

ABSTRACT

Title of Thesis: THE USE OF VIOLENCE IN AN OFFENSE
IN A SAMPLE OF CONVICTED RAPISTS
WITHIN A POPULATION HETEROGENEITY/STATE
DEPENDENCE FRAMEWORK

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The use of violence in a rape offense is an important but neglected question. This study seeks to enumerate the variables that predict the use of moderate and severe violence in a rape offense within a population heterogeneity/state dependence framework. Population heterogeneity asserts that crime or violence is caused by an underlying propensity while state dependence argues that prior crime or violence can increase or decrease the likelihood of future crime. A mixed model asserts that time-stable traits predispose an individual towards a certain level of crime or violence and time-varying characteristics can amplify or diminish this underlying risk. A sample of 222 convicted rapists from the Massachusetts Treatment Center was assessed on developmental, relationship and job attributes. A multinomial logistic regression analysis was performed on three levels of the outcome: no violence, moderate violence or severe violence. The results support a mixed model. Theoretical and policy implications are discussed.

THE USE OF VIOLENCE IN AN OFFENSE IN A SAMPLE OF
CONVICTED RAPISTS WITHIN A POPULATION HETEROGENEITY/
STATE DEPENDENCE FRAMEWORK

by

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Table of Contents

Chapter I: Theoretical Rationale and Prior Research	1
<i>Introduction</i>	1
<i>Purpose</i>	1
<i>Unique Contribution to the Field</i>	3
<i>Theoretical Framework</i>	5
Prior Research on State Dependence and Population Heterogeneity	7
<i>Literature Review: Rapists who Use Physical Violence in a Rape Offense</i>	11
Prior Research on Time-Stable Characteristics	12
Prior Research on Time-Varying Characteristics	17
Prior Research on Control Variables	20
<i>Research Questions</i>	21
Chapter II: Methods	24
<i>Sample</i>	24
<i>Description of Variables</i>	26
<i>Description of the Analysis</i>	28
The Multinomial Logistic Regression Model	28
Relative Risk Ratios.....	29
Coding of the Time-Stable Independent Variables.....	30
Coding of the Time-Varying Independent Variables.....	33
Coding of the Control Variables	35
Summary Statistics for Selected Time-Stable Characteristics.....	36
Summary Statistics for Selected Time-Varying Characteristics.....	36
Chapter III: Results	39
<i>Analysis</i>	39
<i>Results</i>	42
Time-Stable Characteristics	42
Time-Varying Characteristics.....	47
<i>Discussion</i>	52
Time-Stable Characteristics	52
Time-Varying Characteristics.....	53
The Typical Offender.....	54
<i>Predicted Probabilities for Key Findings</i>	56
Predicted Probabilities for Selected Time-Stable Characteristics	59
Chapter IV: Conclusions.....	66
Limitations	68
Theoretical, Policy and Treatment Implications.....	71

List of Tables

Table 1: Frequency Table of Sample Demographics.....	25
Table 2: Frequency Distribution of the Dependent Variable: Level of Physical Violence in a Rape Offense	28
Table 3: Summary Statistics for the Independent Variables.....	37
Table 4: Model to Predict the Level of Physical Violence in a Rape Offense	40
Table 5: Predicted Probabilities for Key Findings.....	58

List of Figures

Figure 1: Relative Risk Ratios for Selected Time-Stable Characteristics.....	46
Figure 2: Relative Risk Ratios for Selected Time-Varying Characteristics.....	51
Figure 3: Predicted Probabilities for Selected Time-Stable Characteristics.....	62
Figure 4: Predicted Probabilities for Selected Time-Varying Characteristics.....	65

Chapter I: Theoretical Rationale and Prior Research

Introduction

An important but neglected question in the sexual offending literature is the degree to which sexual offenders, particularly rapists, can be differentiated by the amount of physical violence used in their offenses. This is an exceedingly important question which Prentky *et al.* (1989) address in one of the first articles in the literature to divide offenders along this dimension. “Identifying the developmental antecedents of such violence would afford critical information for understanding its nature, may suggest avenues for preventing its development and might inform our treatment of the most violent offenders” (Prentky *et al.*, 1989: 154). If violent rapists are actually distinct from their less violent counterparts, it is imperative to identify the ways in which they differ to prevent such violence and to treat those who use it. This research will attempt to discriminate between offenders on the level of physical violence used in their rape offenses using not only developmental antecedents but also variables more contemporaneous to the offending behavior, such as social supports and employment history.

Purpose

The purpose of this research is to delineate the variables that predict the level of physical violence in a rape offense using the theoretical framework of state dependence and population heterogeneity. The current sample is drawn from the Massachusetts Treatment Center, a secure penal institution for the study and treatment of sex offenders. The sample consists of 222 convicted rapists who were committed to the Massachusetts Treatment Center between 1958 and 1981. In addition, these rapists had all been

classified as Sexually Dangerous Persons, a civil legal status under Massachusetts state law that allows authorities to civilly commit individuals for indeterminate time periods (1 day to life imprisonment).

The level of physical violence used in a rape offense was constructed by measuring an offender's behavior for as many offenses as he perpetrated (up to ten) to ask: What is the highest level of physical violence in which this offender has *ever* engaged during a rape offense? The level of violence was measured in a scale comprised of the following items: victim restraint or presence of a weapon, the victim seeking medical assistance, using a weapon physically or verbally to threaten a victim or kicking the victim, stabbing, severe physical injury from a weapon other than a knife, broken bones, and death. Each of the offenders' behavior was measured on the above constructs for up to ten offenses, and the highest level of physical violence in which he had engaged for any one offense is used as an indicator of the highest level of physical violence.

The dependent variable in the current study is the highest level of physical violence in which an offender engaged in a rape offense as a multinomial category outcome for each rapist. The first outcome is that the offender never used physical violence in his offense(s). The second outcome is that the offender used moderate physical violence in at least one offense, which included victim restraint, presence of a weapon, the victim seeking medical assistance, the verbal or physical use of a weapon to threaten a victim, or kicking a victim. The third outcome is that the offender used severe physical violence in at least one rape offense, comprising stabbing, severe physical injury from a weapon other than a knife, broken bones, or death.

Unique Contribution to the Field

My intent in this study is to expand upon the state dependence and population heterogeneity framework to examine the origins of the most severe level of violence an offender used in a rape offense. The population heterogeneity approach attributes the level of physical violence an offender used in a rape offense to the presence of time-stable characteristics. These characteristics also influence whether an offender committed violence in a nonsexual victim-involved offense. Such time-stable characteristics could be parental absence, childhood victimization, familial instability, a violent tendency, educational attainment or offense impulsivity. The state dependence process suggests that physical violence used in nonsexual victim-involved offenses which caused pain or injury to the victim influences the probability that an offender will use physical violence in a rape offense. Such nonsexual victim-involved violence could influence violence in a rape offense by severing intimate or peer relationships or by decreasing the likelihood that an offender had stable employment. Finally, the individual approaches can be combined into one framework. A mixed approach acknowledges that individual propensity can predispose some towards crime. Conventional activities can diminish this base level of criminogenic risk while criminal activities can make it worse. To the best of my knowledge, this is the first study that uses the state dependence/population heterogeneity framework to explain the level of physical violence used in a rape offense.

There are drawbacks to using this approach to examine the level of physical violence an offender used in a rape. First, the current data set is not prospective but instead relies on retrospective data collecting offender interviews and the offenders'

institutional files (penal, psychiatric, and treatment files and police, probation, and social service records). Prospective data would be needed to more accurately test the population heterogeneity/state dependence perspective and to use the models set forth by Nagin and Paternoster (1991) and in Bushway, Brame and Paternoster (1999). Second, due to the limitations of the data set, unobserved heterogeneity (unobserved individual differences) in the sample cannot be controlled. The unobserved heterogeneity will likely be swept up by the observed heterogeneity and will bias their estimates. Finally, without prospective data, it is impossible to use the level of physical violence from earlier rape offenses as a state dependent proxy measure. This limitation is a serious flaw. The current study addresses this problem by including, as the proxy, whether the offender used physical violence in nonsexual victim-involved offenses which caused pain or injury to the victim. Although this is not ideal, this measure is reasonably analogous to the level of physical violence an offender used in rape offenses and could influence the probability of engaging in violence in rape offenses. Unfortunately, it is not possible to determine with certainty whether the violence in a nonsexual victim-involved offense occurred prior to the physical violence in a rape offense since the dates of the nonsexual victim-involved offenses were not recorded. Thus, causality cannot be established, because time conditions cannot be imposed on whether the offender used violence in a nonsexual victim-involved offense before the violence in a rape offense. The time-varying characteristics could then have been caused by underlying time-stable characteristics. This is a serious flaw in the current study, one which can be rectified in future studies by the use of prospective data. Ultimately, the current study seeks only to orient the debate on the use of physical violence in a rape offense within the population heterogeneity and

state dependence framework in order to suggest one theoretical basis for the rape offending literature.

Theoretical Framework

The most time-tested finding in criminological research is that prior criminal offending is the best predictor of later criminal offending. Continuity of behavior has also been demonstrated in other disciplines, such as economics and psychology (Nagin and Paternoster, 2000). Many criminologists have attempted to understand this correlation, and this tradition has led to the formulation of the population heterogeneity/state dependence theoretical argument.

Population heterogeneity explains continuity in offending as evidence of an underlying criminal propensity. Differences across people or time-stable individual characteristics lead to criminal offending (Nagin and Paternoster, 1991; 2000; Bushway, Brame and Paternoster, 1999, Laub and Sampson, 2003). These individual differences may be brought about by biology, family process or psychopathology (Nagin and Paternoster, 1991; 2000). Regardless of the cause, individuals begin life or offending with differential respective probabilities of criminal offending (Nagin and Paternoster, 1991; 2000; Bushway, Brame and Paternoster, 1999). These time-stable characteristics cause some people to be more likely to commit criminal acts than others, regardless of their involvement in criminal or conventional activities (Nagin and Paternoster, 1991; 2000). Laub and Sampson (2003) describe the population heterogeneity approach as “a ‘kinds of people’ argument” (p. 24).

State dependence explains the positive correlation between past and future behavior in the following way. The act of committing a criminal offense actually

increases an offender's likelihood of committing a later criminal offense; the act of engaging in conventional activities actually decreases an offender's likelihood of committing a later criminal offense (Nagin and Paternoster, 1991; 2000; Johnson *et al.*, 1997; Bushway, Brame and Paternoster, 1999). This is known as the contagion effect (Nagin and Paternoster, 1991; 2000). Everyone begins life with an equal probability of criminal offending (Nagin and Paternoster, 1991; 2000; Bushway, Brame and Paternoster, 1999). A criminal offense can increase the likelihood of a later offense by decreasing the probability of marriage, stable employment or any of the other mechanisms explicated in criminological theories harmonious with the state dependent process (Nagin and Paternoster, 1991; 2000; Bushway, Brame and Paternoster, 1999). Conventional activities can decrease the probability of later offending by increasing involvement in or commitment to conventional activities (work) or by strengthening attachment to non-criminal parents or spouses (Nagin and Paternoster, 1991; 2000; Bushway, Brame and Paternoster, 1999; Hirschi, 2002). In other words, life events "matter" in the etiology of criminal offending (Nagin and Paternoster, 1991, 2000). These life events are considered time-varying characteristics in part, because they can be influenced by prior criminality (Nagin and Paternoster, 2000). It is the earlier offense that *changes* the life situation or context of the offender. This sets into motion the consequences of an increased or decreased probability of later offending (Nagin and Paternoster, 1991; 2000, Bushway, Brame and Paternoster, 1999). According to Laub and Sampson (2003), state dependence is "a 'kinds of contexts' argument" (p. 24).

State dependence and population heterogeneity can also be combined into one, mixed approach (Nagin and Paternoster, 2000; Laub and Sampson, 2003). In the mixed

model, individuals may have a propensity towards criminal offending due to a time-stable individual characteristic (such as family socialization or neuropsychological deficits) that increases their probability of offending (Nagin and Paternoster, 1991; 2000; Laub and Sampson, 2003). However, time-varying characteristics also act independently to increase or decrease the likelihood of reoffense (Nagin and Paternoster, 1991; 2000; Laub and Sampson, 2003). Laub and Sampson (2003) ultimately posit that it is the combination of the two approaches that best explains why earlier participation in crime is so highly correlated with later participation in crime (although they assert that even the combined approach may not explain continuity very well). “In this ‘mixed model,’ both differences in persons and contexts matter” (Sampson and Laub, 2003: 25).

Prior Research on State Dependence and Population Heterogeneity

Tests of population heterogeneity and state dependence generally proceed in the following way. The dependent variable is a measure of later offending, measured by self-report, arrest or conviction. Sometimes, only one independent variable, prior offending in different time periods, is included. Alternately, several time-stable and time-varying variables are included in two separate models, the second of which will include a prior offending measure. Generally, if the prior offending measure is statistically significant as well as the time-varying characteristics, this indicates that there is a state dependent effect evident in this sample of individuals. If neither the prior offending measure nor the time-varying characteristics are significant, there is a persistent heterogeneity effect for this sample. I turn now to the results of such tests.

