research questions. The hypotheses are: 1) As the length of the relationship between the victim and offender becomes longer, the likelihood of recidivism for the offender increases, and 2) the length of relationship will moderate the same effect of the length of treatment (8 v. 26 weeks) in the same manner. More specifically, a longer relationship will *lessen* the impact the two types of treatment programs have on the likelihood of recidivism, with the twenty-six-week program seeing the most drastic reduction.

METHODOLOGY

Description of the Dataset

As mentioned before, the dataset being employed is the "Domestic Violence Experiment in King's County (Brooklyn), New York, 1995-1997" conducted by Davis et al. (2000), acquired from the Inter University Consortium for Political and Social Research (ICPSR). The study uses a true experimental design, randomly assigning its sample size of 376 court-mandated batterers to either forty hours of educational treatment or to forty hours of community service. Approximately 186 batterers were assigned to the control group, where they received class time that was not related to the crime (community service). The rest of the sample were assigned to the E/TP, where they were to complete their 40 hours of class time on batterer treatment in either an eight-week program (61 batterers assigned), or in a twenty-six-week program (129 batterers assigned). The batterers were only assigned to the educational treatment or control treatment if all the parties of the court agreed that the batterer was eligible for the program.

The educational program employed the Victim Services' Alternatives to Violence (ATV). The program was modeled after SLT and applied the Duluth model. The program exercised feminist overviews in the curriculum that assumed that IPV is the product of the male and female sex roles resulting in a shift of power. The group also covered topics such as "defining domestic violence, understanding the historical and cultural aspects of domestic abuse, and reviewing criminal/legal issues," (Davis, et al., 2000). They were also encouraged to take responsibility for their feelings, such as anger, and for their own actions and reactions. Both the perpetrator and the victim were

interviewed separately at sentencing, and then again at six and twelve months after the completion date. The researchers collected information on the background of their relationship, including the history of violence involved, their thoughts on domestic violence, and demographics. Criminal justice agencies checked on the perpetrator's record twice, at the six and twelve-month mark after sentencing. This was done to see if any new crime reports or arrests had occurred through official data from police and computerized administrative records (Davis et al., 2000; Maxwell et al., 2010).

The King's County Experiment is frequently brought up as an example of how to reduce IPV offender recidivism, given that it is only one of the few programs to have had any success (Babcock et al., 2002). Why have other programs with similar policies not had the same success? It seems that with the previous studies on E/TPs for IPV offenders, the main goal of the E/TPs is to simply reduce recidivism rates for these offenders. The method of accomplishing this reduction is where researchers' findings vary. What if the key to the success of these E/TPs is to focus on examining smaller targets, or variables, rather than looking for an overall reduction effect? This could mean researchers focusing on changing results surrounding specific variables of offenders, instead of trying to find ways to reduce recidivism rates as a whole. If E/TPs can be tailored to certain variables that demonstrate the reduction of IPV reoffending, then research needs to begin here.

Variables

Table 2 shows the name of the variable, the coding name in the models, and their descriptions below.

Table 2: Variable Descriptive Statistics, Coding Names, and Descriptions

Dependent Variable:	Proportion:	Std. Dev.:	Min.:	Max.:	Coding Name:	Description:
Recidivism	0.117	0.322	0	1	cjaasp12	The prevalence of criminal justice agency (NYPD) recorded arrests files against the perpetrator up to 12 months after the sentencing.
Independent Variables:	Proportion:	Std. Dev.:	Min.:	Max.:	Coding Name:	Description:
Length of Relationship	7.890	6.658	0.12	45.67	relbegyr	The relationship between the perpetrator and the victim began how many years ago.
Overall Treatment	0.505	0.501	0	1	OverallTreatment	Eight-Week and Twenty-Six-Week Programs Combined.
Eight-Week Program	0.162	0.369	0	1	EightWeekProgram	Perpetrator assigned to Eight-Week Program.
Twenty-Six-Week Program	0.343	0.475	0	1	Twenty6WeekProgram	Perpetrator assigned to Twenty-Six-Week Program.
Interaction Variables:	Proportion:	Std. Dev.:	Min.:	Max.:	Coding Name:	Description:
Overall Treatment X Length of Relationship	4.257	6.662	0	45.67	OverallTreatmentXLoR	Overall Treatment Program times Length of Relationship.
Eight-Week Program X Length of Relationship	1.332	4.232	0	45.67	EightWeekProgramXLoR	Eight-Week Program times Length of Relationship.
Twenty-Six-Week Program X Length of Relationship	2.925	5.856	0	32.25	Twenty6WeekProgramXLoR	Twenty-Six-Week Program times Length of Relationship.

Table 2: Variable Descriptive Statistics, Coding Names, and Descriptions (Cont.)

Control Variables:	Proportion:	Std. Dev.:	Min.:	Max.:	Coding Name:	Description:
Batterer's Age	33.017	9.277	17	66	b1ag8d	Batterer's age.
Batterer's Race (Black)	0.362	0.481	0	1	b1black	Was the perpetrator black?
Some High School Education	0.290	0.454	0	1	high	Batterer's education level is some high school.
High School Diploma/GED or Higher	0.354	0.479	0	1	pasthigh	Perpetrator's education level is completed high school, GED, or higher.
Number of Prior Arrests	0.423	0.495	0	1	priorarrests	Number of prior arrests of perpetrator before experimental incident interview.

Dependent Variable

The dependent variable being analyzed in these models is *recidivism*; meaning, the prevalence of criminal justice agency (NYPD) recorded arrests filed against the perpetrator up to 12 months after the sentencing. More simply, was there an arrest recorded up to the one-year follow-up. *Recidivism* is coded as 1 = Yes and 0 = No. *Recidivism* has a proportion value of 0.117, a standard deviation value of 0.322, a minimum value of 0, and a maximum value of 1. This indicates that 11.7% of respondents in the study recidivated.

Independent Variables

The independent variables being analyzed in these models are length of relationship and assignment to treatment. *Length of relationship* is the number of how many years ago the relationship between the perpetrator and victim began. *Length of relationship* has a value of 7.890, a standard deviation value of 6.658, with a minimum value of 0.12, and a maximum value of 45.67. This indicates that the average length of relationship was 7.890 years, and the minimum length of relationship was 0.12 years, while the maximum length of relationship was 45.67 years.

As for assignment to treatment, there are three different variables signaling that the perpetrator was assigned to overall treatment, the eight-week ATV program, or the twenty-six- week ATV E/TP. To demonstrate whether the perpetrator participated in the treatment program, no matter which program (eight or twenty-six- week) the variable *Overall Treatment* was created. It is coded as 0 = No, batterer sentenced to control group, and 1 = Yes, batterer participated in the E/TP. *Overall Treatment* has a proportion value of 0.505, a standard deviation value of 0.501, a minimum value of 0, and a

maximum value of 1. This indicates that on average, a little more than half of the sample size was assigned to the treatment program.

To demonstrate whether or not a perpetrator was assigned to the eight-week E/TP, the *Eight-Week-Program* variable was created. The *Eight-Week-Program* variable is coded as 0 = No, not in the eight-week program, and 1 = Yes, participated in the eight-week program. *Eight-Week-Program* has a proportion value of 0.162, a standard deviation value of 0.369, a minimum value of 0, and a maximum value of 1. This indicates that of the sample that was assigned to the treatment program, 16.2% were assigned to the eight-week program.

Finally, to demonstrate whether or not a perpetrator was assigned to the twenty-six-week E/TP, the *Twenty-Six-Week Program* variable was created. The *Twenty-Six-Week Program* variable is coded similar to the eight-week program, with 0 = No, not in the twenty-six-week program, and 1 = Yes, participated in the twenty-six-week program. *Twenty-Six-Week Program* has a proportion value of 0.343, a standard deviation value of 0.475, a minimum value of 0, and a maximum value of 1. This indicates that of the sample that was assigned to the treatment program, 34.3% were assigned to the twenty-six-week program.

The creation of these separate treatment program variables is needed when examining the effect of both the programs and length of relationship on recidivism. The overall treatment designates whether a batterer was assigned to the E/TP or was assigned to the control group, while the eight-week and twenty-six-week variables designate if a batterer was assigned to that E/TP. Table 3 below also demonstrates the proportion of

Table 3: Recidivism Rate of the Control Group, Eight-Week, and Twenty-Six-Week ATV Programs

Variable Name:	No	Yes	Total
Control Group	N=157	N=29	N=186
	84.41%	15.59%	100.00%
Eight-Week ATV Program	N=52	N=9	N=61
	14.75%	14.75%	100.00%
Twenty-Six-Week ATV Program	N=123	N=6	N=129
	95.35%	4.65%	100.00%
Total	N=332	N=44	N=376
	88.30%	11.70%	100.00%

recidivism for each treatment program, so that the comparison for when length of relationship is involved can be seen in the models.

