

An analysis of decision making and criminal outcomes in sexual offenders

by

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Abstract

In 1985, Clarke and Cornish proposed the rational choice framework to study criminal decision making. According to their approach, decisions of a criminal nature are not different than any other type of decision, and are thus orientated toward the satisfaction of commonplace needs. We adopted this approach and looked at a sample of 898 male sexual offenders as decision makers, framing their sexually coercive decisions as means to obtain desired outcomes. Clarke and Cornish specifically proposed four models to understand criminal decision making (initial involvement, crime events, persistence, and desistance); aspects of these models were used in three distinct studies. Study 1 explored what Clarke and Cornish called “background factors” of decision making and it examined three particular types of factors: traits, states, and knowledge. Results indicated that offenders’ personality traits, their specialized knowledge about sexual coercion, and their states at the onset of their offenses all impacted decision making during sexual crimes and over their sexual criminal careers in identifiable patterns, suggesting a more direct influence of background factors than initially hypothesized by Clarke and Cornish. Study 2 investigated how the various sexually coercive decisions made in the course of sexual crime incidents were linked to the resulting outcomes experienced by offenders. Results indicated that specific offending decisions about the selection of a victim, the location and time of the offense, and the method of assault were all found to contribute to the production and avoidance of, respectively, specific immediate positive and negative outcomes for offenders, validating Clarke and Cornish’s concept of bounded rationality. Finally, Study 3 investigated the aftermath of experiences of outcomes in offenders and looked specifically at evidence indicating possible reinforcing and/or deterrent effects of outcomes experienced in prior sex crimes on offenders’ decisions to persist in sexual offending after release. Analyses indicated that the experience of previous positive outcomes in sexual crime is a significant explanatory factor of offenders’ decisions to persist in or desist from sexual crime upon release, indicating that Clarke and Cornish’s rational choice approach is a valid framework for examining decisions made about the direction of a criminal career.

Keywords: rational choice approach; decision making; sexual offenders; traits, states, and knowledge; crime outcomes; persistence or desistance

To survivors

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Chapter 1.

Introduction

Various outcomes result from sexual offending. A large body of research has documented the range of serious negative outcomes experienced by victims, including heightened occurrence of trauma symptoms (Elliott, Mok, & Briere, 2004; Maker, Kemmelmeier, & Peterson, 2001), depression (Kendler, Kuhn, & Prescott, 2004; Resick, 1993; Weiss, Longhurst, & Mazure, 1999), anxiety and post-traumatic stress disorder (Kushner, Riggs, Foa, & Miller, 1993; Resick, 1993; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992), alcohol and drug abuse (Wilsnack, Vogeltanz, Klassen, & Harris, 1997), suicide attempts and completions (Glowinski et al., 2001; Joiner Jr. et al., 2007), sexual revictimization (Breitenbecher, 2001; Classen, Palesh, & Aggarwal, 2005; Desai, Arias, Thompson, & Basile, 2002; Macy, 2007; Maker et al., 2001; Messman & Long, 1996), and additional negative impacts on families (Roberts, O'Connor, Dunn, & Golding, 2004). By contrast, the outcomes experienced by the perpetrators of such acts have been investigated limitedly. This might be surprising; after all, offenders instigate these sexually coercive actions and are the ones who decide to see them through.

From the perpetrator's perspective, sexual assault is no accident or chance event: it involves imposing nonconsensual contact of a sexual nature on a child or adult victim. Perpetrators make multiple choices leading to, and in the course of, each act of sexual offending, from the initial decision to engage in sexually coercive actions, to the specificities and modalities of each individual sex crime (who, when, where and how, in addition to alternative and adaptive strategies in case of obstacles or resistance), along with the subsequent decisions to continue or stop offending sexually (see Clarke & Cornish, 1985, about the importance of developing crime-specific models of initial involvement, event, persistence, and desistance).

Arguably, sex offenders are responsible in large part for the variety of outcomes produced by their sexually coercive actions; their proactive roles in the instigation and perpetration of these actions justify a close look at the association between their decisions and the outcomes they produce. The merit of using a costs/benefits analysis framework to understand sexually coercive decision making has been largely ignored. The present dissertation frames sexual offenders as instrumentally rational decision makers that use sexually coercive decisions as the means to their end of some anticipated positive outcome, while minimizing the corresponding negative outcomes, adopting Cornish & Clarke's (1986) assumption that

“offenders seek to benefit themselves by their criminal behavior; that this involves the making of decisions and of choices, however rudimentary on occasion these processes might be; and that these processes exhibit a measure of rationality, albeit constrained by limits of time and ability and the availability of relevant information” (p. 1).

Specifically, the present dissertation investigates the range of decisions and choices made in the context of sexual coercive events and their link to the positive and negative outcomes they generate. Understanding how sexual offenders make decisions, what outcomes these decisions produce, and how the interplay of positive and negative outcomes is integrated into subsequent offending decisions can contribute to a better understanding of sexual offenders as decision makers over the course of their crimes and sexual criminal careers.

1.1. Perpetrators' outcomes

1.1.1. Positive outcomes of sexual offending

There are potentially multiple positive outcomes that can be experienced by perpetrators of sex crimes. A primary source of information about the nature of these outcomes is offenders themselves. Scully and Marolla's (1985) work with a sample of 114 incarcerated rapists was probably one of the first to document the “rewards of rape” (p. 251)—the various positive outcomes experienced by rapists as a result of their sexual coercion. Using qualitative analysis, the authors classified offenders' explanations of these rewards into four types: revenge or punishment; access to unwilling or unavailable women;

added bonus to another crime; and adventure and/or excitement. In another study conducted among a sample of 132 rapists incarcerated in two maximum-security penitentiaries in the south of the US, participants were asked to rank their motives for committing rape from a list of eight pre-identified motives (revenge and/or punishment, anger, impersonal sex, feeling good, adventure and/or danger, control and/or power, masculinity, fulfillment of a fantasy) (Hale, 1997). By looking at the combined scores of each motive, acquired by adding the values attached to each offender's ranking, the three most frequent rewards were, in order, anger, fulfillment of a fantasy, and revenge and/or punishment. In the case of child molesters, O'Brien (1986) wrote a book presenting the in-depth qualitative accounts of eight child molesters' reasons for molesting. She classified their motives as anger and revenge, fear of rejection by other adults, difficulties in relationships with others, and high levels of stress. Although not specifically mentioned by participants when asked about the rationale for their molestation, sexual attraction to children appears to also be an important factor as well. Overall, information obtained from offending males indicates that they can identify a variety of rewards and positive outcomes of sexually coercive actions.

In addition to offenders, nonoffending males can also identify positive outcomes of sexual coercion, as demonstrated by recent results of an experiment conducted with a sample of 129 adult male undergraduate students. Investigating the rewards of date rape specifically, Bouffard and Bouffard (2011) found that about 29% of all the respondents identified a range of positive outcomes for engaging in sexually coercive behaviors. For example, some respondents reported that the sex might be enjoyable, and talked about feelings of closeness and the possibility of falling in love. In addition to immediate positive outcomes, many respondents also mentioned the possibility of extending these positive outcomes in the future, notably by developing a subsequent romantic or sexual relationship with the victim. Interestingly, the results also indicated that a vast majority (more than 80%) of those who reported positive outcomes for sexual coercion also acknowledged the possibility of legal consequences as a negative outcome, suggesting they were fully aware this behavior constituted rape.

Another source of information about the various positive outcomes of sexually coercive actions can be found in the body of typological work about sexual offenders. Recognizing that sexual offenders constitute a heterogeneous group who commit sexual

offenses for a variety of reasons (Knight, Rosenberg, & Schneider, 1985; Porter et al., 2000; Prentky & Knight, 1991; Quinsey, 1984), the development of such typologies has aimed to describe and classify sexual offenders on important dimensions of their offending, notably by linking offending behaviors to motivations to commit sexual offenses and the nature of the issues underlying their offending. Although not investigating the outcomes of sexual crimes specifically, these typologies are useful, and it is possible to understand these motivations in terms of their desired anticipated outcomes.

With regard to offenders who sexually offend against adult women, the latest revision of the MTC taxonomic classification of rapists—the MTC-R4—included two different types of motivations: anger and sex¹ (Knight, 2010). Motivations relative to anger can take two forms in rapists: in some offenders, anger is misogynistic in nature and exclusively directed at women (i.e., the vindictive rapists), while in other offenders, it is pervasive throughout the offender’s life and generalized to both men and women (i.e., the pervasively angry rapists). In an interview discussing the rewards of rape relative to his feelings of anger, a rapist told interviewers, “She [an adult victim] was there to get my hostile feelings off on” (Scully & Marolla, 1985, p. 255). In addition, the MTC-R4 identifies two types of sexual motivations. In some offenders, sex takes a sadistic form in which the use of violence is eroticized or fantasies of a sadistic nature are the source of sexual pleasure. In other offenders, sexual motivation simply indicates their general sexual needs and drive and an overall preoccupation with sex that influences rape commission. In addition to anger and sex as motives, Groth and Birnbaum (1979) argued that power constitutes a third motive for rape, and that such perpetrators experience a sense of control and mastery through the possession and domination of the victim. Some qualitative work supports their assertion, as demonstrated by a rapist reporting that he “felt in control, dominant” (Scully & Marolla, 1985, p. 259).

In the case of sexual offenders against children, multiple typologies are found in the literature (Cohen, Seghorn, & Calmas, 1969; Groth & Birnbaum, 1978; Knight, 1988; Knight & King, 2012; Terry & Tallon, 2004; Ward & Siegert, 2002) that also comprise motivations of anger, sex, and power/control. Classification models of child molesters

¹ A third type of rapists is also included in the MTC typology: the opportunistic type. These rapists are deemed to rape based on situational and contextual factors, and have no clear motivation, as opposed to the other two being explained by anger and/or sexual impetus.

have typically included four types: fixated, regressed, aggressive, and sadistic (for more complete reviews of the literature on these four types, see Knight et al., 1985; Knight, 1988; Lehmann, Goodwill, Hanson, & Dahle, 2014). Sexual motivation is present for the fixated and regressed child molesters. For fixated offenders, sex takes the form of persistent pedophilic interests, in which sexual desires and preferences are focused on children. For example, George, who offended against female children aged 10 or 11, reported, “For some reason, a young girl appeals to me like a good, sexy women does to a lot of men” (O’Brien, 1986, p. 169). Sexual motivation is also present in the case of the regressed child molester, but sexual interests are normal and children are only used as substitutes (as opposed to being preferred) to an age-appropriate sexual partner. The aggressive and/or sadistic child molesters are primarily deemed to be motivated by anger, revenge, and/or desire for power and control. A good example of such motive is found in the discourse of James, who molested two boys aged 11 and 13: “I wanted to get revenge. Everything started coming back up what happened to me – the hurt and pain that I went through, the cuts, especially the cuts, what that woman did to me, and what other people had done to me, sexualwise” (O’Brien, 1986, p. 34).

In addition to the anticipated satisfaction of powerful emotional and physical needs such as sexual gratification, release of anger, and feelings of power and control in the various forms described above, a range of other positive feelings such as excitation, thrill, and relaxation are found in qualitative work of offenders describing their offense. Some of these qualitative quotes—reproduced here—adequately convey the positive character of these experiences: “It was sort of one of those ‘oh he [a child victim] looks cute and, you know, I wouldn’t mind getting to know him” (Bourke, Ward, & Rose, 2012, p. 2404); “After rape, I always felt like I had just conquered something” (Scully & Marolla, 1985, p. 261); “It is kind of relaxing to me to think about molesting a kid” (O’Brien, 1986, p. 59). Although these quotes are disturbing, understanding the nature of the positive outcomes experienced by sexual offenders can shed light on a seldom investigated aspect of their offending and provide a better understanding of the value of these positive outcomes for their perpetrators.

The physical and emotional nature of the positive outcomes resulting from sexually coercive actions brings on measurement issues that are in part due to the distinction between acquisitive and expressive crime (Hayward, 2007; Farrell, 2010). While

acquisitive crimes involve, as a primary objective, obtaining money, property, or other goods for offenders, expressive crimes are specifically defined by their emotional nature, primarily motivated by emotional needs such as anger, revenge, sexual excitement, and thrill/excitement; sexual crimes qualify as expressive crimes. The nature of acquisitive crimes provides an objective measure of positive outcomes (monetary value) that is not available in expressive crimes. For example, burglaries can be compared and ranked based on the value of property stolen, therefore differentiating between “better” and “worse” burglaries based on their level of positive outcomes. In comparison, outcomes satisfying emotional needs such as pride, aggression, sexual impulses, and thrill, cannot be measured as neatly. Arguably, offenders receive different levels of fulfillment from such crimes, for which no standardized measurement exists; one can hypothesize that an offender receives more positive outcomes from an offense in which his sexual and/or violent fantasies over the victim are more extensively realized, compared to an offense during which the victim escapes at an early stage. Recognizing the measurement issue in positive outcomes of sexual crimes, Lussier and colleagues wrote that measuring positive outcomes in cases of sexual crimes requires the assumption “that each sexual crime brings an equal amount of gratification” (Lussier, Bouchard, & Beauregard, 2011, p. 435), but noted that many cases would violate such assumption. In their view, a standardized distinction between offenders’ level of positive outcomes is found in their number of sexual offenses. Offenders can consequently increase their positive outcomes by victimizing more people or abusing the same victims a number of times, thereby experiencing higher levels of emotional and/or physical fulfillment found in the release of anger, feelings of control, and/or sexual gratification.

Notwithstanding these measurement difficulties, the emotional and physical positive outcomes experienced by offenders should not be discarded. In his study about the rewards of rape, Hale (1997) regressed the anticipated rewards and predicted risks of apprehension onto the likelihood of committing the rape to determine if some of these positive outcomes were powerful enough to lead an offender to defy even high risk of apprehension. The results indicated that three types of rewards (feeling good, adventure and/or danger, and fulfillment of a fantasy) would lead an offender to commit a rape even in conditions with high risk of detection. These findings are corroborated in James’ qualitative account of his molestation of children: “I wasn’t thinking about prison, or jail or anything like that. All I was was angry. I was hurt. I wanted to get revenge” (O’Brien, 1986,

p. 34). Clearly, the nature of some anticipated positive outcomes of sexually coercive actions is considered valuable enough for some offenders to ignore potential negative outcomes.

1.1.2. Negative outcomes of sexual offending

Like other criminal actions, specifically serious ones, the most important negative outcomes of sexual crimes are the legal consequences attached, notably detection and punishment. The deterrence theory focuses on the use of legal negative outcomes to control and limit criminal behavior (for a review, see Paternoster, 2010). Generally, the theory asserts offenders' rationality in their pursuit of pleasure and avoidance of pain, and argues that offenders commit crime if the benefits it provides outweigh the costs (Beccaria, 1998; Bentham, 1998). The core of the deterrence argument is that committing crime can be rendered too costly, and, therefore, unattractive as a course of action to offenders, by making its punishment severe, swift, and certain; in other words, offenders are deterred from committing crime if they know they are *likely* to be punished *severely* and *quickly* after the commission of the crime.

Offenses of a sexual nature are considered to be among the most serious (Francis, Soothill, & Dittrich, 2001) and their perpetrators' punishment is severe. Such punishment typically includes long prison sentences, which can be characterized by difficult conditions including violent and sexual victimization by other inmates (Beck, Berzofsky, Caspar, & Krebs, 2013). A child molester described the difficulty of his time in prison with the child molester label: "When I walk across the yard I get apples thrown at me; I get rocks thrown at me" (O'Brien, 1986, p. 167). Additional negative outcomes are experienced even after the end of a prison sentence, with offenders in the United States being subjected to strict legal provisions, ranging from indefinite civil commitment to requirements of registration, public notification, electronic monitoring, and residency restriction. Registered sex offenders face important reintegration challenges, including difficulties in securing employment and housing, possibly resulting in transience and homelessness; disruption of family life; vigilantism in the form of verbal threats, harassment, damage to property, and violent assaults; and generally suffer from stigmatization and overall psychosocial distress (Levenson, D'Amora, & Hern, 2007; Levenson, Zgoba, & Tewksbury, 2007; Mercado, Alvarez, & Levenson, 2008; Terry, 2014; Tewksbury, 2005). In terms of

deterrence theory, sexual offenses are arguably punished severely; however, it is questionable whether or not those punishments are swift and certain.

1.2. Problematic patterns in outcomes experienced by sex offenders

A review of the empirical evidence about the nature of sex offenders' positive and negative outcomes presents a dichotomous outlook of the benefits and costs of sexual coercion. On one end, the anticipated emotional and physical rewards of sexual offending can amount to strong incentives to engage in sexual coercion, which is notably salient in the qualitative descriptions of these rewards by offenders. On the other end, however, the punishment for committing such acts is particularly harsh and enduring. In the present section, empirical evidence regarding the realization of positive and negative outcomes in sexual crimes is reviewed.

1.2.1. Evidence of criminal success in many sexual crimes

A primary pattern observed in the empirical literature concerns the frequent avoidance of negative outcomes for perpetrators of sexually coercive actions. The Rape, Abuse & Incest National Network presented a staggering statistic about the extent of criminal success experienced by many sexual offenders in an analysis drawing upon two of the largest surveys measuring crime in the United States. By combining national statistics about the frequency of sexual assault reporting and the frequency with which offenders were arrested, prosecuted, convicted, and sentenced to prison for their crimes, they estimated that only 3 out of 100 rapists spent any time in prison for their sexual offense (RAINN, n.d.). Clearly, a sizeable number of offenders are *good* at sexual offending, or at least *good enough* to complete their assaults and experience positive outcomes attached to completion while delaying or avoiding the negative outcomes of arrest and/or criminal punishment.

Victimization surveys are an essential data source, having documented the low report rates of sexual assaults to the police and the high frequency of avoidance of negative outcomes by perpetrators of sex crimes. In fact, rape has been identified as the

violent crime that is least likely to be reported to the police (American Medical Association, 1995). Analyzing the National Crime Victimization Survey data, Truman & Langton (2014) reported that only 35% of rape or sexual assault victims made an official complaint to the police. In reality, this number might be lower, considering additional findings that indicated rape victims often do not label their assault as “rape” and, therefore, answer negatively when asked about having been raped (Kahn, Jackson, Kully, Badger, & Halvorsen, 2003; Littleton, Rhatigan, & Axsom, 2007). Statistics indicate a similar pattern of underreporting in cases of child sexual abuse. Only a third of all child sexual assaults were reported to the authorities (including but not limited to the police) in Hanson et al.'s (2003) study looking at sexual victimization among a nationally representative sample of adolescents. Reporting was also infrequent in a sample of women that were sexually abused as children, as only about 1 in 10 victims (12%) eventually told the police about their sexual victimization (Smith et al., 2000; see also Hanson, Resnick, Saunders, Kilpatrick, & Best, 1999). In both rape and child sexual abuse, the use of alternative research methodologies to estimate reporting rates—notably by using questions that ask about behaviors as opposed to labels—yielded much lower reporting rates (e.g., Fisher, Cullen, & Daigle, 2005; Fisher, Cullen, & Turner, 2000; Fisher, Daigle, Cullen, & Turner, 2003; Fricker, Smith, Davis, & Hanson, 2003; Kilpatrick, Edmunds, & Seymour, 1992; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007; Tjaden & Thoennes, 2000).

Even when the victim reports his/her sexual victimization to the authorities, many perpetrators of sex crimes still avoid the negative legal consequences of their sexually coercive actions, as shown by studies of attrition of sexual assault cases processing in the criminal justice system (Frazier & Haney, 1996; Frazier, Candell, Arikian, & Tofteland, 1994). Based on clearance data from the Uniform Crime Report, in 2013, fewer than half of all forcible rapes (38.9% of completed rapes and 37.5% of attempted rapes) reported to the police concluded with the arrest of the perpetrator (Federal Bureau of Investigation, 2014). Arrest rates of sexual perpetrators against children are not higher; Snyder (2000) analyzed data collected by law enforcement agencies in 12 US states and reported clearance rates of 29% in sexual crimes against children. Specifically examining the detection of child abusers based on victims' age revealed significantly lower arrest rates of offenders against victims under 6 years old; only 19% of these cases were cleared. One important limitation of these official clearance estimates is that they inflate the number of sex offenders actually brought to justice. Specifically, there are two circumstances

resulting in a case being considered “cleared”: first, if an offender was arrested, charged, and turned over for prosecution; or, alternatively, if a perpetrator was identified and located but not criminally charged (i.e., cleared by exceptional means). For example, instances of exceptional clearances are found in the National Incident-Based Reporting System, in which it was recorded that 7% of sexual victims refused to cooperate with the prosecutorial team, and prosecutors declined to prosecute in another 6% of cases based on a lack of evidence (Snyder, 2000). These two means of exceptional clearance effectively imply a reduction of 13% in the number of sexual offenders who experience negative outcomes as a result of their sexual coercion.

Self-reported offending data is a third valuable data source to measure the extent of the criminal success experienced by sexual offenders. As early as 1965, Gebhard, Gagnon, Pomeroy, & Christenson asked a sample of incarcerated sexual offenders to self-report their sexual offending history. They found that a meaningful proportion of sexual crimes were hidden from official conviction records: specifically, 15% of rapes and 20% of incest offenses committed had never been detected. Abel et al. (1987) asked similar questions to a sample of nonincarcerated sexual offenders, while guaranteeing their research subjects a strict assurance of confidentiality. The 126 rapists interviewed confessed to committing 900 rapes while the 371 child molesters admitted to 38,671 crimes of a sexual nature. Their results yielded high rates of sexual offenses, in contrast to the lower estimates obtained in studies examining official sexual charges. These results add to the body of evidence supporting the frequent avoidance of negative outcomes by sexual offenders.

Although many people would object to describing completed sexual assaults as successful, multiple empirical findings support the idea that sexual offenders experience some level of success in their sex crimes. Analyses utilizing various data sources (victimization surveys, criminal justice agency surveys, and offender surveys) all underline high attrition rates of sexual assault perpetrators from official offender samples, thus highlighting the fact that sex crime perpetrators frequently avoid negative outcomes, while accruing the rewards yielded by committing sexual assault.

1.2.2. Evidence of individual differences and unequal criminal success across sexual offenders

Additional findings point to individual differentiations in criminal success in sexual crimes. A second look at Abel et al.'s (1987) investigation of self-reported sexual offending of nonincarcerated paraphiliacs reveals an interesting pattern: there was a huge disparity in the positive outcomes experienced by the study's subjects in their sexual crimes (see Table 1.1 for a summary). These results unveil apparent differences in success within types of sexual offenses, as observed in cases when statistical means are different than medians. Because the mean is a measure of central tendency that is sensitive to extremely low or high measures, the median offers a more balanced and accurate representation of a typical case. In Abel et al.'s results, important discrepancies between means and medians are noted regarding the number of sexual acts, indicating that there are some rapists, child molesters, and incest offenders experiencing a total number of sexual acts that is much higher compared to other *regular* offenders; arguably, these prolific offenders accrued more positive outcomes. The same pattern is also observed in the total number of victims of rapists and child molesters, with a few offenders having a much higher number of victims.

Table 1.1. Summary of Abel et al.'s (1987) and Lussier et al.'s (2011) results regarding number of sex acts, victims, and sex acts per victim

Sample	Type offenders	Total sexual events	Total sexual victims	Ratio: events-to-victim
		Mean (Median)	Mean (Median)	Mean (Median)
Abel et al.	Rapists	7.2 (0.9)	7 (1.4)	1.0
	Child molesters			
	Male victims	281.7 (10.1)	150.2 (4.4)	1.9
	Female victims	23.2 (1.4)	19.8 (1.3)	1.2
	Incest			
	Male victims	62.3 (5.2)	1.7 (1.2)	36.5
	Female victims	81.3 (4.4)	1.8 (1.3)	45.2
Lussier et al.	Rapists, child molesters, incest	180.7 (5)	1.8 (1)	98.5 (3)

Note: Table 1.1 was created by extracting numbers from Tables 1, 2, & 3 in Abel and al. (1987) and from Table 2 in Lussier and al. (2011).