Substantial prior research has supported the population heterogeneity position. Using the Cambridge Study in Delinquent Development of 411 working class London

males from ages 10-32 by David Farrington and Donald West, Nagin and Farrington (1992a) found that an IQ in the lower quartile of the distribution, being daring, having bad parents, and having criminal parents all significantly increased the likelihood of later offending. Offending in the time period immediately prior to the one in which the data collection occurred was statistically significant. Nagin and Farrington (1992a) attributed this finding to unobserved criminal propensity (or heterogeneity) which caused the estimate of prior participation to be artificially inflated. Nagin and Farrington (1992b) used the same data to analyze the negative association between age of onset and later criminal offending within a population heterogeneity/state dependence framework. They found that a younger age of onset did not cause the persistence of later offending but that both phenomena were accounted for by unmeasured heterogeneity (Nagin and Farrington, 1992b). They also found that low IQ, criminal parents, separation from parents and a daring personality all significantly increased the likelihood of persistent offending which led them to conclude that later offending was explained by persistent heterogeneity (Nagin and Farrington, 1992b). Nagin and Land (1993) garnered further support for the population heterogeneity approach with their finding that such characteristics as low IQ scores, familial neglect and parental criminality all increased the likelihood of later criminality. Paternoster, Brame and Farrington (2001) also used the Cambridge data to assess the association between adolescent and adult convictions in a population heterogeneity/state dependence perspective. They concluded that once adolescent convictions were taken into account, any changes in the likelihood of adult conviction were due only to random chance and not the effects of life events contemporaneous to the adult offending (Paternoster, Brame and Farrington, 2001). This

indicates that both adolescent and adult offending were determined at an earlier age by a time-stable characteristic. It is interesting to note that Paternoster, Brame and Farrington (2001) tested this question using several other types of models and discovered that both state dependence and population heterogeneity were alternately supported depending on the type of model used. The evidence in support of population heterogeneity appears to be imposing. However, all of these studies were based on one sample of offenders. Perhaps these offenders were atypical and different results would be obtained in a broader sample. These studies support the notion that time-stable characteristics influence the likelihood of prior and future criminality.

The influence of prior criminality on future offending through time-varying characteristics has also been supported. Nagin and Paternoster (1991) administered a self-report questionnaire to over 1100 high-school students from a southeastern city. They found support for the notion that prior criminality influenced time-varying characteristics through informal sanctions, peer sanctions, peer behavior and the perceived certainty of punishment (Nagin and Paternoster, 1991). These factors, in turn, influenced the probability of later criminal offending (Nagin and Paternoster, 1991). Bushway, Brame and Paternoster (1999) estimated the effects of prior offending on later offending using the 1958 Philadelphia birth cohort of 13,160 males. After using several different statistical models to account for the influence of time-stable differences between persons, they concluded that prior offending affected the likelihood that later offending would occur through time-varying characteristics (Bushway, Brame and Paternoster, 1999).

Nagin and Paternoster (2000) reconciled this debate by delineating the conditions under which support is more likely to accumulate on either side. Studies with student samples and self-reported delinquency outcomes (like Nagin and Paternoster, 1991) were more likely to find statistical significance in the state dependence approach (Nagin and Paternoster, 2000). Research designs that included high risk samples and whose outcomes were measured using officially recorded data (like Nagin and Land, 1993) were more likely to support the population heterogeneity framework (Nagin and Paternoster, 2000). These findings led Nagin and Paternoster (2000) to conclude that “[j]ust as a pure population heterogeneity theory cannot be squared with the fact that within-individual changes in life circumstances leads to changes in criminal conduct, so a pure state dependence theory cannot be reconciled with the fact that there are important individual differences in criminal propensity that reverberate throughout life. A complete theory of criminal offending would appear to require both processes” (p.137-8).

Applying the population heterogeneity approach to the current research, both violence in a nonsexual victim-involved offense and violence in a rape offense are caused by individual, time-stable characteristics that exist independent of any criminal or conventional activities in which an offender might engage. Using the state dependence framework, physical violence during a nonsexual victim-involved offense which caused pain or injury to the victim increases the likelihood of violence in a rape offense by depriving the individual of the opportunities for conventional employment, marriage or other prospects. The mixed model asserts that although there may be individual traits that are stable through time that increase the likelihood of physical violence in a rape

offense, the probability of physical violence in a rape offense can and will change according to the criminality or conventionality of one's activities.

Literature Review: Rapists who Use Physical Violence in a Rape Offense

Little research has been conducted on the differences between rapists based on the gravity of their offenses. Offenders who inflict physical violence upon their victims at any time during the offense beyond what is necessary to secure compliance may constitute a distinct group of rapists. Barbaree *et al.* (1994) and Prentky *et al.* (1989) concluded that a group of rapists could be identified based on the degree of force and the level of victim injury; thus, more violent rapists appear to constitute a distinct group.

I hypothesize that time-stable characteristics, such as childhood sexual assault victimization, absence of the offenders' parents, the age of onset, the number of family relocations, the level of stability in the family of origin, a violent tendency (as measured by childhood cruelty to animals, adult assault and battery offenses and owning a weapon in adulthood), the level of educational attainment, and the degree of planning an offender evidenced in the majority of his offenses (offense impulsivity) will significantly predict the use of severe physical violence relative to no violence and relative to moderate violence in a rape offense. My first hypothesis is grounded in the notion that time-stable (population heterogeneity) concepts should be validated when looking at severe violence relative to no violence in a rape offense and relative to moderate violence. I suspect that offenders who commit severe violence are different on individual characteristics from those who do not, and it is these individual differences that make severe violence more likely to occur relative to no violence and relative to moderate violence.

I also hypothesize that time-varying characteristics, including violence in a nonsexual victim-involved offense resulting in pain or injury to the victim, the level of heterosexual pair bonding, the number of marriages for each offender, the level of adult peer interaction, the stability of an offender's employment, the number of serious sexual offenses, and the number of juvenile and adult nonsexual victim-involved offenses will predict the use of moderate physical violence in a rape offense relative to no violence in a rape offense. My second hypothesis suggests that moderate violence should be predicted by time-varying (state dependence) characteristics. I suspect that offenders who commit moderate violence in a rape offense have different life situations (i.e., circumstances that are temporally closer to the offending, such as marriage and employment) rather than differential individual propensity towards crime.

Prior Research on Time-Stable Characteristics

Developmental factors. Developmental variables may have predictive validity in assessing the probability of physical violence in a rape offense. The following developmental factors are all time-stable characteristics, reflecting a propensity to engage in physical violence in a rape offense regardless of the influence of violence in a nonsexual victim-involved offense. Having been sexually assaulted in childhood is perceived to influence the level of violence in which an offender may engage by stalling his emotional/psychological development. Grubin (1994) found that childhood victimization did not significantly distinguish between the sexual murderers and rapists in his sample.

Grubin's (1994) sample consisted of 142 offenders, 21 of whom were sexual murderers while 121 were rapists. Because of the extremely small number of sexual

murderers, the statistical power of his analyses was reduced and his ability to detect statistically significant relationships among variables was compromised. Also, Grubin's (1994) rapist group was not assessed on the level of violence within their own offenses; they were simply selected for not having murdered any of their victims. In attempting to capture offenders who used high violence against their victims, Grubin (1994) only included sexual murderers, a small subset of those rapists who used physical violence in rape offenses. Grubin's study (1994) is only generalizable to other rapists and sexual murderers, which provides a limited picture of violence in rape offenses. The current study will provide a more complete picture of violence in rape offenses. Finally, Grubin (1994) relied on the offenders' willingness to self-report their developmental characteristics, the accuracy of which was not validated. The present study seeks to test the influence of a history of childhood sexual assault on the likelihood of violence within a rape offense with a larger, more statistically powerful sample, with a comparison group that has been assessed on its level of physical violence within a rape (none, moderate or severe), and with the use of institutional files to double-check the accuracy of self-reported information.

Parental absence may be an important predictor of the use of physical violence in a rape offense. It may influence victim injury insofar as criminality may be a learned behavior (Akers, 1998) or it may simply hinder proper socialization, both of which reflect time-stable characteristics. Additionally, the absence of one's parents would decrease the probability that an offender was attached to his parents and could then increase later criminality (Hirschi, 2002). In addition, lack of family stability, another measure which is used in this study, could decrease the level of attachment to parents, the key

delinquency preventor in Hirschi's (2002) social bond theory. Curiously, Grubin (1994) found that offenders whose fathers were present and rated as stable (comprised of absence, criminality, unemployment, alcohol abuse, or health problems) to age 10 were significantly more likely to be sexual murderers than rapists. Maternal presence or stability to age 10 did not significantly affect the likelihood that an offender was a sexual murderer (Grubin, 1994). Again, however, the Grubin study (1994) relied solely on self-report from the offenders. Also, the study was underpowered to detect statistically significant relationships.

Age of onset. The age of onset of serious sexual offending has been considered a powerful discriminator between those offenders who offend frequently and those who do not, but few studies have assessed whether the age of onset of sexual offending can differentiate between offenders who use physical violence in their rape offenses and those who do not. Age of onset is a time-stable characteristic and a younger age of onset would be expected to increase the likelihood of physical violence in a rape offense, because it would be an indicator of an underlying criminal propensity. Gutierrez-Lobos *et al.* (2001) tested whether offenders who were highly violent with their victims and offenders who had used only a low level of violence against their victims differed on age of onset. No significant difference was found on age of onset between the high and low-violence groups of sex offenders (Gutierrez-Lobos *et al.*, 2001).

The Gutierrez-Lobos *et al.* (2001) sample was small (n=62) and most likely lacked sufficient statistical power to detect statistically significant relationships when it was split between the high (n=36) and low violence (n=26) groups. The high violence group was defined so broadly as to include "physically aggressive sexual assault"

(Gutierrez-Lobos *et al.*, 2001: 73) and sexual murder in the same category. The low violence category included those offenders who had used no violence, those who had used verbal pressure and those offenses where the offender could not complete the attack, because the victim resisted too forcefully. Also, Gutierrez-Lobos *et al.* (2001) used a mixed sample of rapists and child molesters, two groups which are generally considered to differ widely in their use of violence (i.e. child molesters infrequently use physical violence in an offense). On further inspection of her high and low violence groups, the majority of the high violence offenders were rapists of adult women while two-thirds of the low violence group were child molesters. In essence, Gutierrez-Lobos *et al.* (2001) may have actually been testing the differences between child molesters and rapists. Finally, the offenders were assessed only on the basis of the violence used in their current offense, an arbitrary cutoff that likely fails to capture the full range of offenders who used physical violence in their sexual offenses. The current study has a larger sample of rapists which will provide improved statistical power. Also, the current study has adopted a more holistic approach by using the highest level of physical violence across all rape offenses to capture all offenders who have used physical violence.

Childhood and adulthood indicators of a violent tendency. The effect of childhood and adulthood indicators of a violent tendency on physical violence in a rape offense has been understudied in criminology. A violent tendency across the life-course can be considered evidence of a time-stable characteristic that reflects an underlying personality construct. If offenders tend to behave in ways that indicate a violent tendency, such as exhibiting cruelty to animals, assault and battery offenses, and owning a weapon (the three measures which are used in the current study), a heterogeneity

perspective would predict that these behaviors would increase the chances that they would engage in physical violence in a rape offense. However, Grubin (1994) found no significant effect for those with aggressive pastimes, such as martial arts or hunting, a measure the current study will not test. However, it is unclear whether martial arts or hunting accurately measure a violent tendency. The current study does not assess the effects of aggressive pastimes on the likelihood of engaging in violence, but it does assess the influences of childhood cruelty to animals, assault and battery offenses, and weapon ownership on the likelihood of violence.

Educational attainment. No research of which I am aware has analyzed the relationship between educational attainment and the likelihood that an offender used physical violence in a rape offense. Educational attainment could be a time-varying characteristic that could be cut short if an offender had committed physical violence in a nonsexual victim-involved offense, particularly if he had been officially sanctioned for such an offense. Alternately, it could be considered time-stable depending on when the violence (in a rape offense or in a nonsexual victim-involved offense) occurred. Since it cannot be determined when the violence in a nonsexual victim-involved offense occurred and the average level of education for the men in the sample is ninth grade, educational attainment is treated here as a time-stable characteristic since these offenders are unlikely to get more education. Low educational attainment could influence the probability of physical violence in a rape offense by increasing the amount of time available to the rapist to offend while high educational attainment would presumably bond an offender more tightly to society (Hirschi, 2002) and decrease his probability of violent offending

in a rape offense. Educational attainment will be analyzed for its predictive utility on the level of physical violence an offender used in a rape offense.

Offense impulsivity. Offense impulsivity is a time-stable characteristic which reflects the degree of impulsivity observed in the majority of an offender's rapes. The personality construct underlying offense impulsivity is an individual's level of impulsivity and is expressed through an imperfect proxy measure, impulsive actions within offenses (Prentky and Knight, 1986). Where an offender has thoughtfully planned his offense in detail, he may be better able to control the amount and degree of violence he uses. However, if the offender engages in a crime without a plan and with only a vague desire to offend, he may be unable to control the level of violence or he may use more physical violence than is necessary to secure victim compliance. Although prior research has not examined the effects of offense impulsivity, the current research examines its influence on the likelihood of physical violence in a rape offense.

Prior Research on Time-Varying Characteristics

Violence in a non-sexual offense. Little has been done to examine any association between whether an offender committed violence in a non-sexual victim-involved offense and the level of physical violence in a rape offense. However, it is imperative that this proxy measure be included in the current study in order to examine the influence of state dependence on the likelihood of violence in a rape offense while controlling for population heterogeneity. If the effect of violence in a nonsexual victim-involved offense is overshadowed by time-stable characteristics, this would support the population heterogeneity position. If the use of violence in a nonsexual victim-involved offense

differentiates between rapists who used physical violence severely, moderately and those who did not, then the state dependence approach would be validated.

Social support. Few studies have examined the role that social supports play in the probability of an offender having used physical violence in a rape offense. Social supports are considered time-varying characteristics that could be influenced by violence in a nonsexual victim-involved offense. For instance, this could occur if the violence in a nonsexual victim-involved offense decreased the level of peer interactions an offender had (i.e., cutting him off from conventional others) (Hirschi, 2002). Gutierrez-Lobos *et al.* (2001) found that offenders who are highly violent with their victims did not differ significantly in the size of their social networks from offenders who inflicted little or no violence upon their victims. However, those offenders who were highly violent towards their victims perceived the social support offered by their male friends at the time of the offense as significantly weaker than the low violent offenders (Gutierrez-Lobos *et al.*, 2001). The perceived lack of male social support specifically involved the opportunity to talk about emotions and problems and to depend on another person (Gutierrez-Lobos *et al.*, 2001). This perceived lack of male social support at the time of the offense for the highly violent offenders held true even after the number and length of prior incarcerations and age and sex of the victim were controlled (Gutierrez-Lobos *et al.*, 2001).