Interaction Terms

As previous literature has discussed, length of relationship can be a predicting factor of IPV occurrence within relationships (Arias et al., 1987; Mason & Smithey, 2012). It has also been noted that E/TP length is called into question when determining what length can demonstrate the best results for recidivism of IPV. As seen before, the Davis et al. (2000), Babcock and Steiner (1999), and Feder and Forde (2000) studies all had relatively long treatment programs, or had the option of a longer treatment program (Davis et al., (2000), eight-week versus twenty-six-week programs). Yet for Palmer et al. (1992), their study had a short program in comparison, yet still showed a reduction for IPV recidivism.

Because of the previous research, this thesis will test the length of relationship effect on recidivism, coupled with the different treatment programs. By seeing the effects of length of relationship on the overall treatment, then on the eight-week and twenty-six week programs separately, we can determine which treatment program is the most effective for reducing IPV when length of relationship is moderating.

In order to examine the effect of both length of relationship and the treatment programs, interaction terms are generated. To demonstrate the interaction between length of relationship and overall treatment, *Overall Treatment X Length of Relationship* was created by multiplying the *Overall Treatment* variable with the *Length of Relationship* variable. This interaction term has a proportion value of 4.257, a standard deviation value of 6.662, a minimum value of 0, and a maximum value of 45.67. This indicates

that for the *Overall Treatment*, on average, the length of relationship among the offenders was 4.257 years.

To demonstrate the interaction between length of relationship and the eight-week program, *Eight-Week-Program X Length of Relationship* was created by multiplying the *Eight-Week Program* variable with the *Length of Relationship* variable. This interaction term has a proportion value of 1.332, a standard deviation value of 4.232, a minimum value of 0, and a maximum value of 45.67. This indicates that for the *Eight-Week Program*, on average, the length of relationship among the offenders was 1.332 years.

Lastly the interaction between length of relationship and the twenty-six-week program, *Twenty-Six-Week Program X Length of Relationship* was created by multiplying the *Twenty-Six-Week Program* variable with the *Length of Relationship* variable. This interaction term has a proportion value of 2.925, a standard deviation value of 5.856, a minimum value of 0, and a maximum value of 32.25. This indicates that for the *Twenty-Six-Week Program*, on average, the length of relationship among the offenders was 2.925 years.

Control Variables

Although the control variables are not the main focus of the study, they are still important to the models. The control variables being analyzed in the models are the batterer's age, race, education level, and number of prior arrests. As mentioned previously, these four variables have been predictors of IPV offenders. Batterer's age tends to be younger, and rate of recidivism declines as age increases (Kim et al., 2008). Batterer's race, consistently when speaking of African Americans, demonstrates that there is a greater risk for becoming an IPV offender and reoffender (Capaldi et al., 2012;

Huang et al., 2010, Zelcer, 2014). Batterer's education level has been proven to be an association for IPV (Capaldi et al., 2012), and the number of prior arrests has been shown to be a significant factor and predictor for IPV reoffending (Campbell, 2004; Wooldredge and Thistlewaite (2005).

In the models, the batterer's age is coded as *Age*. *Age* in this dataset, is years, and has a proportion value of 33.017, a standard deviation value of 9.277, a minimum value of 17, and a maximum value of 66. This indicates that for the batterers in the study, the average age was just slightly above 33 years, and the youngest batterer was 17 years old while the oldest was 66 years old.

In the models, the batterer's race is coded as *Black*. Race in this dataset was coded as 0 = Not African American, 1 = Yes, African American. There were 25 missing values for this variable, and it has a proportion value of 0.362, a standard deviation value of 0.481, a minimum value of 0, and a maximum value of 1. This indicates that about 36% of the sample was black. The Davis et al. (2000) experiment noted that the sample was 36% African American, 28% Latino, and 21% West Indian. The researchers did not note the races of the rest of the sample, i.e. whether there were white batterers, Asian batterers, etc.

In the dataset, the researchers recorded the batterer's highest level of education. Education is measured through a set of dummy variables. Specifically, *Less than High School* indicates a respondent has not gone to high school (1 = Yes, 0 = No), 2) *Some High School*, indicating that the respondent had gone to at least a few years of high school but has not graduated or received a GED (1 = Yes, 0 = No), and 3) *High School Graduate*, indicating the batterer graduated high school or obtained their GED and went

to complete some post-secondary education (1 = Yes, 0 = No). The variable that indicated *Some High School* education has a proportion value of 0.290, a standard deviation value of 0.454, a minimum value of 0, and a maximum value of 1. This indicates that about 29% of the sample had attained some high school education. *High School Graduate* has a proportion value of 0.354, a standard deviation value of 0.479, a minimum value of 0, and a maximum value of 1. This indicates that 35% of the sample had attained a high school diploma/GED or a higher level of education.

In the dataset, the researchers recorded the number of prior arrests of the perpetrator before the experimental incident. More than half the sample reported having no prior arrests; because of the skew of the variable, *prior arrests* was coded as a dummy variable signaling 0 = No prior arrests before the experimental incident interview, and 1 = Yes, there were prior arrests before the experimental incident interview. The arrest that got them into this program did not count. If this was the batterer's first offense, they would have indicated no prior arrest (Davis et al., 2000). Prior arrests have a proportion value of 0.423, a standard deviation value of 0.495, a minimum value of 0, and a maximum value of 1. This indicates that about 42% of the sample had a prior arrest before the experiment.

In many studies, gender is considered to be a common control variable; however, gender is not specifically controlled in this study[1] given that the respondents are male.

Plan of Analysis

Since the dependent variable, recidivism, is dichotomous, I use binary logistic regressions to estimate the models. The first step in running the models for this study

was addressing missing values for the variables in the dataset. Following Davis et al.'s (2000) lead, any data with missing values was excluded from the analysis.

Next, the variables were assessed for multicollinearity. The results of this check, located in Appendix A, show that the VIFs of the independent variables are 1.01, which are well below the concern level of 4.0. Additionally, the condition index indicated that high multicollinearity is not a concern since it is well below the threshold of 30.00, with a value of 3.306.

For Model 1, a logistic regression was estimated looking solely at the relationship between the independent variable, *Length of Relationship* on the dependent variable, *Recidivism*, with the control variables factored in. Next, for Model 2, a logistic regression was run looking at the effects of both the independent variables, *Length of Relationship* and *Overall Treatment* program, on the dependent variable, *Recidivism*, with the control variables factored in. For Models 3 and 4, logistic regressions were run looking at the treatment programs separately. Model 3 examined the effects of the independent variables, *Length of Relationship* and the *Eight-Week Program*, on the dependent variable, *Recidivism*, with the control variables factored in. Model 4 examined the same effect as Model 3, but used the independent variable for the *Twenty-Six-Week Program.*

Models 5, 6, 7, looked at the interaction variables between the treatment programs and the length of relationship variable. Model 5 looks at the effects of the *Length of Relationship* and *Overall Treatment* independent variables, as well as the interaction variable, *Overall Treatment X Length of Relationship* on the dependent variable, *Recidivism*. Model 6 looks at the effects of the *Length of Relationship* and *Eight-Week*

Program independent variables, as well as the interaction variables, *Eight-Week Program X Length of Relationship* on the dependent variable, *Recidivism*. Model 7 looks at the effects of the *Length of Relationship* and *Twenty-Six-Week Program* independent variables, as well as the interaction variable, *Twenty-Six-Week Program X Length of Relationship*, on the dependent variable, *Recidivism*.

RESULTS

The results from the models ran on the dataset presented some interesting findings. By looking at Table 4, Model 1 shows that *Length of Relationship* has a coefficient of -0.023. While holding all other variables constant, this indicates that for a one-unit increase in *Length of Relationship*, the log odds of criminal justice agency arrests of the perpetrator at the one-year follow-up, or *Recidivism*, for IPV offenders is reduced by 0.023 units. *Length of Relationship* also has an odds ratio value of 0.978, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* is decreased by approximately 2.2% (1 – 0.978). However, the significance value (P-value) of this independent variable is 0.508, which is above the significance level of 0.05. This suggests that *Length of Relationship* does not impact *Recidivism*.

As seen in Table 5, Model 2 shows that *Length of Relationship* has a coefficient of -0.015, indicating that while holding all other variables constant, for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.015 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.985, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* is decreased by approximately 1.5% (1 – 0.985). However, it is not significant; p = 0.650. Enrollment in the *Overall Treatment* program has a coefficient of -0.863. While holding all other variables constant, this indicates for a one unit increase in the *Overall Treatment* program, the log odds of *Recidivism* for IPV offenders is reduced by 0.863 units of *Recidivism*. *Overall Treatment* also has an odds ratio value of 0.422, indicating that for a one-unit increase in *Overall Treatment* enrollment, the odds of *Recidivism* is decreased by approximately 57.8% (1 - 0.422). The significance value of

the *Overall Treatment* is 0.034, indicating that it is below the 0.05 significance level, and that this independent variable does have an impact on *Recidivism*.