Abel et al.'s results point to different ways in which some sex offenders obtained more positive outcomes from their sexually coercive behaviors (see also Lussier et al., 2011). Some perpetrators had a high number of victims but committed a small number of sexual acts on each victim; this was mostly observed in rapists and child molesters. Other offenders had a small number of victims but a high ratio of sex acts to victims, indicating that their victims were victimized over multiple events and a longer period of time. Incest offenders were found to have the highest ratio of sexual acts per victim.

Generally, Abel et al.'s findings unveil two important patterns regarding positive outcomes to sexual crimes: first, that a small subgroup of offenders obtains a lot more overall positive outcomes and satisfaction from their sex crimes than their counterparts; and second, that positive outcomes in sexual crimes can be increased through assaulting a high number of victims and/or in assaulting a victim multiple times.

Similar results were obtained in Lussier et al.'s (2011) empirical examination of the idea of the "successful" sexual offender. Their investigation of criminal achievement in a sample of 373 sexual offenders admitted to one Canadian federal penitentiary between 1994 and 2000 showed the same disparity between means and medians in number of events, number of victims, and events-to-victim ratio (see Table 1.1), emphasizing again important individual differences in experience of positive outcomes to sex crimes. In addition, a similar pattern was observed in avoidance of negative outcomes; a small group of offenders was better at delaying imprisonment. The authors identified two different ways in which offenders maximized their positive outcomes from sexual offending. In the *victim-centered strategy*, some offenders sexually abused multiple victims one time. Alternatively, in the *event-centered strategy*, offenders abused a smaller number of victims repeatedly over a period of time. Interestingly, the characteristics of offenders in the victim-centered approach were found to be opposite those of successful offenders in the event-centered approach. Offenders with a higher number of *victims* were younger and committed nonincestuous type of abuse, had drug problems, and were unemployed in higher proportions, whereas offenders with a higher number of *events* were older and committed their sexual crimes exclusively against children (including in familial settings), were in relationships and employed, and had no drug problems.

In an analysis of 332 first-time sexual offenders, a subsample drawn from Lussier et al.'s (2001) sample of Canadian sexual offenders, Lussier & Mathesius (2012) focused specifically on age of onset to investigate minimization of negative outcomes in the form of detection delay. They compared the age at which offenders started committing crime (i.e., their *actual* onset) to the time they were punished for it (i.e., their *official* onset based on the date of their conviction). A longer time gap between these two measures was interpreted as an offender's success in minimizing the negative outcomes of his sexual coercion. A principle result of the study was a wide range in the ability of offenders to delay detection by the criminal justice system; not all sexual offenders were equally successful in doing so. Correlates of offenders' success in delaying negative outcomes were ages of the offender and victim, victim's gender, and relationship between the offender and victim. Older offenders were able to delay detection for longer times. In addition, offenders against adult victims were detected sooner (after about 2 years) than those with victims that were children, male, and selected within familial settings (after about 10 years). This last study adds to our understanding of minimization of negative outcomes of sexual crimes by pointing to the role of some offending decisions (such as victims' characteristics) in maximization and minimization of outcomes.

1.3. Problem Statement

Overall, there is a lack of empirical research having specifically investigated sexual offending's rewards and costs as a framework to understand sexual coercion. This might be due to some reticence in framing sexual coercion as anything else than sick or abnormal behavior, especially as the result of a simple process of analyzing costs and benefits. A review of what evidence there is, however, reveals problematic patterns. First, there is a wealth of evidence suggesting that a large number of perpetrators delay or avoid altogether the serious negative outcomes of detection and/or punishment supposed to result from sexual offenses in our legal system. In the absence of swiftness and certainty of punishment, the potential deterrent effect of the severe punishment to sex crimes is greatly decreased. Second, additional evidence indicates that there are variations in perpetrators' number of victims and/or sexual assault instances that contribute to delay or avoidance of detection and/or punishment. Simply stated, some offenders are "better" at sexual offending than others; specifically, a small group of particularly prolific offenders

are found to accrue many positive outcomes but few negative outcomes as a result of their sexual coercion.

These two patterns emerging from the empirical literature draw a concerning image of what a costs/benefits analysis by a potential perpetrator considering sexually coercive behavior might yield; on one end, the anticipation of sexual gratification and/or other powerful emotional fulfillment (such as feelings of power and control, and/or the release of anger) weighed against, on the other end, low likelihood of detection and/or punishment. The likelihood of costs realization might decrease in cases of repeat sexual offenders, who may have specialized knowledge about the crime commission process and have clear strategies about preventing victims from reporting their victimization.

If accumulation of positive outcomes and avoidance of negative outcomes was stable across types of offense and categories of offender, it would be possible to conclude that systemic issues were at play. However, empirical results point instead to an individual level of explanation and suggest that the way some offenders go about committing their sexual crimes might play an important role in the variety of outcomes (positive and negative) they experience as a result.

1.4. Overview of dissertation

1.4.1. Aim

What explains sex offenders' various experiences of positive and negative outcomes as results of their crimes? The current research project posits that the unequal distribution of positive and negative outcomes among sexual offenders is not due to chance or systematic bias in the criminal justice system; instead, our working hypothesis, and one that is explored throughout the dissertation, is that these outcomes are dependent upon offender decision making and actions. Offenders make multiple choices leading to, during, and after each act of sexual offending; we hypothesize that these various decisions about how an offender commits his offense(s) explain the resulting positive and negative outcomes. In doing so, we agree with Tremblay and Morselli (2000) that success in crime depends largely on "how one goes about doing it" (p. 645).

Sexually coercive decisions and their outcomes are conceptually distinct but are linked with one another. On one end, decisions made relative to the victim, time, location, approach and assault strategy, and reaction/adaptation to unexpected turns of event will all, in part, impact the various outcomes to the assault: Does the offender gain control over the victim? Does he complete the assault? How much time does he spend with the victim? Is he able to play out his full fantasy? Can he force the victim to participate in the number and types of desired sexual acts? Does he climax? Is he arrested, and if yes, after how long? Is he sent to prison, and if yes, for how long? Asking these questions highlights the possible combinations of positive and negative outcomes that can be experienced by the perpetrator of a sexual offense. On the other end, it is also logical to argue that experiencing a given combination of positive and negative outcomes should impact subsequent decisions relative to sexual offending: Does the offender offend again? If yes, does he revictimize the same victim? Does he change his offending strategy (time, location, approach and attack methods)? The present dissertation investigates specifically if how an offender *does* sexual coercion influences what happens as a result, and if these outcomes in turn influence subsequent sexual coercion.

The making of these various sexually coercive decisions is, however, best understood in its context. The body of literature reviewed in Chapter 2 identifies a variety of factors influencing sexually coercive decision making. Notably, offenders' traits (such as impulsivity), their knowledge about committing sexual assault from having been themselves victimized and/or from previous offenses, their emotional state, their age, and possible intoxication are all factors that influence the decisions they make. These factors are also accounted for in the present dissertation.

Generally, it is possible to understand the current dissertation as an investigation of sexual offenders' instrumental rationality. Decisions and actions are instrumentally rational insofar as they constitute a suitable means of reaching one's goals (Kolodny & Brunero, 2013; Over, 2004). Although morally objectionable as means, sexually coercive actions produce various positive outcomes (see section 1.1.1) and, therefore, can be understood as reasonable steps toward the production of these outcomes. In turn, the resulting outcomes—both the desired positive and undesired negative outcomes—potentially strengthen or undermine sexual coercion as valid means to generate the positive outcomes. Simply stated, the present dissertation frames sexual offenders as

decision makers and examines the specific ways in which they process information relative to the context of their crimes, and the rewards and punishments for their actions.

To this end, three studies were undertaken. The source of the data that were used is described next (section 1.4.2), along with the presentation of the project's overall research scope and short introductions to each of the three studies conducted (section 1.4.3) and overview of the dissertation's outline (section 1.4.4).

1.4.2. Data source and sample information

The data utilized to conduct the present studies were gathered at the Massachusetts Treatment Center for Sexually Dangerous Persons (MTC) in Bridgewater, Massachusetts, between 1959 and 1991. In 1959, a special legislation (General Law of Massachusetts, ch. 123A Supp 1948; 1965 para 1-11) created the MTC for the purpose of evaluating and treating sexual dangerousness. In accordance with this legislation, offenders who were deemed to be sexually dangerous due to the repetitiveness, compulsivity, and/or violence of their sexual offenses were civilly committed, a procedure allowing their indefinite confinement until no longer considered sexually dangerous.

Between 1959 and 1991, about 5,000 state prisoners who had committed a sexual offense in Massachusetts were recommended for evaluation, but only 1,900 were actually transferred to the MTC for a full evaluation of their sexual dangerousness. Of all these offenders observed at MTC, 29.7% were found to be sexually dangerous offenders and civilly committed for a period of time; they constitute the *committed* group ($n = 565$). After observation, the other 1,330 offenders (70.3%) were transferred back to prison to serve the remainder of their sentences; a selected subgroup of these offenders constitutes the *observed* group ($n = 333$). The observed group comprised offenders chosen using two methods of selection. First, 200 offenders were matched with committed offenders on age at evaluation, marital status, and number of previous crimes. Second, 200 offenders were selected randomly; there was an overlap of 67 offenders between the matched and random selection processes.

The full MTC sample, therefore, comprises 898 male sexual offenders. All offenders included in the sample were males and 89.7% were white. At the time of their

index offense, they were on average 29 years old ($SD = 10.3$) and their criminal histories included an average of 14.8 charges ($SD = 14.6$), of which 5.1 charges were of a sexual nature ($SD = 6.9$). The types of sexual offenses for which they were referred to the MTC varied: 37.0% were rapists (i.e., committed sexual offenses against adult victims), 42.9% were child molesters (i.e., committed sexual offenses against children), and 12.8% were mixed offenders (i.e., committed sexual offenses against both adult and child victims). The remaining offenders (5.8%) were sent to the MTC for other types of sexual offenses, including noncontact offenses.

Information about the offenders included in the full MTC sample was obtained from their archival clinical and criminal files. These files, redacted of all identifying information, were coded under the supervision of Dr. Raymond Knight at Brandeis University in Massachusetts. The information coded in the MTC dataset includes variables covering information about life events and experiences in childhood and adulthood, general criminal history data, specific sexual offending data, and information about adjustment at the MTC.

In addition, a subsample of the full MTC sample was followed up for a period of up to 25 years to look specifically at recidivism. This subsample comprises offenders who were sent to the MTC for evaluation in the earlier period (1959-1984); it includes a total 599 sexual offenders. For these offenders, in addition to information from archival and criminal files, recidivism information was gathered from public criminal records from the State of Massachusetts and the Federal Bureau of Investigation.

1.4.3. Scope of the dissertation and description of three studies

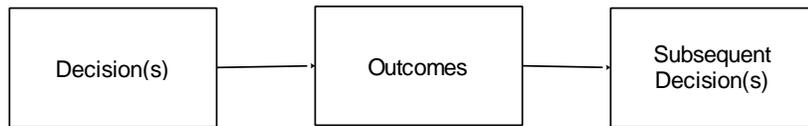
Overall, the present dissertation examines the range of decisions involved in the perpetration of sex crimes, their context, their consequences, and the overarching link between decisions and their outcomes over the sexual criminal career. To this end, three specific studies were undertaken (see Figure 1.1), largely built upon the four models of criminal decision making proposed by Clarke and Cornish (1985) in which the influence of relevant factors was modelled on four types of criminal decisions: initial involvement; specific crime events; persistence; and desistance. In their model of initial involvement, Clarke and Cornish argued that “background factors” such as personality traits and

knowledge about crime were relevant to understanding readiness to commit a specific type of crime.

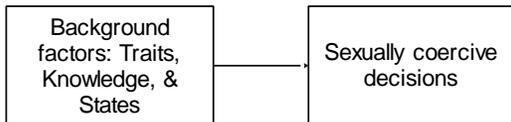
In the present dissertation, Study 1 examined more closely those background factors in decisions made by sexual offenders in their offenses and over their sexual criminal careers, specifically by including offenders' traits, knowledge, and states in models of sexually coercive decisions. Clarke and Cornish's second model represented decisions made during crime events and hypothesized that characteristics of the environment played a crucial role in explaining those decisions. Using this model, Study 2 examined the multiple decisions made during sexual crimes (notably those relative to the selection of the victim [*who?*], to a time to offend [*when?*], to a location to offend [*where?*] and to a method of assault [*how?*]) and investigated how variations in these decisions produced the various crime outcomes experienced by offenders as consequences. Finally, in their third and fourth models of decision making, Clarke and Cornish argued that while increased professionalism resulting in better decision making and corresponding changes in lifestyles would explain offenders' decisions to continue to commit the same type of crime, experiences of negative outcomes from committing crime and possibly other external events would instead explain offenders' decisions to stop offending. Study 3 tested one aspect of these models by examining the role of previous outcomes to sexual crimes (both positive and negative) to explain offenders' decisions to recidivate sexually or not upon release from custody.

The three studies conducted are explained next. It should be kept in mind, however, that a complete description of methodological aspects to each study (i.e., units of analysis, sample, variables, and statistical analyses conducted) is included in the first part of the chapters presenting each study (see sections 3.2 for Study 1, 4.2 for Study 2, and 5.2 for Study 3).

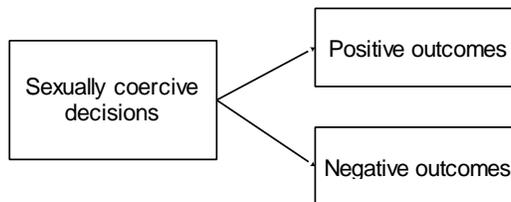
General hypothesized model linking decisions and their outcomes



Study 1. The context of sexually coercive decisions



Study 2. The link between sexually coercive decisions and sexual crime outcomes



Study 3. The influence of previous crime outcomes on decisions to persist or desist from sexual crime

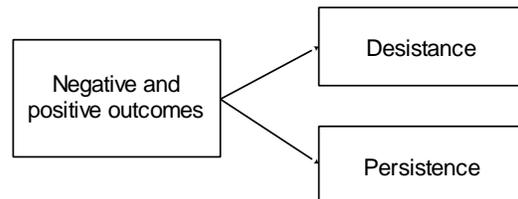


Figure 1.1. Delimitation of three studies

Generally, Study 1 explored how sexually coercive decisions of the MTC sample were made within, and were influenced by, the larger context in which they took place. It investigated three particular types of background factors to sexually coercive decisions: traits, states, and knowledge. Traits comprise measures of general and sexual impulsivity. States capture age, intoxication, and sexual arousal at the onset of sex offenses. Finally, specialized knowledge represents offenders' experience with different sources of knowledge about sexual coercion, found notably in history of sexual abuse within the family, history of sexual victimization, and history of sexual abuse perpetration. The general hypothesis investigated was that traits, states, and specialized knowledge are factors that influence how an offender goes about committing sexual crime.

Study 2 examined how the various sexually coercive decisions made in the course of sexual crime incidents are linked to the resulting outcomes experienced by offenders. Specifically, decisions made in sex crimes relative to the selection of victims, time and location of the assault, and method of sex assault were used to predict the realization of positive outcomes (completion, sexual touching, oral sex on victim, penetration, sexual acts by victim, number of acts, variety of sexual acts, arousal, climax, and repetition) and negative outcomes (victim resistance, delayed detection, conviction, prison sentence and length of sentence) by offenders. The general hypothesis tested was that how an offender commits a crime impacts the offender's experience of the consequences of the crime.

Study 3 investigated the aftermath of experiences of outcomes in offenders and looked specifically at evidence indicating possible reinforcing and/or deterrent effects of outcomes experienced in prior sex crimes on offenders' decisions to persist in sexual offending after release. According to our rational choice framework, we hypothesized that sexual offenders would consider the previous costs and benefits experienced as results of their previous offenses when deciding to continue offending or not. This would specifically imply that sexual offenders who experienced more negative outcomes from their sexual offenses would be more likely to desist from sexual offending and that offenders who experienced more positive outcomes in their sexual offenses would be more likely to persist in sexual offending.

1.4.4. Outline

In Chapter 2, we delve into the various theories that explain sexually coercive decision making. Relevant perspectives from the fields of economics, psychology, and criminology are explained and the empirical evidence in support of each perspective is reviewed. Concluding remarks include the integration of empirical findings from these multiple fields into a model of sexually coercive decision making.

Chapters 3, 4, and 5 each contain specific information about research aims, methods, results, and the discussion of Study 1, Study 2, and Study 3, respectively.

Finally, Chapter 6 contains a brief overview of the results obtained in each study and their limitations. The results are subsequently integrated in models of sexually

coercive decision making that adapt Clarke and Cornish's (1985) original models. These models are discussed, with a focus on their relevant theoretical and practical implications, notably regarding the current policies, prevention, and treatment. The chapter's final remarks include recommendations for the directions of future research.

Chapter 2.

Models of sexually coercive decision making: A review of the literature

Decision making is part of everyday life; some decisions are of little importance while others have long-term consequences. Some are made quickly and automatically while others involve more reflection, but it remains that decisions are consistently being made. The study of decision making, defined as the process of selecting one course of action among a series of alternatives or as “the resolution to do something, ... to behave in a certain way” (Szaniawski, 1980, p.328) has generated a large body of research. The significance of such research is highlighted in the bestowment, on seven different occasions since 1969, of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel to researchers having made contributions to knowledge on various aspects of decision making.

Because individuals make choices in multiple contexts, it is not surprising that understanding those choices and the making of decisions has been a topic of continuous interest in a variety of disciplines. Researchers from the fields of philosophy, political science, behavioral economics, psychology, computer science, and, more recently, neuroscience, have discussed and investigated decision making in a variety of contexts. This has resulted in the parallel development of different understandings and models about how decisions are made.

The present section reviews relevant models and aspects of decision making applicable to the choices of specific decision makers—contact sexual offenders—in the context of their sexual criminal activity; it consists of a comprehensive review of the study of decision making in the fields of behavioral economics, cognitive psychology, neuroscience, and criminology, and aims to summarize the process of making sexually coercive decisions in an inclusive and cross-disciplinary model. The study of sexual offenders has been in itself an interdisciplinary exercise; offenders were typically studied by social workers, psychologists, and psychiatrists (Lussier, Proulx, & Leblanc, 2005) who have focused strongly on the treatment of their condition (Ward & Siegert, 2002), but the

study of sexual offending has received a renewed interest from criminologists in the last decade.

2.1. Behavioral economics: the rational choice model

“Homo economicus will always act rationally, selfishly, rigidly pursuing [its] own interest ..., [it] will mercilessly seek to maximize [its] own benefit..., [and it] will impartially and rationally weigh advantage against disadvantage” (Håring & Storbeck, 2009, p. 2).

2.1.1. Expected utility maximization

In 1968, Becker, a prominent economist, put forward an idea that would influence the way criminal decision making would be thought of in the next decades by suggesting to “simply extend the economist’s usual analysis of choice” to decisions made by criminals (Becker, 1968, p. 170). He made the argument that criminal decisions are not different in nature than any other decisions and are made according to the utility maximization principle: criminal decision makers—like any other decision makers—make choices by weighing the costs and benefits attached to the different possible courses of action and select the one with the best possible outcome. For Becker, “a person commits an offense if the expected utility to him exceeds the utility he could get by using his time and other resources at other activities” (Becker, 1968, p. 176). There are some particularities to criminal decision making: they are made under a certain level of risk, likening it more closely to decisions made in gambling situations, for example. When a decision is made under risk, there is uncertainty about the realization of costs and benefits. The model of decision making in such risky cases is named the expected utility maximization model (EU model); it adds a probabilistic element to the weighing process.

According to the expected utility maximization model, decision makers conduct a calculus, weighing probabilities of the realization of costs and benefits when making a decision between alternatives. Two types of costs were identified by Becker: the probability that an offender is discovered and punished (p); and the size and form of such punishment (f). He hypothesized that increasing p and/or f would help combat crime occurrence and reduce the resulting societal harm, more so in the case of serious crimes “like murder and rape [which] should be solved more frequently and punished more

severely than milder offenses like auto theft and petty larceny.” (Becker, 1968, p. 208). Becker then proceeded to analyze US crime data for seven felonies, including forcible rape, regarding probabilities of apprehension and conviction (p) and average length of sentence (f); he found a positive relationship between the seriousness of the offense, p , and f . His analysis revealed that perpetrators of more serious offenses were, in fact, detected more often by the police and courts, and subjected to more severe punishment. Becker concluded that public policy can have an important impact on reducing criminal offending by increasing the rates of detection and/or the severity of punishment for more serious offenses.

2.1.2. Game theory

Game theory was first developed by Von Neumann & Morgenstern (1944) as a mathematical analysis of all the possible actions of two rational players in a game in which the gains of one player correspond to the losses of the other (i.e., a zero-sum game), in order to analyze how various strategies by each player produce various outcomes for them, such as having the upper hand. Simply stated, game theory analysis can be thought of as building a decision tree representing the various moves possible to each player in turn in order to model the range of possible outcomes. Although the word “game” might suggest otherwise, the game analytic approach has been applied to multiple types of interaction (social, economic, political) that are of a conflictual or cooperative nature (e.g., Chatterjee & Samuelson, 2014; Morrow, 1994; Tambe, 2012).

The argument has been made elsewhere that predatory violence constitutes a form of noncooperative, two-person zero-sum game (Griffiths, Grosholz, & Watson, 2012), and one can argue that sexual predation also fits that categorization. In the case of violence, the two players are the attacker and the attacked. Griffiths et al. (2012) conducted an analysis that applied the game analytic approach and the routine activities theory to predatory violence. Two possible courses of action by the players were identified: cooperation or violence. If the (would-be) attacker cooperates, no assault takes place and a regular interaction happens; alternatively, violent contact can be initiated. In response, the attacked player can cooperate, in which case the offender has the upper hand, or retaliate. By using a game theory approach, Griffiths et al. (2012) demonstrated that the attacker’s decision to commit predatory violence was a function of the (would-be) attacked

player's level of guardianship; notably, a high level of self-guardianship (i.e., the perceived ability to defend himself/herself and retaliate) would make the attacked player less suitable and reduce the attacker's motivation to commit the assault.

Although not specifically framed using a game theory approach, a recent analysis of the interactional process between victims and offenders in the context of sexual abuse of children has yielded important insight in the decision making process of sexual offenders at each step of the offense and the outcome (Leclerc, Smallbone, & Wortley, 2013). Similarly, the use of game theory analysis, although often a theoretical exercise, can shed light on the importance of both victims' and offenders' decisions during crime with regard to the outcomes experienced as a results.

2.1.3. Behavioral economics' contribution

The field of behavioral economics proposes a simple yet powerful framework to understand criminal decision making by stating that criminal offenders are rational actors who decide to commit crime based on an analysis of the costs and benefits, and that they consider various possible courses of action. This implies that occurrences of criminal behavior can be impacted by the manipulation of costs and benefits.

2.2. Cognitive psychology: the bounded rationality model

"This work has led to the sobering conclusion that, in the face of uncertainty, man may be an intellectual cripple, whose intuitive judgments and decisions violate many of the fundamental principles of optimal behaviour." (Slovic, 1981)

The field of cognitive psychology, which focuses on the study of cognition and various mental processes (American Psychological Association, 2015), has long been interested in decision making, and multiple studies have documented various ways in which humans process information and decide how to act. Part of this interest stems from empirical results that have revealed issues with the economical expected utility model of decision making (Allais, 1953; Ellsberg, 1961; Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). Notably, the study of choices made by real-life decision makers presented with uncertain options has indicated that the expected utility model does not

represent the way decisions are actually made (for a summary, see Lattimore & Witte, 1986); simply stated, the human brain does not think and act probabilistically. On the contrary, human beings have difficulty thinking probabilistically, even about simple problems (Shermer, 2008). Instead of complex probabilistic computations, cognitive psychologists have found simpler rules of decision making, notably documented in the body of work of Kahneman and Tversky, two cognitive psychologists who have studied heuristics (Tversky & Kahneman, 1974). They argued that the brain learns simple and efficient ways to make intuitive judgments, making decisions that are good enough as opposed to optimal, while limiting the mental effort required.