Unfortunately, the present study cannot specifically assess the sample on the level of gender specific friendly support or on the emotional content of or the degree of satisfaction gleaned from those interactions. The present study includes a measure of an offender's level of peer interaction in adulthood (but without reference to the criminality of those peers). If attachment to (conventional) others can decrease the likelihood of later

delinquency, these factors would be expected to decrease the likelihood of physical violence in a rape offense (Hirschi, 2002).

Similarly, marriage and heterosexual pair bonding are predicted to decrease the level of physical violence in a rape offense by providing conventional outlets to express sexuality and emotionality.¹ The state dependent framework argues that the use of violence in a nonsexual victim-involved offense is expected to be associated with a reduced probability that an offender has married or pair bonded. This reduced pair bonding could increase the likelihood that an offender used physical violence in a rape offense. Prentky and Knight (1991) have suggested that the ability to engage in heterosexual pair bonding may be an important discriminator between rapists. Also, marriage has been validated as a strong predictor of desistance from criminality (Laub and Sampson, 2003). The current research will assess the importance of marriage and heterosexual pair bonding in predicting the degree of physical violence displayed in a rape offense.

Employment stability. Little research has focused on the stability of an offender's employment history in predicting his use of physical violence in a rape offense. However, as Laub and Sampson (2003) suggested and validated, being employed at a good job was one of the better predictors of desistance from crime. Conversely, a history of unstable employment is a time-varying characteristic which could be influenced by the use of violence in a nonsexual victim-involved offense. A history of unstable employment will be tested for its utility in the prediction of violence within a rape offense.

¹ Homosexual pair bonding is not used in the present study, because there were too few offenders who were willing to self-report adolescent or adulthood homosexuality.

Criminal history. Criminal history is considered time-varying because it changes and theoretically could be increased or decreased by other criminal or conventional activities. Grubin (1994) found that sex murderers had significantly more prior convictions for rape than rapists. However, prior violence convictions and prior non-rape sex offenses failed to distinguish between these types of offenders (Grubin, 1994). Again, though the Grubin (1994) study was underpowered and was less able to detect statistically significant relationships than if it had a larger sample. In addition, by relying on conviction data, Grubin (1994) is most likely seriously underestimating the true offending rate, regardless of the type of offense.

Prior Research on Control Variables

Situational factors. Situational variables have demonstrated a fair amount of empirical ability to predict the level of physical violence in a rape offense. To test the effects of population heterogeneity and state dependence on the use of physical violence in a rape offense, it is necessary to control for as many factors which exert their own independent influence on the likelihood of an offender to have engaged in physical violence in a rape offense.

The relationship between victim resistance and level of victim injury must be controlled. Physical resistance against the offender has been shown to increase the amount of victim injury (Ruback and Ivie, 1988; Ullman and Knight, 1991; Abbey *et al.*, 2002; Block and Skogan, 1986). For some of these studies, victim resistance was one of the single best predictors of victim injury (Ruback and Ivie, 1988; Abbey *et al.*, 2002). However, victim resistance has also been shown to be statistically insignificant in predicting victim injury (Ullman, Karabatsos, and Koss, 1999; Quinsey and Upfold,

1985). Additionally, Tark and Kleck (2004) concluded that injury was unlikely to happen after a victim resisted a sexual assault, assault or robbery. Tark and Kleck (2004) clarified that “[t]his does not mean there is no risk to victim resistance, but the chances of resistance provoking offenders to inflict injury is low by any reasonable standard (2.8 percent of crimes with [self-protection]) and the risk of serious injury is close to zero (0.7 percent)” (p. 877). Further complicating the issue, Ruback and Ivie (1988), Ullman and Knight (1991), Tark and Kleck (2004) and Quinsey and Upfold (1985) have commented that the temporal ordering of the victim’s physical resistance and physical injury is unclear. It is possible that victim injury preceded the physical resistance by the victim or that the victim physically resisted the offender’s initial verbal attack and he responded with violence. In fact, Ullman and Knight (1991) attempted to find the correct pathway and were unable to, because they lacked a sufficient number of cases. Quinsey and Upfold (1986) had previously tested this notion and discovered that victim resistance which preceded any physical injury did not significantly predict the level of injury in the offense. The current study will control for victim resistance and whether the initial approach to the victim used blunt force.

Research Questions

I hypothesize that time-stable characteristics, such as childhood sexual assault victimization, absence of the offenders’ parents, the age of onset, the number of family relocations, the level of stability in the family of origin, a violent tendency (as measured by childhood cruelty to animals, adult assault and battery offenses and owning a weapon in adulthood), the level of educational attainment, and the degree of planning an offender evidenced in the majority of his offenses (offense impulsivity) will significantly predict

the use of severe physical violence relative to no violence and relative to moderate violence in a rape offense. My first hypothesis is grounded in the notion that time-stable (population heterogeneity) concepts should be validated when looking at severe violence relative to no violence in a rape offense and relative to moderate violence. I suspect that offenders who commit severe violence are different on individual characteristics from those who do not, and it is these individual differences that make severe violence more likely to occur relative to no violence and relative to moderate violence. These hypothesis tests are all two-tailed tests because of either a lack of prior research or conflicting prior research which have failed to fully inform any expectations of directionality.

I also hypothesize that time-varying characteristics, including violence in a nonsexual victim-involved offense resulting in pain or injury to the victim, the level of heterosexual pair bonding, the number of marriages for each offender, the level of adult peer interaction, the stability of an offender's employment, the number of serious sexual offenses, and the number of juvenile and adult nonsexual victim-involved offenses will predict the use of moderate physical violence in a rape offense relative to no violence in a rape offense. My second hypothesis suggests that moderate violence should be predicted by time-varying (state dependence) characteristics. I suspect that offenders who commit moderate violence in a rape offense have different life situations (i.e., circumstances that are temporally closer to the offending, such as marriage and employment) rather than differential individual propensity towards crime. The hypothesis tests are all two-tailed tests due to a dearth of or conflicting prior research that is unable to fully inform expectations for directionality.

The hypothesized relationships for the prediction of the level of physical violence in a rape offense will remain stable while controlling for age, race, the length of time an offender was incarcerated in an adult penal institution, and the age at which an offender was first imprisoned. Situationally, whether a victim violently, physically resisted in any offense is controlled for along with whether the offender initially approached a victim using blunt force in any offense. These situational controls are important, because the level of victim resistance is an important predictor of the level of violence an offender used in rape offenses. Since I cannot determine whether the victim resistance occurred before or after the offender's physical violence against the victim, I simply control for the effects of the level of victim resistance and for the offender's initial approach to the victim using blunt force across all offenses.

Chapter II: Methods

Sample

The sample is composed of 222 rapists who were committed to the Massachusetts Treatment Center for Sexually Dangerous Persons between 1958 and 1981. All of the offenders had been classified as Sexually Dangerous Persons. The category of Sexually Dangerous Person is a legal status that allows authorities to civilly commit the offender for an indeterminate time period, ranging from one day to life imprisonment. Thus, these are serious offenders, and the ultimate results of this study are only generalizable to other rapists who fit the criteria of a sexually dangerous person.²

Table 1 is a frequency table of the demographics of the sample. All of the offenders are male. The average age of the offenders is 42. Fourteen percent of the offenders are non-white while 86 percent were white. Fifty-six percent of the offenders had never married prior to admission to the Massachusetts Treatment Center. On average, the men had completed no higher than the ninth grade and scored 1.4 of 5 possible points on a scale measuring occupational development, where a score of 0 represents unskilled labor, and a score of 5 represents a professional career. Only 24.3% of offenders were steadily employed before being admitted to the Massachusetts

² Under Massachusetts General Law 123A Section 1: [A] “‘Sexually dangerous person’ [is] any person who has been (i) convicted of or adjudicated as a delinquent juvenile or youthful offender by reason of a sexual offense and who suffers from a mental abnormality or personality disorder which makes the person likely to engage in sexual offenses if not confined to a secure facility; (ii) charged with a sexual offense and was determined to be incompetent to stand trial and who suffers from a mental abnormality or personality disorder which makes such person likely to engage in sexual offenses if not confined to a secure facility; or (iii) previously adjudicated as such by a court of the commonwealth and whose misconduct in sexual matters indicates a general lack of power to control his sexual impulses, as evidenced by repetitive or compulsive sexual misconduct by either violence against any victim, or aggression against any victim under the age of 16 years, and who, as a result, is likely to attack or otherwise inflict injury on such victims because of his uncontrolled or uncontrollable desires” (Massachusetts General Law 123A Section 1).

Treatment Center. The average number of serious sexual offenses committed by the offenders is approximately 3.

Table 1: Frequency Table of Sample Demographics

	Frequency	Percent
<u>Age at the End of the Original Study</u>		
25 and younger	4	1.8%
26-34	49	22.2%
35-44	98	44.1%
45-54	52	23.4%
55 and older	19	8.5%
<u>Race</u>		
White	192	86.5%
Non-White	30	13.5%
<u>Number of Marriages Prior to Arrival at MTC</u>		
Never Married	125	56.3%
1	80	36.0%
2	12	5.4%
3+	5	2.3%
<u>Highest Educational Attainment</u>		
Less than High School or Some High School	103	46.4%
High School Degree	60	27.0%
Some College	59	26.6%
<u>Highest Achieved Skill Level</u>		
Unskilled	56	25.2%
Semiskilled	92	41.4%
Clerical	13	5.9%
Skilled	41	18.5%
Low Management/Suprvsr	14	6.3%
High Management; Other Professional Position	3	1.4%
<u>Employment Stability</u>		
Unemployed or Sporadically Employed	78	35.1%
Usually Employed	90	40.5%
Steadily Employed or Steadily Employed & Progressing	54	24.3%

<u>Number of Serious Sexual Offenses</u>		
1	33	14.9%
2	38	17.1%
3	43	19.3%
4	30	13.5%
5+	78	35.1%

Description of Variables

The original study contained 1500 variables which were coded from clinical interviews, diagnostic assessments, institutional, school, employment, police, court, parole, probation, social work, military, medical, and psychiatric records. This coding was performed by three staff members of the original researchers, Drs. Robert Prentky and Ray Knight. In addition, offender-based scales were created by the original researchers on such dimensions as the most frequent level of impulsivity an offender displayed over the totality of his offenses and family stability. Each offender was scored on these scales using the entirety of his records, to assess the presence and degree of each behavior or symptom in the offender’s life.

I constructed the dependent variable in the following way. The dependent variable asks: What is the highest level of physical violence an offender used in a rape offense? The level of violence was measured in a scale comprised of the following items, coded from the offender’s institutional files or self-report and police reports: victim restraint or presence of a weapon, the victim seeking medical assistance, using a weapon physically or verbally to threaten a victim or kicking the victim, stabbing, severe physical injury from a weapon other than a knife, broken bones, and death. Information was available on the level of violence each offender used in up to ten offenses. Most offenders had 4 or fewer offenses. Thus, each of the offenders was measured on the

above constructs for as many offenses as he perpetrated, and the most severe physical violence in which he had engaged was used.³

The dependent variable in the current study is the highest level of physical violence an offender used in a rape offense. The first level is if the offender used no physical violence. The second level is that he used moderate physical violence, which includes victim restraint, presence of a weapon, the victim seeking medical assistance, the verbal or physical use of a weapon to threaten a victim, or kicking a victim.⁴ The third level is that he used severe physical violence in an offense, comprising stabbing, severe physical injury from a weapon other than a knife, broken bones, or death.

Table 2 provides a frequency distribution of the dependent variable. The majority of offenders (46.4%) committed moderate physical violence in a rape offense.

Approximately 34% of offenders perpetrated severe physical violence. The fewest proportion of offenders (19.8%) abstained from physical violence in a rape offense.

³ In constructing the dependent variable, the level of physical violence used in a rape offense, I tried several other measures before settling on using the most severe violence in which an offender engaged. Some of the discarded measures included an average level of violence for each offender, a count of the number of times an offender engaged in each type of violence, and the level of violence he used in his first offense. Ultimately, the highest level of violence an offender used was adopted, because it made the most conceptual sense.

⁴ The presence of a weapon or the use of a weapon is included as moderate violence because it constitutes violence in and of itself. The victim seeking medical assistance is coded as moderate violence as a catch-all for injuries inflicted by the offender from punching, beating, or other activities not otherwise included in the dependent variable. Since rape is a highly underreported crime (even to hospitals), this measure is intended to capture any violence that required medical attention that was not explicitly included in the dependent variable.

Table 2: Frequency Distribution of the Dependent Variable: Level of Physical Violence in a Rape Offense

Level of Physical Violence in a Rape Offense	Frequency	Percent
No physical violence	44	19.8%
Moderate physical violence	103	46.4%
Severe physical violence	75	33.8%

Reliability of measures. Since the current study is derived from data already tested by the original researchers, the reliability of these measures has been previously published elsewhere (Prentky and Knight, 1987). The familial variables have interrater reliabilities ranging from .81 to .95 with an average of .90. Developmental variables have interrater reliabilities of .88 to .96, averaging .93. Interrater reliabilities range from .71 to .96 with a mean of .82 for the educational/occupational variables. The social supports achieve interrater reliabilities between .64 and .94 with an average of .83. According to Prentky and Knight (1987), the measures have achieved good interrater reliability as nearly all were above the threshold of 0.70. The measures that are used in this study have achieved a respectable level of interrater and inter-item reliability.