Models 3 and 4 show the breakdown effects of the separate eight-week and twenty-six-week programs, along with *Length of Relationship* on *Recidivism*. In Table 6, Model 3, which tests the *Eight-Week Program*, *Length of Relationship* has a coefficient of -0.023. This indicates that for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.023 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.977, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 2.3% (1 – 0.977). Although, this effect is not significant, as p = 0.502. The *Eight-Week Program* variable has a coefficient of 0.177. While holding all other variables constant, this indicates that for a one-unit increase in the *Eight-Week Program*, the log odds of *Recidivism* for IPV offenders is increased by 0.177 units of *Recidivism*. The *Eight-Week Program* also has an odds ratio value of 1.194, indicating that for a one-unit increase in the *Eight-Week Program*, the odds of *Recidivism* occurring for IPV offenders is increased by approximately 19.4%. The *Eight-Week Program* variable has a significance value of 0.720, showing that it does not affect the likelihood of *Recidivism*, similar to *Length of Relationship*.

In Table 7, Model 4 tests the impact of the twenty-six-week program. *Length of Relationship* has a coefficient of -0.015, indicating that for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.015 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.985, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* occurring for

IPV offenders is decreased by approximately 1.5% (1 – 0.985). The effect of this variable, however, is not significant (p = 0.656). The *Twenty-Six-Week Program* variable has a coefficient of -1.355. While holding all other variables constant, this indicates that for a one-unit increase in the *Twenty-Six-Week Program*, the log odds of *Recidivism* for IPV offenders is reduced by 1.355 units of *Recidivism*. The *Twenty-Six-Week Program* also has an odds ratio value of 0.258, indicating that for individuals in the *Twenty-Six-Week Program*, their odds of *Recidivism* decreased by approximately 74.2% (1 – 0.258). The *Twenty-Six-Week Program* independent variable has a significance value of 0.015, which is below the significance level of 0.05. This suggests that the *Twenty-Six-Week Program* has a significant impact on *Recidivism*.

Models 5, 6, and 7 look at the different types of treatment programs, the *Length of Relationship*, and the interaction variables between them. To begin with, in Table 8, Model 5 shows that *Length of Relationship* has a coefficient of -0.012, indicating that for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.012 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.988, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 1.2% (1 – 0.988). *Length of Relationship* has a significance value of 0.764, and therefore has no impact on *Recidivism*. Enrollment in the *Overall Treatment* program has a coefficient of -0.785. While holding all other variables constant, this indicates that for a one-unit increase in *Overall Treatment*, the log odds of *Recidivism* for IPV offenders is reduced by 0.785 units of *Recidivism*. The *Overall Treatment* also has an odds ratio value of 0.456, indicating that for a one-unit increase in *Overall Treatment*

enrollment, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 54.4% (1 – 0.456). While this effect is notably large, the variable is not significant (p = 0.223), showing that *Overall Treatment* does not have an impact on *Recidivism*. The interaction term for this model, *Overall Treatment X Length of Relationship*, which multiplies the *Overall Treatment* and *Length of Relationship* variables, has a coefficient of -0.011. While holding all other variables constant, this indicates that for a one-unit increase of *Overall Treatment X Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.011 units of *Recidivism*. The interaction term also has an odds ratio value of 0.989, indicating that for a one-unit increase in *Overall Treatment X Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 1.1% (1 – 0.989). The interaction is also not significant (p = 0.877). This suggests that *Length of Relationship*, the *Overall Treatment*, and the interaction term between the two do not impact the likelihood of *Recidivism*. Also, the effect of *Overall Treatment* on *Recidivism* is not moderated through *Length of Relationship*.

In Table 9, Model 6 shows the interaction between the eight-week treatment variable and *Length of Relationship*. *Length of Relationship* has a coefficient of -0.019, indicating that for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.019 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.981, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 1.9% (1 – 0.981). *Length of Relationship* has a significance value of 0.590, and therefore has no impact on *Recidivism*. Enrollment in the *Eight-Week*

Program has a coefficient of 0.363. While holding all other variables constant, this indicates that for a one-unit increase in the *Eight-Week Program*, the log odds of *Recidivism* for IPV offenders is increased by 0.363 units of *Recidivism*. The *Eight-Week Program* also has an odds ratio value of 1.437, indicating that for individuals in the *Eight-Week Program*, the odds of *Recidivism* occurring for IPV offenders is increased by approximately 43.7%. As was before, this variable is not significant (p = 0.658). The interaction term for this model, *Eight-Week Program X Length of Relationship,* which multiplies the *Eight-Week Program* and *Length of Relationship* variables, has a coefficient of -0.028. While holding all other variables constant, this indicates that for a one unit increase in the interaction of *Eight-Week Program X Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.028 units of *Recidivism*. The interaction term also has an odds ratio value of 0.972, indicating that for a one-unit increase in *Eight-Week Program X Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 2.8% (1 – 0.972). The interaction term has a significance value of 0.783, showing that the impact the *Eight-Week Program* has on *Recidivism* is not moderated through the *Length of Relationship*.

Finally, in Table 10, Model 7 shows the interaction between the twenty-six-week treatment variable and *Length of Relationship*. Model 7 shows that *Length of Relationship* has a coefficient of -0.020, indicating that for a one-unit increase in *Length of Relationship*, the log odds of *Recidivism* for IPV offenders is reduced by 0.020 units of *Recidivism*. *Length of Relationship* also has an odds ratio value of 0.981, indicating that for a one-unit increase in *Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 1.9% (1 – 0.981). The *Length of*

Relationship variable is not significant (p = 0.599). Enrollment in the *Twenty-Six-Week Program* has a coefficient of -1.574. While holding all other variables constant, this indicates that for a one-unit increase in the *Twenty-Six-Week Program*, the log odds of *Recidivism* for IPV offenders is reduced by 1.574 units of *Recidivism*. The *Twenty-Six-Week Program* also has an odds ratio value of 0.207, indicating that for individuals in the *Twenty-Six-Week Program*, the odds of *Recidivism* occurring for IPV offenders is decreased by approximately 79.3% (1 – 0.207). Note that the *Twenty-Six-Week Program* variable has a significance value of 0.079, which is close to the 0.05 significance level, but still not considered significant. The interaction term for this model, *Twenty-Six-Week Program X Length of Relationship*, which multiplies the twenty-six-week program and *Length of Relationship* variables, has a coefficient of 0.027. While holding all other variables constant, this indicates that for a one-unit increase in *Twenty-Six-Week Program X Length of Relationship*, the log odds of *Recidivism* for IPV offenders is increased by 0.027 units of *Recidivism*. The interaction term also has an odds ratio value of 1.027, indicating that for a one-unit increase in *Twenty-Six-Week Program X Length of Relationship*, the odds of *Recidivism* occurring for IPV offenders is increased by approximately 2.7%. This interaction has a significance level of 0.745, demonstrating that the impact that the *Twenty-Six-Week Program* has on *Recidivism* is not moderated through the *Length of Relationship*.

Table 4: Model 1: Length of Relationship Effect on Recidivism for IPV Offenders

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.023	0.978	0.508
	(0.034)	(0.033)	
Batterer's Age	0.011	1.011	0.581
	(0.020)	(0.021)	
Batterer's Race (Black)	0.519	1.681	0.174
	(0.382)	(0.641)	
Some High School Education	-0.622	0.537	0.175
	(0.459)	(0.246)	
High School Diploma/GED or Higher	-0.783	0.457	0.105
	(0.483)	(0.221)	
Number of Prior Arrests	0.708*	2.031*	0.071*
	(0.392)	(0.797)	
Constant	-2.566***	0.077***	0.000***
	(0.737)	(0.057)	
Observations		317	

Note: Standard errors in parentheses: * p<0.1 ** p<0.05 ***p<0.01

Table 5: Model 2: Treatment Program & Length of Relationship Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.015	0.985	0.650
	(0.034)	(0.034)	
Overall Treatment	-0.863**	0.422**	0.034**
	(0.407)	(0.172)	
Batterer's Age	0.007	1.007	0.731
	(0.021)	(0.021)	
Batterer's Race (Black)	0.479	1.614	0.216
	(0.387)	(0.624)	
Some High School Education	-0.602	0.548	0.195
	(0.465)	(0.255)	
High School Diploma/GED or Higher	-0.734	0.480	0.132
	(0.487)	(0.234)	
Number of Prior Arrests	0.783**	2.187**	0.049**
	(0.397)	(0.869)	
Constant	-2.175***	0.114***	0.004***
	(0.747)	(0.085)	
Observations		317	

Note: Standard errors in parentheses: * p<0.1 ** p<0.05 *** p<0.01

Table 6: Model 3: Eight-Week Program & Length of Relationship Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.023	0.977	0.502
	(0.034)	(0.033)	
Eight-Week Program	0.177	1.194	0.720
	(0.496)	(0.592)	
Batterer's Age	0.012	1.012	0.555
	(0.021)	(0.021)	
Batterer's Race (Black)	0.517	1.677	0.175
	(0.381)	(0.640)	
Some High School Education	-0.617	0.540	0.179
	(0.459)	(0.248)	
High School Diploma/GED or Higher	-0.787	0.455	0.103
	(0.484)	(0.220)	
Number of Prior Arrests	0.701*	2.015*	0.075*
	(0.393)	(0.792)	
Constant	-2.618***	0.073***	0.001***
	(0.754)	(0.055)	
Observations		317	