2.2.1. Information processing approach

The information processing approach considers humans to be information processors. This approach utilizes a recurrent analogy between the human brain and a computer, arguing that the human brain processes information received from the environment in a systematized way, comparable to the one of a computer program receiving a command (see Dawson, 2013 for a recent review of the idea of cognition as computation in history). As starting point, the environment provides information—or stimuli—as input to the various mental programs. Stimuli are first processed through the five senses (sight, hearing, touch, smell, taste) (Brynie, 2009), but this information is held for a very brief period of time (Sperling, 1960). At this stage, two mental processes are at play and can limit the processing of information; perception refers to detection or sensing of stimuli, while attention refers to the discriminant selection of a few stimuli to be attended to (Cowan, 1995), similar to a spotlight illuminating a limited amount of information (Derryberry & Tucker, 1994). Because an environment contains far more stimuli than can be attended to at once, only a limited amount of information can be attended to and transferred to the short term memory (Atkinson & Shiffrin, 1968). A more complete processing of this information occurs in the short term memory; namely, processes of information encoding, storage, retrieval, and rehearsal are involved. Basically, the information is converted and compared to information retrieved from the long term memory. The repetition of similar information over time results in its storage in the long term memory. Ultimately, an output—or decision—is produced.

The information processing approach provides an important framework for understanding decision making. First, it provides evidence in support of a model of bounded rationality; decision making is not optimal because the brain is limited in its processing of information. Second, the information processing approach has yielded a large scholarship about learning processes and knowledge, specifically with regard to the development of mental scripts and the study of expertise.

2.2.2. Learning models

Scripts

In the field of cognitive psychology, a mental script is “generally viewed as being a special type of schema, known as an event schema, [that] organizes our knowledge about how to understand and enact commonplace behavioral processes or routines” (Cornish, 1994a, p. 32). Basically, a script comprises a form of knowledge that is *specific to a type of event*, often everyday social behavior (see Schank & Abelson, 1977, with the oft-given example of dining at a restaurant) and comprises information about the *sequence* of the event and the appropriate *behavioral response*. Because the knowledge is structured in a sequential way, entering the first stage of a script activates the behavioral response to the following steps. For example, after entering a restaurant, a patron of a restaurant will be seated, select an item on the menu, place an order, eat, and finally pay. Therefore, mental scripts are routinization or automatization of decision making. Some research has investigated the formation of these mental scripts and found that they involve learning, and are acquired through observation, modeling and reinforcement.

It has been suggested that looking at crime as scripts might be useful (Cornish (1994a, 1994b), specifically to understand “how offenders go about committing crimes” (Cornish, 1994, p. 34). The script framework has been used with success to explain specific crimes, including burglary (Cornish, 1994a; Hockey & Honey, 2013), car theft (Cornish, 1994a; Cornish, 1994b; Morselli & Roy, 2008; Tremblay, Talon, & Hurley, 2001), carjacking (Copes, Hochstetler, & Cherbonneau, 2012), check fraud (Lacoste & Tremblay, 2003), cigarette smuggling to finance terrorist activities (Hiropoulos, Freilich, Chermak, & Newman, 2013), corruption (Rowe, Akman, Smith, & Tomison, 2012; Zanella, 2013), drug dealing (Jacques & Bernasco, 2013), drug manufacturing (Chiu, Leclerc, & Townsley, 2011), human trafficking for sexual exploitation (Savona, Giommoni, & Mancuso, 2013),

illegal trading of endangered species (Moreto & Clarke, 2013), illegal treatment and trade of waste (Tompson & Chainey, 2011), subway robbery (Cornish, 1994b), suicide bombings (Clarke & Newman, 2006), and vandalism (Cornish, 1994a; Cornish, 1994b).

Scripts have also been looked at in the context of sexual aggression. Specifically, some research has investigated the role of sexual scripts in sexual aggression. Sexual scripts are cognitive representations of what constitutes typical sequences of events in sexual interactions (Metts & Spitzberg, 1996) and “contain an individual’s generalized knowledge about the typical elements of a sexual interaction, including expectations about the behaviors of the partner and normative beliefs about the appropriateness of specific behavioral activities” (Krahé, Bieneck, & Scheinberger-Olwig, 2007, p. 687). In an investigation of sexual scripts of a sample of German adolescents, the presence of risk elements in males’ individual scripts was related to their engagement in sexually aggressive behavior (Krahé et al., 2007). Notably, males whose description of a typical sexual interaction included factors such as the consumption of alcohol and/or drugs, ambiguity regarding consent, and high sexual activity, reported engaging more often in such behaviors, suggesting that their conceptualization of a sexual interaction played a role in their engagement in sexual aggression.

There are two types of empirical studies of sexual offenders’ scripts. First, some studies have identified and documented the specific scripts used by sexual offenders. In a study of 72 serial sexual offenders who committed 361 offenses, three primary scripts were identified: coercive, manipulative, and nonpersuasive (Beauregard, Proulx, Rossmo, Leclerc, & Allaire, 2007). In an analysis of the same data focusing instead on the location of the sexual assault, three scripts were obtained: home, outdoor, and social settings (Deslauriers-Varin & Beauregard, 2010). This line of research is useful in pointing to the specific decisions made by offenders in these different scripts, with regard specifically to victim-search methods, attack methods, and location. The second type of sex offenders’ scripts studied have focused on documenting the process and sequence of sexual offenses. For example, Leclerc, Wortley, & Smallbone (2011a) have developed a script model for sexual abuse of children comprising eight steps: (1) encounter of victim in specific settings; (2) strategies to gain victim’s trust; (3) strategies to bring victim to the crime location; (4) location for sexual contact; (5) isolation; (6) strategies to gain victim’s cooperation during the assault; (7) outcomes of sexual crime, including sexual behaviors

and victim's participation; and finally (8) strategies to avoid victim's disclosure. Further analysis of the same sample focusing specifically on the interchange between the offender and victim yielded a 4-stage interactive process (Leclerc et al., 2013). First, the offender takes some actions in order to gain cooperation from the victim. In turn, the victim can react by complying or not. Based on the victim's reaction, the offender continues onto his behavioral script with no procedural variation if the victim complied, or has to make a variation to his script if the victim did not comply. Finally, the last stage, which is the product of the previous interaction between the offender and victim, is the performance of sexual behaviors.

Expertise

Another aspect of cognition that has interested psychologists is the study of expert thinking or expertise. Generally, an expert is a "person who has superior skill and the ability to be able to consistently perform at exceptionally high levels in a particular domain" (Bourke et al., 2012, p. 2393). Expertise researchers have looked closely at experts from various fields—often music, chess, and medicine—and have found that expertise in decision making is not innate (i.e., a talent that somebody is born with) but is instead acquired through extensive teaching/instruction and practice, often years of it (Ericsson & Charness, 1994; Ward, 1999). This line of research has established that expertise is, in fact, learned. Specifically, studies comparing the mental processes of experienced and novice medical doctors have indicated that experts reached diagnoses quickly, almost automatically, by searching through the extended amount of information stored in their memory (Patel & Groen, 1991). Both experts and novices used decision trees to reach a diagnosis in a given situation; however, experts did so fluidly and automatically, due to years of rehearsing the process of eliminating diagnoses based on a given set of symptoms. In comparison, novices went through this elimination process in a more mechanical way. Similar automaticity in decision making was observed in expert chess players (Kiesel, Kunde, Pohl, Berner, & Hoffmann, 2009). Overall, expertise research indicates that intensive practice results in experts having a complex knowledge structure that comprises a higher number of scripts. Practice makes them able to sort through information quickly to appraise a situation by selecting the relevant bits of information; this relevant information then activates the appropriate script as a response. As noted by Cornish (1994a), not everybody has the same scripts:

“scripts will vary in number, completeness, and defectiveness, according to the skills and knowledge of the individual offender about the requirements of the offenses in question. That is, the offender will have a repertoire of more or less well-developed and satisfactory scripts, culled from his or her own experience and the experiences of others” (p. 38).

Experts have multiple scripts that are very well developed.

Recognizing that there does not exist an “excellency” criterion in sexual offending in the same way that there does in many other athletic, artistic, and academic fields, and that formal coaching or teaching is nonexistent, Ward (1999) and Bourke et al. (2012) set out to explore the validity of the idea of expertise in sexual offending—perhaps they were prompted in part by the answer given by an offender when asked about his reason for sexually abusing a child: “I’m good at what I do” (Ward, 1999, p. 298). Ward (1999) developed a model of expertise specific to sexual offenses against children that was subsequently validated by Bourke et al. (2012) using qualitative interviews conducted with a sample of 47 male child sex offenders. Their model identified six phases to the acquisition of expert competencies relative to sexually coercive behaviors: (1) primary skill acquisition of deviant beliefs and actions during offenders’ early lives, either through early deviant sexual activity, sexual victimization, or vicarious exposure to a climate of exploitation and/or violence; (2) offense-supportive lifestyle reinforcing sexually deviant beliefs; (3) offense-related competency comprising “cognitive, emotional, and behavioral resources” used by offenders during their sexual crimes, representing their knowledge and skills facilitating their offending (p. 2402); (4) offense-related behaviors comprising victim selection, typology and victim management during sexual offending; (5) masking actions that allowed offenders to continue their sexually abusive actions, often over a long period of time; and (6) offense reflection, including offender’s introspection and analysis after the abuse in order to refine his offending process.

In addition, Bourke et al. differentiated between novice and expert child molesters based on their numbers of victims and years of detection avoidance. This last analysis yielded important differentiating factors between those two groups. Notably, experienced sexual offenders were found to have specialized knowledge and ability to detect emotional vulnerability in potential victims, use these vulnerabilities in their choice of offending strategies to commit the abuse (for example by using threats, rewards, friendship, or reassurance), and generally demonstrate the ability to deceive the victims, their

parents/guardians, and the legal authorities. Their study shows clear evidence that “expertise can occur in domains and involve actions considered to be socially repugnant, such as sexual offending” (p. 300).

2.2.3. Cognitive psychology’s contribution

The field of cognitive psychology, notably in the information processing approach, has contributed to the understanding of decision making and has documented the way human brains work and process information. It presents a cogent argument that rationality in decision making is, in fact, bounded due to limitations in the processing of information. In addition, the information processing approach has also been interested in the process of learning, which has important implications for understanding how mental scripts are used in sexually coercive decisions, and can even grow enough to constitute expertise.

2.3. Criminological theories of decision making

“Offenders seemed much more responsive to changes in the risks and effort of crime than predicted by contemporary crime theories.”
(Clarke & Felson, 1993, p. 4)

2.3.1. Classical school of criminology and deterrence theory

The school of classical criminology emerged in Europe during the 18th century’s Enlightenment period, also known as the Age of Reason in the context of an arbitrary and cruel justice system (e.g., Heath [1963] reported that more than 200 crimes were punished by death in England at the time). Two important thinkers of the school of classical criminology, Beccaria and Bentham, argued in support of reforming the justice system by moving from a retributive system toward a preventive system based on deterrence principles. This shift is important because it constructs criminal offenders in a fundamentally different way: as rational, hedonistic decision makers. Bentham wrote, “Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as to determine what we shall do” (Bentham, 1998). It follows that criminal behaviors, as the result of rational choices, can be prevented by the use of criminal sanction making the pains of punishment higher than the pleasures derived from a crime, but still proportional to the

severity of the crime. Specifically, Beccaria identified three characteristics of punishment that prevent crime:

“An *immediate* punishment is more useful, because the smaller the interval of time between the punishment and the crime, the stronger and more lasting will be the association of the two ideas of crime and punishment, so that they may be considered, one as the cause, and the other as the unavoidable and necessary effect. ... The *certainty* of a small punishment will make a stronger impression than the fear of one more severe, if attended with the hopes of escaping. ... That a punishment may produce the effect required, it is sufficient that the *evil* it occasions, should *exceed the good* expected from the crime.” (Beccaria, 1998, pp. 17-18, our emphasis).

The deterrence theory posits that in order to discourage criminal activity, criminal law must make the costs of criminal activity offset its gains; this is accomplished by making criminal sanctions certain, severe, and swift. Multiple studies have investigated deterrence and generally, a deterrent effect to punishment has been found (e.g., Kennedy, 2009; Nagin, 1998; Pratt, Cullen, Blevins, Daigle, & Madensen, 2006). In the case of certainty of punishment, studies have indicated that it has a deterrent effect on criminal activity. Punishment that is more certain reduces participation in criminal activities; however, the relationship between the two is not linear (for a detailed explanation, see (Loughran, Pogarsky, Piquero, & Paternoster, 2012); instead, results have indicated that a deterrent effect is only present once a particular level of certainty is reached, called a tipping point (Brown, 1978; Chamlin, 1991; Loughran et al., 2012; Tittle & Rowe, 1974; Yu & Liska, 1993). With regard to severity of punishment, empirical findings have indicated a deterrent effect to sanction that is more severe, but to a smaller degree than certainty (Jacobs & Piquero, 2013; Klepper & Nagin, 1989; Paternoster, 1987; Williams & Hawkins, 1986). Finally, celerity is the aspect of punishment that has been studied the least, but available empirical evidence suggests that it does not create an independent reduction in criminal activity (Nagin & Pogarsky, 2001; Yu, 1994).

Two additional findings from general deterrence research raise questions about the deterrent effect of criminal sanction. First, some research indicates variability in “deterrability,” defined as the “capacity or willingness of the would-be offender to engage in this calculation [of costs versus benefits when deciding to offend]” (Jacobs, 2010, p. 420) or “responsiveness to sanction threats” (Pogarsky, 2002, p. 432) (see also Piquero, Paternoster, Pogarsky, & Loughran, 2011). Notably, a subgroup of offenders was

consistently found to be insensitive to the threat of legal sanction (Nagin & Paternoster, 1993; Parker & Grasmick, 1979; Pogarsky, 2002; Zimring & Hawkins, 1968). Andenaes (1974) suggested that deterrent effects were a function of an individual's level of criminal proclivity; accordingly, individuals with low or very high criminal proclivities were unlikely to be deterred by criminal sanctions², but individuals with middle-range levels were hypothesized to be the ones who would most likely experience a deterrent effect (see also Pogarsky, 2002, who distinguished between acute conformist, deterrable, and incorrigible offenders). Second, there is some indication that deterrence might be more about perceptions than facts regarding punishment. For example, Kleck, Sever, Li, and Gertz (2005) investigated specifically what they called "the missing link" of deterrence research—the correspondence between perceptions and actual level of punishment—by surveying 1,500 people. Their results indicated that there was no significant association between the two and that, consequently, changing the actual levels of punishment was unlikely to have a deterrent effect on crime commission without a corresponding change in perception. At best, the empirical evidence regarding the weight of criminal sanctions on criminal decision making is mixed; any "conclusion regarding the extent to which deterrence works, though perhaps a bit premature, comes down to this: it depends—on the sample, the offense, and the offender" (Loughran et al., 2012), p. 733).

Findings about sexual coercion and deterrence by threats of legal sanction are also mixed. In a nonoffending sample comprising 94 undergraduate male students, Bachman, Paternoster, & Ward (1992) found the certainty of formal sanction had a restraining effect on projected commission of sexual assault. Conversely, no significant association was identified between punishment certainty and history of sexual aggression in a community sample of 120 male participants aged 18-30 (Strang & Peterson, 2013). In a sample of offenders, Hale (1997) surveyed 132 rapists and analyzed the nature of their various anticipated rewards, deemed risks of apprehension, and likelihood of committing rape. In general, a deterrent effect was observed and risk of apprehension impacted offenders' self-reported likelihood of attempting rape; however, some anticipated rewards impacted offenders' tolerance of risk of apprehension. For example, offenders who reported raping

² Those with little criminal proclivity experience no deterrent effect due to their lack of engagement in criminal activities in the first place. In those with high criminal proclivities, the lack of deterrent effect is due to their incorrigible status.

with motives of feeling good, adventure and/or danger, and fulfillment of a fantasy, reported they would rape even in conditions with high risk of detection.

The implementation of severe sex offender policies in the US during the 90's—requiring their registration and notification of the community (SORN laws)—has yielded some interesting macro-level research on the deterrent effect of these specific sexual offender policies on offending rates. In a quasi-experimental study evaluating if such laws had deterred first time and recidivist sexual offenders in 10 US states, Vásquez, Maddan, & Walker (2008) found that they had no impact in six states, caused a decrease in rape rates in three states, and finally increased rape rates in one other state. No deterrent effect was found for the introduction of SORN laws in the state of New York in a time-series analysis of monthly rates of rape and child molestation over a 22 year period, half of which was prior the implementation of the new laws, the other half after (Sandler, Freeman, & Socia, 2008). Finally, Letourneau, Levenson, Bandyopadhyay, Armstrong, & Sinha, (2010) have looked at the impact of the implementation of SORN laws in South Carolina specifically. Their results indicated that the laws were associated with a decreased rate of first-time sexual offenses, providing support for a deterrent effect. At best, the evidence about a possible deterrent effect of punishment on sexually coercive decision making is largely inconclusive.

2.3.2. Rational choice perspective

Clarke and Cornish developed the rational choice approach in the 80's by building upon various findings from the fields of the sociology of deviance, criminology, economics, and cognitive psychology (Clarke & Cornish, 1985). At its core, the rational choice perspective puts forward a framework for understanding how decisions are made and proposes rationality and self-interest as the foundational principles of decision making. According to this approach, criminal behavior is not fundamentally different from noncriminal behavior; actions tend to be rational and goal-oriented to satisfy “commonplace needs for such things as money, status, sex, and excitement” (Clarke & Felson, 1993, p. 6). Rational choice approach states that the decisions and actions of an offender are the result of a weighing process that aims to minimize costs and maximize benefits. Even though the theory depends primarily on rationality as the criterion for decision making, it nonetheless recognizes that perfect rationality is unattainable and that rationality is limited or bounded (Cornish & Clarke, 1986), and that offenders often have

limited information about the settings, are forced to make quick decisions during the commission of a crime, and might also have cognitive deficits and/or be under the influence of drugs or alcohol at the time. Therefore, Clarke & Cornish (2001) wrote that offenders “are generally doing the best they can within the limits of time, resources, and information available to them. This is why we characterize their decision making as rational, albeit in a limited way” (p. 25). Overall, criminology’s rational choice perspective proposes an instrumental model of rationality that includes the costs/benefits analysis framework of economics theory in conjunction with elements of the bounded rationality framework.

In their first paper developing the rational choice approach, Clarke and Cornish (1985) pointed out that there was a need for more research that investigated decision making in specific types of crime. Notably, they identified four types of criminal decisions to be modeled: (1) initial involvement; (2) crime event; (3) continuance; and (4) desistance. They suggested that looking at the various costs and benefits perceived and experienced by offenders at these four stages of criminal activity would give better insight into their decision making. Shortly after, Cornish and Clarke (1986) put together an edited volume presenting empirical pieces by various contributors who utilized the rational choice framework to understand various offenders, including shoplifters (Carroll & Weaver, 1986), robbers (Cusson & Pinsonneault, 1986; Feeney, Cornish, & Clarke, 1986; Walsh, 1986), and drug addicts (Bennett, 1986). The rational choice approach has been used to investigate burglary (Bennett & Wright, 1984; Cromwell, Olson, & Avary, 1991; Rengert & Wasilchick, 1985; Wright & Decker, 1994; Wright & Logie, 1988), corporate crime (Paternoster & Simpson, 1993), drunk driving (Homel, 1993), gun use in crime (Harding, 1993), political violence (M. Taylor, 1993), ransom kidnapping (Marongiu & Clarke, 1993), and auto theft (Fleming, 1999). Generally, the rational choice perspective offers a framework for examining costs, benefits and criminal decision making; empirical studies using the rational choice approach produce information that is specific to a type of crime and that details aspects of this crime process.

The body of work looking at sexual offending from a rational choice perspective has showed interesting patterns in offenders’ processes of committing sexual crimes. An analysis of the crimes of 10 pedophiles yielded a 4-step sequence of decisions in the commission of their crimes against children: (1) select a location to look for a victim; (2)

decide on the best time to perpetrate the sexual assault; (3) choose how to approach the victim; and (4) assault the victim (Proulx, Ouimet, & Lachaine, 1995). This preliminary model has been subsequently refined. Beauregard, Rossmo, and Proulx (2007) reviewed the crime narratives of 69 Canadian serial offenders and developed a 9-stage model representing the sequence of decisions made in the commission of sexual assault. The first three phases were related to an offender's search for a victim: (1) the context in which offenders and victim spent their time (i.e., their routine activities); (2) the selection of a type of setting in which to look for a sexual victim; and (3) the selection of a victim based on his/her characteristics and settings. The next six stages pertained to the attack of an intended victim by the offender; they included the selection of (4) a method to approach the victim; (5) a location at which to attack the victim; (6) a method to move the victim to the crime site if required; (7) a crime location; (8) a method to commit the sexual crime; and (9) a location at which to release the victim. A subsequent analysis of the same data focused on offenders' reported reasons for making their offending decisions at three phases of sexual crimes ([1] pre-crime; [2] crime; and [3] post-crime) (Beauregard & Leclerc, 2007). Results indicated that many offenders considered aspects of costs and benefits before committing the crime; they engaged in some form of premeditation and perpetrated sexual offenses in low-risk conditions. During the crime and in its aftermath, some offending strategies and behaviors were found to be determined by situational factors, which further establishes that sexual offenders adapt their behavior to situational cues and/or choose to offend in specific situational settings. Both the situation and moment of the offense were also found to influence the offending behaviors in cases of child sexual abuse and it was suggested that sexual offenders do consider the costs and benefits attached to perpetrating offenses at different locations and times (Leclerc, Beauregard, & Proulx, 2008; see also Leclerc, Proulx, & Beauregard, 2009). Overall, "sex offenders are decision makers and act in a rational, although sometimes bounded, way during the commission of their crimes ..., [they] make decisions as to the planning of their crime, the different strategies used and some post offense behaviors" (Beauregard & Leclerc, 2007, p. 126).

2.3.3. Criminology's contribution

The deterrence theory of criminal punishment draws heavily on the economists' expected utility maximization model of decision making and constitutes a concrete

application of it, with, at its core, the basic idea of rendering criminal action unattractive as a behavioral option by raising the legal costs (or punishment). Essentially, this approach assumes rationality from criminal decision makers who are hypothesized to be informed and weigh costs against benefits when making decisions relative to committing crime. In comparison, the criminological rational choice approach adopts a more fluid version of rationality, one that includes some of the limitations influenced by the field of cognitive psychology, in which decision makers weigh costs against benefits, but that also recognizes that this process is often subjected to serious limitations in the criminal context. The most important contribution of these criminological theories of decision making is the volume of empirical tests they have produced, along with the documentation of decision making in various specific criminal contexts.

2.4. Additional factors: the influence of traits and states

"What goes into these decisions? What tiny factors, invisible, in the jutting edges of personality and circumstance, contribute to this inevitability?" (Ball, 2011, p. 41)

2.4.1. States

Emotions: Dual processing models

The apparent distinction of some decisions due to the emotionality of the decision maker is nothing new; in his explanation of a soul, Plato distinguished between three parts: the appetite (located in the belly), the spirit (located in the heart), and the reason (located in the head) (Plato, 1966). There is an extensive body of literature on the distinction between "cold blooded" and "hot blooded" decision making, notably found in the various dual process theories (e.g., Chaiken & Trope, 1999; Epstein, 1994; Hsee & Rottenstreich, 2004; Kahneman, 2011; Metcalfe & Mischel, 1999; Mukherjee, 2010; Sloman, 1996; Smith & DeCoster, 2000; Strack & Deutsch, 2004; Van Gelder, 2012). The basic idea put forward in dual process theories is that there is not one, but two, mental processes or modes at play when making a decision. While it would be lengthy and outside the scope of the present review to cover in detail each model proposing a two-mode mental processing of information, it is useful for our purposes to summarize the various ways in which these two modes have been described. Table 2.1 presents the terminological variety used to

identify and describe these two modes; it offers a fuller picture of the way the two modes operates (see Evans, 2008, for a previous, similar exercise). Simply put, the first mental mode is slow and reflective, and it requires more time to operate but is able to consider longer term consequences to possible courses of action; it corresponds more closely to what is thought of as “rationality”. In comparison, the second mental mode is quick and automatic, mostly interested with the present, and is influenced by emotional states. It is involved in decisions regarding human desires, such as impulses for various pleasures and physical satisfaction.