Description of the Analysis

The Multinomial Logistic Regression Model

Since the level of physical violence used by the offender in a rape offense is measured using a nominal category outcome, multinomial logistic regression is used to assess the effects of the independent variables. I compare those who used moderate physical violence to those who used none, and those who used severe physical violence

in a rape offense with those who used moderate physical violence and also to those who did not use physical violence. The multinomial model is expressed in Equation 1.

$$P(Y = m) = \frac{\exp(\beta_m TimeStable + \beta_m TimeVarying + \beta_m Controls)}{\sum_{m=0}^2 \exp(\beta_m TimeStable + \beta_m TimeVarying + \beta_m Controls)} \quad (1)$$

The time-stable characteristics include whether the offender was a victim of childhood sexual assault, whether the offender's father or mother left before the age of 15, whether the age of onset of serious sexual offending was before or after 16, the number of family relocations, family instability, the indicators of a violent tendency, the level of educational attainment, and offense impulsivity. The time-varying characteristics include whether the offender committed violence in a nonsexual victim-involved offense, the level of heterosexual pair bonding, the number of marriages, the level of adult peer interaction, the stability of the offender's work history, the number of serious sexual offenses, and the number of juvenile and adult nonsexual victim-involved offenses. The controls include age, race, age at first incarceration in an adult penal institution, the amount of time spent in an adult penal institution, whether the offender experienced physical resistance from the victim, and whether the offender approached the victim with blunt force.

Relative Risk Ratios

When using a nonlinear model like multinomial logistic regression, interpretation of the coefficients is complex and difficult to explain, because a unit change in x_k reflects a change in the log of the relative risks of the dependent variable (Long, 1997). By converting the coefficients to relative risk ratios, the interpretations are much simpler. With relative risk ratios, as x_k changes by one unit, the relative risk ratio compares the

relative risk before the factor change in x_k and afterwards while all other variables were held constant (Long and Freese, 1997). Equation 2 presents the equation for the relative risk ratios for this model.

$$\frac{\Omega_{m|n}(\mathbf{x}, x_k + 1)}{\Omega_{m|n}(\mathbf{x}, x_k)} = e^{\beta_{k,m|n1}} \quad (2)$$

A relative risk ratio can be interpreted as the relative risk of having one outcome relative to another increase by the factor change for each group, holding all other variables constant. A relative risk ratio of one means that each outcome relative to the base category is equally likely.

Coding of the Time-Stable Independent Variables

The time-stable characteristics were coded by Drs. Prentky and Knight from clinical interviews, diagnostic assessments, institutional, school, employment, police, court, parole, probation, social work, military, medical and psychiatric records.

Developmental variables. Childhood sexual assault is a dichotomous, time-stable variable which measures whether the victim was ever sexually assaulted or if the offender as a child (11 or younger) or a minor (12-16) had a sexual experience with a partner who was a minor or an adult (17 or older), respectively. The age of separation from an offender's parents are two dichotomous, time-stable measures (one for each of the parents) which reflects whether the offender's father or mother left the child or whether the child was separated from either parent for an extended time period before the offender reached age 15. The age of onset of serious sexual offending is a time-stable, dichotomous variable. It reflects whether the onset was before or after age 16. (Serious sexual offenses are any sexual offenses which involved physical contact with a victim.)

The number of family relocations is coded as a continuous, time-stable variable and is a count of the number of times the offender's family of origin moved while he was living with them.

Family instability. Family instability is a time-stable variable in which the stability of the offender's family of origin was evaluated and coded as a series of dichotomous variables. Family stability was judged based on: "size of family, number of relocations, number of transitions due to family separations, divorce, death, other losses or additions of family members, unemployment, alcoholism, fighting or disagreements, illness or psychiatric problems" (Prentky and Knight, 1994: 84). The first variable is a secure and stable family in which the offender's family had no problems during development (the reference group in the model) (Prentky and Knight, 1994). The second is mild chaos in the family with only occasional problems (Prentky and Knight, 1994). The third is moderate chaos, such as a problematic, large family or the death of a family member during the offender's development (Prentky and Knight, 1994). The fourth is severe chaos, such as a single parent with changing mates or abusive family members (Prentky and Knight, 1994).

Childhood and adulthood indicators of a violent tendency. Population heterogeneity asserts that a violent tendency is a time-stable characteristic, because the measures are proxy measures of an underlying, stable personality construct of a violent tendency. A violent tendency is measured by three dichotomous indicator variables. Childhood cruelty to animals (under the age of 16), adult assault and battery offenses and owning a weapon as an adult all measure the absence or presence of violent tendencies displayed by an offender in childhood and adulthood.

Educational attainment. Educational attainment is considered a time-stable characteristic in this sample, because the average level of education was only ninth grade. For many of these offenders, it is likely that their schooling ended before their serious sexual offending began. This variable measures the highest level of schooling an offender obtained. It is measured as a series of dichotomous variables. The first variable is whether the offender attained elementary or some high school (the reference group in the model). The second is an offender who is a high school graduate or graduate equivalency degree holder. The third describes an offender who achieved some college, junior college or trade school.

Offense impulsivity. The population heterogeneity framework asserts that offense impulsivity is time-stable, because it is a proxy measure of an underlying stable personality construct of impulsivity. This measure is coded as a three-level nominal variable which measures the most frequent level of impulsivity displayed by the offender for up to ten possible serious sexual offenses. The first level is when an offender planned an offense in detail with a particular victim and location or when an offender partially planned an offense before encountering a potential victim, such as an offender driving through an area searching for victims (Prentky and Knight, 1994). The second is when an offender hastily plans an offense after seeing a particular victim, such as where and when to offend (Prentky and Knight, 1994). The third level is when an offender has no plan for the offense and relies on opportunity alone, such during the course of a burglary (Prentky and Knight, 1994).

Coding of the Time-Varying Independent Variables

The time-varying characteristics were coded by Drs. Prentky and Knight from clinical interviews, diagnostic assessments, institutional, school, employment, police, court, parole, probation, social work, military, medical and psychiatric records.

Violence in a nonsexual offense. Whether the offender used violence in a nonsexual victim-involved offense is a time-varying, dichotomous variable. It is also the proxy measure for state dependence which means that if it is statistically significant in the multinomial logistic regression, the state dependence perspective is supported. It includes violence committed by the offender in any juvenile or adult nonsexual victim-involved offense. It does not include when the offense occurred. Thus, the temporal ordering of the violence in a nonsexual offense and the violence in a rape offense cannot be established. Ultimately, this study does not seek to prove causality but to demonstrate whether there is an association between violence in a nonsexual offense and violence in a rape offense.

Social supports. State dependence argues that heterosexual pair bonding is a time-varying measure which is capable of being influenced by whether an offender committed violence in a nonsexual victim-involved offense. Such violence could, for example, decrease his social bonding to society. Heterosexual pair bonding measures the degree to which an offender has romantically committed himself to a heterosexual partner at the time of the offense. It is coded as a series of dichotomous variables. The first variable is whether an offender is single at the time of the last offense (the reference group for the model). The second is whether an offender is dating, engaged or cohabitating at the time of the offense. The third is whether an offender is divorced or separated from his spouse

at the time of the offense. The fourth is whether an offender is married, married with children or widowed at the time of the offense.

State dependence argues that the number of times an offender has been married is time-varying, because it can and likely will change over time, particularly if an offender has been officially sanctioned for a crime. The number of marriages is coded as a dichotomous variable with 0 or 1, 2 or more marriages. The degree to which an offender interacts with his peers is a time-varying characteristic. It is coded as a dichotomous variable where the first level describes an offender who is completely withdrawn from peers or only minimally involved with his peers. The second describes an offender who has some friends or is socially active.

Employment stability. State dependence asserts that employment is a time-varying construct. Whether an offender committed violence in a nonsexual victim-involved offense, the proxy measure for state dependence, could decrease the opportunities an offender has for conventional employment. An unstable job history was measured as a dichotomous variable. An unstable employment history is defined by Prentky and Knight *et al.* (1994) as three or more job changes in five years, six months or more of unemployment in five years, three days absent from work in a month or leaving several jobs without new jobs lined up. Employment attainment is measured from age 17 to the time of an offender's admission to the Massachusetts Treatment Center, excluding any time during which he was incarcerated, and is a series of dichotomous variables. The first variable is unemployed or only sporadically employed (the reference group in the model). The second is usually employed, which meant that an offender had occasional extended periods of unemployment (Prentky and Knight, 1994). The third is steadily

employed or steadily employed with progress, where an offender was not unemployed for any significant period of time or was employed and making progress toward a better job or skill level (Prentky and Knight, 1994).

Criminal history. State dependence asserts that an offender's criminal history is time-varying, because it changes over time and can be influenced by whether an offender engaged in violence in a nonsexual victim-involved offense. The number of serious sexual offenses is a continuous variable and includes the number of juvenile and adult serious sexual offenses. It is defined as any sexual offense which involved physical contact with a victim. The number of juvenile nonsexual victim-involved offenses is a continuous variable and measures such crimes as assault and battery, robbery and murder. The number of adult nonsexual victim-involved offenses is also a continuous variable and captures the same types of crimes.

Coding of the Control Variables

Control variables. Age is measured as a continuous variable and is an offender's age at the end of the original study period. Race is a dichotomous variable, reflecting white (0) and non-white (1). An offender's age at his first incarceration in an adult penal institution is coded as a dichotomous variable and reflects whether the offender's first incarceration occurred before or after age 17. The amount of time an offender spent in an adult penal institution is coded as a dichotomous variable, with 1 defined as more than five years spent in an adult penal institution and 0 as less than 5 years. Victim resistance was coded as a dichotomous variable. If a victim physically resisted in any of the offenders' offenses by biting, scratching, punching, hitting or similar activities, victim resistance is coded as 1. Whether the offender initially approached the victim using force

is coded as a dichotomous variable, reflecting whether the offender physically attacked the victim immediately (rather than tricking the victim or any other non-physical approach). It was measured across the range of all possible offenses.

Summary Statistics for Selected Time-Stable Characteristics

Table 3 presents the means and standard deviations of the time-stable and time-varying characteristics in the model. The majority of offenders first engaged in serious sexual offending after age 16 ($\bar{x}=.887$). The average number of relocations by an offender's family of origin was approximately 2. For the three indicators of a violent tendency, the majority of offenders did not engage in childhood cruelty to animals ($\bar{x}=.176$). About half of the sample committed adult assault and battery offenses ($\bar{x}=.455$) or owned a weapon in adulthood ($\bar{x}=.518$). A minority of offenders attended some college or completed junior college or trade school ($\bar{x}=.266$). With regards to offense impulsivity, more offenders planned the offense before seeing a potential victim ($\bar{x}=.455$) while the least number of offenders perpetrated the offense without a plan ($\bar{x}=.153$).

Summary Statistics for Selected Time-Varying Characteristics

The means and standard deviations of the time-varying variables in the model are presented in Table 3. Slightly less than half of offenders engaged in violence in a nonsexual victim-involved offense ($\bar{x}=.423$). The average number of marriages was .437. The majority of offenders were characterized as having an unstable work history ($\bar{x}=.739$). The offenders committed an average of 3.37 serious sexual offenses.

Table 3: Summary Statistics for the Independent Variables

Variable	Mean	Standard Deviation
<u>Time-Stable Characteristics</u>		
Developmental Variables:		
Offender a Victim of Sexual Assault	.338	.474
Offender's Mother Leaving Child before Age 15	.266	.443
Offender's Father Leaving Child before Age 15	.505	.501
Age of Onset of Sex Offending after Age 16	.887	.317
# Family Relocations	2.018	1.551
Family Instability:		
Mildly Chaotic Family of Origin	.221	.416
Moderately Chaotic Family of Origin	.320	.467
Severely Chaotic Family of Origin	.351	.474
Violent Tendency:		
Childhood Cruelty to Animals	.176	.381
Adulthood Assault Offenses	.455	.499
Owns Weapon	.518	.501
Educational Attainment:		
HS Grad/GED	.270	.445
Some/Junior College/Trade School	.266	.443
Offense Impulsivity:		
Plan Before Seeing Victim	.455	.499
Plan After Seeing Victim	.392	.489
No Plan	.153	.361
<u>Time-Varying Characteristics</u>		
Violence in Nonsexual Victim-Involved Offense	.423	.495
Pair Bonding:		
Offender Dating/Engaged	.477	.501
Offender Divorced/Separated	.126	.333
Offender Married/Widowed	.234	.424
Number of Marriages	.437	.497
Adult Peer Interaction	.446	.498
Employment Attainment:		
Unstable Job History	.739	.440
Usually Employed	.338	.474
Steadily Employed	.243	.430
Criminal History:		
# Serious Sexual Offenses	3.369	1.476
# Juvenile Nonsexual Offenses	.189	.393

# Adult Nonsexual Offenses	.577	.802
Control Variables:		
Age	41.581	10.170
Non-White	.135	.343
Under Age 17 at First Incarceration	.207	.406
5 Years+ in an Adult Prison	.203	.403
Victim Resistance	.865	.343
Offender Initially Approaches Victim with Force	.694	.343

Chapter III: Results

Analysis

The analyses are discussed in the following way. The multinomial logistic regression model is presented. Then, the coefficients and the relative risk ratios for the independent variables are interpreted for each outcome relative to the reference category. Finally, selected predicted probabilities for key findings are summarized.

The first analysis estimates the effects of the time-stable, time-varying and control variables on the level of physical violence an offender used in a rape offense. The results of the analysis are in Table 4. The model is significant in predicting the level of physical violence in a rape offense ($\chi^2=204.85$, $p<.0000$). Thus, I reject the null hypothesis that none of the variables in the model predict the level of physical violence an offender used in a rape offense. A likelihood ratio χ^2 test assesses whether the outcomes can be combined into a logistic regression and whether the multinomial model's estimates are efficient. This test is also significant (no violence: $\chi^2=109.505$, $p<.000$; moderate violence: $\chi^2=91.695$, $p<.000$; severe violence: $\chi^2=127.724$, $p<.000$). The independent variables differentially affect the likelihood of each of the outcomes relative to the reference category. This test justifies the use of the multinomial logistic regression model.