Note: Standard errors in parentheses: * p<0.1 ** p<0.05 *** p<0.01

Table 7: Model 4: Twenty-Six-Week Program & Length of Relationship Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.015	0.985	0.656
	(0.034)	(0.034)	
Twenty-Six-Week Program	-1.355**	0.258**	0.015**
	(0.555)	(0.143)	
Batterer's Age	0.011	1.011	0.596
	(0.021)	(0.021)	
Batterer's Race (Black)	0.456	1.578	0.239
	(0.387)	(0.611)	
Some High School Education	-0.567	0.567	0.224
	(0.467)	(0.264)	
High School Diploma/GED or Higher	-0.749	0.473	0.125
	(0.488)	(0.231)	
Number of Prior Arrests	0.758*	2.133*	0.057*
	(0.398)	(0.849)	
Constant	-2.330***	0.097***	0.002***
	(0.741)	(0.072)	
Observations		317	

Note: Standard errors in parentheses: * p<0.1 ** p<0.05 *** p<0.01

Table 8: Model 5: Treatment Program & Length of Relationship Interaction Term Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.012	0.988	0.764
	(0.040)	(0.040)	
Overall Treatment	-0.785	0.456	0.223
	(0.644)	(0.294)	
Overall Treatment X Length of Relationship	-0.011	0.989	0.877
	(0.070)	(0.069)	
Batterer's Age	0.007	1.007	0.727
	(0.021)	(0.021)	
Batterer's Race (Black)	0.475	1.608	0.220
	(0.387)	(0.623)	
Some High School Education	-0.596	0.551	0.202
	(0.467)	(0.257)	
High School Diploma/GED or Higher	-0.727	0.483	0.137
	(0.489)	(0.236)	
Number of Prior Arrests	0.782**	2.186**	0.049**
	(0.397)	(0.868)	
Constant	-2.203***	0.110***	0.004***
	(0.769)	(0.085)	

Table 8: Model 5: Treatment Program & Length of Relationship Interaction Term Effect on Recidivism (Cont.)

Observations	317

Note: Standard errors in parentheses: * p<0.1 ** p<0.05 *** p<0.01

Table 9: Model 6: Eight-Week Program & Length of Relationship Interaction Term Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.019	0.981	0.590
	(0.036)	(0.035)	
Eight-Week Program	0.363	1.437	0.658
	(0.820)	(1.178)	
Eight-Week Program X Length of Relationship	-0.028	0.972	0.783
	(0.101)	(0.098)	
Batterer's Age	0.012	1.012	0.555
	(0.021)	(0.021)	
Batterer's Race (Black)	0.512	1.668	0.180
	(0.382)	(0.637)	
Some High School Education	-0.605	0.546	0.190
	(0.461)	(0.252)	
High School Diploma/GED or Higher	-0.777	0.460	0.109
	(0.484)	(0.223)	
Number of Prior Arrests	0.697*	2.008*	0.076*
	(0.393)	(0.790)	
Constant	-2.644***	0.071***	0.001***
	(0.761)	(0.054)	

Table 9: Model 6: Eight-Week Program & Length of Relationship Interaction Term Effect on Recidivism (Cont.)

Observations	317

Note: Standard errors in parentheses:
* p<0.1 ** p<0.05 ***p<0.01

Table 10: Model 7: Twenty-Six-Week Program & Length of Relationship Interaction Term Effect on Recidivism

Variable Name:	Log Odds	Odds Ratio	P> |z|
Length of Relationship	-0.020	0.981	0.599
	(0.037)	(0.036)	
Twenty-Six-Week Program	-1.574*	0.207*	0.079*
	(0.896)	(0.186)	
Twenty-Week Program X Length of Relationship	0.027	1.027	0.745
	(0.083)	(0.085)	
Batterer's Age	0.011	1.011	0.603
	(0.021)	(0.021)	
Batterer's Race (Black)	0.460	1.584	0.235
	(0.388)	(0.614)	
Some High School Education	-0.571	0.565	0.222
	(0.467)	(0.264)	
High School Diploma/GED or Higher	-0.755	0.470	0.122
	(0.489)	(0.230)	
Number of Prior Arrests	0.757*	2.132*	0.057*
	(0.398)	(0.848)	
Constant	-2.293***	0.101***	0.002***
	(0.751)	(0.076)	

Table 10: Model 7: Twenty-Six-Week Program & Length of Relationship Interaction Term Effect on Recidivism (Cont.)

Observations	317

Note: Standard errors in parentheses:

* p<0.1 ** p<0.05 *** p<0.01

DISCUSSION

This thesis set out to answer two hypotheses: 1) As the length of the relationship between the victim and offender increases, so will the likelihood of recidivism for the offender; and 2) Length of relationship will moderate the effect of the length of treatment (8 v. 26 weeks). More specifically, a longer relationship will lessen the impact the two types of treatment programs have on the likelihood of recidivism, with the twenty-six-week program seeing the most drastic reduction. Below I discuss these hypotheses in terms of the findings.

Educational/Treatment programs surrounding reducing the recidivism of IPV offenders have mixed results. The King's County Program (Davis et al., 2000), found that its eight-week and twenty-six week programs did reduce recidivism. However, left out of the analysis was the length of relationship between victim and offender, which is related to recidivism. The results show that when length of relationship is included in the models, the treatment variables do differ in their effects on recidivism.

First, the first hypothesis was inconsistent with the expectation. For every model ran, length of relationship showed a decrease in the log odds of recidivism for IPV offenders. As mentioned before, multiple studies have found that length of relationship does have an effect and is a possible predictor for IPV recidivism rates (Arias et al., 1987; Hayes, 2016; Marcus & Swett, 2001; Mason & Smithey, 2012). Thus, even though the results of this study indicate that length of relationship reduces recidivism, the models were not statistically significant, meaning length of relationship does not have an impact on recidivism in this study. This finding does not follow the previous literature results.

The results from Models 2, 3, and 4, demonstrated the effect of the overall treatment, eight-week, and twenty-six-week programs on recidivism when length of relationship was also factored into the model. From the Davis et al. (2000) experiment, it was demonstrated that the treatment programs showed a reduction of recidivism. In the results from these models, it is seen that the overall treatment program and twenty-six-week program still have a reduction in their log odds on recidivism, with both of these models being statistically significant. However, note that in Table 6 Model 3, even though it was not statistically significant, it is shown that the eight-week program actually had an increase in its log odds for recidivism, which is different than the findings from the original Davis et al. (2000) study.

Next, the interaction terms for Models 5, 6, and 7 showed the effects of the different treatment programs coupled with length of relationship. The three interaction terms had varying results. The Overall Treatment X Length of Relationship and Eight-Week Program X Length of Relationship interaction variables showed a slight decrease in their log odds on recidivism. The Twenty-Six-Week Program X Length of Relationship interaction variable actually showed a slight increase in its log odds on recidivism. However, the three interaction variables were not found to be statistically significant, indicating that the treatment programs do not have an impact on reducing recidivism rates when moderated through length of relationship. Therefore, the second hypothesis was not supported.

The results of this study show that the treatment programs with length of relationship vary in their effectiveness in reducing the recidivism rates of IPV offenders. Relative to those who did receive treatment or were in the twenty-six-week program

condition, the deterrent effect of the eight-week program was less positive for longer relationship lengths. However, none of the findings of the interaction variables were significant. Because of the previous research (Babcock & Steiner, 1999; Davis et al., 2000; Feder & Forde, 2000; Palmer et al., 1992) on educational treatment programs, it was seen that successful programs that are longer in length tend to have more effect in reducing recidivism. In this study, it was found that the twenty-six week program, when not interacting with length of relationship, did still have a significant impact on reducing recidivism rates, which is consistent with the literature. However, with the previous literature, it was hypothesized that the twenty-six-week program would be moderated through length of relationship to have a reducing effect on recidivism; this was unsupported in these analyses.

In terms of the theoretical perspectives, the findings of this study have varying effects of support when discussing Social Learning Theory (SLT; Akers & Jennings, 2009), General Strain Theory (GST; Agnew, 1992), and Social Control Theory (SCT; Hirschi, 1969). When discussing length of relationship, every model showed there was a slight reduction effect in recidivism. SLT (Akers & Jennings, 2009) and GST (Agnew, 1992) explained that when a batterer has the potential to exercise the patterns they have witnessed in a longer relationship, whether it is through learning or strain, the likelihood of IPV reoccurrence in that relationship increases. In the findings of this study, it was found that length of relationship actually had a slight reduction effect on recidivism for IPV offenders, and that the effects of the treatment programs on recidivism were not moderated through length of relationship. This suggests that the findings do not support the explanations of SLT and GST, but do support the explanations of SCT. SCT

(Hirschi, 1969) explains that the individuals with weak societal bonds that stem from the family tend to not participate in longer relationships. When longer relationships are not present, the opportunity for the individual to give into delinquent behaviors is not present, therefore reducing the reoccurrence of IPV.