Technological advances in brain imaging have shown the center of each mental processing system to map out on different areas of the brain, validating dual process models of decision making. The amygdala, the brain’s emotional core, evaluates information relative to immediate possibilities. Gupta, Kosciak, Bechara, & Tranel (2011) considered the amygdala to be “part of an ‘impulsive,’ habit type system that triggers emotional responses to immediate outcomes” (p. 760). In comparison, the prefrontal cortex is where most executive functioning happens, including judging the moral and social acceptability of different actions and identifying alternative possibilities and the probabilities attached to their future consequences. The prefrontal cortex is, therefore, where self-control happens; it has the ability to delay gratification and to prevent certain behaviors.

Van Gelder’s “hot/cool” model of decision making is only one of the many dual process theories introduced in the previous section, but it constitutes the first one that has been developed primarily for application in a criminological context (Van Gelder, 2012). Similar to other dual process models, Van Gelder’s model accounts for the interplay of emotions (called the “hot” system) and cognition (the “cool” system) in decision making. Van Gelder posited that the cool, or cognitive, system can weigh costs against benefits and consider long-term consequences of a range of actions while “the hot mode ... responds to different situational characteristics, such as the temporal and spatial immediacy of decision outcomes, their controllability, and the vividness with which they can be imagined, but remains largely unresponsive to probabilities and outcomes themselves” (p. 752). An important distinction is made between emotions, moods and visceral states. Moods are “low-intensity, diffuse (i.e., unfocused), and relatively enduring affective states without a clear antecedent cause” while emotions are “more intense,

focused, and short-lived and usually have a definite cause” (Van Gelder, Elffers, Reynald, & Nagin, 2013, pp. 5-6). Sexual arousal is considered a “visceral drive state,” a state comparable to drug craving in that it is beyond the control of the cool system that regulates actions.

Table 2.1. Summary of terminology used to describe the two mental processes involved in decision making

“Rational” mental mode	“Bounded rationality” mental mode	Authors
Controlled	Automatic	Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977
Reflective	Impulsive	McClure, Laibson, Loewenstein, & Cohen, 2004; Strack & Deutsch, 2004
Cognitive	Affective	Chaiken & Trope, 1999; Epstein, 1994; Hsee & Rottenstreich, 2004; Metcalfe & Mischel, 1999; Mukherjee, 2010; Van Gelder, de Vries, & van der Pligt, 2009; Van Gelder & de Vries, 2012
Cold	Hot	Metcalfe & Mischel, 1999; Van Gelder, 2012
Slow	Fast	Kahneman, 2011
Forward-looking	Myopic	Thaler & Shefrin, 1981
Rational	Experiential	Epstein, 1994
Systematic	Heuristic	Chaiken, 1980, Chen & Chaiken, 1999
Explicit	Implicit/tacit	Evans & Over, 1996; Reber, 1993
Analytic	Heuristic / Intuitive / Holistic	Evans, 2006; Hammond, 1996; Nisbett, Peng, Choi, & Norenzayan, 2001
Ruled-based	Associative	Sloman, 1996; Sloman, 2002; Smith & DeCoster, 2000
Conscious	Adaptive unconscious	Wilson, 2002
Higher order	Stimulus bound	Toates, 2006
Reflective	Reflexive	Lieberman, 2003

Many experiments on sexually aroused subjects have produced interesting evidence on decision making under the influence of the “hot system.” Ariely (2010) asked a sample of male university students to report their sexual preferences and their likelihood of engaging in immoral behaviors and in unsafe sex. Participants had to answer these questions twice: first, in a “cold” state in a public space, and second, in a “hot” state, while viewing pornography and masturbating in private settings. The results indicated important distinctions between participants’ responses; notably, when aroused, larger proportions of respondents reported they would engage in odd sexual activities (72% higher), in immoral sexual activities (136% higher), and would not use a condom (25% higher). In a previous,

similar study, Ariely and Loewenstein (2006) concluded that an “increase in motivation to have sex produced by sexual arousal seems to decrease the relative importance of other considerations such as behaving ethically toward a potential sexual partner or protecting oneself against unwanted pregnancy or sexually transmitted disease” (p. 95; see also Wortley & Smallbone, 2014); simply stated, they suggested that sexual arousal narrowed the focus of decision makers, similar to a tunnel-vision effect during which the possible rewards of sexual gratification overshadowed other aspects of the decision, including the morality and legal costs (see also Bouffard, 2014). In an experiment exploring the impact of sexual arousal on subjects’ ability to identify consequences of sexual coercion, Exum & Zachowicz, (2014) found that the aroused subjects were slower than the control group at identifying legal ramifications to sexual assault (the costs) but quicker to identify sexual gratification (the benefits).

Anger is another emotional state that results in “hot” thinking, and multiple studies have documented its impacts on decision making. Generally, anger has been linked with the use of heuristics or intuition in decision making (Bodenhausen, Sheppard, & Kramer, 1994; Cai Xing, 2014; Grežo & Pilárik, 2013; Lerner, Goldberg, & Tetlock, 1998; Lerner & Tiedens, 2006; Tiedens & Linton, 2001) and it was also found to inhibit ethical decision making (Klignyte, Connelly, Thiel, & Devenport, 2013; Thiel, Connelly, & Griffith, 2011). In a meta-analysis that reviewed 240 studies involving emotions and decisions, Angie, Connelly, Waples, and Klignyte (2011) calculated that the largest effects of anger were found on decisions relative to policy and on risk-seeking behavior. Specifically, angry decision makers took more punitive stances in mock trials and on other social policies (e.g., Bright & Goodman-Delahunty, 2006; Lerner, Gonzalez, Small, & Fischhoff, 2003; Nabi, 2003; Nuñez, Schweitzer, Chai, & Myers, 2015). They also made decisions involving more risk (e.g., Lerner & Keltner, 2001).

Similar to sexual arousal, anger seems to focus attention away from nonimmediate factors (see also Loewenstein, 1996). An experiment investigating intimate partner violence indicated that men from the batterers group that were submitted to the anger-inducing condition reported the highest utilization of aggressive reactions in the context of a marital conflict (Nedegaard & Sbrocco, 2014); in other words, anger made participants who engaged in intimate partner violence able to identify more positive aspects of engaging in abusive behaviors, particularly the state of being in control. In a study

investigating the impact of anger on commission of assault in a sample of 382 young adults, participants were familiarized with a detailed vignette and had to rate how angry they would be in such a situation, as well as report the likelihood of being caught and punished (Carmichael & Piquero, 2004). Results indicated that formal or informal sanction did not impact subjects with a high level of anger and self-reported involvement in assault. Similar results were obtained by Bouffard (2014b) regarding the likelihood of involvement in drunk driving, using a sample comprising more than 1,000 male and female felons from the southwest US. Results also indicated that anger reduced the perception of legal costs in felons. In an experiment conducted among a sample of Dutch students, results indicated that angry participants were more likely to make a criminal choice and less likely to report feeling ashamed, prompting the authors to suggest that anger muted the potential deterrent effect of anticipated feelings of shame (Van Gelder, Raynald, & Elffers, 2014).

Age

Empirical findings have indicated that age is another factor associated with specific limitations of decision making, specifically with regard to psychosocial maturity. In an interesting study of temporal perspective, peer influence, and risk perception (i.e., three aspects of psychosocial maturity), Fried & Reppucci (2001) asked a sample of 56 adolescents recruited at an alternative high school to imagine they are participants in a vignette scenario which leads to the commission of a crime with serious consequences. They were asked to identify possible future consequences to their actions, and to report the impact of friends' pressure along with their perception of the likelihood of being caught. The results indicated age-based effects on all three psychosocial maturity variables, specifically a U-shaped quadratic effect. This demonstrates that the youngest and oldest adolescents were better at thinking about future consequences, resisting peer influence, and evaluating risks; in comparison, adolescents in the middle of the age range (15-16 years old) made poorer decisions (see also Steinberg, 2008). Interestingly, the authors noted that the ages of this rise in poor decision making correspond to the ages at which delinquency peaks (Moffitt, 1993). Including age in models of sexually coercive decision making is warranted considering that juvenile sexual offenders commit about a third of all sexual offenses (Davis & Leitenberg, 1987; Finkelhor, Ormrod, & Chaffin, 2009).

Alcohol and drugs

Alcohol and other drugs have been shown to alter decision making. In a laboratory experiment about the effects of alcohol on risk taking, results indicated that higher levels of alcohol increased the selection of risky response options in participants (Lane, Cherek, Pietras, & Tcheremissine, 2004). In the case of alcohol and criminal decision making, a quasi-experiment conducted at college parties demonstrated that heavier drinking was associated with reduced moral condemnation of crime, increased desirability of criminal behavior, and reduced perception of risks attached to committing crime (Lanza-Kaduce, Bishop, & Winner, 1997). These lapses in decision making can manifest as increased aggression. In a Swedish sample of violent offenders recruited from the forensic psychiatric center of a national prison, Haggård-Grann, Hallqvist, Långström, & Möller (2006) investigated the risks of interpersonal violence in the 24-hour period following the consumption of various substances, including alcohol, cannabis, amphetamines, and other prescribed medication. Their results indicated that consuming alcohol or amphetamines increased the risk of violence (see also Boles & Miotto, 2003; Bushman & Cooper, 1990; Ito, Miller, & Pollock, 1996; Miczek & Tidey, 1998; Murdoch & Ross, 1990; Wright & Klee, 2001); in comparison, cannabis and other antidepressant drugs decreased the risks of violence in the 24-hour follow-up period (see also Myerscough & Taylor, 1985). The frequency of alcohol involvement in sexual assault warrants consideration of the impact of these substances on sexually coercive decision making (Abbey, Ross, & McDuffie, 1994; Abbey, Zawacki, Buck, Clinton, & McAuslan, 1994; Crowell & Burgess, 1996; Kraanen & Emmelkamp, 2011; Langevin & Lang, 1990; Looman, Abracen, DiFazio, & Maillet, 2004).

2.4.2. Traits

Criminal proclivity or low self-control

The simplest theory stipulating the influence of traits on criminal decisions comes from Gottfredson and Hirschi (1990) who made the argument that low self-control in individuals causes them to engage in criminal activities if presented with illegal opportunities. The core concept to their theory, self-control, can be described as a propensity to refrain from or to commit crime. The authors believed that self-control develops in childhood through supervision and through punishment of deviant actions by

parents and other caregivers. Children whose supervision and punishment are lacking or ineffective are, therefore, not socialized properly and develop “low self-control.” As a result, they are more likely to participate in criminal activities and other analogous activities (i.e., smoking, drinking, using drugs, gambling, engaging in risky sexual activities, and being accident prone). Six dimensions to self-control were identified: “People who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, shortsighted, and nonverbal, and they will tend to engage in criminal and analogous acts” (Gottfredson & Hirschi, 1990, p. 90). Once formed, the trait of low self-control is deemed to be stable over the life course, consisting, therefore, of a general proclivity to commit crime and be involved in other activities providing immediate gratification for little effort.

Multiple studies have investigated the role of low self-control in a range of deviant behaviors (e.g., academic dishonesty [Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1998], binge drinking [Gibson, Schreck, & Miller, 2004], child maltreatment [Emery, Nguyen, & Kim, 2014], general crime [Evans, Cullen, Burton Jr., Dunaway, & Benson, 1997], general delinquency [Lagrange & Silverman, 1999], intimate partner violence [Cheung, Choi, & Cheung, 2014; Sellers, 1999], sexual behavior during adolescence [Hope & Chapple, 2004], software piracy [Higgins, 2004], and school bullying [Moon, Hwang, & McCluskey, 2011]). Empirical results have consistently indicated that low self-control is significantly related to criminality and other deviance, prompting Pratt and Cullen (2000) to report “fairly impressive empirical support for Gottfredson and Hirschi’s theory” in a meta-analysis on the topic (p. 951). The contribution of low self-control was modest, however, and explained between 5 and 9 percent of the variance in criminality and deviance (Pratt & Cullen, 2000); specifically, some authors have noted that other variables are also equally or more strongly related with measures of involvement in crime and deviance (Evans et al., 1997; Gibson & Wright, 2001; Wright, Caspi, Moffitt, & Silva, 1999). Although Gottfredson and Hirschi’s general theory of crime is applicable to sexual offenders, there have been no investigations focused on self-control in samples of sexual offenders; studies that included low self-control only did so as part of a long list of factors (e.g., Hanson, 2002). Instead, the literature about traits and sexual offending has focused on the concept of psychopathy, in line with some authors’ suggestions that low self-control might, in fact, be a proxy for psychopathy (DeLisi, 2003, 2005, 2009; DeLisi & Vaughn,

2008; see also Vaughn, DeLisi, Beaver, Wright, & Howard, 2007, who showed that psychopathic trait variables absorbed the predictive validity of low self-control).

Psychopathy

Psychopathy is a personality disorder that is associated with specific interpersonal, affective, lifestyle, and behavioral correlates (Cleckley, 1976; Hare, 1991). In interpersonal interactions, psychopathy is characterized by superficial charm, narcissism, lying, and manipulation, while psychopathy's affective features are callousness, lack of empathy, failure to accept responsibility, and lack of guilt. Psychopathy manifests in one's lifestyle through the absence of realistic life goals, parasitic orientation, irresponsibility, and stimulation seeking. Finally, psychopathy's behavioral demonstrations include poor control over behavior, early behavioral problems, juvenile delinquency, noncompliance with release conditions, and criminal versatility. In various experiments studying decision making of incarcerated males having to select between immediate small rewards or larger future rewards and/or future punishment, psychopathic traits have been associated with risky and disadvantageous decision making and difficulties in delaying gratification (e.g., Blair, Morton, Leonard, & Blair, 2006; Blair et al., 2004; Blanchard, Bassett, & Koshland, 1977; Mitchell, Colledge, Leonard, & Blair, 2002; Moses, Ratliff, & Ratliff, 1979; Newman, Kosson, & Patterson, 1992; Newman, Patterson, Howland, & Nichols, 1990); simply stated, people with more indicators of psychopathy are unable to forgo a small immediate reward, even if the rewards gets larger in the future or punishment can be avoided altogether.

Psychopathy has also been linked with sexual coercion. In community samples, psychopathy was found to be associated with the use of deception in sexual contexts (Seto, Khattar, Lalumière, & Quinsey, 1997) and in self-reported sexual coercion and aggression (Hersh & Gray-Little, 1998; Jones & Olderbak, 2014; Kosson, Kelly, & White, 1997; Mouilso, Calhoun, & Rosenbloom, 2013; Petty Jr & Dawson, 1989). Similar findings are observed in samples of sexual offenders. Specific traits associated with psychopathy—notably, callousness/lack of emotion, impulsivity, and cunning/charm—are included in etiological structural models predicting sexual coercion against women and children and are validated in large samples (Daversa & Knight, 2007; Knight, 2010; Knight & Guay, 2006; Knight & King, 2012). DeGue, DiLillo, and Scalora (2010) emphasized the important role of personality traits, which included measures of psychopathy, in predicting

sexual coercion in a sample of 360 adult males adjudicated to a state correctional facility. In addition, psychopathy appears to be linked with persistence in sexual offending; a meta-analysis of 82 recidivism studies including more than 29,000 sexual offenders indicated that one of the strongest predictors of sexual recidivism is antisocial orientation, which includes aspects of psychopathic personality.

Personality research

Specific personality traits also appear to be associated with criminality. Personality consists of “relatively consistent patterns of thinking, feeling, and behaving manifested by individuals” (Jones, Miller, & Lynam, 2011, p. 329). Typically, five personality traits (“the big five”) have been identified through factor analyses: extraversion; conscientiousness; openness; agreeableness; and neuroticism (for complete explanation see McCrae & Costa, 1997; McCrae & John, 1992). In a meta-analysis reviewing 53 studies on personality and antisocial behavior, three traits—conscientiousness, agreeableness, and neuroticism—were found to have the most robust and consistent relationships with antisocial behavior (ASB) and aggression (Jones et al., 2011; see also Miller & Lynam, 2001). The strongest mean size effect on ASB and aggression was found in the trait of agreeableness, with antagonistic aspects being associated with these two outcomes. With regard to the trait of conscientiousness, the mean effect size was smaller and negative, indicating that people with the ability to delay gratification, persevere, and consider consequences prior to acting were generally less involved in ASB and aggression. Finally, the trait of neuroticism, defined as a tendency to experience negative emotions, was positively associated with ASB and aggression.

The prevalence of these traits in sexual offenders has been investigated. In a sample of Spanish men composed of child molesters, rapists, nonsexual offenders, and nonoffenders, results indicated that, as a group, sex offenders had high neuroticism and low extraversion (Becerra-García, García-León, Muela-Martínez, & Egan, 2013). In another study, sexual offenders against children were found to have high neuroticism and low extraversion and conscientiousness when compared to nonoffending males (Dennison, Stough, & Birgden, 2001). In an analysis of a sample of college males, Voller & Long (2010) compared rape perpetrators to sexual assault perpetrators and nonperpetrators on personality traits. Their results illustrated that rape perpetrators had lower agreeableness and conscientiousness than the two other groups; they also had

lower extraversion than the nonperpetrators. Finally, in a sample of Dutch psychiatric patients, the sexually violent patients were found to have higher neuroticism and agreeableness when compared to nonsexually violent patients (Hornsveld & Kruyk, 2005). Overall, neuroticism, low conscientiousness, extraversion, and agreeableness are common traits in sexual offenders; therefore, it is possible to understand sex offenders as experiencing more negative emotions (including anxiety and anger), having difficulty seeking the company of others, being more antagonistic in their interpersonal strategies and reactions to others, and having a hard time delaying gratification and thinking before acting.

2.4.3. Traits' and states' contribution

Although traits and states do not constitute typical factors associated with decision making, there is a body of empirical evidence suggesting that such factors are important to understand the decision-making process. With regard to traits, the concept of impulsivity appears to be important to understand making “risky” behavior, including antisocial and/or aggressive behavior. This notion of impulsivity is important to the multiple fields that have been interested in such factors. It is notably found in the conscientiousness trait of personality theory, as one of the facets of the notion of psychopathy, and in the criminological notion of low self-control. Throughout various investigations having operationalized the concept of impulsivity in various ways, findings consistently highlight its influence on decision making.

2.5. An integrative model of sexually coercive decision making

Evidently, there are a variety of factors at play in sexually coercive decision making. While the field of behavioral economics has provided a general model of benefits maximization and costs minimization to make decisions, cognitive psychology has documented the mental processing of information, notably through the development of mental scripts and (sometimes) expertise. Additionally, the influence of traits and states should not be discounted, considering the prevalence of certain traits in sexual offenders (e.g., psychopathy, neuroticism, impulsivity) and of certain states at the onset of their

offenses (e.g., sexual arousal, anger, the influence of alcohol or drugs). Introducing variables capturing the “hot” mode of decision making makes intuitive sense in the case of contact sexual crimes, which are by nature nonmonetary and present important emotional and physical aspects. A full model of sexually coercive decision making should, therefore, include all these various factors and take into consideration their influence, proximal and distal.

Figure 2.1 presents an integrative theoretical model of factors influencing sexually coercive decision making in contact sexual offenders. Four types of sexually coercive decisions are considered in accordance with Clarke & Cornish's (1985) recommendation about the development of relevant crime specific models of decision making: (1) initial involvement; (2) crime event; (3) continuance; and (4) desistance. Decisions are considered to be sexually coercive if they contribute to an offender's larger goal of committing a contact sexual offense; therefore, a range of sexually coercive decisions are included in the model developed, some of which represent a broad aspect of sexual coercion (e.g., decision to reoffend), while others cover a narrower aspect (e.g., choice of location). In addition, although desistance from sex crimes technically does not constitute a sexually coercive decision, it is still treated as one because it is part of the range of decisions considered in the context and sequence of sexual coercion. Factors impacting sexually coercive decisions are included and represented based on their proximity to or distance from the decision itself. Factors proximal to sexually coercive decisions are the presence of alcohol and/or drugs, and emotional states. This context is specific to the start or onset of each offense; for example, it is possible to imagine a scenario involving an offender who is intoxicated during his first rape, but not in subsequent sexual assaults. Some factors are a little more distal to the decision: age and knowledge. Although also specific to each offense, these factors are deemed to specifically influence some aspects of decision making in the general period of the offense. For example, an offender has specific sexual scripts and fantasies at the time of his first offense, along with an evaluation about the risks and benefits of rape. During his second rape, the content of his knowledge has changed and now includes additional information based on outcomes experienced as a result of the previous rape. Finally, the most distal group of factors relate to traits that are mostly stable in offenders over time, namely some aspects of their personality that have been found to influence decision making relative to risk perception, delay of gratification, and involvement in risky behaviors.

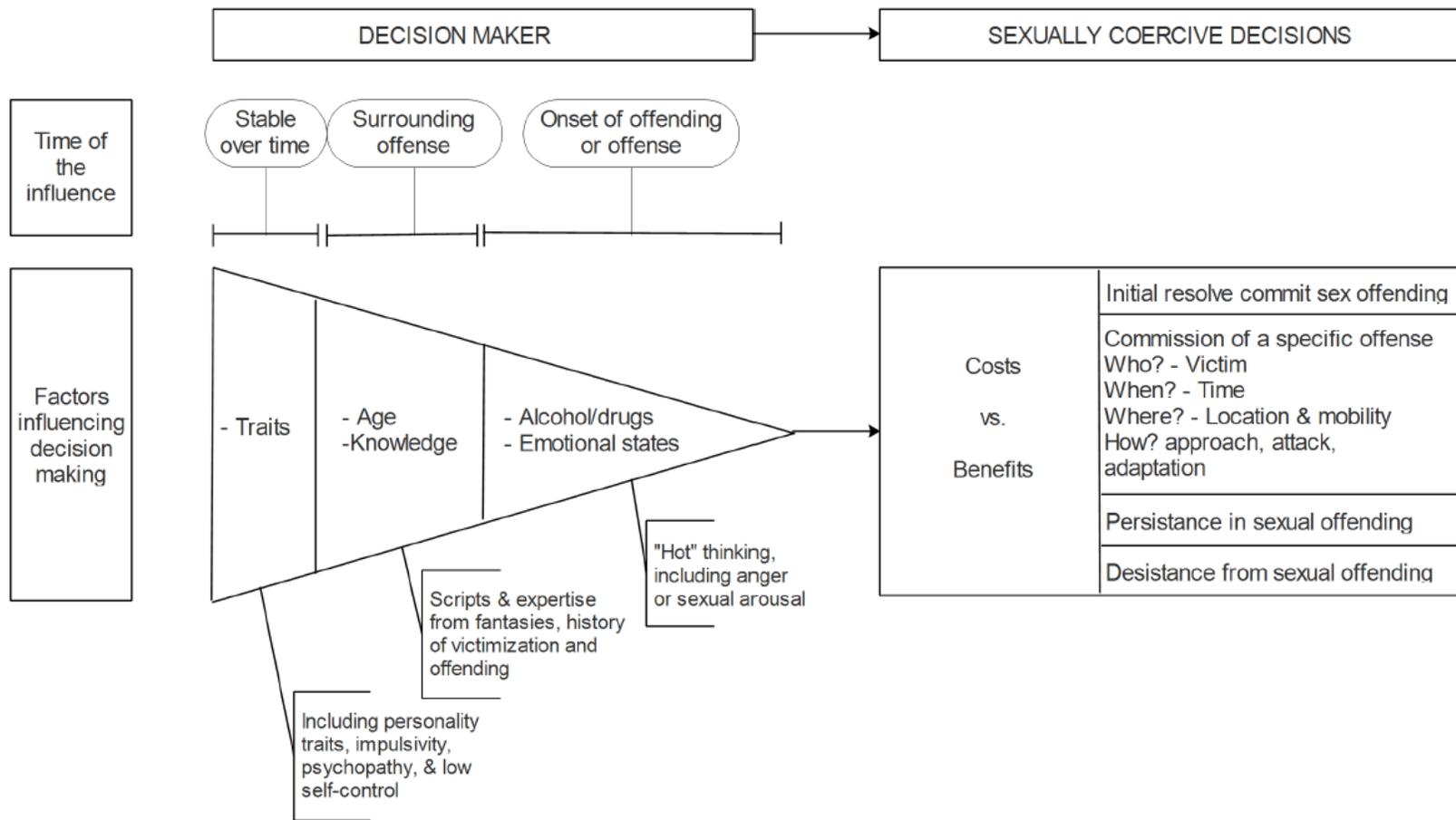


Figure 2.1. An integrative model of sexually coercive decision making

2.6. Summary

How do sexual offenders make decisions relative to their offending? To answer, the present chapter reviewed pertinent theoretical frameworks and empirical findings applicable to sexually coercive decisions from various applicable disciplines. It proved an interesting exercise that showed the distinct lenses and the array of methods that have examined a variety of factors to answer this question. Models of decision making from behavioral economics and classical criminology have argued that criminal decision makers are rational and weigh the probabilities of costs and benefits attached to various courses of action to select the best available option. Evidence, however, suggests that optimality in decision making is rare; instead, limitations to the process of making decisions have been identified in emotional states, the use of substances altering the cognitive process, age, knowledge, and personality traits. Understanding the process of making decisions in the context of sexual coercion does not require putting aside the idea of perpetrators considering costs and benefits, but instead understanding how limitations to the process of decision making play into the costs/benefits analysis. After all, although not optimally rational, sexual offenders are definitely instrumentally rational actors that use reasonable means to satisfy their coercive goals, as demonstrated by the important rates of criminal success in sexual crimes (i.e., completion without detection/punishment; see section 1.2.1).