In Table 4, the model coefficients and the relative risk ratios are presented for the comparisons between offenders who used moderate violence relative to no violence and those who used severe violence relative to no violence. Traditional statistical significance is reflected in a probability value less than .05 while nontraditional statistical significance is represented in a p-value less than .10. The comparison for offenders who

were severely violent relative to those who were moderately violent are presented in Table 4 as superscripts on the variable names, which describe whether there is a traditional statistically significant difference between the groups (a: $p < .05$) or if there is a nontraditional statistically significant difference between the groups (b: $p < .10$). All hypothesis tests in the model are two-tailed. The relative risk ratios are also presented in Table 4.

Table 4: Model to Predict the Level of Physical Violence in a Rape Offense

Variable	Moderate Violence relative to No Violence		Severe Violence relative to No Violence	
	Coef.	RRR	Coef.	RRR
Time-Stable Characteristics				
Developmental Variables:				
Offender a Victim of Sexual Assault ^a	-.949	.39	1.577	4.84
Offender's Mother Leaving Child before Age 15	-.398	.67	-.992	.37
Offender's Father Leaving Child before Age 15	.489	1.63	.532	1.70
Age of Onset of Sex Offending after Age 16 ^a	2.092*	8.10	4.970**	144.04
# Family Relocations	-.013	.99	.156	1.17
Family Instability:				
Mildly Chaotic Family of Origin ^a	1.682	5.38	-.082	.92
Moderately Chaotic Family of Origin ^a	1.471	4.35	-.528	.59
Severely Chaotic Family of Origin	1.577	4.84	.243	1.28
Violent Tendency:				
Childhood Cruelty to Animals	.454	1.58	.745	2.11
Adulthood Assault Offenses	2.700*	14.87	3.814**	45.32
Owns Weapon	2.214**	9.15	3.164**	23.68
Educational Attainment:				
HS Grad/GED ^b	-.031	.97	-1.146	.32
Some/Junior College/Trade School	1.718*	5.57	2.553**	12.84

Offense Impulsivity	1.077**	2.94	1.549**	4.71
<u>Time-Varying Characteristics</u>				
Violence in Nonsexual Victim-Involved Offense ^b	.998	2.71	3.091*	22.00
Pair Bonding:				
Offender Dating/Engaged ^a	.089	1.09	-1.829*	.16
Offender Divorced/Separated ^b	3.966**	52.79	1.487	4.42
Offender Married/Widowed ^a	.805	2.24	-1.904	.15
Number of Marriages ^a	-1.079	.34	1.234	3.43
Adult Peer Interaction	1.137	3.12	.773	2.17
Employment Attainment:				
Unstable Job History ^a	-2.598**	.07	-4.071**	.02
Usually Employed	-.617	.54	-1.019	.36
Steadily Employed	-.786	.46	-1.682	.18
Criminal History:				
# Serious Sexual Offenses ^b	.435*	1.54	.053	1.05
# Juvenile Nonsexual Offenses ^a	1.443	4.23	-.211	.81
# Adult Nonsexual Offenses ^b	-1.318*	.27	-2.220**	.11
Control Variables:				
Age	.037	1.04	.052	1.05
Non-White ^b	.061	1.06	1.544	4.68
Under Age 17 at First Incarceration	4.279**	72.17	4.319**	75.15
5 Years+ in an Adult Prison	-2.323**	.10	-.704	.49
Victim Resistance	-.514	.60	5.915**	370.51
Offender Initially Approaches Victim with Force	-2.168**	.11	-2.784**	.06
Model Fit χ^2 Test $\chi^2=204.85$ $p<.0000$ (n=222)				

**p<.05

*p<.10

a: p<.05 for severe violence relative to moderate violence

b: p<.10 for severe violence relative to moderate violence

Results

Of the 15 time-stable variables, 4 are statistically significant in any of the levels of the dependent variable and consistently support the population heterogeneity perspective. Four other time-stable variables are statistically significant in any of the levels of the dependent variable and consistently contradict the population heterogeneity framework. Of the 12 time-varying characteristics in the model, 3 of the variables are statistically significant for any of the levels of comparisons of the dependent variable and consistently support the state dependence perspective. Four other time-varying characteristics are statistically significant for any of the comparisons of the dependent variable and consistently contradict the state dependence framework. Two of the time-varying characteristics are statistically significant and alternately support or contradict the state dependence position depending upon which levels of the dependent variable are being compared (i.e. moderate violence relative to no violence or severe violence relative to moderate violence).

Time-Stable Characteristics

Developmental variables. Being a victim of childhood sexual assault significantly increases the likelihood that an offender committed severe violence relative to moderate violence ($p=.000$). Offenders who were victims of childhood sexual assault have 12.5 times greater relative risk of committing severe violence relative to moderate violence than offenders who were not victimized in childhood by sexual assault.

Age of onset. An older age of onset (above 16) significantly discriminates between those offenders who had used moderate physical violence and those who had used no physical violence in their rape offenses ($p=.05$). Offenders who began serious

sexual offending after age 16 have 8.1 times greater relative risk of engaging in moderate violence relative to no violence than offenders whose age of onset was before age 16. An older age of onset (above 16) significantly increases the likelihood that an offender had committed severe physical violence relative to no violence ($p=.001$). The relative risk increases by 144.0 times. Offenders whose age of onset was after age 16 were significantly more likely to have engaged in severe violence relative to moderate violence ($p=.009$) and have 17.8 times greater relative risk of having engaged in severe violence relative to no violence than offenders with a younger age of onset. These findings are contrary to the population heterogeneity position that an earlier age of onset reflects an underlying criminal propensity. These findings suggest that offenders who use moderate violence relative to no violence and severe violence relative to no violence and moderate violence may actually resemble nonsexual, violent offenders, who begin, peak and desist in the age-crime curve later in adolescence or even in young adulthood. Perhaps the causal processes of general violent offending are similar to the causal processes of violent rapists and this explains the later age of onset of sexual offending.

Family instability. Having a mildly chaotic family of origin relative to a secure family significantly decreases the likelihood of an offender having committed severe violence relative to moderate violence ($p=.049$) and decreases the relative risk of having committed severe violence relative to moderate violence by .17 times. Originating from a moderately chaotic family relative to a secure family significantly decreases the chance that an offender perpetrated severe violence relative to moderate violence ($p=.042$) and decreases the relative risk of engaging in severe violence relative to moderate violence by .14 times. These are intriguing findings and were unexpected. Perhaps offenders who

originated from chaotic families are more likely to be incarcerated for crimes for which an offender from a secure family would receive probation, and it is this reduced opportunity to offend that explains this finding.

Childhood and adulthood indicators of a violent tendency. Offenders who committed adulthood assault and battery offenses as adults are significantly more likely to have engaged in moderate violence relative to no violence ($p=.073$) with 14.9 times greater relative risk and are significantly more likely to have engaged in severe violence relative to no violence ($p=.024$) with 45.3 times greater relative risk. Offenders who owned a weapon as adults are significantly more likely to have committed moderate violence relative to no violence ($p=.009$) and have a greater relative risk of engaging in such violence by 9.15 times. They are also significantly more likely to have engaged in severe violence relative to no violence ($p=.001$) with 23.7 times larger relative risk than offenders who did not own a weapon. Committing assault and battery and owning a weapon in adulthood successfully predicts moderate and severe violence relative to no violence but can not predict severe violence relative to moderate violence.

Educational attainment. Offenders who graduated from high school or who obtained a graduate equivalency degree relative to offenders who completed elementary or some high school are significantly less likely to have engaged in severe violence relative to moderate violence ($p=.061$). They have .33 times smaller relative risk of having engaged in severe violence relative to moderate violence. On the other hand, offenders who completed some college, junior college or trade school relative to elementary or some high school are significantly more likely to have committed moderate violence relative to no violence ($p=.065$) with 5.6 times greater relative risk. They are

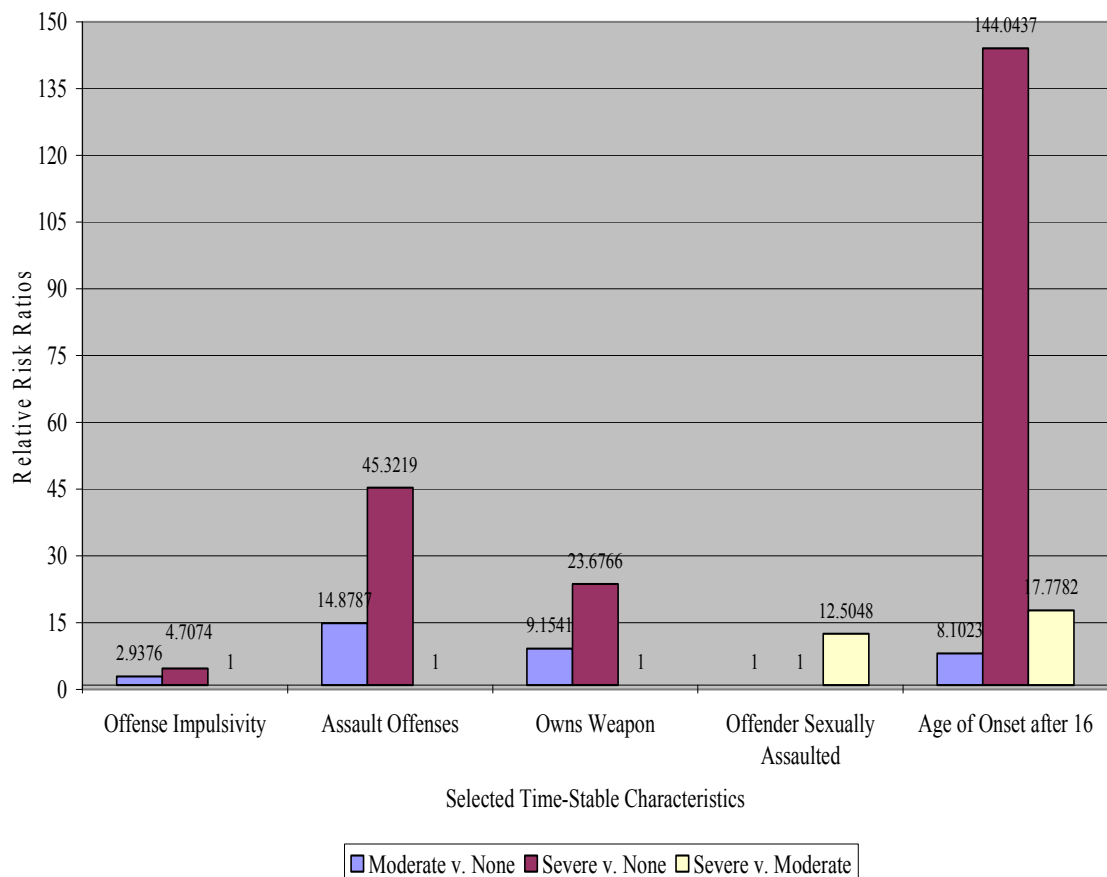
also significantly more likely to have engaged in severe violence relative to no violence ($p=.016$) with 12.8 times greater relative risk. These are interesting findings. For severe violence relative to moderate violence, less education exerts a protective influence. For moderate violence and severe violence relative to no violence, higher educational attainment represents a risk factor. Perhaps those who have attained some college are better able to avoid detection and have more opportunity to offend. Or perhaps offenders who have a higher educational level are better able to convince a victim to trust them and follow them into a secluded location due to a more refined speech pattern or a better vocabulary. Overall, educational attainment exerts a complicated influence on the level of violence in a rape offense.

Offense impulsivity. Offenders who partially planned the offense after seeing a potential victim or offenders who engaged in the offense without any plan are significantly more likely to have engaged in moderate violence relative to no violence ($p=.038$) with 2.71 times greater relative risk. They are also significantly more likely to have engaged in severe violence relative to no violence ($p=.006$) with 4.71 times larger relative risk. Ultimately, the degree of impulsivity an offender evidenced in his rapes significantly increased his level of violence, except for the distinction between severe violence relative to moderate violence.

Refer to Figure 1 for a graph of relative risk ratios of selected time-stable characteristics for all levels of violence. The time-stable characteristics are listed along the x-axis while the relative risk ratios are listed along the y-axis. The x-axis crosses the y-axis at 1 to clarify which characteristics increase the relative risks of violence (greater than 1) and which decrease them (less than 1). A relative risk ratio of 1 means that a

given time-stable characteristic does not increase or decrease the relative risk of a given level of violence. Observe that the selected time-stable characteristics all increase the relative risks of having engaged in moderate and severe violence. The highest relative risk ratio is observed for severe violence relative to no violence for offenders whose age of onset is after age 16. The relative risk ratios for selected time-stable characteristics are graphically presented in Figure 1.

Figure 1: Relative Risk Ratios for Selected Time-Stable Characteristics



Time-Varying Characteristics

Violence in nonsexual offenses. Whether an offender committed physical violence in a nonsexual victim-involved offense does not significantly distinguish between those who committed moderate physical violence in a rape offense and those who had not committed physical violence in a rape offense ($p=.502$). This is an important finding as violence in a nonsexual victim-involved offense should predict physical violence in a rape offense if the state dependence perspective has empirical merit in this context. Whether an offender committed violence in a nonsexual victim-involved offense significantly increases the likelihood of serious violence relative to no violence ($p=.073$). These offenders have 22.0 times greater relative risk of having engaged in severe violence relative to no violence. This implies that to some degree, violence in a nonsexual offense may have influenced whether an offender used severe violence relative to no violence. Having inflicted violence in a nonsexual victim-involved offense significantly increases the likelihood of severe violence relative to moderate violence ($p=.084$). The relative risk of engaging in severe violence relative to moderate violence is 8.1 times greater for offenders who committed violence in a nonsexual victim-involved offense. This result is suggestive that a more state dependent effect may be at work. Whether an offender committed violence in a nonsexual victim-involved offense may increase the likelihood that the offender also engaged in severe violence in a rape offense. However, this finding is only suggestive.