When discussing the educational/treatment programs separately, the Davis et al. (2000) studied indicated that the curriculum of the program focused on SLT, allowing the batterers the opportunity to learn about their behaviors, while also taking responsibility and accepting the actions that led them to the program. The opportunity to learn and accept their behavior was also related to GST and SCT, where the batterers could learn about the strain and societal bonds that are present within themselves, leading to their patterns of abuse or delinquent behavior. Since statistically significant reductions were found in the overall treatment and twenty-six-week program, but not in the eight-week program, the findings show that the longer treatment program supports the theories. Perhaps with these findings, it suggests that batterers need longer treatment times to truly understand the theories behind IPV and the programs, in order to understand their actions and to take responsibility for them.

The findings of this study call into question previous research. For the research on length of relationship, all the studies found that longer lengths of relationship were predictors of IPV in relationships. These findings indicate that length of relationship actually has a slight decrease in recidivism, indicating inconsistency with these previous findings. Similar to the Davis et al. (2000) King's County Experiment, the original results of the study can be replicated. However, when length of relationship is placed into the models, the effects of overall treatment and the twenty-six-week program effects can

be replicated, but the eight-week program cannot be replicated. This experiment has been said to be effective, yet, the previous analyses had omitted variable bias. Because of this, replication of the study, which should include specific variables run on the models, should be conducted in addition to focusing on longer treatment times, since it is shown that the twenty-six-week program has a robust effect on recidivism. It is also important to determine what other specific variables could be indicators as to what makes the treatment programs ineffective at reducing recidivism of IPV offenders.

As is often true, there are ways to improve analysis in the future. For this dataset, more variety in race could have offered a more complete view of potential recidivism rates in the whole of the population. Here it is noted that either the perpetrator was or was not black. Another improvement would be to look at a larger sample size, as only 190 offenders were actually sentenced to a form of batterer treatment. Another limitation is the length of follow-up. This is good follow-up measure length, but it is not known what happens after a year. Lastly, the study is limited by only being conducted in Brooklyn. It would be interesting to see this study ran in multiple cities at the same time, and to then compare the findings of each study for each city.

It is imperative to discuss the limitations of the data, so future researchers can find ways to make the next E/TP more generalizable to all programs. As said before, many E/TPs are difficult to define as successful, since there are many methodological deficiencies. By addressing as many limitations as possible, programs can begin to become more generalizable. By discussing recidivism rates in terms of race for the sample population, more statistics and controls could have been examined to find statistical patterns that possibly could have differed from previous research. By running a

hypothetical identical treatment program that addresses a large sample size (a few hundred or more) compared to a smaller sample size (50 or less), how would the rates differ? When comparing these statistics, researchers can find a way to create the best treatment programs for the size of the sample that they are studying. When discussing follow-up measures, it is important for future research to see how long the program works for batterers or how long after the program until batterers recidivate? By having a longer follow-up measure, researchers can examine the patterns that come from the recidivism rates of the batterers in their program. Finally, doing replications of identical studies in different cities would make allow for E/TPs to become more generalizable, if possible. As the Minneapolis Experiment (Sherman & Berk, 1984) showed, their findings were not generalizable to many cities. By replicating the treatment programs, researchers can attempt to analyze what patterns are the most effective and where.

In conclusion, Intimate Partner Violence is an important area of victimization to study and analyze in society today. In order to create effective educational programs to aid in combating the rise in offender recidivism rates for IPV, researchers must first understand how and why this form of victimization occurs. An important policy implication of IPV education programs for future research is creating education programs that are flexible enough to fit multiple motives, as well as the multiple different kinds of perpetrators. This is where looking at specific variables, such as relationship length, comes into play. Many IPV relationships go on for years, as does the cycle of abuse within that relationship. It was found that there was a slight reduction of recidivism linked to length of relationship in the treatment programs. Focusing on specific topics or variables, like length of relationship, may be the key to creating effective

educational/treatment programs. Future research should also focus on creating programs that are fully randomized, and have designs that address validity and are generalizable (Davis et al., 2000). These developments will take a lot of time and effort through communities, money to create more experiments and greater, more applicable programs; but IPV is a criminological topic worth investing in if it means that batterer treatment truly works and the rate of victimization can begin to decrease.

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FOOTNOTES

[1] There is no variable that looks at gender in this dataset because all the batterers are male (Davis et al., 2000).

APPENDIX A

COMMANDS AND OUTPUTS RUN ON THE DATASET IN STATA

COMMANDS AND OUTPUTS RUN ON THE DATASET IN STATA

Replicating Davis et al. (2000) Experiment:

Results

```
. logit cjaasp12 assign3

Iteration 0:   log likelihood = -135.71636
Iteration 1:   log likelihood = -131.39068
Iteration 2:   log likelihood = -131.21943
Iteration 3:   log likelihood = -131.21884
Iteration 4:   log likelihood = -131.21884

Logistic regression                               Number of obs     =        376
                                                  LR chi2(1)        =       9.00
                                                  Prob > chi2       =     0.0027
Log likelihood = -131.21884                       Pseudo R2         =     0.0331

------------------------------------------------------------------------------
    cjaasp12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     assign3 |   -.579007   .2059332    -2.81   0.005    -.9826286   -.1753854
       _cons |  -1.629655   .1937968    -8.41   0.000    -2.009489    -1.24982
------------------------------------------------------------------------------
```

Results

```
. logit cjaasp12 assign3, or

Iteration 0:   log likelihood = -135.71636
Iteration 1:   log likelihood = -131.39068
Iteration 2:   log likelihood = -131.21943
Iteration 3:   log likelihood = -131.21884
Iteration 4:   log likelihood = -131.21884

Logistic regression                               Number of obs     =        376
                                                  LR chi2(1)        =       9.00
                                                  Prob > chi2       =     0.0027
Log likelihood = -131.21884                       Pseudo R2         =     0.0331

------------------------------------------------------------------------------
    cjaasp12 | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     assign3 |   .5604546   .1154162    -2.81   0.005     .3743259    .8391335
       _cons |   .1959973   .0379837    -8.41   0.000     .1340571    .2865565
------------------------------------------------------------------------------
```

```
Results
. tab cjaasp12 assign3, col

Key
    frequency
column percentage

       THE
PREVALENCE
    OF CJA     CONTROL CONDITION OR 8 OR 26
  RECORDED              WEEK ATV G
   ARRESTS  | Control g  8 week AT  26 week A |     Total
-----------+---------------------------------+----------
         0  |       157         52        123 |       332
            |     84.41      85.25      95.35 |     88.30
-----------+---------------------------------+----------
         1  |        29          9          6 |        44
            |     15.59      14.75       4.65 |     11.70
-----------+---------------------------------+----------
     Total  |       186         61        129 |       376
            |    100.00     100.00     100.00 |    100.00
```

Recoding Missing Values for Dependent, Independent, and Control Variables:

Dependent Variable:

1) cjaasp12: The prevalence of criminal justice agency recorded arrests filed against the perpetrator up to 12 months after the sentencing.

```
Results
. use "/Volumes/UNTITLED/13552656/ICPSR_04307/DS0001/thesis.dta"

. replace anynew=. if anynew==-999
(24 real changes made, 24 to missing)
```

Independent Variables:

1) assign3: Perpetrator assigned to control condition, 8, or 26 week ATV education treatment program.
2) relbegyr: The relationship between the perpetrator and the victim began how many years ago.

```
Results
. replace relbegyr=. if relbegyr==-999.00
(49 real changes made, 49 to missing)
```

Control Variables:

1) b1ag8d: Batterer's age.

2) b1black: Was the perpetrator black?

3) b1edu11: Batterer's highest level of education attained.

4) noldarst: Number of prior arrests of perpetrator before experimental incident interview.