There is a lot happening in each sexually coercive decision; relevant factors include proximal elements such as the immediate state of mind and emotional context in which the decision maker is situated at the time of the decision, and more distal aspects including knowledge about coerciveness and personality traits. No single perspective or factor can fully explain how sexual offenders make decisions related to their sexual crimes; it is evident that these various perspectives all, in their way, contribute to a better understanding of criminal decision making in sexual offending. To this end, the contribution of the present chapter is to construct a theoretical integrative model of sexually coercive decision making to guide the three studies conducted.

Chapter 3.

Study 1: An examination of traits, knowledge, and states as correlates to sexually coercive decisions

3.1. Study aims and hypotheses

In their seminal paper on criminal decision making, Clarke and Cornish (1985) conceptualized “crime as the outcome of rational choices and decisions” (p. 149). Their model of offenders’ involvement in crime included factors more typically found in traditional criminology, such as propensities explained by personality traits, upbringing, learning and experiences. Clarke and Cornish argued that these “background factors” would not explain crime events, but that their function is to “[expose] people to particular problems and particular opportunities and [lead] them to perceive and evaluate these in particular (criminal) ways” (p. 167). Arguably, one would expect these background factors to systematically impact decisions made in crimes. Study 1 investigated specifically how various background factors impacted the decisions made by the MTC offenders in the context of their sexual crimes.

Some empirical results have demonstrated that sexually coercive decisions follow general patterns of rationality, although in a limited way (Beauregard & Leclerc, 2007). Sex offenders’ rationality is subject to multiple contextual influences. Specifically, some immediate emotional states, such as anger or sexual arousal—both important factors in the etiology of sexual aggression (Knight, 2010; Knight & King, 2012)—have been demonstrated to detrimentally skew the costs/benefits analysis by focusing attention on the benefits while disregarding the costs (Ariely, 2010; Ariely & Loewenstein, 2006; Bouffard, 2014a; Bouffard, 2014b; Carmichael & Piquero, 2004; Exum & Zachowicz, 2014; Van Gelder et al., 2014). Similarly, specific personality traits—mostly relative to impulsivity—are associated with general disregard for non-immediate costs in decision making, resulting in overall riskier decision making (Gottfredson & Hirschi, 1990; Hare, 1991, 2003). Learning processes also simplify the decision-making process in behavioral scripts that comprise sequences of decisions that would otherwise require complex analyses of costs and benefits (Cornish, 1994a); this is notably the case in the perpetration of sexual assault (Beauregard, Proulx, Rossmo, Leclerc, & Allaire, 2007; Leclerc,

Smallbone, & Wortley, 2013; Leclerc, Wortley, & Smallbone, 2011). Overall, the body of empirical evidence reviewed in Chapter 2 has shown that decisions made in the context of sexual coercion are influenced by offenders' traits, their accumulated knowledge about sexual coercion, and additional states experienced at the onset of sexual offenses.

Study 1 sought to explore how sexually coercive decisions are made within, and are influenced by, the larger context in which they take place. Specifically, the study investigated the association of three types of contextual factors (traits, states, and knowledge) with sexually coercive decisions of the MTC sample. The general idea investigated is that traits, states, and specialized knowledge are all factors that influence how an offender goes about committing sexual crimes. One general research question was examined:

How do traits, states, and specialized knowledge about sexual coercion influence the decisions made by sexual offenders during their sexual crimes and over their sexual criminal careers?

Study 1 examined the influence of traits, states, and specialized knowledge on sexually coercive decisions during crime events and over the sexual criminal career. Notably, we expected the background factors examined (traits, states, and knowledge) to impact how some criminal decisions were made and to create an identifiable pattern in the making of decisions over the criminal career. Throughout the analyses, three specific hypotheses were tested:

- 1- Impulsive traits—both general and sexual—influence sexually coercive decisions.
- 2- The presence of specific states at the onset of an offense, notably young age, intoxication, and sexual arousal, influences sexually coercive decisions.
- 3- Specialized knowledge about sexual coercion, gained as a witness, victim, and/or perpetrator of sexual assault, influences sexually coercive decisions.

3.2. Methodology

3.2.1. Units of analysis

Because of our goal to examine the influence of traits, states, and specialized knowledge on sexually coercive decisions at two specific times (i.e., [1] during crime

events and [2] over the sexual criminal career), we utilized two separate units of analysis to conduct our investigations. First, each offense was considered a unit of analysis in the examination of the influence of the three types of factors during specific sexual crime events. It should be noted that because some offenders were serial offenders, there is clustering of offense data within offenders. Second, offenders themselves were also a unit of analysis to investigate sexually coercive decisions over the sexual criminal career.

3.2.2. Sample

The sample studied comprised 874 male sexual offenders whose sexual dangerousness was evaluated at the MTC between 1959 and 1991. A large proportion of the sample was white (white: 89.4%; nonwhite: 10.6%). On average, they started criminally offending at 19 years old ($M = 19.48$, $SD = 7.64$) and had criminal careers that spanned 10 years ($M = 10.36$, $SD = 8.71$). Over their criminal careers, they accrued an average of 15 criminal charges ($M = 14.98$, $SD = 14.71$), about five of which were sexual in nature ($M = 5.16$, $SD = 7.03$). On average, their percentage of specialization in sexual crimes was 43.9%, but there was an important variation in this value between offenders ($SD = 31.18$). Their index sexual offense occurred at 29 years old on average ($M = 29.66$, $SD = 10.28$). Regarding the nature of their sexual offenses, 37.5% of offenders victimized adults, 43.1% victimized children, 14.2% victimized both adult and children, and 5.1% committed other types of contact sexual offenses. The study also looked at the 2,222 sexual offenses for which the offenders' files contained enough crime scene information to conduct the analyses. Descriptive information about these offenses can be found in Table 3.1.

3.2.3. Variables

The present study looks at four types of variables: traits, states, specialized knowledge, and sexually coercive decisions. The specific operationalization of these concepts in the study conducted are explained next, along with their coding. Their frequencies of occurrence in the sample studied are presented in Table 3.1.

Traits

Two specific traits measuring general impulsivity were considered: impulsivity and psychopathy, based on the documented importance of impulsivity on criminal behavior (Gottfredson & Hirschi, 1990; Hare, 1991, 2003) and in the etiology of sexual offending specifically (Daversa & Knight, 2007; Knight & Sims-Knight, 2003). The *impulsivity score (IS)* was used to measure impulsivity. IS comprises seven items that dichotomously recorded the presence or absence of specific manifestations of impulsivity in an offenders' life: (1) unstable employment; (2) financial irresponsibility; (3) failure to settle down; (4) reckless behavior; (5) inability to maintain a relationship; (6) repeated destructive behavior in response to frustration; and (7) acting on uncontrollable urges (all coded [0] absent or [1] present). IS was computed by adding each offender's score on the seven variables identified, and, therefore, constitutes a continuous variable ranging from 0 to 7 (zero indicates the lowest level of impulsivity and seven the highest).

Psychopathy was operationalized as the offender's *score on the Psychopathy Checklist-Revised (PCL-R)* (Hare, 1991, 2003). The PCL-R is a structured clinical assessment tool with 20 items measuring the presence of psychopathic traits on four facets of personality: (1) interpersonal; (2) affective; (3) lifestyle; and (4) antisocial (Hare, 2003; Hare & Neumann, 2006). Each of the 20 item is scored on a 3-point scale; zero indicates that the item does not apply, one indicates a partial match, and two indicates a good match. The PCL-R score can, therefore, range from 0 to 40 (zero indicates the lowest level of psychopathy and 40 the highest). We used the PCL-R score as the measurement of an offender's level of psychopathy on a continuum, as opposed to the oft-used cutoff score of 30 to be considered "a psychopath."

Two other variables—promiscuous sexual behavior and compulsive masturbation—were used to measure impulsivity specifically of a sexual nature to account for findings from structural models of sexual coercion having indicated the additional impact of sexual impulsivity to general impulsivity (aspects of which are hypersexuality, sexual compulsivity, and sexual preoccupation) (Daversa & Knight, 2007; Knight & Sims-Knight, 2003). The first measure of sexual impulsivity consisted of the eleventh item on the PCL-R: *promiscuous sexual behavior*. This item captured the presence of impersonal sexual relationships in one's life history; notably, having multiple sexual partners, casual sex, one-night-stands, and sex with prostitutes constituted evidence of promiscuity and

represented an overall lack of discrimination in the selection of sexual partners. Like all PCL-R items, promiscuity was coded on a 3-point scale; zero indicated that the item does not apply, while one and two, respectively, indicated a partial and a good match. For the purpose of the present study, the item was dichotomously recoded ([0] absent or [1] present), and the first two response options were combined.

The second variable measuring sexual impulsivity was evidence of *compulsive masturbation* in an offender's history. This item was originally coded on a 3-point scale; zero indicated the absence of any evidence supporting the occurrence of the behavior, while one and two both indicated some support (one indicated that the behavior was done over some period of time while two indicated that it applied over most of an offender's life). For the purpose of the present study, the item was dichotomously recoded ([0] absent or [1] present). Compulsive masturbation was considered to be present in files reporting that an offender stimulated his genitals compulsively for at least some period of time.

States

Four specific states were considered in our analyses. At the offense level, the *age* of the offender at each offense was recorded. The presence of *alcohol* and the presence *drugs* in the offender at the onset of each offense were each also coded dichotomously ([0] absent or [1] present). Finally, *sexual arousal* of the offender at the encounter with the victim was also noted (coded as [0] absent or [1] present). These variables were subsequently transformed into means and percentages in order to look specifically at patterns in sexually coercive decisions made over the sexual criminal career. At the offender level, therefore, these four states were *mean age at sexual offenses*, *percentage of sex crimes with alcohol present*, *percentage of sex crimes with drugs present*, and *percentage of sex crimes with offender sexually aroused*.

Table 3.1. Frequencies of variables measuring traits, states, specialized knowledge, and sexually coercive decisions (*n* = 874 offenders; *n* = 2,222 offenses)

TRAITS					
<i>General impulsivity</i>	<i>M (SD)</i>		<i>Sexual impulsivity</i>	<i>%</i>	
Impulsivity Score (IS)	2.01 (1.49)		Promiscuous	92.5	
PCL-R score	13.72 (6.51)		Compulsive masturbation	14.0	
STATES					
<i>At time of each offense (offense-level)</i>	<i>M (SD)</i>	<i>%</i>	<i>Patterns over sexual criminal career (offender-level)</i>	<i>M (SD)</i>	
Age	26.83 (9.54)		Average age	27.40 (8.70)	
Alcohol		48.4	% offenses w/ alcohol	26.03 (29.09)	
Drugs		16.2	% offenses w/ drugs	3.46 (13.41)	
Sexual arousal		4.9	% of offenses w/ sex arousal	2.97 (10.86)	
SPECIALIZED KNOWLEDGE					
<i>At time of each offense (offense-level)</i>	<i>M (SD)</i>		<i>Patterns over sexual criminal career (offender-level)</i>	<i>M (SD)</i>	<i>%</i>
% prev. w/ adult victim(s)	12.11 (28.78)		Witnessed SA as child		14.2
% prev. w/ stranger victim(s)	41.89 (44.96)		Victim of SA as child		26.1
% prev. w/ daylight	20.87 (34.40)		Perpetrator of SA: No of victims	3.83 (3.84)	
% prev. in exposed encounter location(s)	34.71 (41.29)		Perpetrator of SA: No of repetitive offenses	0.60 (1.04)	
% prev. in exposed crime location(s)	17.38 (32.72)				
% prev. coercive approach(es)	24.81 (41.29)				
Average prev. IAD	1.78 (1.21)				
Average prev. EAD	1.40 (1.62)				
Average prev. EAA	0.31 (0.90)				
SEXUALLY COERCIVE DECISIONS					
<i>At time of each offense (offense-level)</i>	<i>M (SD)</i>	<i>%</i>	<i>Patterns over sexual criminal career (offender-level)</i>	<i>M (SD)</i>	
Adult victim		56.0	% offenses w/ adult victim	13.31 (22.38)	
Stranger victim		57.3	% offenses w/ stranger victim	28.13 (28.67)	
Daylight		51.8	% offenses in daylight	18.79 (25.83)	
Exposed encounter location		45.6	% offenses in exposed encounter location	24.81 (27.50)	
Exposed crime location		16.5	% offenses in exposed crime location	8.64 (18.38)	
Coercive approach		30.8	% offenses with coercive approach	16.11 (24.71)	
IAD	1.89 (1.39)		Average IAD during offenses	1.66 (1.32)	
EAD	1.43 (1.86)		Average EAD during offenses	1.25 (1.73)	
EAA	0.31 (1.05)		Average EAA during offenses	0.28 (0.82)	
			Impulsivity in sex offenses	1.32 (1.08)	

Specialized knowledge about sexual coercion

At the offender level, three sources of specialized knowledge in sexual coercion were considered: knowledge acquired as a witness, as a victim, and/or as a perpetrator. First, the variable *witness* captured whether the offender observed sexual abuse as a child in his family settings, without himself participating (coded as [0] absent or [1] present). Second, we also considered the possibility of an offender gaining knowledge about sexual coercion as a *victim* of sexual abuse as a child (coded as [0] absent or [1] present). The variables *witness* and *victim* were used to capture two types of skill acquisition about sexual coercion (see Bourke et al., 2012, who discussed primary skills acquisition of deviant attitudes, beliefs, and behaviors in early childhood). We also considered offenders' development of skills in sexual coercion through experiences as perpetrators; Bourke et al. (2012) called these skills "offense-related competencies" (p. 2402). Two continuous variables measured these skills in offenders: *number of sexual victims* and *number of repetitive sexual offenses*, to represent the two ways in which offenders have been found to develop expertise in sexual offending (see Lussier et al., 2011).

At the offense level, in addition to the use of the variables *witness* and *victim*, which would have preceded any offending and, therefore, be part of an offender's knowledge about sexual coercion, we also considered their previous specific sexually coercive decisions: *previous percentage of adult victims*, *previous percentage of stranger victims*, *previous percentage of offenses committed in daylight*, *previous percentages of offenses committed in encounter and crime locations that were exposed to intervention*, *previous percentage of offenses that utilized a coercive method of approach*, and *average levels of instrumental aggression during*, *expressive aggression during*, and *expressive aggression after*. We transformed the count of all these variables into percentages to best capture the idea of specialization in some sexually coercive decisions.

Sexually coercive decisions

At the offense level, nine specific sexually coercive decisions were included in our analyses. The first two decisions concerned the identity and characteristics of the victim. *Victim age* captured the age of the victim at the time of the assault or at the time when the abuse started in the case of repetitive abuse, but was dichotomized between child and adult for the purposes of the current analyses (coded as [0] child or [1] adult). Any victim younger than 18 was considered a child. *Relationship* between victim and offender was

also recorded into three categories—stranger, acquaintance, or family—but was recoded dichotomously ([0] known or [1] stranger). Three variables captured decisions relative to the selection of a time and place. The *time* of each assault, initially recorded in hours and minutes, was later recoded dichotomously as either darkness (8:00 p.m. to 7:59 a.m.) or light (8:00 a.m. to 7:59 p.m.) ([0] dark or [1] light). The *encounter* and *crime locations* were classified on their level of exposition to intervention (both coded as [0] not exposed or [1] exposed). The last four measures of sexually coercive decisions related specifically to how the offender perpetrated the sexual crime. The *method of approach* was initially categorized into deception, surprise, and blitz attack, but was dichotomously recoded for the current study (coded as [0] noncoercive or [1] coercive). Deception approaches were noncoercive and typically involved elements of seduction, manipulation, and/or trickery. In comparison, both surprise and blitz attack were coercive methods. The former involved an element of surprise characterized by a level of force used to control while the latter involved an immediate use of force aimed at incapacitation. Use of force was also noted; specifically, three variables captured, respectively, the *level of instrumental aggression during the offense (IAD)*, the *level of expressive aggression during the offense (EAD)*, and the *level of expressive aggression after the offense (EAA)*. Instrumental aggression refers to a use of violence that is oriented toward a goal; for example, in the course of a sexual assault, instrumental violence might occur as a means for the offenders to influence the victim to do something (e.g., get undressed) or refrain from something else (e.g., stop screaming). In comparison, expressive aggression refers to use of violence that is hostile and/or reactive; in those cases, violence is, in itself, the goal. All three use of force variables were measured on a 6-point scale on which zero indicated no use of force and six indicated the highest level of use of force (i.e., brutal beating).

At the offender level, these nine decisions were converted into percentages and averages: *percentage of adult victims, percentage of stranger victims, percentage of offenses committed in daylight, percentages of offenses committed in encounter and crime locations that were exposed to intervention, percentage of offenses that utilized a coercive method of approach, and average levels of instrumental aggression during, expressive aggression during, and expressive aggression after*. We transformed the count of all these variables into percentages and averages because it could best indicate specialization in some sexually coercive decisions.

In addition, it can be argued that the nine sexually coercive decisions studied represent “riskier” ways of offending. Notably, it is considered that adult victims are more able to resist, and stranger victims are more likely to. It is also more likely that guardianship of potential victims is higher during daylight and in locations that are exposed to intervention. Finally, the use of a coercive approach and higher use of force can all hasten detection of an offender.

A final variable captured the *average level of impulsivity in sexual offenses*. Considering all sexual crimes committed by an offender, two raters coded the offense involving the most impulsivity and the offense involving the least impulsivity on the following 4-point scale: (0) offense planned in details beforehand; (1) offense partially planned before victim encounter; (2) offense partially planned after victim encounter; (3) impulsive offense. The variable used in our analysis calculated an average between the level of impulsivity in the most and least impulsive offenses.

3.2.4. Statistical analyses

To conduct the offense-level analyses, we used Generalized Estimating Equations (GEEs), a statistical technique that adjusts standard error estimations to account for nesting or correlation in the data when calculating beta coefficients (Hardin & Hilbe, 2013; Liang & Zeger, 1986). In our case, the offense data were correlated and the assumption of independence of observations was violated considering that many offenders committed more than one sexual crime. GEE analysis requires identification of a type of distribution and link function, and to specify a working correlation matrix. The distribution and link function are decided by the type of outcome variable; in our cases, six outcome variables were dichotomous (adult victim, stranger victim, daylight, exposed encounter location, exposed crime location, and coercive approach) and were specified as having a binomial distribution and a logit link function. The three other outcome variables (levels of instrumental aggression during, expressive aggression during, and expressive aggression after) were continuous variables; in these cases, the normal distribution and the identity link function were specified. With regard to the selection of a working correlation matrix, we ran each GEE model using two working correlation matrices (independent and unstructured) and selected the one with the lowest quasi-likelihood under the independence model criterion (QIC value). The selected working correlation matrix for

each model is included in Tables 3.2, 3.3, and 3.4. In the case of offender-level analyses, regular linear regression models were run. All analyses were computed using SPSS version 22.

3.3. Results

3.3.1. Offense-level analyses: Decisions during sexual criminal events

GEE models estimating the influence of traits on sexually coercive decisions during sex crimes are presented in Table 3.2. With regard to predicting the selection of an adult victim, three traits measured were significant predictors. Results indicated that a higher IS ($\text{exp}\beta = 1.12$; $p \leq .05$) and a higher level of psychopathy ($\text{exp}\beta = 1.04$; $p \leq .000$) increased the likelihood of an adult victim being selected while a history of promiscuous behavior decreased the likelihood of an adult victim ($\text{exp}\beta = 0.44$; $p \leq .001$). Only one trait predictor was significant in our second model predicting the selection of a stranger victim: higher levels of psychopathy were associated with increased likelihood of a stranger victim ($\text{exp}\beta = 1.07$; $p \leq .000$). In the third model, predicting the occurrence of an offense during daylight, both promiscuity ($\text{exp}\beta = 4.22$; $p \leq .01$) and compulsive masturbation ($\text{exp}\beta = 1.80$; $p \leq .05$) increased the likelihood of an offense being committed during daylight. The fourth model examined the selection of an encounter location exposed to intervention; results indicated that higher levels of psychopathy were associated with an increased likelihood of encountering the victim in an exposed location ($\text{exp}\beta = 1.03$; $p \leq .01$). In the fifth model, predicting the selection of an exposed crime location, results indicated that higher IS decreased the likelihood of a sexual crime being committed in an exposed location ($\text{exp}\beta = 0.89$; $p \leq .05$). Two variables were associated with the use of a coercive method of approach, our sixth model: results indicated that higher levels of psychopathy ($\text{exp}\beta = 1.08$; $p \leq .000$) were associated with an increased likelihood of using a coercive method of approach while history of promiscuity ($\text{exp}\beta = 0.31$; $p \leq .000$) did the opposite. In the seventh decision model, examining the level of instrumental aggression during the offense, results indicated that higher IS ($\beta = 0.06$; $p \leq .05$) and higher levels of psychopathy ($\beta = 0.06$; $p \leq .000$) resulted in increased levels of instrumental aggression during the sexual crime. In comparison, a history of promiscuity ($\beta = -0.74$; $p \leq .01$) was associated with a decreased level of instrumental aggression during the crime. The same three

variables were also significant predictors of the level of expressive aggression used during the offense: higher IS ($\beta = 0.15$; $p \leq .000$) and higher psychopathy ($\beta = 0.07$; $p \leq .000$) resulted in increased levels of expressive aggression during the sexual crime, while promiscuity ($\beta = -1.09$; $p \leq .01$) decreased aggression. Finally, in our last model, results also indicated that higher levels of psychopathy were associated with higher levels of expressive aggression after the crime ($\beta = 0.02$; $p \leq .05$).