Social supports. Offenders who were dating or engaged at the time of the offense relative to being single are significantly less likely to have engaged in severe violence relative to no violence ($p=.063$) with .16 times smaller relative risk. They are also

significantly less likely to have committed severe violence relative to moderate violence ($p=.021$) with .15 times smaller relative risk. This was expected and demonstrates the protective influence of pair bonding. Offenders who were divorced or separated at the time of the offense relative to single offenders are significantly more likely to engage in moderate violence relative to no violence ($p=.033$) and have 52.8 times greater relative risk of having engaged in moderate violence relative to no violence. Being divorced or separated at the time of the offense relative to being single could not significantly distinguish between severely violent offenders and non-violent offenders. However, offenders who were divorced or separated at the time of the offense relative to single offenders are significantly less likely to have engaged in severe violence relative to moderate violence ($p=.08$) with .08 times smaller relative risk. Offenders who were married or widowed at the time of the offense relative to being single are significantly less likely to have engaged in severe violence relative to moderate violence ($p=.045$) with .07 times less relative risk. Pair bonding presents a complicated picture. Fractured pair bonds (i.e. divorced offenders), relative to intact or no pair bonds, are most important in predicting whether an offender used moderate violence relative to no violence. An intact pair bond, relative to fractured or non-existent pair bonds, predicts the use of severe violence relative to no violence and moderate violence.

Offenders with a higher number of marriages (1, 2 or more) are significantly more likely to have committed severe violence relative to moderate violence ($p=.031$) with 10.1 times greater relative risk. This is an interesting finding, considering that offenders who were divorced/separated or married/widowed at the time of the offense relative to being single are significantly less likely to engage in severe violence relative to moderate

violence. What may be driving this apparent contradiction is that for offenders who were divorced/separated or married/widowed at the time of the offense relative to being single, this could be their first marriage/divorce. Those offenders who have multiple marriages may have actually been single at the time of the offense and thus, are more likely to engage in severe violence relative to moderate violence.

Employment history. Offenders with an unstable employment history are significantly less likely to have engaged in moderate violence relative to no violence ($p=.01$) with .07 times smaller relative risk. They are also significantly less likely to have engaged in severe violence relative to no violence ($p=.000$) with .02 times smaller relative risk. Finally, they are significantly less likely to have committed severe violence relative to moderate violence ($p=.027$) with .23 times smaller relative risk. This is surprising since good employment is one of the better predictors of desistance from general criminality (Laub and Sampson, 2003). Perhaps offenders with stable employment have more opportunity to offend through increased contact with potential victims at work or while traveling to and from work. Perhaps offenders who have stable employment are more likely to own a car than offenders with unstable employment and offending is facilitated with the use of a vehicle. Overall, having an unstable job history significantly decreases all levels of violence.

Criminal history. Offenders who have committed more serious sexual offenses are significantly more likely to have engaged in moderate violence relative to no violence ($p=.089$) and have 1.5 times larger relative risk of having engaged in such violence. Offenders who committed more serious sexual offenses are significantly less likely to have engaged in severe violence relative to moderate violence ($p=.055$) with .68 times

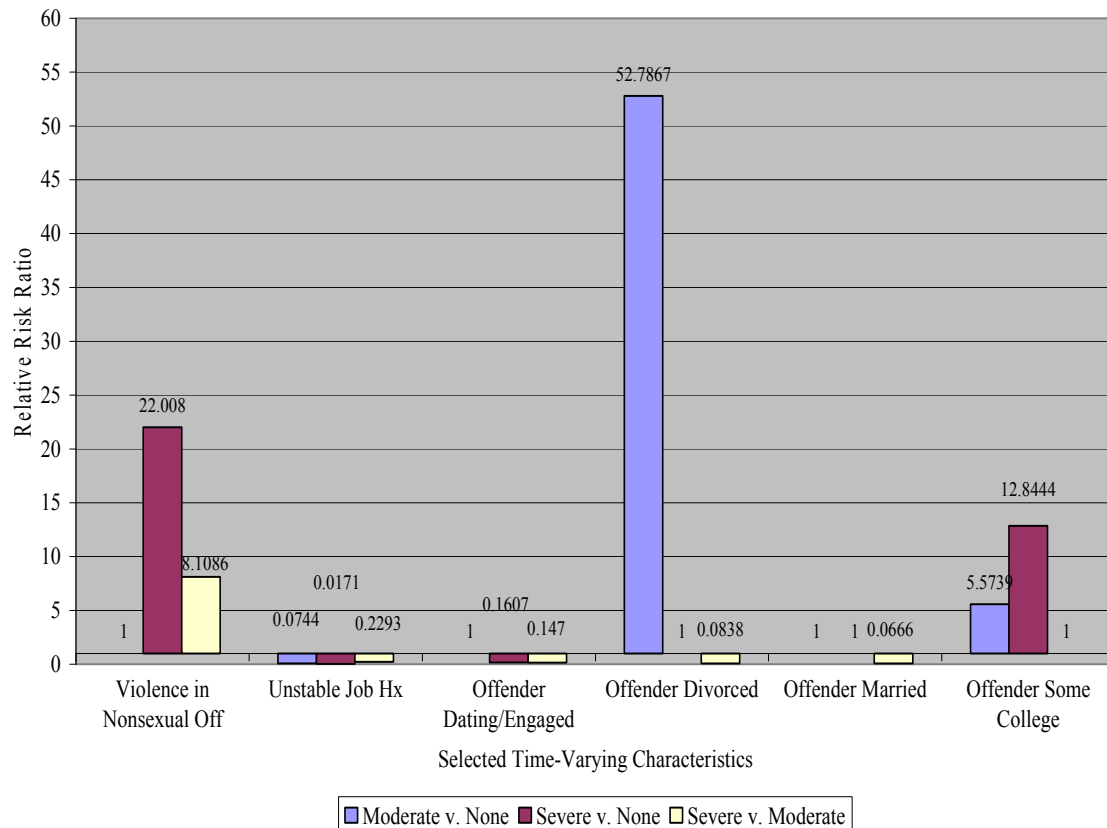
smaller relative risk. This dichotomy is interesting and suggests that moderate violence relative to no violence is partially a function of increased opportunity to offend while severe violence relative to moderate violence appears to occur independent of the opportunity to offend.

The number of juvenile nonsexual offenses an offender has committed only significantly distinguished between severe violence relative to moderate violence. Offenders with more juvenile nonsexual victim-involved offenses are significantly less likely to have engaged in severe violence relative to moderate violence ($p=.04$) with .19 times less relative risk. Offenders who committed more adult nonsexual victim-involved offenses are significantly less likely to have engaged in moderate violence relative to no violence ($p=.075$) with .27 times smaller relative risk. Offenders who committed more adult nonsexual victim-involved offenses are significantly less likely to engage in severe violence relative to no violence ($p=.008$) and have .11 times smaller relative risk of having engaged in such violence. They are also significantly less likely to have committed severe violence relative to moderate violence ($p=.092$) with .41 times smaller relative risk. Offenders who are more general in their offending patterns (i.e. who commit nonsexual offenses) are less likely to be violent in their rape offenses. This suggests that violent rapists may specialize in sexual offenses.

Refer to Figure 2 for a graph of relative ratios of selected time-varying characteristics for all levels of violence. The time-varying characteristics are listed along the x-axis while the relative risk ratios are listed along the y-axis. The x-axis crosses the y-axis at 1 to clarify which characteristics increase the relative risks of violence (greater than 1) and which decrease them (less than 1). A relative risk ratio of 1 means that a

given time-varying characteristic does not increase or decrease the relative risk of a given level of violence. Observe that 4 of the 5 relative risk ratios for the time-varying characteristics decrease the relative risks of having engaged in severe violence relative to moderate violence while the highest relative risk ratio is for offenders who were divorced or separated at the time of the offense relative to being single. The relative risk ratios of the time-varying characteristics discussed in the preceding section are graphically presented in Figure 2.

Figure 2: Relative Risk Ratios for Selected Time-Varying Characteristics



Discussion

Time-Stable Characteristics

My first hypothesis was partially supported. A history of childhood sexual assault was unable to significantly predict the likelihood of engaging in severe violence relative to no violence ($p=.101$). Having been victimized by sexual assault in childhood significantly increased the likelihood of engaging in severe violence versus moderate violence ($p=.000$). Absence of the offender's mother and father was statistically unable to predict the use of severe violence in a rape offense relative to no violence and relative to moderate violence. The number of familial relocations did not significantly predict the level of violence in which an offender engaged. An *older* age of onset was supported as differentiating between severe violence and no violence ($p=.001$) and severe violence relative to moderate violence ($p=.009$). A mildly chaotic family ($p=.946$), a moderately chaotic family ($p=.674$), and a severely chaotic family of origin ($p=.844$) all relative to a secure family failed to significantly distinguish between those who committed severe violence and no violence in a rape offense. However, a mildly chaotic family ($p=.049$) and a moderately chaotic family of origin ($p=.042$) relative to a secure family significantly decreased the likelihood of severe violence relative to moderate violence. A severely chaotic family of origin relative to a secure family of origin could not significantly predict severely violent offenders relative to moderately violent offenders ($p=.178$). Childhood cruelty to animals failed to significantly predict severe violence relative to no violence ($p=.578$) or severe violence relative to moderate violence ($p=.683$). Having committed adult assault and battery offenses significantly increased the likelihood of severe violence relative to no violence ($p=.024$) but failed to significantly

predict severely violent offenders relative to moderately violent offenders ($p=.237$). Owning a weapon significantly increased the likelihood that an offender had engaged in severe violence relative to no violence ($p=.001$) but was unable to significantly discriminate between severely violent offenders and moderately violent offenders ($p=.124$). Being a high school graduate or GED holder relative to elementary or some high school significantly decreased the likelihood that an offender committed severe violence relative to moderate violence ($p=.061$) but could not significantly differentiate between severe violence and no violence ($p=.162$). Completing some college, junior college or trade school relative to attaining elementary or some high school significantly increased the likelihood that an offender engaged in severe violence relative to no violence ($p=.016$) but could not predict severely violent offenders relative to moderately violent offenders ($p=.223$). Offenders who had only a vague, partial plan after encountering a potential victim or those who offended without a plan were significantly more likely to have engaged in severe violence relative to no violence ($p=.006$) while it failed to significantly distinguish between severely violent and moderately violent offenders ($p=.214$). The time-stable characteristics were partially supported in the prediction of severe violence relative to no violence and relative to moderate violence.

Time-Varying Characteristics

My second hypothesis was nearly wholly unsupported. The state dependence proxy measure, violence in a nonsexual victim-involved offense, was unable to significantly predict the use of moderate violence in a rape offense relative to none ($p=.502$). This suggests that the population heterogeneity process, or something like it, is more relevant than state dependence to the prediction of moderate violence relative to no

violence. Offenders who were divorced or separated at the time of the latest offense, relative to offenders who were single at the last offense, were significantly more likely to have perpetrated moderate violence relative to no violence ($p=.033$). Dating or being engaged ($p=.532$) or being married/widowed ($p=.597$) was statistically unable to distinguish between moderately violent offenders and non-violent offenders. The number of marriages an offender had ($p=.396$) and his level of adult peer interaction ($p=.131$) were statistically unable to differentiate between those offenders who committed moderate physical violence relative to no violence. Offenders who had an unstable employment history ($p=.01$) were significantly less likely to commit moderate physical violence relative to no physical violence. The number of serious sexual offenses was significant and increased the likelihood of engaging in moderate violence relative to no violence ($p=.089$). The number of juvenile nonsexual victim involved offenses was statistically insignificant in predicting the use of moderate violence relative to none ($p=.282$). The number of adult nonsexual victim-involved offenses was significant and decreased the likelihood of having engaged in moderate violence relative to no violence ($p=.075$). As a whole, time-varying concepts were partially successful in predicting the level of physical violence in a rape offense. It appears that moderate violence in a rape offense relative to no violence is closer to a population heterogeneity framework than a state dependence perspective since whether an offender committed violence in a nonsexual victim-involved offense was not statistically significant for that comparison.

The Typical Offender

The typical offenders portrayed below rely on the coefficients of the multinomial model for each level of comparison of the dependent variable.

Moderate violence relative to no violence. The picture of a typical offender who committed moderate violence in a rape offense relative to no violence was one who may have undertaken his first serious sexual offense after the age of 16, who possibly committed adult assault and battery offenses, who owned a weapon, who may have a junior college or trade school education relative to elementary or some high school and who offended with only a partial plan or no plan for the offense. Additionally, he may have been divorced at the time of his last offense and he was less likely to have committed any adult nonsexual offenses.

Severe violence relative to no violence. The typical picture of severe violence relative to no violence was an offender who started sexual offending later in adolescence or even in young adulthood, who committed assault and battery as an adult, who owned a weapon, who attained some college, junior college or trade school relative to elementary school or some high school and who did not explicitly plan his offenses before encountering a potential victim. Also, he may have committed violence in a nonsexual offense, he was more likely to be single than dating or engaged at the time of the offense, he had stable employment, and he did not frequently engage in adult nonsexual offenses.

Severe physical violence relative to moderate violence. When comparing severe violence to moderate violence in a rape offense, a picture of the typical offender emerged as one who was a victim of childhood sexual assault and who began serious sexual offending after age 16. Also, he came from a relatively stable family of origin. He may have been less likely to have only a high school diploma or equivalency degree relative to having only elementary or some high school. He may have committed violence in a nonsexual victim-involved offense. He was more likely to be single at the time of his

offense. The typical severely violent offender was possibly less likely to have committed many serious sexual assaults, adult nonsexual victim-involved or juvenile nonsexual victim-involved offenses.