Results

```
. replace b1ag8d=. if b1ag8d==-999
(25 real changes made, 25 to missing)

. replace b1black=. if b1black==-999
(25 real changes made, 25 to missing)

. replace b1edu11=. if b1edu11==-999|b1edu==9
(22 real changes made, 22 to missing)

. replace noldarst=. if noldarst==-999
(21 real changes made, 21 to missing)
```

Count (Number of Observations):

Results

```
. count
  376
```

Multicollinearity:

Results

```
. reg cjaasp12 assign3 relbegyr

      Source |       SS           df       MS      Number of obs   =       327
-------------+----------------------------------   F(2, 324)       =      4.11
       Model |  .792472829         2  .396236415   Prob > F        =    0.0173
    Residual |  31.2442244       324  .096432791   R-squared       =    0.0247
-------------+----------------------------------   Adj R-squared   =    0.0187
       Total |  32.0366972       326  .098272077   Root MSE        =    .31054

------------------------------------------------------------------------------
    cjaasp12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     assign3 |   -.050581   .0192088    -2.63   0.009    -.0883708   -.0127913
    relbegyr |  -.0021911   .0025982    -0.84   0.400    -.0073025    .0029203
       _cons |   .1692999   .0299735     5.65   0.000     .1103326    .2282672
------------------------------------------------------------------------------
```

Results

```
. correlate assign3 relbegyr
(obs=327)
```

	assign3	relbegyr
assign3	1.0000	
relbegyr	0.1076	1.0000

```
. vif
```

Variable	VIF	1/VIF
assign3	1.01	0.988429
relbegyr	1.01	0.988429
Mean VIF	1.01	

Results

```
. collin assign3 relbegyr
(obs=327)

  Collinearity Diagnostics
```

Variable	VIF	SQRT VIF	Tolerance	R-Squared
assign3	1.01	1.01	0.9884	0.0116
relbegyr	1.01	1.01	0.9884	0.0116
Mean VIF	1.01			

	Eigenval	Cond Index
1	2.3443	1.0000
2	0.4412	2.3051
3	0.2145	3.3057

```
 Condition Number         3.3057
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.9884
```

Regression Commands: Generating New Variables

Results

```
. gen lesshigh=b1edu11
(22 missing values generated)

. tab b1edu11
```

BATTERER'S HIGHEST LEVEL OF EDUCATION A	Freq.	Percent	Cum.
Less than high school	48	13.56	13.56
Some high school	86	24.29	37.85
High school diploma/GED	109	30.79	68.64
Some college	76	21.47	90.11
Associate degree/junior college	20	5.65	95.76
Bachelor's degree	10	2.82	98.59
Graduate degree/years completed beyond	5	1.41	100.00
Total	354	100.00	

Results

```
. replace lesshigh=1 if lesshigh==1|lesshigh==2
(86 real changes made)

. replace lesshigh=0 if lesshigh>=3
(242 real changes made)

. tab lesshigh

   lesshigh |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        242       64.36       64.36
          1 |        134       35.64      100.00
------------+-----------------------------------
      Total |        376      100.00
```

Results

```
. gen high=b1edu11
(22 missing values generated)

. replace high=0 if high==1|high==2|high>=4
(267 real changes made)

. tab high

       high |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        267       71.01       71.01
          3 |        109       28.99      100.00
------------+-----------------------------------
      Total |        376      100.00

. replace high=1 if high==3
(109 real changes made)

. tab high

       high |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        267       71.01       71.01
          1 |        109       28.99      100.00
------------+-----------------------------------
      Total |        376      100.00
```

Results

```
. gen pasthigh=b1edu11
(22 missing values generated)

. replace pasthigh=0 if pasthigh<=3
(243 real changes made)
```

Results

```
. replace pasthigh=1 if pasthigh>=4
(133 real changes made)

. tab pasthigh
```

pasthigh	Freq.	Percent	Cum.
0	243	64.63	64.63
1	133	35.37	100.00
Total	376	100.00	

Results

```
. gen priorarrests=noldarst
(21 missing values generated)

. replace priorarrests=. if priorarrests==-999
(0 real changes made)

. tab priorarrests
```

priorarrests	Freq.	Percent	Cum.
0	217	61.13	61.13
1	54	15.21	76.34
2	40	11.27	87.61
3	21	5.92	93.52
4	12	3.38	96.90
5	7	1.97	98.87
6	2	0.56	99.44
7	2	0.56	100.00
Total	355	100.00	

Results

```
. replace priorarrests=1 if priorarrests>=1
(105 real changes made)

. tab priorarrests
```

priorarrests	Freq.	Percent	Cum.
0	217	57.71	57.71
1	159	42.29	100.00
Total	376	100.00	

Results

```
. gen OverallTreatment=assign3

. replace OverallTreatment=1 if OverallTreatment==2
(129 real changes made)
```

Results

```
. tab OverallTreatment

OverallTrea |
      tment |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        186       49.47       49.47
          1 |        190       50.53      100.00
------------+-----------------------------------
      Total |        376      100.00

. tab assign3

CONTROL CONDITION |
  OR 8 OR 26 WEEK |
            ATV G |      Freq.     Percent        Cum.
------------------+-----------------------------------
    Control group |        186       49.47       49.47
 8 week ATV group |         61       16.22       65.69
26 week ATV group |        129       34.31      100.00
------------------+-----------------------------------
            Total |        376      100.00
```

Results

```
. gen EightWeekProgram=assign3

. tab EightWeekProgram

EightWeekPr |
      ogram |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        186       49.47       49.47
          1 |         61       16.22       65.69
          2 |        129       34.31      100.00
------------+-----------------------------------
      Total |        376      100.00

. replace EightWeekProgram=0 if EightWeekProgram==2
(129 real changes made)

. tab EightWeekProgram

EightWeekPr |
      ogram |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        315       83.78       83.78
          1 |         61       16.22      100.00
------------+-----------------------------------
      Total |        376      100.00
```

```
Results
. gen Twenty6WeekProgram=assign3

. tab Twenty6WeekProgram

Twenty6Week |
    Program |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        186       49.47       49.47
          1 |         61       16.22       65.69
          2 |        129       34.31      100.00
------------+-----------------------------------
      Total |        376      100.00

. replace Twenty6WeekProgram=0 if Twenty6WeekProgram==1
(61 real changes made)

. tab Twenty6WeekProgram

Twenty6Week |
    Program |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        247       65.69       65.69
          2 |        129       34.31      100.00
------------+-----------------------------------
      Total |        376      100.00
```

```
Results
. replace Twenty6WeekProgram=1 if Twenty6WeekProgram==2
(129 real changes made)

. tab Twenty6WeekProgram

Twenty6Week |
    Program |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        247       65.69       65.69
          1 |        129       34.31      100.00
------------+-----------------------------------
      Total |        376      100.00
```

Generated Independent Variables:

1) OverallTreatment: 8 week and 26 week program combined.

2) EightWeekProgram: 8 week program alone.

3) Twenty6WeekProgram: 26 week program alone.

Generated Control Variables:

1) lesshigh: Perpetrator's education level is below high school.

2) high: Perpetrator's education level is some high school.

3) pasthigh: Perpetrator's education level is completed high school, GED, or

higher.

4) priorarrests: Number of prior arrests before experiment incident interview. Recoded as 0 = No prior arrest, 1 = Yes, prior arrest(s).

Generated Interaction Terms:

1) OverallTreatmentXLoR: Overall treatment multiplied by length of relationship.
2) EightWeekProgramXLoR: Eight-week treatment multiplied by length of relationship.
3) Twenty6WeekProgramXLoR: Twenty-six-week treatment multiplied by length of relationship.

Summary Statistics:

Results

```
. sum cjaasp12 relbegyr OverallTreatment EightWeekProgram Twenty6WeekProgram OverallTreatmentXLoR EightWeekProgramXL
> oR Twenty6WeekProgramXLoR b1ag8d b1black high pasthigh priorarrests
```

Variable	Obs	Mean	Std. Dev.	Min	Max
cjaasp12	376	.1170213	.3218739	0	1
relbegyr	327	7.890642	6.658294	.12	45.67
OverallTre~t	376	.5053191	.5006379	0	1
EightWeekP~m	376	.162234	.3691566	0	1
Twenty6Wee~m	376	.3430851	.4753722	0	1
OverallTre~R	327	4.257187	6.662008	0	45.67
EightWeekP~R	327	1.331988	4.231906	0	45.67
Twenty6Wee~R	327	2.925199	5.855756	0	32.25
b1ag8d	351	33.01709	9.276683	17	66
b1black	351	.3618234	.481214	0	1
high	376	.2898936	.4543174	0	1
pasthigh	376	.3537234	.4787617	0	1
priorarrests	376	.4228723	.4946738	0	1

Descriptive Statistics:

Results

```
. des cjaasp12 relbegyr OverallTreatment EightWeekProgram Twenty6WeekProgram OverallTreatmentXLoR EightWeekProgramXL
> oR Twenty6WeekProgramXLoR b1ag8d b1black high pasthigh priorarrests
```

variable name	storage type	display format	value label	variable label
cjaasp12	double	%12.0g		THE PREVALENCE OF CJA RECORDED ARRESTS
relbegyr	double	%12.0g	relbegyr	RELATIONSHIP BETWEEN PERP AND VICTIM BEG
OverallTreatm~t	float	%9.0g		
EightWeekProg~m	float	%9.0g		
Twenty6WeekPr~m	float	%9.0g		
OverallTreatm~R	float	%9.0g		
EightWeekProg~R	float	%9.0g		
Twenty6WeekPr~R	float	%9.0g		
b1ag8d	double	%12.0g	b1ag8d	BATTERER'S AGE
b1black	double	%12.0g	b1black	WAS PERP BLACK?
high	float	%9.0g		
pasthigh	float	%9.0g		
priorarrests	float	%9.0g		