GEE models measuring the influence of states on sexually coercive decisions during sex crimes are presented in Table 3.3. With regard to the decision to select an adult victim, all four states measured were significant predictors. Results indicated that decreases in offenders' age ($\text{exp}\beta = 0.95$; $p \leq .000$), use of alcohol ($\text{exp}\beta = 1.75$; $p \leq .001$) and drugs ($\text{exp}\beta = 3.16$; $p \leq .000$), and a sexually aroused state ($\text{exp}\beta = 2.09$; $p \leq .01$) all resulted in an increased likelihood of selecting adult victims. Only two state predictors were significant in our second model, predicting the selection of a stranger victim: results indicated that decreases in offenders' age ($\text{exp}\beta = 0.94$; $p \leq .000$) and using drugs at the onset of the offense ($\text{exp}\beta = 2.32$; $p \leq .001$) resulted in an increased likelihood of selecting stranger victims. In the third model, predicting the occurrence of an offense during daylight, higher offenders' age ($\text{exp}\beta = 1.02$; $p \leq .000$), using alcohol ($\text{exp}\beta = 0.36$; $p \leq .000$), and the presence of a sexually aroused state ($\text{exp}\beta = 0.34$; $p \leq .000$) all resulted in a decreased likelihood of committing the offense during daylight. Our fourth model, examining the selection of an exposed encounter location, indicated that higher age ($\text{exp}\beta = 0.96$; $p \leq .000$) decreased the likelihood of the offense being committed in encounter locations that were exposed to intervention, while a state of sexual arousal increased it ($\text{exp}\beta = 5.86$; $p \leq .000$). In the fifth model, predicting the selection of an exposed crime location, the results indicated that increases in offenders' age ($\text{exp}\beta = 0.97$; $p \leq .001$) and use of alcohol at the onset of the offense ($\text{exp}\beta = 0.59$; $p \leq .01$) decreased the likelihood of an exposed crime location. Three state variables were associated with the use of a coercive method of approach, our sixth model: results indicated that younger age ($\text{exp}\beta = 0.92$; $p \leq .000$) and use of drugs at the onset ($\text{exp}\beta = 2.49$, $p \leq .000$) increased the likelihood that a coercive method of approach was used. Similar results were obtained for alcohol use, but the results only approached significance ($\text{exp}\beta = 1.34$, $p \leq .10$). The presence of a sexually aroused state, however, decreased the likelihood that a coercive method of approach was used ($\text{exp}\beta = 0.18$, $p \leq .000$). In the seventh decision model, examining the use of instrumental aggression during the offense, results indicated that

younger age ($\beta = -0.03$; $p \leq .000$), use of alcohol ($\beta = 0.59$; $p \leq .000$) and drugs ($\beta = 0.59$; $p \leq .000$), and sexual arousal ($\beta = 0.41$; $p \leq .01$) were all associated with higher levels of instrumental aggression during the crime. The same four variables were also significant predictors of the level of expressive aggression used during the offenses: younger age ($\beta = -0.03$; $p \leq .000$), use of alcohol ($\beta = 0.69$; $p \leq .000$), use of drugs ($\beta = 0.77$; $p \leq .000$), and presence of sexual arousal ($\beta = 0.83$; $p \leq .000$) all resulted in increased levels of expressive aggression during the sexual crime. Finally, in our last model, younger age ($\beta = -0.01$; $p \leq .001$), use of alcohol ($\beta = 0.18$; $p \leq .01$), and use of drugs ($\beta = 0.30$; $p \leq .01$) also all resulted in increased levels of expressive aggression after the sexual crime.

GEE models estimating the influence of specialized knowledge on sexually coercive decisions during sex crimes are presented in Table 3.4. With regard to the first model predicting the selection of an adult victim, two knowledge measures were significant predictors. Results indicated that a history of sexual abuse victimization was associated with a decreased likelihood of selecting an adult victim ($\text{exp}\beta = 0.47$; $p \leq .000$). In addition, higher percentages of adult victims in previous crimes also increased the likelihood that an adult victim was selected ($\text{exp}\beta = 1.03$; $p \leq .000$). Only one knowledge predictor was significant in our second model, examining the selection of a stranger victim: higher percentages of stranger victims in previous crimes increased the likelihood of the selection of a stranger victim ($\text{exp}\beta = 1.03$; $p \leq .000$). In the third model, predicting the occurrence of an offense during daylight, both a history of sexual abuse victimization ($\text{exp}\beta = 1.69$; $p \leq .05$) and higher percentages of previous crimes committed in daylight ($\text{exp}\beta = 1.01$; $p \leq .000$) increased the likelihood that a sex crime was committed in daylight. Our fourth model, examining the selection of an exposed encounter location, indicated that higher percentages of previous sex crimes with exposed encounter locations increased the likelihood that a crime was initiated in an exposed encounter location ($\text{exp}\beta = 1.02$; $p \leq .000$). In the fifth model, predicting an exposed crime location, the results indicated that a higher percentage of previous sex crimes with exposed crime locations increased the likelihood that the crime was committed in an exposed crime location ($\text{exp}\beta = 1.03$; $p \leq .000$). Two knowledge measures were associated with the use of a coercive method of approach: results indicated that a history of sexual abuse victimization ($\text{exp}\beta = 0.56$; $p \leq .01$) was associated with a decreased likelihood of using a coercive method of approach, while a higher percentage of previous crimes involving a coercive approach ($\text{exp}\beta = 1.03$; $p \leq .000$) was associated with an increased likelihood that a coercive method was used to

approach the victim. In the seventh decision model, examining the level of instrumental aggression during the offense, results indicated that a history of sexual abuse victimization ($\beta = -0.09$; $p \leq .05$) was associated with a decreased level of instrumental aggression. In comparison, a higher average of instrumental aggression in previous sex crimes ($\beta = 0.95$; $p \leq .000$) was associated with an increased level of instrumental aggression used in a crime. The average level of expressive aggression used during previous sex crimes was the only significant predictor of the level of expressive aggression during the crime, our eighth model. Similarly, the average level of expressive aggression after previous crimes was also the only significant predictor of the level of expressive aggression after the crime. In both cases, a higher average level of aggression in previous crimes was associated with an increased level of aggression in the crime (expressive aggression during: $\beta = 0.96$; $p \leq .000$; expressive aggression after: $\beta = 1.02$; $p \leq .000$).

Table 3.2. GEE models presenting the influence of traits on decisions during sexual crime events

	Decisions in sexual crimes								
	Adult victim ^b	Stranger victim ^a	Daylight ^b	Exposed encounter location ^a	Exposed crime location ^b	Coercive approach ^a	Instrumental aggression during ^a	Expressive aggression during ^a	Expressive aggression after ^b
	β	β	β	β	β	β	β	β	β
General impulsivity									
IS	.112*	-.034	-.143	-.051	-.113*	-.009	.06*	0.15***	0.03
PCL-R	.042***	.071***	-.026	.034**	.001	.073***	.06***	0.07***	0.02*
Sexual impulsivity									
Promiscuous	-.816***	-.511	1.440**	.000	-.442	-1.180***	-.74**	-1.09**	-0.31 [†]
Masturbation	-.138	.052	.587*	.214	.441 [†]	.179	.06	0.83	0.08

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

^a Independent working correlation matrix was selected.

^b Unstructured working correlation matrix was selected.

Table 3.3. GEE models presenting the influence of states on decisions during sexual crime events

	Decisions in sexual crimes								
	Adult victim ^a	Stranger victim ^a	Daylight ^b	Exposed encounter location ^a	Exposed crime location ^a	Coercive approach ^a	Instrumental aggression during ^a	Expressive aggression during ^a	Expressive aggression after ^a
	β	β	β	β	β	β	β	β	β
Age	-.051***	-.057***	.021***	-.041***	-.035***	-.081***	-0.033***	-0.030***	-0.007***
Alcohol	.558***	.100	-1.010***	-.018	-.528**	.295 [†]	0.585***	0.689***	0.183**
Drugs	1.150***	.842***	-.141	-.111	-.082	.911***	0.586***	0.766***	0.296**
Sexual arousal	.735**	-.195	-1.073***	1.768***	.036	-1.688***	0.409**	0.833***	0.014

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

^a Independent working correlation matrix was selected.

^b Unstructured working correlation matrix was selected.

Table 3.4. GEE models presenting the influence of specialized knowledge on decisions during sexual crimes

	Decisions in sexual crimes								
	Adult victims ^a	Stranger victims ^a	Daylight ^a	Exposed encounter locations ^a	Exposed crime locations ^a	Coercive approach ^a	Instrumental aggression during ^a	Expressive aggression during ^a	Expressive aggression after ^b
	β	β	β	β	β	β	β	β	β
Witnessed SA	-.034	-.118	-.245	-.104	.149	.020	-.008	-.030	.012
Victim of SA	-.756***	-.199	.525*	-.085	.033	-.577**	-.088*	-.057	-.003
Previous % adult victims	.029***								
Previous % stranger victims		.029***							
Previous % of daylight			.014***						
Previous % of exposed encounter locations				.017***					
Previous % of exposed crime locations					.026***				
Previous % of coercive approach						.030***			
Previous average level of instrumental aggression during							.945***		
Previous average level of expressive aggression during								.961***	
Previous average level of expressive aggression after									1.020***

¹ $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

^a Independent working correlation matrix was selected.

^b Unstructured working correlation matrix was selected.

3.3.2. Offender-level analyses: Patterns of decisions over the sexual criminal career

Linear regression models measuring the influence of traits on sexually coercive decisions over the criminal career are presented in Table 3.5. The first model examined the proportion of an offender's sexual crimes having involved the selection of an adult victim over his sexual criminal career. Three of the traits measured were significant predictors. Results indicated that a higher IS ($\beta = 1.56$; $p \leq .05$) and a higher level of psychopathy ($\beta = .71$; $p \leq .000$) increased the prevalence of an adult victim being selected over the sexual criminal career. On the other hand, the presence of a history of promiscuity was found to result in a lower percentage of adult victims over the criminal career ($\beta = -10.12$; $p \leq .01$). Two variables were significant in our second model, predicting the frequency of selection of a stranger victim: results indicated that offenders with higher PCL-R scores committed higher percentages of their sex crimes against strangers ($\beta = 1.01$; $p \leq .000$). A similar pattern was observed in offenders with a history of compulsive masturbation, but the results only approached significance ($\beta = 7.58$; $p \leq .10$). Offenders with a history of promiscuity had lower percentages of stranger victims over their sexual criminal careers ($\beta = -4.10$; $p \leq .05$). In the third model, predicting the proportion of sex offenses being committed during daylight over the sexual criminal career, a higher PCL-R score ($\beta = .12$; $p \leq .05$) and a history of promiscuity ($\beta = 2.83$; $p \leq .05$) both resulted in a higher percentage of sex crimes committed in daylight. Although only marginally significant, the results also indicated that a history of compulsive masturbation was associated with higher percentages of offenses occurring in daylight ($\beta = 2.22$; $p \leq .10$). Our fourth model examined the percentage of sex crimes over the criminal career in which the victim was encountered in an exposed location. Results indicated that offenders with higher levels of psychopathy ($\beta = .24$; $p \leq .01$) and a history of compulsive masturbation ($\beta = 3.49$; $p \leq .05$) encountered their victims in exposed locations more frequently. In the fifth model, predicting the frequency of exposed crime locations, the results indicated that a history of compulsive masturbation was associated with higher percentages of exposed crime locations over the sexual criminal career ($\beta = 2.69$; $p \leq .10$), but the results only approached significance. All four trait variables were associated with the frequency of using a coercive method of approach over the sexual criminal career results indicated that measures of general impulsivity in offenders (a higher IS: $\beta = .32$; $p \leq .05$; higher levels of psychopathy: $\beta = .95$; $p \leq .01$) and a history of compulsive masturbation ($\beta = 10.09$; $p \leq$

.01) were associated with higher proportions of sex crimes having used a coercive method of approach. In comparison, offenders with a history of sexual promiscuity had a lower percentage of coercive approaches in sex crimes ($\beta = -13.99$; $p \leq .001$). Three predictor variables were significant in the decision models examining the average levels of instrumental and expressive aggression during sex offenses, respectively our seventh and eighth models. Results indicated that offenders with a higher IS (instrumental aggression during: $\beta = .11$; $p \leq .01$; expressive aggression during: $\beta = .16$; $p \leq .01$) and higher PCL-R scores (instrumental aggression during: $\beta = .07$; $p \leq .000$; expressive aggression during: $\beta = .08$; $p \leq .000$) used higher levels of instrumental and expressive force over their sexual criminal careers. The presence of a history of sexual promiscuity was again found to be related with lower levels of instrumental and expressive aggression during sexual crimes (respectively, $\beta = -.88$; $p \leq .000$ and $\beta = -1.31$; $p \leq .000$). There were only two significant predictors in the ninth decision model, predicting average level of expressive aggression after sexual crimes: higher PCL-R scores resulted in higher average levels of expressive aggression used after ($\beta = .03$; $p \leq .000$), while the presence of a history of sexual promiscuity resulted in lower levels of expressive aggression after ($\beta = -.37$; $p \leq .000$). Finally, all four traits measured were significant predictors in our last model, predicting modal level of impulsivity over sexual offenses. Results indicated that the two measures of general impulsivity were associated with a higher level of impulsivity in sexual crimes (IS: $\beta = .09$; $p \leq .05$; PCL-R: $\beta = .03$; $p \leq .000$), while the two measures of sexual impulsivity were associated with lower levels of impulsivity in sexual crimes (promiscuous: $\beta = -.57$; $p \leq .01$; compulsive masturbation: $\beta = -.30$; $p \leq .05$).

Linear regression models estimating the influence of states on patterns of sexually coercive decisions over the criminal career are presented in Table 3.6. With regard to predicting the proportion of an offender's sex offenses involving adult victims, all four state measures were significant predictors. Results indicated that higher frequencies of being under the influence of alcohol, drugs, and sexual arousal at the onset of sex offenses resulted in higher percentages of adult victims over the criminal career (alcohol: $\beta = .08$; $p \leq .01$; drugs: $\beta = .28$; $p \leq .000$; sexual arousal: $\beta = .20$; $p \leq .01$). On the other hand, older offenders had lower percentages of adult victims ($\beta = -.54$; $p \leq .000$). Two predictors were significant in our second model, predicting the frequency of stranger victims: results indicated that older offenders had lower percentages of stranger victims ($\beta = -.90$; $p \leq .000$), while offenders who were more frequently under the influence of drugs had higher

percentages of stranger victims ($\beta = .25; p \leq .000$). In the third model, predicting offenders' proportion of sex offenses committed during daylight, older offenders ($\beta = -.47; p \leq .000$) and those who were more frequently under the influence of alcohol ($\beta = -.08; p \leq .01$) and sexual arousal ($\beta = -.16; p \leq .05$) had lower percentages of sexual offenses committed during daylight. Our fourth model examined the percentage of sex crimes in which the victim was encountered in an exposed location. Results indicated that offenders who were more frequently under the influence of drugs ($\beta = .10; p \leq .05$) and sexual arousal ($\beta = .35; p \leq .000$) during their sexual offenses had a higher percentage of sex crimes in exposed encounter locations. Older offenders had lower percentages of sexual crimes occurring in encounter locations that were exposed to intervention ($\beta = -.47; p \leq .000$). In the fifth model, predicting the proportion of exposed crime locations over the sexual criminal career, the results indicated that younger offenders ($\beta = -.17; p \leq .05$) and those with higher frequency of drug use during sex crimes ($\beta = .07; p \leq .05$) had higher percentages of sexual crimes occurring in exposed crime locations. All four variables measuring states were associated with a more frequent use of coercive methods of approach over the sexual criminal career, our sixth model. Results indicated that a higher frequency of using alcohol ($\beta = .06; p \leq .05$) and drugs ($\beta = .22; p \leq .000$) indicated higher percentages of coercive methods of approach. Older offenders had lower percentages of offenses involving a coercive approach over their sexual criminal career ($\beta = -.98; p \leq .000$), as did offenders who were more frequently sexually aroused at the onset of their sexual offenses ($\beta = -.36; p \leq .000$). All four state predictor variables were also significant in the decision models examining the average levels of instrumental and expressive aggression during sex offenses, respectively our seventh and eighth models. Results indicated that younger age (instrumental aggression during: $\beta = -.05; p \leq .000$; expressive aggression during: $\beta = -.05; p \leq .000$), and frequent influence of alcohol (instrumental aggression during: $\beta = .01; p \leq .000$; expressive aggression during: $\beta = .01; p \leq .000$), drugs (instrumental aggression during: $\beta = .01; p \leq .01$; expressive aggression during: $\beta = .01; p \leq .001$), and sexual arousal (instrumental aggression during: $\beta = .01; p \leq .001$; expressive aggression during: $\beta = .02; p \leq .000$) at the onset of sexual offenses were associated with increased average levels of instrumental and expressive use of force during sexual crimes. There were only two significant predictors in the ninth decision model, predicting the average level of expressive aggression after sexual crimes: older offenders used lower average levels of expressive aggression after ($\beta = -.01; p \leq .001$), while the presence of alcohol at the onset of more sexual offenses resulted in higher average levels of expressive

aggression after ($\beta = .00$; $p \leq .05$). Finally, three of the states measured were significant predictors in our last model predicting modal level of impulsivity over sexual offenses. Results indicated that older offenders had lower levels of impulsivity in their sexual crimes ($\beta = -.03$; $p \leq .000$) while offenders who were more often under the influence of alcohol and drugs during their sexual crimes had higher levels of impulsivity in sexual crimes (alcohol: $\beta = .01$; $p \leq .000$; drugs: $\beta = .01$; $p \leq .001$).

Linear regression models measuring the influence of specialized knowledge on sexually coercive decisions over the criminal career are presented in Table 3.7. With regard to predicting the percentage of offenses against adult victims over the sexual criminal career, only one source of knowledge was a significant predictor: offenders with more repetitive sexual offenses had lower percentages of adult victims ($\beta = -6.60$; $p \leq .000$). Only one predictor was significant in our second model, predicting the frequency of selection of stranger victims: results indicated that offenders with a higher number of repetitive sexual offenses had lower percentages of stranger victims ($\beta = -12.17$; $p \leq .000$). Offenders with a higher number of victims also had lower percentages of stranger victims ($\beta = -4.57$; $p \leq .10$) but these results did not reach statistical significance. In the third model, predicting the proportion of sex offenses committed during daylight, offenders with more repetitive sexual offenses had lower percentages of sex crimes committed during daylight ($\beta = -6.50$; $p \leq .000$). Offenders with a higher number of victims also had lower percentages of offenses committed in daylight, ($\beta = -3.93$; $p \leq .10$), but these results only approached significance. Our fourth model examined the proportion of sex crimes in which the victim was encountered in an exposed location. Results indicated that offenders with more victims ($\beta = -5.80$; $p \leq .05$) and offenders with more repetitive sexual offenses ($\beta = -7.01$; $p \leq .000$) had lower percentages of exposed encounter location offenses. In the fifth model, predicting the proportion of exposed crime locations over the sexual criminal career, results indicated that offenders with a higher number of repetitive sexual offenses had lower percentages of exposed crime locations in their offenses ($\beta = -1.76$; $p \leq .05$). Two variables measuring specialized knowledge were associated with frequent use of coercive methods of approach over the sexual criminal career. First, results indicated that offenders who witnessed sexual abuse growing up had higher frequencies of using coercive methods of approach ($\beta = 6.96$; $p \leq .05$). Second, offenders with more repetitive sexual offenses had lower percentages of using coercive methods of approach ($\beta = -7.76$; $p \leq .000$). One knowledge variable was significant in the two decision models examining the

average levels of instrumental and expressive aggression during sex offenses, respectively our seventh and eighth models. Results indicated that offenders with a higher number of repetitive sexual offenses had lower average levels of use of force during sexual offenses (instrumental aggression during: $\beta = -.46$; $p \leq .000$; expressive aggression during: $\beta = -.42$; $p \leq .000$). Finally, the same variable was a significant predictor in our last model, predicting modal level of impulsivity over sexual offenses. Results indicated that offenders with more repetitive sexual offenses had lower levels of impulsivity in sexual offenses ($\beta = -.49$; $p \leq .000$).

Table 3.5. Linear regression models presenting the influence of traits on decisions over the sexual criminal career

	Decisions over the sexual criminal career									
	% adult victims	% stranger victims	% daylight	% exposed encounter loc.	% exposed crime locations	% coercive approach	Average IAD	Average. EAD	Average EAA	Impulsivity modal
	β	β	β	β	β	β	β	β	β	β
General impulsivity										
IS	1.560*	.443	-.171	-.521	-.369	.316*	.111**	.163**	.027	.085*
PCL-R	.705***	1.007***	.124*	.238**	.005	.952**	.068***	.079***	.025***	.029***
Sexual impulsivity										
Promiscuous	-10.117**	-4.096*	2.833*	2.837	-.194	-13.988***	-.883***	-1.310***	-.369*	-.572**
Masturbation	-.509	7.579 [†]	2.220 [†]	3.493*	2.690 [†]	10.086**	.240	.084	.121	-.299*

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3.6. Linear regression models presenting the influence of states on decisions over the sexual criminal career

	Decisions over the sexual criminal career									
	% adult victims β	% stranger victims β	% daylight β	% exposed encounter loc. β	% exposed crime loc. β	% coercive approach β	Average IAD. β	Average EAD β	Average EAA β	Impulsivity modal β
Av. age	-.539***	-.898***	-.466***	-.471***	-.170*	-.984***	-.045***	-.047***	-.013***	-.031***
% w/ alc.	.076**	.041	-.081**	-9.006	-.035	.058*	.007***	.007***	.003*	.008***
% w/ drugs	.284***	.250***	.078 [†]	.099*	.074*	.221***	.006**	.010***	.002	.011***
% w/ arousal	.200**	.001	-.155*	.346***	-.063	-.357***	.011***	.019***	.000	.006

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3.7. Linear regression models presenting the influence of specialized knowledge about sexual coercion on decisions over the sexual criminal career

	Decisions over the sexual criminal career									
	% adult victims	% stranger victims	% daylight	% exposed encounter loc.	% exposed crime locations	% coercive approach	Average IAD	Average EAD	Average EAA	Impulsivity modal
	β	β	β	β	β	β	β	β	β	β
Witness	.888	1.729	.315	-1.571	1.253	6.957*	.395	.345	.084	.082
Victim	-2.733	3.051	2.369	-.280	-.549	-.615	-.057	-.228	-.057	-.078
Perp: no victims	-2.508	-4.570 [†]	-3.933 [†]	-5.800*	1.176	1.349	-.043	.019	.035	-.033
Perp: no of repetitive off.	-6.601***	-12.169***	-6.495***	-7.012***	-1.756*	-7.759***	-.459***	-.416***	-.047	-.493***

[†] $p \leq .10$; * $p \leq .05$; *** $p \leq .001$

3.4. Discussion

The current study examined an understudied aspect of Clarke and Cornish's (1985) models of criminal decision making: contextual influences or “background factors.” Although Clarke and Cornish stated that these background factors—including personality traits, states, learning, and experiences that could be historical and contemporaneous—would not impact the commission of specific crime events, but would instead explain one’s readiness to resort to criminal options when making decisions, we did find evidence that these contextual influences were associated with identifiable patterns in the decisions made by sexual offenders in their sexual crimes. Specifically, we tested three hypotheses relative to the influence of traits, states and specialized knowledge on sexually coercive decisions relative the selection of a victim (i.e., age and relationship), the selection of an environment in which to offend (i.e., time and place), and other decisions about the use of force and overall coerciveness (i.e., method of approach and level of force by type). We review the findings next, and discuss them in relation with the hypotheses and the larger body of literature on the topic.