Overall, offenders who are moderately violent relative to non violent offenders appeared to have been influenced by a population heterogeneity process whereby the violence in a nonsexual offense and the violence exhibited in a rape offense may have been influenced by a time-stable propensity since the state dependence proxy measure, violence in a nonsexual offense, was not statistically significant. Offenders who were severely violent relative to non violent and moderately violent offenders appear to be influenced by a mixed model of population heterogeneity and state dependence. The violence displayed by an offender in a nonsexual offense may have influenced the likelihood that an offender had engaged in severe violence in a rape offense relative to no violence and moderate violence since the state dependence proxy was significant for those comparisons. Ultimately, though since the temporal ordering of the violence in a nonsexual offense and in a rape offense could not be exactly determined, the most forceful statement that can be made about these findings is that they are suggestive that a mixed model best explained the level of violence an offender used in a rape offense.

Predicted Probabilities for Key Findings

Predicted probabilities are particularly useful for interpreting multinomial logistic regression models. Predicted probabilities decrease the difficulty of interpretation due to the large number of parameters estimated in this study, 26 independent variables and 3 outcomes. For multinomial logistic regression, the predicted probability of $y=m$ given the vector of \mathbf{x} is Equation 3.

$$\hat{P}(Y = m | \mathbf{x}) = \frac{\exp(\beta_m \text{TimeStable} + \beta_m \text{TimeVarying} + \beta_m \text{Controls})}{\sum_{m=0}^2 \exp(\beta_m \text{TimeStable} + \beta_m \text{TimeVarying} + \beta_m \text{Controls})} \quad (3)$$

This conditional probability explains the probability that a person with or without a given characteristic committed moderate violence or severe violence. However, the predicted probabilities may differ in their predictions in terms of direction or magnitude from the coefficients in the multinomial logistic model because the multinomial logistic regression produces estimates of the relationship between the independent variables and one outcome of the dependent variable relative to the excluded outcome category. Predicted probabilities estimate the probability of an offender with or without a given trait having committed no violence, moderate violence or severe violence without reference to any other category and with all other variables set at their means. In other words, it is the pure probability that an offender will have perpetrated one level of violence. Predicted probabilities allow for easier interpretation of the relationships between the independent variables and the dependent variable outcomes.

The predicted probabilities for selected time-stable and time-varying characteristics are listed in Table 7. Each level of the independent variables is associated with a specific probability of having engaged in moderate violence or severe violence. Observe that the predicted probabilities of having engaged in moderate violence are much higher than for severe violence. The highest probability of having engaged in moderate violence is observed for offenders who were divorced or separated at the time of the offense relative to being single. The highest probability of having engaged in severe violence is observed for offenders who were victimized by sexual assault in childhood.

Table 5: Predicted Probabilities for Key Findings

Variable	Moderate Violence	Severe Violence
<u>Time-Stable Characteristics</u>		
Developmental Variables:		
Offender a Victim of Sexual Assault		
No	.8148	.1473
Yes	.2958	.6686
Age of Onset of Sex Offending after Age 16		
No	.6929	.0229
Yes	.6107	.3583
Violent Tendencies:		
Adulthood Assault Offenses		
No	.6782	.1733
Yes	.5576	.4342
Owns Weapon		
No	.6844	.1775
Yes	.5907	.3963
Offense Impulsivity:		
Plan Before Seeing Victim	.6938	.2118
Plan After Seeing Victim	.6513	.3186
No Plan	.5557	.4356
<u>Time-Varying Characteristics</u>		
Violence in Nonsexual Victim-Involved Offense		
No	.7857	.1374
Yes	.4075	.5779
Pair Bonding:		
Offender Dating/Engaged		
No	.4702	.4984
Yes	.8217	.1280
Offender Divorced/Separated		
No	.5932	.3441
Yes	.9518	.0463
Offender Married/Widowed		
No	.5326	.4262
Yes	.9192	.0490
Educational Attainment:		
Some/Junior College/Trade School		
No	.6939	.2359

Yes	.5551	.4348
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Predicted Probabilities for Selected Time-Stable Characteristics

History of sexual assault. The predicted probability of perpetrating moderate violence was lower for offenders who were victims of childhood sexual assault (.30) than for offenders who were not victimized by sexual assault (.81). Offenders who were victimized in childhood by sexual assault have a dramatically higher predicted probability of engaging in severe violence (.67) than offenders who were not childhood victims of sexual assault (.15). Victimization by childhood sexual assault is an important determinant of severe violence.

Age of onset of serious sexual offending. The predicted probability of having engaged in moderate violence was lower for offenders who began serious sexual offending at the age of 16 or later (.61) than for offenders whose age of onset was 15 or younger (.69). Rapists whose age of onset was 16 or older have a higher predicted probability of having committed severe violence (.36) than for rapists who began sexual offending at 15 or younger (.02). Severe violence was better predicted by offenders with an older age of onset while the opposite was true for moderate violence.

Adult assault and battery offenses. The predicted probability of moderate violence was higher for offenders who had not committed adult assault and battery offenses (.68) than for offenders who had (.56). The predicted probability of severe violence was higher for offenders who had committed adult assault and battery offenses (.43) than for those who had not committed adult assault and battery (.17). Thus, moderate violence

was predicted by a lack of adult assault and battery offenses and severe violence was predicted by the presence of adult assault and battery offenses.

Ownership of a weapon. The predicted probability of moderate violence was higher for offenders who do not own a weapon (.68) than for offenders who own a weapon (.59). Offenders who owned a weapon had a higher predicted probability of perpetrating severe violence (.40) than offenders who do not own a weapon (.18). Moderate violence was more likely to occur when an offender did not own a weapon while severe violence was better predicted when an offender owned a weapon.

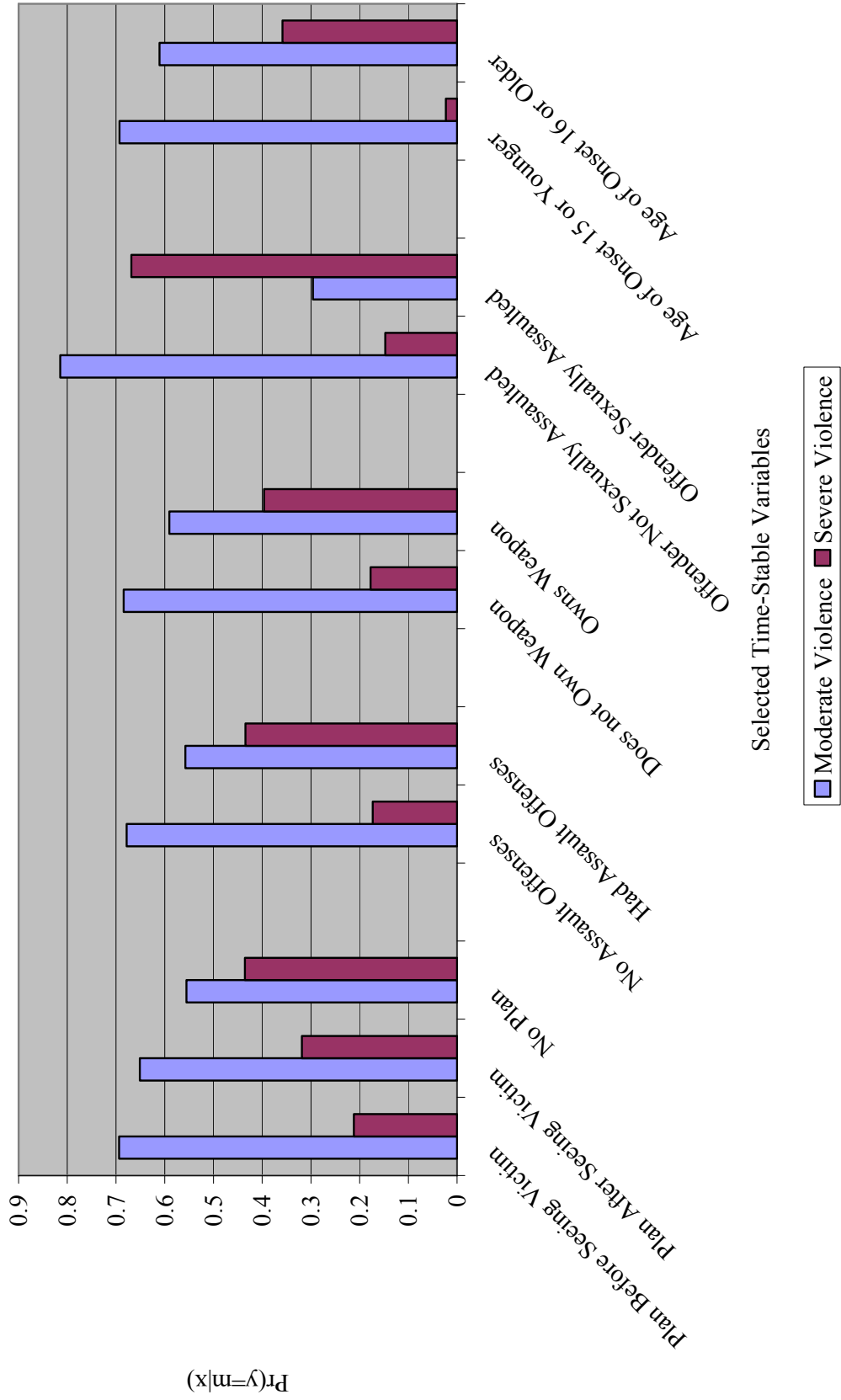
Educational attainment. The predicted probability of having engaged in moderate violence was higher for offenders who graduated from high school or an equivalency program (.80) than for offenders who attained junior or some college or trade school (.56), all relative to attaining elementary or some high school which was held at 0. This higher educational attainment protected those offenders from engaging in moderate violence. The predicted probability of having engaged in severe violence was lower for offenders who graduated from high school or an equivalency program (.15) than for offenders who completed junior college, some college or trade school (.43), all relative to elementary or some high school. Higher educational attainment increased the likelihood of severe violence perhaps by increasing exposure to victims.

Offense impulsivity. The predicted probability of moderate violence was highest for offenders who formulated a plan before encountering a victim (.69), and it declined (although it remained at substantial levels) for offenders who planned the offense after seeing a victim (.65) and for offenders with no plan for the offense (.56). The predicted probability of severe violence was highest for offenders who offended with no plan for

the offense (.43) and decreases to .32 for offenders who had formulated a partial plan after seeing a victim. The predicted probability of committing severe violence was only .21 for offenders who had formulated a plan for the offense before seeing the victim. This suggests that moderate violence tends to be planned to some degree while severe violence tends to occur when an offender acts impulsively in an offense.

Refer to Figure 3 for a graph of predicted probabilities for selected time-stable characteristics. Each level of the dummy and nominal independent variables has its own predicted probability of moderate violence and severe violence. Observe that as each of the independent variables change from 0 to 1 (or 1 to 2) the predicted probability of moderate violence changes in the opposite direction than the predicted probability of severe violence. The predicted probabilities of no violence are not presented since I am only interested in the predicted probabilities of moderate and severe violence. The predicted probabilities for the time-stable characteristics discussed in the preceding section are graphically presented in Figure 2.

Figure 3: Predicted Probabilities for Selected Time-Stable Characteristics



Predicted Probabilities for Selected Time-Varying Characteristics

Violence in a nonsexual victim-involved offense. Offenders who committed violence in a nonsexual victim-involved offense, the proxy measure for state dependence, had a lower predicted probability of having perpetrated moderate violence (.41) than offenders who did not commit violence in a nonsexual victim-involved offense (.79). Offenders who engaged in violence in a nonsexual victim-involved offense had a higher predicted probability of severe violence (.58) than offenders who did not commit violence in a nonsexual victim-involved offense (.14). Thus, again, moderate violence was associated with a process that more closely resembles the population heterogeneity approach than state dependence. Severe violence, though, appeared to be influenced by the state dependence framework, with violence in a nonsexual offense increasing the probability of physical violence in a rape offense.