Model 1:

Results

```
. logit cjaasp12 relbegyr b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.71327
Iteration 2:   log likelihood = -100.36375
Iteration 3:   log likelihood = -100.36248
Iteration 4:   log likelihood = -100.36248

Logistic regression                               Number of obs     =        317
                                                  LR chi2(6)        =      11.03
                                                  Prob > chi2       =     0.0874
Log likelihood = -100.36248                       Pseudo R2         =     0.0521
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0225721	.0340756	-0.66	0.508	-.0893591	.0442149
b1ag8d	.0112303	.0203612	0.55	0.581	-.028677	.0511376
b1black	.5192134	.3815011	1.36	0.174	-.228515	1.266942
high	-.6222299	.4592191	-1.35	0.175	-1.522283	.2778229
pasthigh	-.7825185	.4830693	-1.62	0.105	-1.729317	.1642799
priorarrests	.7084168	.3923615	1.81	0.071	-.0605976	1.477431
_cons	-2.566315	.7369442	-3.48	0.000	-4.010699	-1.121931

Results

```
. logit cjaasp12 relbegyr b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.71327
Iteration 2:   log likelihood = -100.36375
Iteration 3:   log likelihood = -100.36248
Iteration 4:   log likelihood = -100.36248

Logistic regression                               Number of obs     =        317
                                                  LR chi2(6)        =      11.03
                                                  Prob > chi2       =     0.0874
Log likelihood = -100.36248                       Pseudo R2         =     0.0521
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9776807	.0333151	-0.66	0.508	.9145171	1.045207
b1ag8d	1.011294	.0205912	0.55	0.581	.9717303	1.052468
b1black	1.680705	.6411907	1.36	0.174	.7957144	3.549979
high	.5367462	.2464841	-1.35	0.175	.2182132	1.320252
pasthigh	.457253	.2208849	-1.62	0.105	.1774056	1.178544
priorarrests	2.030774	.7967972	1.81	0.071	.9412019	4.381675
_cons	.0768181	.0566107	-3.48	0.000	.0181207	.3256504

Model 2:

Results

```
. logit cjaasp12 relbegyr OverallTreatment b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -98.627064
Iteration 2:   log likelihood = -97.964559
Iteration 3:   log likelihood = -97.963191
Iteration 4:   log likelihood = -97.963191

Logistic regression                             Number of obs     =        317
                                                LR chi2(7)        =      15.83
                                                Prob > chi2       =     0.0267
Log likelihood = -97.963191                     Pseudo R2         =     0.0748
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0154899	.0341744	-0.45	0.650	-.0824706	.0514907
OverallTreatment	-.8630413	.4074167	-2.12	0.034	-1.661563	-.0645192
b1ag8d	.0070545	.0205462	0.34	0.731	-.0332153	.0473243
b1black	.4786991	.3865365	1.24	0.216	-.2788985	1.236297
high	-.6023927	.4650217	-1.30	0.195	-1.513818	.3090331
pasthigh	-.7338336	.4869942	-1.51	0.132	-1.688325	.2206575
priorarrests	.7827281	.3970669	1.97	0.049	.0044913	1.560965
_cons	-2.174506	.7472888	-2.91	0.004	-3.639165	-.7098465

Results

```
. logit cjaasp12 relbegyr OverallTreatment b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -98.627064
Iteration 2:   log likelihood = -97.964559
Iteration 3:   log likelihood = -97.963191
Iteration 4:   log likelihood = -97.963191

Logistic regression                             Number of obs     =        317
                                                LR chi2(7)        =      15.83
                                                Prob > chi2       =     0.0267
Log likelihood = -97.963191                     Pseudo R2         =     0.0748
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9846294	.0336491	-0.45	0.650	.9208385	1.052839
OverallTreatment	.4218771	.1718798	-2.12	0.034	.1898419	.9375181
b1ag8d	1.007079	.0206917	0.34	0.731	.9673302	1.048462
b1black	1.613973	.6238596	1.24	0.216	.7566167	3.44284
high	.5475001	.2545994	-1.30	0.195	.2200681	1.362107
pasthigh	.4800651	.2337889	-1.51	0.132	.1848289	1.246896
priorarrests	2.187432	.8685567	1.97	0.049	1.004501	4.763415
_cons	.1136643	.0849401	-2.91	0.004	.0262743	.4917197

Model 3:

Results

```
. logit cjaasp12 relbegyr EightWeekProgram b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.66005
Iteration 2:   log likelihood = -100.30141
Iteration 3:   log likelihood =  -100.3001
Iteration 4:   log likelihood =  -100.3001

Logistic regression                               Number of obs     =        317
                                                  LR chi2(7)        =      11.16
                                                  Prob > chi2       =     0.1319
Log likelihood =  -100.3001                       Pseudo R2         =     0.0527
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0228875	.0341008	-0.67	0.502	-.089724	.0439489
EightWeekProgram	.1774045	.4957932	0.36	0.720	-.7943323	1.149141
b1ag8d	.0121059	.0205268	0.59	0.555	-.0281259	.0523377
b1black	.517293	.3814805	1.36	0.175	-.230395	1.264981
high	-.616965	.459445	-1.34	0.179	-1.517461	.2835307
pasthigh	-.7872531	.4835016	-1.63	0.103	-1.734899	.1603926
priorarrests	.7007203	.3931783	1.78	0.075	-.069895	1.471336
_cons	-2.617689	.7538018	-3.47	0.001	-4.095113	-1.140265

Results

```
. logit cjaasp12 relbegyr EightWeekProgram b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.66005
Iteration 2:   log likelihood = -100.30141
Iteration 3:   log likelihood =  -100.3001
Iteration 4:   log likelihood =  -100.3001

Logistic regression                               Number of obs     =        317
                                                  LR chi2(7)        =      11.16
                                                  Prob > chi2       =     0.1319
Log likelihood =  -100.3001                       Pseudo R2         =     0.0527
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9773724	.0333292	-0.67	0.502	.9141835	1.044929
EightWeekProgram	1.194114	.5920336	0.36	0.720	.4518828	3.155482
b1ag8d	1.012179	.0207768	0.59	0.555	.9722659	1.053731
b1black	1.677481	.6399261	1.36	0.175	.7942198	3.543025
high	.5395796	.2479072	-1.34	0.179	.219268	1.32781
pasthigh	.4550932	.2200383	-1.63	0.103	.1764181	1.173972
priorarrests	2.015204	.7923344	1.78	0.075	.9324917	4.355048
_cons	.0729713	.0550059	-3.47	0.001	.0166539	.3197344

Model 4:

Results

```
. logit cjaasp12 relbegyr Twenty6WeekProgram b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -97.472472
Iteration 2:   log likelihood = -96.483926
Iteration 3:   log likelihood = -96.476751
Iteration 4:   log likelihood = -96.476747

Logistic regression                               Number of obs     =        317
                                                  LR chi2(7)        =      18.80
                                                  Prob > chi2       =     0.0088
Log likelihood = -96.476747                       Pseudo R2         =     0.0888
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0151652	.0340876	-0.44	0.656	-.0819757	.0516453
Twenty6WeekProgram	-1.35481	.5548095	-2.44	0.015	-2.442217	-.2674036
b1ag8d	.0108735	.0205238	0.53	0.596	-.0293524	.0510994
b1black	.4562526	.3873343	1.18	0.239	-.3029088	1.215414
high	-.5673618	.4666923	-1.22	0.224	-1.482062	.3473383
pasthigh	-.7493904	.4884111	-1.53	0.125	-1.706659	.2078777
priorarrests	.7575978	.3978446	1.90	0.057	-.0221632	1.537359
_cons	-2.330046	.7411464	-3.14	0.002	-3.782666	-.8774254

Results

```
. logit cjaasp12 relbegyr Twenty6WeekProgram b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -97.472472
Iteration 2:   log likelihood = -96.483926
Iteration 3:   log likelihood = -96.476751
Iteration 4:   log likelihood = -96.476747

Logistic regression                               Number of obs     =        317
                                                  LR chi2(7)        =      18.80
                                                  Prob > chi2       =     0.0088
Log likelihood = -96.476747                       Pseudo R2         =     0.0888
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9849492	.0335746	-0.44	0.656	.9212943	1.053002
Twenty6WeekProgram	.2579963	.1431388	-2.44	0.015	.0869678	.7653641
b1ag8d	1.010933	.0207482	0.53	0.596	.9710742	1.052427
b1black	1.578149	.6112712	1.18	0.239	.7386665	3.371689
high	.5670194	.2646236	-1.22	0.224	.2271688	1.415295
pasthigh	.4726546	.2308497	-1.53	0.125	.1814711	1.231063
priorarrests	2.133146	.8486605	1.90	0.057	.9780806	4.652287
_cons	.0972913	.0721071	-3.14	0.002	.0227619	.4158522