The first hypothesis tested was that personality traits—specifically general and sexual impulsivity—influenced decisions made in the context of sexual crimes. Many theories and empirical studies have looked closely at the criminal personality or criminal proclivity and have posited that impulsivity is a central explanatory concept (DeLisi, 2003, 2009; DeLisi & Vaughn, 2008; Gottfredson & Hirschi, 1990; Hare, 1991, 2003); it constitutes a factor that has “preoccupied” traditional criminology according to Clarke and Cornish (1985, p. 167). Our results provide support for the hypothesis, both at the offense and offender levels of analysis, and specific patterns of decision making were identified in impulsive offenders. In decisions relative to the selection of a victim, higher measures of general impulsivity predicted the selection of adults and strangers in crime events and in larger proportions over the sexual criminal career. The expected pattern of risk in sexually coercive decisions in environmental decisions was less emergent, but some findings did indicate that specific traits resulted in riskier environmental decisions; notably, higher levels of psychopathy predicted the encounter of victims in exposed locations. These patterns in the selection of victims and environments might be attributable to differences in routine activities (Cohen & Felson, 1979). Considering the findings of a previous study that examined the lifestyles of sexual offenders and found that offenders encounter opportunities to sexually offend during the activities in which they spend larger amounts of time (Pedneault & Beauregard, 2014),

we argue that offenders with impulsive traits spend more time in exposed settings where they are put in contact with strangers and/or adults. This is also in accordance with Gottfredson and Hirschi's (1990) general theory of crime, which argued that low self-control (understood here as impulsivity) is associated with participation in a variety of high-risk activities, many of which do take place in settings such as those described. In decisions relative to the use of force, the two variables that measured general impulsivity (IS and PCL-R) were found to be strong predictors of the use of a coercive approach and the use of force in sex crime events and over the sexual criminal career, confirming numerous previous findings that established a link between aggression and impulsivity (Gendreau, Goggin, & Smith, 2002; Guy, Edens, Anthony, & Douglas, 2005). Generally, our results indicated the pertinence of including impulsive traits to better understand decisions made in criminal contexts; to some extent, they also situated sexual offenders within the criminological realm and likened them to general offenders.

In addition, the results also brought attention to the specific role of traits related to impulsivity of a sexual nature, a factor that has been identified and distinguished from general impulsivity in structural models of sexual coercion (Daversa & Knight, 2007; Knight & Sims-Knight, 2003). Our findings highlighted some distinctions between measures of general and sexual impulsivity: specifically, contrary to measures of general impulsivity, which were associated with impulsivity in the commission of sexual crimes, measures of sexual impulsivity were associated with more planning. We suggest that this finding indicates premeditated opportunism in offenders with sexually impulsive traits, in which sexual fantasies act as a way to plan and rehearse in advance how they would commit their crimes so that they are prepared to offend when opportunities arise (Rossmo, 2000). This is also consistent with Knight's models, in which the three measures of sexual impulsivity (sexual preoccupation, hypersexuality, and sexual compulsivity) captured the latent concept of sexual fantasy (Daversa & Knight, 2007; Knight & Sims-Knight, 2003). This premeditated opportunism, however, manifested differently in the two measures of sexual impulsivity. Results indicated some riskier offending behaviors in offenders with a history of compulsive masturbation: their sex crimes were more often committed during daylight, a higher proportion of their victims were encountered in exposed locations, and they used coercive methods of approach more frequently. In comparison, offenders with a history of promiscuity had lower coerciveness in their approach of victims and used lower levels of aggression during their sex crimes. Within the framework of premeditation, a history of promiscuity resulted in offenses in low-risk conditions while offenders with compulsive masturbation offended even in the presence of higher risks.

The second hypothesis tested was that the presence of specific states at the onset of offenses, namely young age, intoxication, and sexual arousal, would influence the making of sexually coercive decisions by offenders. The analyses conducted provided general support for the hypothesis, and indicated that offenders' states at the onset of offenses are pertinent to understanding the offending decisions made afterward. It should be noted that no states were included in Clarke and Cornish's (1985) models of decision making, which is a clear gap in their crime event model. Their notion of bounded rationality, however, is well suited to accommodate investigations of suboptimal decision making made under the influence of specific states.

Although age is not as immediate to the onset of sexual crimes as are the other three states examined, its influence on decision making was noticeable and followed the expected pattern: overall, younger offenders engaged in riskier offending decisions. Specifically, younger offenders showed more impulsivity in their sexual offenses, selected more adult and stranger victims, offended during daylight and in exposed locations, and used coercive methods of approach and higher levels of force in their sexual crimes. These findings are in line with the literature having established that impulsivity is higher at a younger age (Moffitt, 1993; Steinberg et al., 2008) and that decisions made at a younger age include limited considerations of nonimmediate costs (Fried & Reppucci, 2001).

With regard to the influence of intoxicating substances on offenders perpetrating sex crimes, different decision patterns were observed depending on the use of alcohol or drugs. In decisions about the victim, the consumption of both alcohol and drugs significantly predicted the selection of adult and stranger victims, confirming previous findings about the importance of alcohol in the perpetration of rape (Christie, Marshall, & Lanthier, 1979; Seto & Barbaree, 1995). In the case of drugs, the frequent presence of drugs at the onset of sex offenses over the criminal career predicted exposure to intervention in crime locations; this is generally in line with previous findings that indicated poorer evaluation of risks in decisions relative to target selection in burglars that were under the influence of drugs at the time (Cromwell, Olson, Avary, & Marks, 1991). Interestingly, the results were only significant at the offender-level analyses, suggesting that it is offenders' dependence on drugs—and not simply their use of drugs—that created marked differences in riskier environmental decisions. On the other hand, the results indicated that alcohol use was negatively associated with risks in environmental decisions; sex crimes committed under the influence of alcohol were not committed during daylight or in exposed locations, suggesting that alcohol was used as a “crime facilitator,” as a way to reduce fear and inhibitions in order to

“initiate and facilitate the commission” of sexual crimes (Cromwell, Olson, Avary, & Marks, 1991, p. 315; see also Seto & Barbaree, 1995, who discussed the psychological effects of alcohol on sexual aggression, and Bourke et al., 2012, who identified substance abuse as an offense-supportive lifestyle factor). Arguably, the legal status of these different substances could explain those environmental differences, as they are each associated with different sets of routine activities (Cohen & Felson, 1979). On one end, alcohol is legal and can be bought in stores, transported in plain view back to one’s residence, and consumed from within the privacy of the home, which would explain why the impacts of intoxication are not reflected in riskier environmental decisions. On the other end, drugs are illegal and cannot be bought from regular stores; instead they require an offender to travel to a dealer to obtain them, and their simple possession can cause important legal consequences. It is possible to conceptualize that addiction to drugs—the factor we identified as impactful in the decision patterns studied—would require frequent travels to drug dealer(s) and rapid consumption of the substance of choice, possibly resulting in travels through environments that are rich in targetable strangers and exposed to intervention, which could explain the environmental risks taken by offenders under the influence of drugs. Finally, the use of these substances in sexual crimes was also related to the use of coercive methods of approach and higher levels of aggression, in line with previous findings that have documented the link between substance use and aggression (Bushman, 1993; Bushman & Cooper, 1990b; Seto & Barbaree, 1995; Taylor & Chermak, 1993).

The final state examined, sexual arousal, also supported our hypothesis and was somewhat associated with riskier decisions in sexual crimes: selection of adult and stranger victims, encounter of sexual victims in exposed locations, and more extensive use of force. These results are consistent with Van Gelder's (2012) model of “hot” and “cool” criminal decision making. According to his model, decisions made while sexually aroused (the hot mode) “[respond] to different situational characteristics, such as the temporal and spatial immediacy of decision outcomes, ... but remains largely unresponsive to probabilities and outcomes themselves” (p. 752). This would explain why offenders who were sexually aroused disregarded the costs of some of their riskier decisions to focus on the possible reward of sexual gratification. It is surprising however, that sexual arousal was not associated with coercive approaches, in light of the findings obtained in a previous experiment in which participants reported higher likelihood of sexual coercion when sexually aroused compared to their nonaroused state (Ariely, 2010). We hypothesize that this might be due to the possible multiple forms taken by sexual coercion (specifically in offenses against children), some of which do not involve use of force. Clearly, more

research is needed about the impact of sexual arousal on decision making, not only in nonoffending samples but also in offending samples.

The third hypothesis tested was that specialized knowledge about sexual coercion, gained as a witness, victim, and/or perpetrator of sexual assault, would influence the nature of sexually coercive decisions. In their crime involvement model, Clarke and Cornish (1985) hypothesized that previous learning and experience relative to crime would impact offenders' readiness to consider crime as a valid option to satisfy their needs. Our results indicated that knowledge about sexual coercion also directly influenced the decisions made by offenders in sexual crimes. Generally, the variable capturing whether an offender witnessed sexual abuse was a weak predictor of sexually coercive decisions in specific crime events and in overall patterns of decision making over the sexual criminal career. As an explanation, we suggest that having witnessed such acts might explain better a general proclivity or acceptance of sexual coercion as a course of action, but that important details about how to commit sexual coercion would still lack from simple observation without participation. At the offense-level, a history of sexual abuse victimization was a significant predictor, indicating that it constituted a source of knowledge about sexual coercion. Generally, the results about offenders' experiences as victims indicated that the content of this knowledge might have taught them about sexually coercive decisions involving less risk with regard to the selection of victims and environments. This is in line with the stage of primary skills acquisition identified by the qualitative findings of Bourke et al. (2012), in which offenders recalled drawing upon their own sexualization experiences as children, including their experiences as victims of sexual abuse, in their offending histories (see also Ward, 1999). Our results, however, indicated that the impact of victimization largely disappeared in offender-level analyses, suggesting that knowledge about sexual coercion was updated as events relative to sexual coercion were experienced; therefore, we argue that knowledge generated from experiences of perpetration replaces earlier knowledge as a witness or victim of sexual abuse.

The strongest support for our third hypothesis is found in the results obtained relative to variables measuring knowledge from experiences of sexual coercion as a perpetrator. At the offense-level, a consistent pattern observed was that behaviors that had been utilized before in the course of previous sexual offenses were important predictors of the use of these specific behaviors in the course of the offense. Because we used variables representing the proportion of offenders' sex offenses that reused a behavior in previous offenses, we looked specifically at "specialization" in specific offending decisions and found evidence in support of the existence of

such specialized knowledge about ways to commit sexual coercion. These findings are in line with previous findings that concluded that crime scripts were present in sexual offenders (Beauregard, Proulx, et al., 2007; Leclerc et al., 2013, 2011; Leclerc & Wortley, 2013). We consider this specialization in offending decisions to represent crime scripts in perpetrators, indicative of a somewhat automated way of “doing” sexual coercion. From a rational choice approach, it makes sense that learned behaviors involved a more automatic evaluation of costs and benefits and, therefore, presented easier options for offenders that were consequently more likely to be selected. At the offender level, variables capturing knowledge learned from perpetration also emerged as significant predictors. We tested more specifically for two different ways of “doing” sexual coercion, identified by Lussier et al. (2011): the victim-oriented strategy, in which more positive outcomes are obtained from sexual crimes by having a high number of victims; and the event-oriented strategy, in which the same victim is repeatedly exploited. Results indicated that offenders with a high number of repetitive offenses generally made low-risk decisions over their sexual criminal careers, specifically relative to the selection of a victim and environment, and the use of coercion and force. In comparison, offenders with a high number of victims took more risk in their sexual crimes with regard to selection of a victim and use of force; however, they still made low-risk environmental decisions, suggesting that risk aversion in decisions relative to the environment might play a part in sex offenders’ experiences of positive outcomes in their sexual crimes.

Chapter 4.

Study 2: An examination of sexually coercive decisions and their link to sexual crimes outcomes

4.1. Study aim

Clarke and Cornish's (1985) second model of decision making explained the commission of specific events of crime. They hypothesized that particular variables, important to understanding why some crimes were committed the way they were, would be situational in nature, and be specifically linked with offenders' evaluation of the various costs and benefits attached to the possible courses of action. One would expect that offenders' decisions about the targets, times and places, and methods of their crimes all have different costs and benefits for their perpetrators. Study 2 investigated specifically how the decisions made during sexual crimes were attached to specific costs and benefits for the MTC offenders.

In their study of the criminal achievement of property and market offenders, Tremblay and Morselli (2000) stated that success in crime depends largely on "how one goes about doing it" (p. 645), arguing that offenders are decision makers whose choices produce the resulting criminal outcomes. One can similarly examine sexual offenders as decision makers; after all, the commission of sexual assault requires perpetrators to make multiple choices leading to, and in the course of, each act of sexual offending. Each sex crime involves making decisions relative to its modalities (who, when, where and how). Previous findings have indicated that these decisions are linked to the realization of specific outcomes for offenders. For example, a study conducted by Lussier et al. (2011) indicated that decisions relative to victim characteristics (such as child-aged victims and intrafamilial victims) predicted some positive (higher number of sexual events) and negative outcomes (detection and sanction) in sexual offenders' criminal careers. While the role of environmental decisions in sexual crimes has been highlighted in recent studies (Balemba & Beauregard, 2012b; Beauregard & Leclerc, 2007; Beauregard, Proulx, et al., 2007; Beauregard, Rebocho, & Rossmo, 2010; Beauregard, Rossmo, et al., 2007; Deslauriers-Varin & Beauregard, 2010), only one study specifically investigated the role of environmental decisions in the realization of specific crime outcomes (Hewitt & Beauregard, 2014); its results indicated that factors relative to the time and place of assaults contributed to the prediction of four crime outcomes (rape completion, victim forced to perform sex acts on the offender, reaction to

resistance, and level of physical force). In addition, a large body of literature has looked specifically at aspects of the methods used to commit sexual assault, notably the use of force, to predict specific crime outcomes such as rape completion (Ullman, 1998, 2007; Ullman & Knight, 1992, 1993, 1995; but see also Balemba & Beauregard, 2012a; Balemba, Beauregard, & Mieczkowski, 2012, for situational analyses of victim resistance). Overall, the literature indicates that decisions about the selection of victims, the environment, and the method all contribute to the realization of positive and negative outcomes for offenders in sexual crimes. To our knowledge, however, there are no studies that have analyzed all three types of factors together.

Study 2 sought to examine how the various sexually coercive decisions made during sexual crime events are linked to the positive and negative outcomes produced during and after the crime. It investigated specifically the realization of ten positive and seven negative outcomes in the sexual crimes perpetrated by the MTC sample as well as their relationship with multiple variables reflecting various sexually coercive decisions. The general idea investigated was that decisions made during sex crimes produced the realization of various costs and benefits for their perpetrators. One general research question was examined:

What are the benefits and costs associated with decisions made about the selection of victims, the environment, and the method of assault in sexual crimes?

4.2. Methodology

4.2.1. Unit of analysis

Considering our goal to examine the influence of sexually coercive decisions on outcomes experienced by sexual offenders in their sexual crimes, we adopted *sexual criminal events* as the units of analysis, as opposed to *criminal offenders*. (Cornish & Clarke, 1986a) emphasized the distinction between decision models of criminals and criminal events; the former's decisions relate to issues such as involvement and desistance from crime and draw upon a large range of factors, while decisions made in the latter are specific to the information about the immediate context. The selection of crimes as units of analysis, therefore, allowed us to focus specifically on the contextual decisions made in each crime event in relation with the outcomes they produced. It should be noted that because some offenders were serial offenders, there is clustering of crime data within offenders in our sample.

4.2.2. Sample

The sample studied comprised 898 male sexual offenders whose sexual dangerousness was evaluated at the MTC between 1959 and 1991. A large proportion of the sample was white (white: 89.7%; nonwhite: 10.3%). On average, they started criminally offending at 19 years old ($M = 19.53$, $SD = 7.68$) and had criminal careers that spanned over 10 years ($M = 10.24$, $SD = 8.65$). Over their criminal careers, they accrued an average of 15 criminal charges ($M = 14.77$, $SD = 14.56$), about five of which were sexual in nature ($M = 5.13$, $SD = 6.94$). On average, their percentage of specialization in sexual crimes was 44.5%, but there was an important variation in this value between offenders ($SD = 31.40$). Their index sexual offense occurred at 29 years old on average ($M = 29.62$, $SD = 10.26$). Regarding the nature of their sexual offenses, 37.0% of offenders victimized adults, 42.9% victimized children, 14.3% victimized both adult and children, and 5.8% committed other types of contact sexual offenses. The study looked specifically at the 2,296 sexual offenses for which the offenders' files contained enough crime scene information to conduct the analyses. Descriptive information about these offenses can be found in Table 13.

4.2.3. Variables

The present study examined two types of variables: sexually coercive decisions and outcomes to sex crimes. The specific operationalization of these concepts in the study conducted are explained next, along with their coding. Their frequencies of occurrence in the sample studied are presented in Table 13.

Predictor variables: Sexually coercive decisions

The range of sexually coercive decisions measured revolved around four larger types of decisions that are made by offenders in the commission of sexual assault: Who to victimize? When to commit the assault? Where to commit the assault? and How to commit the assault?

The first type of decision concerned the identity and characteristics of the victim and was measured by four variables. *Victim age* captured the age of the victim at the time of the assault or at the time when the abuse started in case of repetitive abuse. The variable was collected as a continuous variable. The variable *victim sex* recorded whether the victim of the assault was male or female (coded as [0] male or [1] female). *Relationship* between victim and offender was originally coded between three categories (stranger, acquaintance, or family), but was dichotomously recoded for the purposes of the present study (as [0] stranger or [1] known).

Finally, *victim intoxication* recorded whether the victim was under the influence of alcohol and/or drugs at the time of the assault (coded as [0] not intoxicated or [1] intoxicated).

Three variables measured offenders' decisions about the temporal aspects of the sexual assault. For the recorded time of day of each incident, the specific hour and minute were later recoded between darkness (8:00 p.m. to 7:59 a.m.) and light (8:00 a.m. to 7:59 p.m.) (coded as [0] dark or [1] light). For the date of each incident, the *day of the week* was recorded and subsequently recoded dichotomously between week or weekend (coded as [0] weekday or [1] weekend day). Finally, the date of each offense was also utilized to classify each offense between the four seasons (summer, fall, winter, and spring) and was then dichotomously recoded for the purposes of the present study ([0] not summer or [1] summer).

The third type of sexually coercive decision made by offenders in the commission of sexual assault related to the location of the assault. The present study considered characteristics of the locations of two specific stages of the assault: at the encounter and during the crime itself. *Encounter and crime locations* were originally classified in larger categories (inside, outside, vehicle) but were dichotomized for the present analyses (coded as [0] not inside or [1] inside). In addition, the *level of exposition to intervention* for both of these locations was also recorded (coded as [0] not exposed or [1] exposed). Finally, *mobility* during the incident recorded whether an offender stayed at the same location or changed location after encountering the victim (coded as [0] no change of location or [1] change of location).

Table 4.1. Frequencies of sexually coercive decisions and outcomes experienced in crime events (*n* = 2,396 offenses)

Sexually coercive decisions during crime events		Outcomes to sexual crimes	
	%	M(SD)	
<i>Who? – Victim characteristics</i>			<i>Positive outcomes</i>
Victim age		15.42 (10.70)	Completion 78.3
Victim sex (female)	71.5		Sexual touching 68.5
Relationship (known)	43.0		Oral sex on victim 21.3
Intoxication (present)	8.9		Penetration 40.3
<i>When? – Time of crime</i>			Sex acts by victim on offender 24.3
Time of day (dark)	48.4		Total number of sex acts 1.82 (1.56)
Day of week (weekday)	68.3		Variety in types of sex acts 1.45 (1.05)
Season (summer)	28.2		Sexual arousal 35.4
<i>Where? – Crime location</i>			Climax 18.1
Inside encounter location	53.0		Repetition 24.6
Exposed encounter location	46.9		<i>Negative outcomes</i>
Inside crime location	55.4		Verbal resistance 89.4
Exposed crime location	17.5		Nonviolent phys resistance 71.8
Mobility between locations	46.3		Violent physical resistance 13.5
<i>How? – Method of sex assault</i>			Delayed detection 42.3
Co-offenders present	6.2		Conviction 64.6
Coercive approach	33.4		Prison sentence 57.5
Weapon present	25.0		Length of sentence 4.41 (9.94)
Blindfold/Gag used	5.2		
Physical restraints used	4.9		
Incapacitation of victim	3.0		
Arousing victim	28.1		
Noncontact sexual behaviors	16.6		
Instrumental aggression during		1.89 (1.39)	
Expressive aggression during		1.42 (1.86)	
Expressive aggression after		0.30 (1.05)	

The fourth type of sexually coercive decision captured how the offender perpetrated the assault; eleven different variables measured various aspects of the offender’s method. The *presence of co-offenders* was dichotomously coded ([0] no co-offender or [1] co-offender[s] present). The *method of approach* was originally categorized between deception, surprise, and blitz attack but was dichotomously recoded for the purpose of the present analyses (coded as [0] noncoercive approach or [1] coercive approach). Approaches involving deception were

noncoercive and typically involved elements of seduction, manipulation, and/or trickery. In comparison, both surprise and blitz attack were considered coercive methods. The former involved an element of surprise characterized by a level of force used to control while the latter involved an immediate use of force aimed at incapacitation. The *presence of a weapon* was also recorded (coded as [0] no weapon or [1] weapon present) along with *use of blindfold and/or gag* and *use of physical restraints* on the victim (both coded as [0] not used [1] used). The variable *victim incapacitation* recorded whether the offender made his victim unconscious during the assault (coded as [0] no incapacitation or [1] victim incapacitated). *Arousal of victim* captured whether the offender engaged in behaviors aimed at sexually arousing the victim during the assault (coded as [0] no victim arousal or [1] victim arousal). The presence of *noncontact sexual behaviors* during the assault, such as voyeurism, fetishism, exhibitionism, and transvestism, was also noted (coded as [0] absent or [1] present). Finally, use of force was also noted; specifically, three variables captured, respectively, the *level of instrumental aggression before and during the offense*, the *level of expressive aggression before and during the offense*, and the *use of expressive aggression after the offense*. Instrumental aggression refers to the use of violence that is goal-oriented; for example, in the course of a sexual assault, instrumental violence might occur as a means for the offender to influence the victim to do something (e.g., get undressed) or refrain from doing something else (e.g., stop screaming). Comparatively, expressive aggression refers to the use of violence that is hostile; in those cases, violence is, in itself, the goal. All three use of force variables were measured on a 6-point scale: (0) none; (1) minimal, limited to aggressive verbalization; (2) minimal physical aggression; (3) hurting minimally; (4) nondamaging beating; (5) damaging beating; (6) brutal beating.

Outcome variables: Positive and negative outcomes

Ten positive outcomes were used as outcome variables in the multivariate analyses conducted. Positive outcomes in sexual crimes captured various behaviors that offenders might have successfully completed in the course of their sexual crimes. First, the variable *completion* recorded whether an offender completed the assault (coded as [0] attempt only or [1] completion). Completion was recorded when the attack on the victim—the moment the offender made a sexually coercive move on the victim, which could range from a violent assault to the seduction of a victim unable to consent—resulted in the offender gaining physical control over the victim. This physical control could be observed in the next step of an offense: it was present if the offender was able to change locations with the victim and/or proceed with the sexual assault and it was absent if the victim was directly released. Next, the variables *sexual touching*, *oral sex on victim*,

and *penetration* recorded whether offenders performed these specific acts on their victims; all three variables were dichotomously coded ([0] absent or [1] present). Acts of *sexual touching* comprised any of the following acts: kissing, fondling nonsexual body parts, and fondling sexual body parts (including masturbation). Acts of *oral sex on the victim* comprised fellation or cunnilingus of the victim by the offender. Finally, acts of *penetration* included vaginal penetration with penis, vaginal penetration with fingers, vaginal penetration with object, anal penetration with penis, anal penetration with fingers, and anal penetration with object. A fourth type of acts was also recorded, *sexual acts by victim* (coded as [0] absent or [1] present), which captured whether an offender was able to coerce a victim into performing sexual acts on him (including sexual touching, oral sex, or anal penetration). Using these four types of acts (sexual touching, oral sex on victim, penetration, and sex acts by victim), a *variety* measure was computed, consisting of an ordinal scale ranging from 0 to 4 and representing the number of different types of acts that were committed during the crime. Also, a sum of the *total number of sexual acts* committed during the assault was calculated and constituted a continuous variable that could range from 0 to 13. Two additional positive outcome variables measured aspects of offenders' sexual pleasure during their offenses: *arousal* and *climax*³ (both coded as [0] absent or [1] present). Respectively, these variables reflected if the offender obtained an erection and reached orgasm during the course of the offense. One final variable, *repetition*, recorded whether the offender offended sexually against the same victim in one or more additional abuse events (coded as [0] no repetition or [1] repetition).