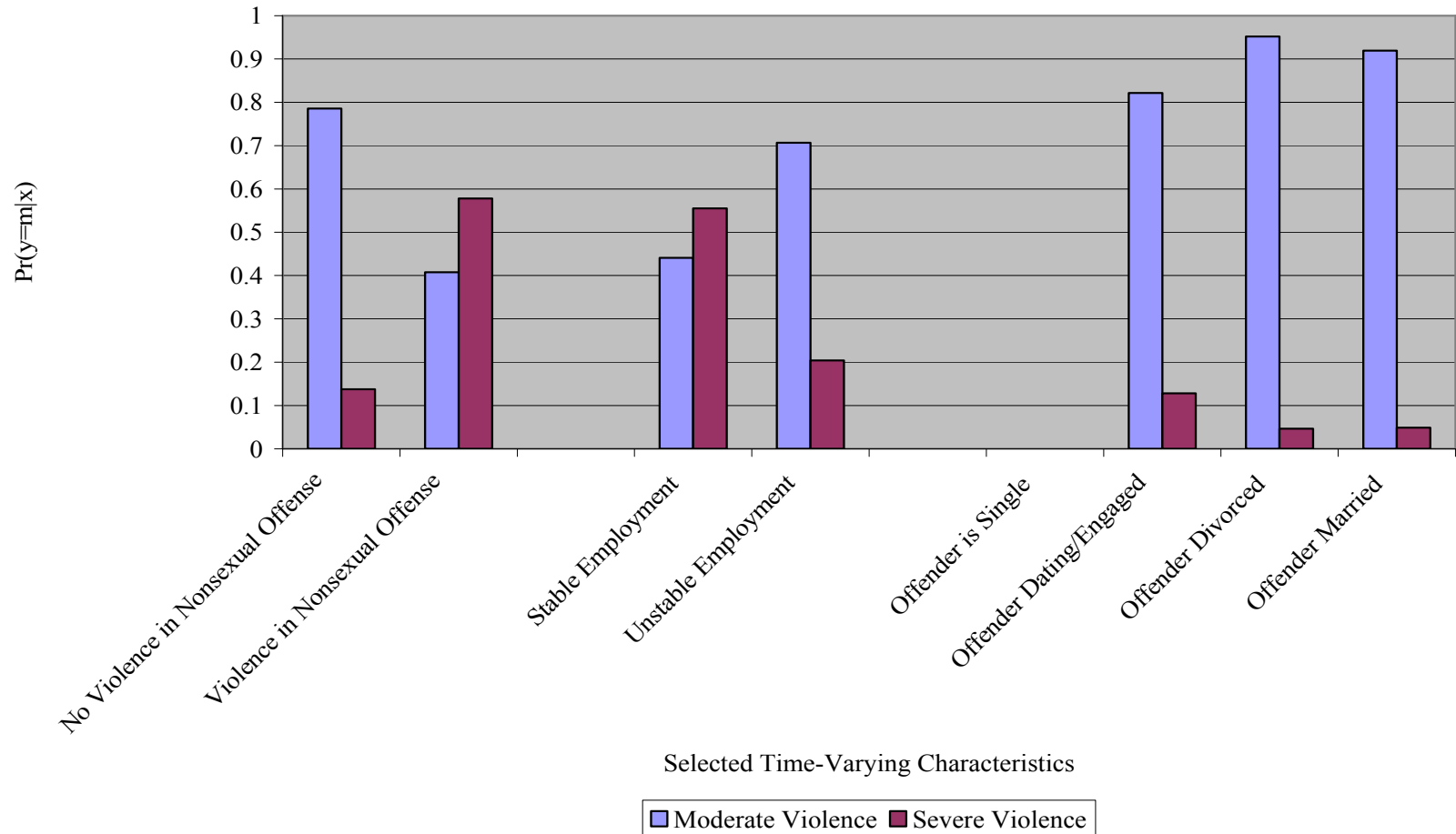
Heterosexual pair bonding at the time of the latest offense. The predicted probability of moderate violence was highest for offenders who were divorced or separated at the time of their last offense (.95), than for offenders who were married, widowed or married with children at the time (.92) or for offenders who were dating or were engaged at the time of their last offense (.82), all relative to being single which was held at 0. The predicted probability of severe violence was higher for offenders who were dating or engaged at the time of their last offense (.13) than for offenders who were divorced or separated at the time of their last offense (.05) or for those who were married at their last offense (.05), all relative to being single at the time of the last offense. These results imply that heterosexual pair bonding exerted a protective influence on the

probability of engaging in severe violence while pair bonding appeared to increase the probability of moderate violence, all relative to being single.

Employment history. The predicted probability of moderate violence was higher for offenders who had an unstable employment history (.71) than for offenders with a stable employment history (.44). Offenders with an unstable employment history had a lower predicted probability of severe violence (.20) than offenders who had a stable employment history (.56). This was a surprising finding since it was expected that an unstable employment history would increase the likelihood of severe violence, perhaps through weak social bonding (Hirschi, 2002; Sampson and Laub, 2003). An unstable employment history increased the predicted probability of moderate violence while it decreased the predicted probability of severe violence.

Refer to Figure 4 for a graph of selected predicted probabilities for time-varying characteristics. Each level of the dummy and nominal independent variables has its own predicted probability of moderate violence and severe violence. For the level of pair bonding, the reference group (single offenders) is set to 0 in this graph. Observe that as violence in a nonsexual offense and an unstable work history increase from 0 to 1, the predicted probabilities of moderate and severe violence change in opposite directions. The predicted probabilities of time stable characteristics which were discussed in the preceding section are presented graphically in Figure 4.

Figure 4: Predicted Probabilities for Selected Time-Varying Characteristics



Chapter IV: Conclusions

There appear to be two separate processes driving the use of physical violence in a rape offense. On the one hand, the results for moderate violence relative to no violence appear to be driven by population heterogeneity. Whether the offender committed violence in a nonsexual victim-involved offense could not significantly predict the level of violence in which an offender engaged. According to the population heterogeneity perspective, having committed adult assault and battery offenses, owning a weapon, being college educated relative to elementary or some high school and being impulsive in an offense all increased the likelihood of moderate violence in a rape offense, because these constructs measured one or many underlying time-stable characteristics. However, the older age of onset of serious sexual offending ran contrary to what was expected under the population heterogeneity perspective, because it did not indicate the presence of an underlying criminal propensity as it would have if a younger age of onset had been validated. Despite this contradiction, the underlying time-stable characteristics are for the most part what drove the use of violence in an offense, and the above measures were just imperfect proxies for underlying time-stable characteristics.

On the other hand, the use of severe violence relative to both no violence and moderate violence appeared to be driven by both persistent heterogeneity and state dependence. Whether the offender committed violence in a nonsexual victim-involved offense significantly increased the likelihood that he would commit severe violence relative to both no violence and moderate violence. According to the mixed model of population heterogeneity and state dependence, for severe violence relative to none, having committed adult assault and battery offenses, having owned a weapon, having

attended college relative to elementary or some high school, and being impulsive in an offense reflected an underlying criminal propensity. Again, the finding of an older age of onset contradicted the population heterogeneity perspective because an underlying criminal propensity should have been reflected in a younger age of onset. However, also for severe violence relative to none, this underlying criminal propensity is mediated and in fact decreased by having been dating or engaged at the time of the offense relative to being single, by having more adult nonsexual victim-involved offenses, and by having an unstable job history. For severe violence relative to moderate violence, being a victim of childhood sexual assault and an older age of onset significantly increased the likelihood of having committed severe violence relative to moderate violence. The likelihood of severe violence relative to moderate violence was increased by having an older age of onset of serious sexual offending which contravened the population heterogeneity perspective. Having a mildly or moderately chaotic family of origin, relative to a secure family of origin, significantly decreased the likelihood that an offender had engaged in severe violence relative to moderate violence. Having completed high school or a GED program significantly decreased the likelihood of engaging in severe violence relative to moderate violence. The state dependence proxy, violence in a nonsexual victim-involved offense, significantly increased the likelihood that an offender had engaged in severe violence relative to moderate violence. It appeared that the influence of an underlying criminal propensity is mediated and decreased by dating, being divorced or being married at the time of the last offense all relative to being single, by having an unstable job history, and by having more adult and juvenile nonsexual offenses.

Thus, it is sensible to adopt a mixed model when explaining the level of physical violence in a rape offense. It appears that the causal processes of moderate violence and severe violence differ from one another in terms of the effect of violence in a nonsexual victim-involved offense. An underlying propensity may be driving the likelihood of moderate violence. State dependence did not appear to influence this process. For severe violence, it appeared that early time-stable characteristics matter but so do later time-varying life experiences, particularly heterosexual pair-bonding. These later experiences often decreased the likelihood of severe violence.

A lower threshold of violence (moderate) is determined by individual characteristics. For a higher threshold of violence, individual characteristics and later life experiences both influence the likelihood of severe violence. For a complete picture of violence, both processes are required.

Limitations

The current study has many limitations. Since the dates of the nonsexual victim-involved offenses were not published, it was not clear whether the nonsexual victim-involved offenses temporally preceded the physically violent sexual offending. For 59 offenders, it is possible that the violent sexual offense occurred contemporaneously or followed with the nonsexual victim-involved offense as these offenders had committed violence in a nonsexual victim-involved offense but had not committed juvenile nonsexual victim involved offenses. This problem is complicated by the lack of prospective data. It was also not possible to statistically control for unobserved heterogeneity between offenders. This will overestimate the effects of the time-varying characteristics. Thus, a true test of the effects of the independent variables on the level of

physical violence in a rape offense within the population heterogeneity/state dependence framework was not possible. This study can only suggest the importance of each framework for each outcome relative to another outcome since it may be tapping different processes. Also, the proxy for state dependent effects, violence in a nonsexual victim-involved offense resulting in pain or injury to the victim, may not truly influence the probability of physical violence in a rape offense. Ultimately, the causal processes of the use of physical violence in a rape offense could not be established in the current study.

Further, the retrospective nature of the data presents its own problems. Retrospective data collection is dependent “in part on the self-report of the offender; in part on the thoroughness, theoretical orientation, training, caseload, and available resources of the report writers; and in the criminal justice system on the ability of law enforcement to apprehend perpetrators. All of these are highly fallible data sources” (Prentky and Knight, 1991: 646-7). First, self report can be unreliable, particularly for offenders who are in a penal treatment center such as the Massachusetts Treatment Center, where admission of offenses or offending characteristics can have both detrimental legal and treatment consequences. Beyond the consequences of such admissions, there is little motivation for offenders to admit offenses or socially objectionable acts. This will underestimate the true level of sexual offenses or the true level of violence in rape offenses. In addition, retrospective archival files, such as police, social service and treatment reports, are often incomplete (Prentky and Knight, 1991). However, many of the files were created during the time in which the particular event occurred. For example, if the offender was a victim of sexual assault, it was often

recorded during the time period in which the assault occurred, such as in police reports or social service records. This helps guard against bias in the current data. Finally, it is widely acknowledged that far more sexual offenses occur than those that come to the attention of the authorities (Prentky and Knight, 1991). All estimates of the number of any kind of offense may be incorrect, then.

The dependent variable, the level of physical violence in a rape offense, most likely suffers from downward bias. Police reports may not include the level of detail required to truly gauge the level of physical violence in a rape offense. For example, having kicked a victim was sufficient to have been classified as a moderately violent offender. It is perhaps unrealistic to expect that a police officer would write this detail into his report or that an offender would self-report it, because it may not have seemed important. Thus, there may be some offenders who were incorrectly classified as not having committed physical violence in a rape offense when they committed an unrecorded moderately violent act. It is unlikely that severe violence, though, would be underestimated, because of the seriousness of the injuries to the victim, possibly even resulting in death.

Like all other models based on the regression process, multinomial logistic regression models must be correctly specified. In theory, this requires that every variable that influences the dependent variable must not only be included in the model but correctly specified. They must be measured correctly (without error). If any of the variables interact with another, the interaction term must also be included. If any of the variables are non-linear, they must be specified non-linearly. If the model does not meet these requirements, the predictions of the dependent variable and the coefficients of the

effects of the independent variables will be biased. Thus, the internal validity of the model, whether the effects of the independent variables on the dependent variable are correctly assessed, will be compromised. The current model was tested for interaction effects and non-linearity of the independent variables and none were found. As it is not possible to assess the effects of the independent variables on the level of physical violence in a rape offense using a randomized experiment, a regression model is adequate. It must be acknowledged with near certainty that there are variables missing from the model that affect the dependent variable. The model almost certainly suffers from omitted variable bias and the estimates of the relationships between the independent variables on the dependent variable are biased.

Finally, the current study involved a sample of 222 offenders from a secure treatment center. All had been classified as Sexually Dangerous Persons. All were classified as rapists. Thus, the study is only generalizable to other rapists whose frequency or violence of offending is serious enough to warrant the status of Sexually Dangerous Persons and civil commitment. This study cannot be generalized to child molesters, nor can it be generalized to offenders who do not fit the criteria of a Sexually Dangerous Person.

Theoretical, Policy and Treatment Implications

The theoretical, policy and treatment implications of this study include the development of a prospective dataset of rapists, greater integration of the sex offending and criminological literature, the development of risk assessment instruments to assess an offender's risk of violence in a rape offense, and the development of victim empathy

training units that include exercises specifically directed at increasing empathy towards those victims with which offenders were physically violent.

To truly assess the influence of time-stable characteristics and time-varying traits, a prospective dataset is necessary or at the very least, a retrospective dataset which includes the dates of all criminal offenses. Though such a project is costly, time-consuming, and provides little in the way of immediate gratification for publishable results, it is the only way to determine what causes violence in a rape offense or any other question related to rapists and other sex offenders. Causality is needed to formulate theories of sexual offending and to create sex offending treatment programs that actually work.

Also, the sex offending literature and the general criminological literature are disconnected at best. Both fields of literature could benefit from integration with one another. Researchers in the sex offending field have spent years developing and testing risk assessment instruments and rehabilitation programs and general criminology could learn from their successes and failures. Researchers in the criminological literature have firmly grounded their findings within theoretical frameworks and could assist researchers in the largely atheoretical sex offending literature in grounding their tests and findings in a larger framework rather than the laundry lists they currently resemble. The current research has attempted to identify certain characteristics that are important in predicting the level of physical violence in a rape offense. Sex offending researchers ought to integrate all of the findings on the use of violence in an offense and to begin formulating risk assessment instruments based on them. The current risk assessment instruments focus on frequency of offending as the primary risk, but it is also important to keep

violent rapists in sex offending treatment (or prison) longer even if they are not frequent offenders. Violent rapes are devastating to victims, physically and emotionally, and some end in death. Thus, it is imperative that competent risk assessments are formulated to identify those offenders who are likely to reoffend with violence.

Additionally, sex offender treatment programs should be expanded to include empathy training units on the effects of physical violence in a rape offense. Many treatment programs already include empathy training to teach the offenders about the negative impact of sexual assault on their victims. It would then seem fitting that these facilities should integrate a unit of victim empathy training on the effects of physically violent rapes in addition to the effects of sexual assault. As mentioned before, the effects of physically violent rapes are physically and emotionally damaging. If treatment facilities could increase the overall empathy an offender feels for his victims, perhaps not only physically violent rapes could be prevented but all types of sexual assault. Finally, if treatment centers and prisons used risk assessment instruments that included components to identify those rapists most prone to physical violence, the public would be safer.

With a prospective dataset of offenders, greater integration between sex offender researchers and general criminology, risk assessment instruments directed at identifying violent rapists, and the formulation of victim empathy exercises to address the effects of physically violent rapes, the knowledge about, prevention of and treatment of rape will change for the better.

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