Model 5:

Results

```
. gen OverallTreatmentXLoR= OverallTreatment*relbegyr
(49 missing values generated)
```

Results

```
. logit cjaasp12 relbegyr OverallTreatment OverallTreatmentXLoR b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -98.642966
Iteration 2:   log likelihood = -97.954112
Iteration 3:   log likelihood = -97.951037
Iteration 4:   log likelihood = -97.951036

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      15.85
                                                  Prob > chi2       =     0.0445
Log likelihood = -97.951036                       Pseudo R2         =     0.0749
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0121056	.0402771	-0.30	0.764	-.0910472	.0668361
OverallTreatment	-.785039	.6444043	-1.22	0.223	-2.048048	.4779703
OverallTreatmentXLoR	-.0107944	.0696681	-0.15	0.877	-.1473414	.1257526
b1ag8d	.0071835	.0205515	0.35	0.727	-.0330968	.0474637
b1black	.4747103	.3873261	1.23	0.220	-.2844349	1.233856
high	-.5957455	.4669878	-1.28	0.202	-1.511025	.3195338
pasthigh	-.7267646	.4890863	-1.49	0.137	-1.685356	.2318269
priorarrests	.7819169	.3971769	1.97	0.049	.0034645	1.560369
_cons	-2.202886	.7692671	-2.86	0.004	-3.710622	-.6951505

Results

```
. logit cjaasp12 relbegyr OverallTreatment OverallTreatmentXLoR b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -98.642966
Iteration 2:   log likelihood = -97.954112
Iteration 3:   log likelihood = -97.951037
Iteration 4:   log likelihood = -97.951036

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      15.85
                                                  Prob > chi2       =     0.0445
Log likelihood = -97.951036                       Pseudo R2         =     0.0749
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9879674	.0397925	-0.30	0.764	.9129746	1.06912
OverallTreatment	.4561019	.293914	-1.22	0.223	.1289864	1.612798
OverallTreatmentXLoR	.9892637	.0689201	-0.15	0.877	.8629993	1.134002
b1ag8d	1.007209	.0206997	0.35	0.727	.9674449	1.048608
b1black	1.607548	.6226455	1.23	0.220	.7524393	3.434446
high	.5511516	.2573811	-1.28	0.202	.2206837	1.376486
pasthigh	.4834707	.2364589	-1.49	0.137	.1853784	1.260901
priorarrests	2.185658	.8680929	1.97	0.049	1.00347	4.760579
_cons	.1104838	.0849916	-2.86	0.004	.0244623	.4989993

Model 6:

Results

```
. gen EightWeekProgramXLoR= EightWeekProgram*relbegyr
(49 missing values generated)
```

Results

```
. logit cjaasp12 relbegyr EightWeekProgram EightWeekProgramXLoR b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.63658
Iteration 2:   log likelihood = -100.26079
Iteration 3:   log likelihood = -100.25927
Iteration 4:   log likelihood = -100.25927

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      11.24
                                                  Prob > chi2       =     0.1886
Log likelihood = -100.25927                       Pseudo R2         =     0.0531
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0193873	.0360103	-0.54	0.590	-.0899661	.0511915
EightWeekProgram	.3628667	.81973	0.44	0.658	-1.243774	1.969508
EightWeekProgramXLoR	-.0279187	.101247	-0.28	0.783	-.2263592	.1705217
b1ag8d	.0121203	.0205458	0.59	0.555	-.0281487	.0523894
b1black	.511592	.3818451	1.34	0.180	-.2368106	1.259995
high	-.6046703	.4613936	-1.31	0.190	-1.508985	.2996445
pasthigh	-.7767548	.4842898	-1.60	0.109	-1.725945	.1724359
priorarrests	.6968991	.3932977	1.77	0.076	-.0739503	1.467749
_cons	-2.643845	.7607995	-3.48	0.001	-4.134985	-1.152706

Results

```
. logit cjaasp12 relbegyr EightWeekProgram EightWeekProgramXLoR b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -100.63658
Iteration 2:   log likelihood = -100.26079
Iteration 3:   log likelihood = -100.25927
Iteration 4:   log likelihood = -100.25927

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      11.24
                                                  Prob > chi2       =     0.1886
Log likelihood = -100.25927                       Pseudo R2         =     0.0531
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9807994	.0353188	-0.54	0.590	.9139621	1.052524
EightWeekProgram	1.437444	1.178316	0.44	0.658	.288294	7.167149
EightWeekProgramXLoR	.9724674	.0984594	-0.28	0.783	.7974316	1.185923
b1ag8d	1.012194	.0207963	0.59	0.555	.9722438	1.053786
b1black	1.667945	.6368965	1.34	0.180	.7891407	3.525403
high	.5462545	.2520383	-1.31	0.190	.2211343	1.349379
pasthigh	.4598961	.222723	-1.60	0.109	.1780047	1.188196
priorarrests	2.007518	.7895523	1.77	0.076	.9287178	4.339454
_cons	.0710874	.0540832	-3.48	0.001	.0160029	.3157812

Model 7:

Results

```
. gen Twenty6WeekProgramXLoR= Twenty6WeekProgram*relbegyr
(49 missing values generated)
```

Results

```
. logit cjaasp12 relbegyr Twenty6WeekProgram Twenty6WeekProgramXLoR b1ag8d b1black high pasthigh priorarrests

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -97.413715
Iteration 2:   log likelihood = -96.432899
Iteration 3:   log likelihood =  -96.42629
Iteration 4:   log likelihood = -96.426288

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      18.90
                                                  Prob > chi2       =     0.0154
Log likelihood = -96.426288                       Pseudo R2         =     0.0893
```

cjaasp12	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	-.0195533	.0371752	-0.53	0.599	-.0924153	.0533088
Twenty6WeekProgram	-1.573622	.8959999	-1.76	0.079	-3.32975	.1825056
Twenty6WeekProgramXLoR	.0269744	.0830305	0.32	0.745	-.1357624	.1897112
b1ag8d	.0106996	.0205692	0.52	0.603	-.0296153	.0510145
b1black	.4599675	.3876273	1.19	0.235	-.299768	1.219703
high	-.5706959	.4668652	-1.22	0.222	-1.485735	.3443431
pasthigh	-.7552667	.4886898	-1.55	0.122	-1.713081	.2025476
priorarrests	.7569618	.3976791	1.90	0.057	-.0224749	1.536399
_cons	-2.293447	.7509572	-3.05	0.002	-3.765296	-.8215978

Results

```
. logit cjaasp12 relbegyr Twenty6WeekProgram Twenty6WeekProgramXLoR b1ag8d b1black high pasthigh priorarrests, or

Iteration 0:   log likelihood = -105.87843
Iteration 1:   log likelihood = -97.413715
Iteration 2:   log likelihood = -96.432899
Iteration 3:   log likelihood =  -96.42629
Iteration 4:   log likelihood = -96.426288

Logistic regression                               Number of obs     =        317
                                                  LR chi2(8)        =      18.90
                                                  Prob > chi2       =     0.0154
Log likelihood = -96.426288                       Pseudo R2         =     0.0893
```

cjaasp12	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
relbegyr	.9806366	.0364554	-0.53	0.599	.9117264	1.054755
Twenty6WeekProgram	.207293	.1857345	-1.76	0.079	.0358021	1.200221
Twenty6WeekProgramXLoR	1.027341	.0853007	0.32	0.745	.87305	1.2089
b1ag8d	1.010757	.0207904	0.52	0.603	.970819	1.052338
b1black	1.584022	.6140103	1.19	0.235	.7409901	3.386182
high	.565132	.2638405	-1.22	0.222	.2263359	1.411063
pasthigh	.4698853	.2296281	-1.55	0.122	.1803094	1.224518
priorarrests	2.13179	.8477682	1.90	0.057	.9777757	4.647821
_cons	.100918	.0757851	-3.05	0.002	.0231608	.4397285

APPENDIX B

ARIZONA STATE UNIVERSITY IRB APPROVAL

ARIZONA STATE UNIVERSITY IRB APPROVAL

APPROVAL: EXPEDITED REVIEW

Danielle Wallace
Criminology and Criminal Justice, School of
-
Danielle.Wallace@asu.edu

Dear Danielle Wallace:

On 5/2/2016 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Domestic Violence Educational Programs and Their Effects On Recidivism
Investigator:	Danielle Wallace
IRB ID:	STUDY00004283
Category of review:	(7)(b) Social science methods, (5) Data, documents, records, or specimens, (7)(a) Behavioral research
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• HRP-503a-TEMPLATE_PROTOCOL_SocialBehavioral- Shelby Weldon Final.docx, Category: IRB Protocol;

The IRB approved the protocol from 5/2/2016 to 5/1/2017 inclusive. Three weeks before 5/1/2017 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 5/1/2017 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the “Documents” tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Shelby Weldon
Jacob Young
Shelby Weldon