Among the seven types of negative outcomes measured, three were immediate (i.e., they occurred during the crime event) while the other four were nonimmediate (i.e., they occurred in the aftermath). Immediate negative outcomes included three types of victim resistance: *victim's verbal resistance*, *victim's nonviolent physical resistance*, and *victim's violent physical resistance*. Verbal resistance included resistance strategies that involved talking to the offender and saying no. Nonviolent physical resistance consisted of victim's actions of a physical nature that were not aggressive toward the offender, such as trying to escape. In comparison, kicking and biting the offender constituted acts of aggression toward the offender and were examples of violent physical resistance. All three victims' resistance variables were coded dichotomously ([0] absent or [1] present). Nonimmediate negative outcomes considered were delayed detection, conviction for offense, prison sentence, and length of sentence. The variable *delayed detection* reflected

³ Arousal and climax were not systematically reported in offense descriptions. We assumed that it was present in files in which it was reported and absent in files that did not mention it.

whether an offender perpetrated additional offenses before being caught and convicted for the offense (coded as [0] no delay or [1] delayed detection). The variable *conviction* captured whether the offender received a guilty sentence for the offense before his next offense (coded as [0] not convicted or [1] convicted). Lack of conviction was found typically in three situations: charge(s) resulting in the issue of an arrest warrant that was never exercised, charge(s) dismissed, or verdict of not guilty (including by reason of insanity). *Prison sentence* recorded whether the offender was sentenced to detention in an institution (including the MTC) (coded as [0] no prison or [1] prison). In offenses punished by prison sentences, the minimum and maximum sentence lengths in years were recorded, and an *average length of sentence* was calculated.

4.2.4. Statistical analyses

To conduct the analyses, we used Generalized Estimating Equations (GEEs), a statistical technique that adjusts standard error estimations to account for nesting or correlation in the data when calculating beta coefficients (Hardin & Hilbe, 2013; Liang & Zeger, 1986). In our case, the offense data were correlated and the assumption of independence of observations was violated, considering that many offenders committed more than one sexual crime. GEE analysis requires identification of a type of distribution and link function, and specification of a working correlation matrix. The distribution and link function are decided by the type of outcome variable; in our cases, eight positive and six negative outcome variables were dichotomous (completion, touching, oral, penetration, sex acts by victim, arousal, climax, repetition, victim verbal resistance, victim nonviolent physical resistance, victim violent physical resistance, delayed detection, convicted, and sentenced to prison) and were specified as having a binomial distribution and a logit link function. The other two positive and one negative outcome variables (number of sexual acts, variety, length of prison sentence) were non-negative continuous variables with responses clustering around the lower values; in these cases, the gamma distribution and the log link function were specified. With regard to the selection of a working correlation matrix, we ran each GEE model using two working correlation matrices (independent and unstructured) and selected the one with the lowest quasi-likelihood under the independence model criterion (QIC value). The selected working correlation matrix for each model is included in Tables 14 and 15. All analyses were computed using SPSS version 22.

4.3. Results

4.3.1. Positive outcomes

The ten GEE models measuring the influence of sexually coercive decisions during sex crimes on the various positive outcomes experienced by the offender as a result are presented in Table 14.

In the first model—in which decisions made during sexual assault events were used to predict their completion—seven types of decisions were significant predictors. With regard to decisions about the *who*, results indicated that the selection of younger victims ($\text{exp}\beta = 0.98$; $p \leq .01$), male victims ($\text{exp}\beta = 0.44$; $p \leq .000$), and intoxicated victims ($\text{exp}\beta = 2.00$; $p \leq .05$) all predicted a higher likelihood of completion of the assault. In decisions relative to the location of the assault, only an offender's decision to change locations increased the likelihood of completion of an assault ($\text{exp}\beta = 1.64$; $p \leq .01$). Finally, three additional variables measuring an offender's methods used to commit the assault were also significant predictors of completion: the decision to blindfold the victim ($\text{exp}\beta = 2.49$; $p \leq .01$) and to use higher levels of expressive aggression after the sex crime ($\text{exp}\beta = 1.17$; $p \leq .05$) predicted an increased likelihood of the assault completion, while the decision to use higher levels of instrumental aggression during the sex crime resulted in a lower likelihood of completion ($\text{exp}\beta = 0.77$; $p \leq .000$).

Our second model estimated the influence of decisions made during sexual crimes on the realization of touching the victim and other analogous behaviors during the crime event. Results indicated that five decisions impacted the outcome studied. In decisions relative to the selection of a victim, results indicated that selecting younger victims ($\text{exp}\beta = 0.98$; $p \leq .01$) and selecting victims that were known to the offenders as acquaintances or via family bonds ($\text{exp}\beta = 1.40$; $p \leq .05$) both increased the likelihood of touching behavior during sex crime events. In decisions relative to the method of the assault, results indicated that the decision to have a weapon decreased the likelihood that touching behavior occurred during an assault ($\text{exp}\beta = 0.45$; $p \leq .000$). In comparison, decisions to commit noncontact sexual behaviors during the crime ($\text{exp}\beta = 1.92$; $p \leq .000$) and to use higher levels of expressive aggression after the crime ($\text{exp}\beta = 1.16$; $p \leq .05$) both increased the likelihood of touching behavior.

The third model measured the influence of decisions on the realization of oral sex being performed on the victim during the crime event. Results indicated that the selection of female

victims decreased the likelihood of oral sex being performed on the victim ($\text{exp}\beta = 0.25$; $p \leq .000$). The selection of exposed crime locations by offenders also reduced the likelihood that they performed oral sex on their victims ($\text{exp}\beta = 0.52$; $p \leq .05$). Finally, the arousal of victims as part of the method of assault and the presence of additional noncontact sexual behaviors both contributed to an increased likelihood that oral sex was committed on the victim (respectively, $\text{exp}\beta = 1.98$; $p \leq .01$ and $\text{exp}\beta = 1.56$; $p \leq .05$).

Eleven decisions were significant in the fourth model, examining the realization of penetration in sex crime events. With regard to selection of the victim, one variable was a significant predictor: results indicated that the selection of female victims increased the likelihood that penetration occurred during the assault ($\text{exp}\beta = 2.08$; $p \leq .000$). In decisions relative to the location(s), results indicated first that the selection of an inside crime location increased the likelihood of penetration of the victim ($\text{exp}\beta = 1.79$; $p \leq .000$). The selection of crime locations that were exposed to intervention decreased the likelihood that the victim was penetrated ($\text{exp}\beta = 0.45$; $p \leq .000$), while the decision to change locations increased the likelihood of penetration ($\text{exp}\beta = 2.26$; $p \leq .000$). Decisions made relative to the method of assault were also important in predicting the penetration of the victim; results indicated that the presence of co-offenders ($\text{exp}\beta = 2.29$; $p \leq .000$), the presence of a weapon ($\text{exp}\beta = 1.41$; $p \leq .05$), the use of blindfolds ($\text{exp}\beta = 2.07$; $p \leq .05$), the arousal of the victim ($\text{exp}\beta = 1.75$; $p \leq .000$), and the use of higher levels of instrumental and expressive aggression during the event (respectively $\text{exp}\beta = 1.17$; $p \leq .01$ and $\text{exp}\beta = 1.11$; $p \leq .05$) all led to a higher likelihood of penetration of the victim. On the other hand, the presence of noncontact sexual behavior as part of the method of assault reduced the likelihood that the victim was penetrated ($\text{exp}\beta = 0.57$; $p \leq .000$).

The fifth type of positive outcome examined was whether the offender was able to coerce the victim into committing specific sexual acts on him during the assault. Results indicated that the selection of female victims decreased the likelihood that sexual acts were committed by the victim on the offender ($\text{exp}\beta = 0.54$; $p \leq .01$). Two variables measuring the use of force during the offense were also significant predictors of sexual acts by the victim: results indicated that offenders who used lower levels of expressive aggression during ($\text{exp}\beta = 0.85$; $p \leq .05$) and higher levels of expressive aggression after ($\text{exp}\beta = 1.16$; $p \leq .05$) increased the likelihood of successfully coercing the victim to commit sexual acts on him.

The sixth model measured the influence of decisions made during sex crimes on the number of sexual acts that were committed. With regard to decisions about the selection of a

victim, results indicated that younger victims and male victims were subjected to fewer sexual acts during a crime (respectively, $\beta = -.01$; $p \leq .01$ and $\beta = -.09$; $p \leq .05$). The selection of a victim known to the offender also resulted in a higher number of sexual acts during the incident ($\beta = .19$; $p \leq .001$). Three variables capturing environmental decisions were significant; results indicated that offenses committed in summer time ($\beta = .08$; $p \leq .05$), in crime locations that were isolated from intervention ($\beta = -.36$; $p \leq .000$), and where the offender was mobile between locations ($\beta = .18$; $p \leq .000$) all predicted a higher number of sexual acts during the crime event. Finally, the significant decisions relative to the method of assault were using blindfolds ($\beta = .39$; $p \leq .000$), arousing the victim ($\beta = .13$; $p \leq .01$), committing noncontact sexual behaviors ($\beta = .27$, $p \leq .000$), and using higher levels of expressive aggression after the event ($\beta = .06$; $p \leq .01$); these four decisions predicted a higher number of sexual acts during a sex crime event.

The seventh model estimated the influence of decisions on the variety of types of sexual acts committed over a sexual crime event. Results indicated that three characteristics of the selected victim impacted the variety of acts in sexual offenses: sex, relationship with the offender, and intoxication. Specifically, the selection of male victims ($\beta = -.23$; $p \leq .000$), victims that were known to the offender ($\beta = .17$; $p \leq .001$), and intoxicated victims ($\beta = .08$; $p \leq .001$) all resulted in an increased variety of sexual acts over the assault. Two environmental decisions impacted variety: results indicated that offenses committed in locations that were exposed to intervention decreased the variety of sexual acts ($\beta = -.31$; $p \leq .000$) while mobility between locations increased it ($\beta = .24$; $p \leq .000$). Six decisions about the method of assault also significantly predicted the variety of sexual acts in crime events: the presence of co-offenders ($\beta = .16$; $p \leq .05$), use of blindfolds ($\beta = .34$; $p \leq .001$), sexual arousal of the victim ($\beta = .16$; $p \leq .001$), presence of noncontact sexual behaviors ($\beta = .10$; $p \leq .05$) and use of expressive aggression after ($\beta = .08$; $p \leq .000$) all predicted a higher variety, while the decision to render a victim unconscious decreased the variety in sex acts ($\beta = -.30$; $p \leq .05$).

Our eighth model investigated the impact of decisions made during sexual crimes on sexual arousal of the offender. Only one decision relative to victim selection was a significant predictor: the selection of female victims increased the likelihood that an offender was sexually aroused during the assault ($\exp\beta = 1.51$; $p \leq .01$). Environmental decisions also impacted the realization of sexual arousal: the selection of encounter and crime locations that were exposed to intervention decreased the likelihood of offenders' sexual arousal (respectively, $\exp\beta = 0.71$; $p \leq .05$ and $\exp\beta = 0.43$; $p \leq .000$) while the decision to change locations increased it ($\exp\beta = 1.91$;

$p \leq .000$). Finally, five decisions about the method of assault were significant predictors of sexual arousal. Decisions to offend with co-offenders ($\text{exp}\beta = 2.25$; $p \leq .000$), to have a weapon ($\text{exp}\beta = 1.40$; $p \leq .05$), to arouse the victim ($\text{exp}\beta = 2.02$; $p \leq .000$), and to use higher levels of instrumental aggression during the crime ($\text{exp}\beta = 1.17$; $p \leq .01$) all resulted in an increased likelihood of sexual arousal of the offender, while the commission of noncontact sexual behaviors decreased it ($\text{exp}\beta = 0.71$; $p \leq .05$).

Five decisions were significant in the ninth model, examining the role of decisions on the occurrence of climax during sex crime events. Results indicated that only one decision about victim selection impacted the occurrence of climax: the selection of female victims increased the likelihood that climax was attained ($\text{exp}\beta = 1.42$, $p \leq .05$). One environmental decision also predicted climax: the decision to commit the crime in an exposed location decreased the likelihood of climax ($\text{exp}\beta = 0.41$, $p \leq .001$). Finally, three decisions about how to commit the assault influenced the occurrence of climax: results indicated that the presence of a weapon ($\text{exp}\beta = 1.67$, $p \leq .01$), the arousal of the victim ($\text{exp}\beta = 1.60$, $p \leq .01$), and the commission of noncontact sexual behaviors ($\text{exp}\beta = 1.60$, $p \leq .01$) all increased the likelihood that an offender climaxed during his offense.

The last model examined factors predicting repetition of the assault against the same victim. Results indicated that all four decisions regarding selection of the victim were significant predictors of repetition. Notably, the selection of known victims ($\text{exp}\beta = 14.95$, $p \leq .000$) increased the likelihood of repetition, while the selection of older victims ($\text{exp}\beta = 0.96$, $p \leq .001$), female victims ($\text{exp}\beta = 0.44$, $p \leq .001$), and intoxicated victims ($\text{exp}\beta = 0.51$, $p \leq .05$) all decreased the likelihood of repetition of the assault. Significant environmental decisions on repetition of the assault comprised characteristics of the encounter and crime locations. Specifically, results indicated that the selection of an exposed encounter location decreased the likelihood of repetition ($\text{exp}\beta = 0.36$, $p \leq .01$), while the selection of an inside crime location was associated with an increased likelihood of repetition ($\text{exp}\beta = 3.17$, $p \leq .000$). With regard to the method of assault, the use of a coercive method of approach ($\text{exp}\beta = 0.33$, $p \leq .01$) and the presence of a weapon ($\text{exp}\beta = 0.33$, $p \leq .01$) both resulted in a decreased likelihood of repetition, while the arousal of the victim increased the likelihood of repetition ($\text{exp}\beta = 2.05$, $p \leq .01$).

Table 4.2. GEE models presenting the influence of sexually coercive decisions on positive outcomes during sex crime events

	Completed ^a	Touch ^a	Oral ^a	Penetr. ^a	Sex acts by V ^a	No sex acts ^a	Variety ^a	Arousal ^a	Climax ^b	Repetition ^a
	β	β	β	β	β	β	β	β	β	β
Who?										
Victim age	-.018**	-.022**	-.004	.004	-.007	-.008**	-.004 [†]	.004	-.007	-.046***
Victim sex (1=female)	-.823***	-.243	-1.401***	.731***	-.607**	-.098*	-.229***	.409**	.352*	-.818***
Relationship (1=known)	.200	.338*	.312	.273 [†]	.481*	.191***	.168***	.290 [†]	.115	2.705***
Victim intoxicated (1=yes)	.695*	.029	.007	.178	-.266	.064	.083***	-.129	-.108	-.673*
When?										
Time (1=light)	.266 [†]	.090	.267	-.218	-.258	.021	.030	-.205	.149	.240
Day (1=weekend)	.088	-.115	.215	.155	.020	-.026	.026	.082	-.077	.045
Season (1=summer)	-.212 [†]	.031	.138	-.010	-.129	.081*	.049	-.054	.112	.074
Where?										
Encounter inside (1=inside)	.056	.194	.190	.022	-.126	.081	.095 [†]	.096	.135	.050
Encounter exposed (1=exp.)	-.208	-.179	-.134	-.265	-.260	-.069	-.075	-.342*	-.314	-1.016**
Crime inside (1=inside)	.259	-.141	.179	.583***	.295	.045	-.078	.192	.027	1.153***
Crime exposed (1=exposed)	-.288	-.049	-.653*	-.793***	-.566 [†]	-.363***	-.306***	-.846***	-.892***	.033
Mobility (1=change location)	.497**	-.081	.365	.815***	.472 [†]	.183***	.235***	.645***	.270	.394 [†]
How?										
Co-offender/s (1=present)	.292	-.130	.121	.830***	.374	.084	.157*	.810***	.073	-.052
Approach (1=coercive)	-.072	-.213	-.002	-.128	-.375 [†]	-.099 [†]	-.097 [†]	.053	-.096	-1.104**
Weapon (1=present)	-.080	-.801***	.046	.342*	.291	-.083	-.076	.340*	.511**	-1.110**
Blindfold (1=used)	.914**	.360	.168	.728*	.570	.388***	.338***	.556 [†]	-.157	.198
Phys restraints (1=used)	-.564 [†]	.056	.246	-.198	-.076	.093	-.012	-.294	.514	-.766
Unconscious V (1=present)	-.359	-.277	-.014	-.418	-.838	-.045	-.304*	-.523	-.010	-1.659 [†]
Arousing (1=present)	.090	-.041	.682**	.561***	.244	.126**	.155***	.702***	.470**	.720**
Noncontact sex (1=present)	.268	.653***	.443*	-.568***	.214	.272***	.100*	-.345*	.469**	.320
IAD	-.259***	-.138	-.077	.156**	.086	.004	.005	.153**	.045	-.139
EAD	-.018	-.062	-.096	.104*	-.160*	-.010	-.018	.058	-.009	-.126
EAA	.158*	.147*	.114	.046	.149*	.062**	.075***	.105 [†]	-.015	.152

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

^a Independent working correlation matrix was selected.

^b Unstructured working correlation matrix was selected.

4.3.2. Negative outcomes

The seven GEE models measuring the influence of sexually coercive decisions during sex crimes on the various negative outcomes experienced by the offender as a result are presented in Table 15.

The first model estimated the influence of decisions made during sexual assault events on victims verbal resistance. Eleven decisions were significant predictors. Results indicated that victim sex was a significant predictor of verbal resistance; specifically, female victims were more likely to resist verbally ($\text{exp}\beta = 1.71$; $p \leq .001$). In environmental decisions, results indicated that offenses committed in daylight ($\text{exp}\beta = 1.52$; $p \leq .01$), during the summer ($\text{exp}\beta = 1.72$; $p \leq .01$), and in exposed crime locations ($\text{exp}\beta = 1.99$; $p \leq .01$) all increased the likelihood of verbal resistance. The impact of exposed encounter locations was opposite; the results indicated that these locations decreased the likelihood of verbal resistance from a victim ($\text{exp}\beta = 0.50$; $p \leq .01$). Finally, six additional variables measuring an offender's methods used to commit the assault were also significant predictors of verbal resistance: the presence of a weapon ($\text{exp}\beta = 0.52$; $p \leq .05$), rendering the victim unconscious ($\text{exp}\beta = 0.01$; $p \leq .000$) and arousing the victim ($\text{exp}\beta = 0.30$; $p \leq .000$) all decreased the likelihood that a victim resisted verbally. The presence of noncontact sexual behaviors ($\text{exp}\beta = 2.86$; $p \leq .000$) and higher levels of instrumental and expressive aggression during the crime (respectively, $\text{exp}\beta = 4.12$; $p \leq .000$ and $\text{exp}\beta = 1.81$; $p \leq .000$), however, increased the likelihood that a victim resisted verbally.

Our second model measured the influence of decisions made during sexual crimes on victims' nonviolent physical resistance. Results indicated that eleven decisions impacted the outcome studied. In decisions relative to the selection of a victim, results indicated that selecting female victims and intoxicated victims increased the likelihood of nonviolent physical resistance (respectively, $\text{exp}\beta = 1.91$; $p \leq .000$ and $\text{exp}\beta = 2.09$; $p \leq .01$). Only one environmental decision was related to the outcome studied: results indicated that mobility between locations decreased the likelihood of victim nonviolent physical resistance ($\text{exp}\beta = 0.57$; $p \leq .001$). In decisions relative to the method of the assault, results indicated that a coercive approach ($\text{exp}\beta = 2.36$; $p \leq .000$), the commission of noncontact sexual behaviors ($\text{exp}\beta = 1.94$; $p \leq .000$), and higher levels of instrumental and expressive aggression used during the crime (respectively, $\text{exp}\beta = 3.40$; $p \leq .000$ and $\text{exp}\beta = 1.46$; $p \leq .000$) all increased the likelihood of victim nonviolent physical resistance. In comparison, decisions to blindfold the victim ($\text{exp}\beta = 0.38$; $p \leq .01$), to physically

restrain the victim ($\text{exp}\beta = 0.38$; $p \leq .01$), to render the victim unconscious ($\text{exp}\beta = 0.14$; $p \leq .000$), and to arouse the victim ($\text{exp}\beta = 0.64$; $p \leq .001$) decreased the likelihood of nonviolent physical resistance by the victim.

The third model used decisions made during sex crime events to predict victims' violent physical resistance. Results indicated that three variables were significant, all related to the methods used to commit the assault, and, more specifically, related to the use of coercion and force. The use of a coercive method of approach was associated with a higher likelihood of violent physical resistance by the victim during the assault ($\text{exp}\beta = 1.86$; $p \leq .05$). In addition, higher levels of instrumental and expressive aggression during the crime were also associated with a higher likelihood that the victim resisted with violent physical force (respectively, $\text{exp}\beta = 2.13$; $p \leq .01$ and $\text{exp}\beta = 1.26$, $p \leq .000$).

Eight decisions were significant in the model examining delay in the detection of sex crimes, our fourth model. With regard to selection of the victim, two variables were significant predictors: results indicated that the selection of female victims decreased the likelihood that detection was delayed ($\text{exp}\beta = 0.69$; $p \leq .01$). The selection of victims that were known increased the likelihood that detection of the offense was delayed ($\text{exp}\beta = 2.30$; $p \leq .000$). For environmental decisions, results indicated first that the commission of offenses over the summer ($\text{exp}\beta = 0.09$; $p \leq .05$) and the encounter of victims at exposed locations ($\text{exp}\beta = 0.57$; $p \leq .000$) both decreased the likelihood of a delay in detection by the authorities. The commission of sex crimes inside, on the other hand, increased the likelihood of delayed detection ($\text{exp}\beta = 1.50$; $p \leq .05$). Decisions made relative to the method of assault were also important to predicting a delay in detection; results indicated that the presence of a weapon during the assault ($\text{exp}\beta = 1.46$; $p \leq .05$) increased the likelihood of delayed detection while the decision to render the victim unconscious ($\text{exp}\beta = 0.40$; $p \leq .05$) and the use of higher levels of expressive aggression during ($\text{exp}\beta = 0.87$; $p \leq .01$) both led to a decreased likelihood of delayed detection.

The fifth type of negative outcome examined was conviction for the offense. Results indicated that the selection of intoxicated victims decreased the likelihood of conviction ($\text{exp}\beta = 0.59$; $p \leq .05$). Four variables measuring the methods used to commit the sexual assault were also significant predictors of conviction: results indicated that offenders who blindfolded their victims decreased their likelihood of conviction ($\text{exp}\beta = 0.31$; $p \leq .05$), while those who aroused their victims ($\text{exp}\beta = 1.88$; $p \leq .05$) and used higher levels of expressive aggression during and

after the assault (respectively, $\exp\beta = 1.15$; $p \leq .05$ and $\exp\beta = 1.24$; $p \leq .01$) increased their likelihood of conviction.

The sixth model measured the influence of decisions made during sex crimes on offenders' likelihood of receiving a prison sentence. With regard to decisions about the selection of a victim, results indicated that the selection of older victims increased the likelihood of a prison sentence ($\exp\beta = 1.01$; $p \leq .05$) while the selection of an intoxicated victim resulted in a decreased likelihood that an offender was sentenced to prison ($\exp\beta = 0.65$; $p \leq .05$). Two variables capturing environmental decisions were significant; results indicated that offenses committed in summer increased the likelihood of a prison sentence ($\exp\beta = 1.30$; $p \leq .01$), while offenses committed in exposed crime locations decreased it ($\exp\beta = 0.68$; $p \leq .05$). Finally, the significant decisions relative to the method of assault were rendering the victim unconscious ($\exp\beta = 3.05$; $p \leq .01$), arousing the victim ($\exp\beta = 1.37$; $p \leq .05$), and using higher levels of expressive aggression during and after the assault (respectively $\exp\beta = 1.08$; $p \leq .05$ and $\exp\beta = 1.16$; $p \leq .05$); these four decisions predicted a higher likelihood that a prison sentence was given.

The seventh and final model estimated the influence of decisions on the average length of the sentence received by offenders as punishment. Results indicated that only one characteristic of the selected victim impacted the length of the sentence received: offenders who selected intoxicated victim received longer prison sentences ($\beta = 4.45$; $p \leq .05$). Only one environmental decision impacted the length of the sentence received: results indicated that offenses committed during summer time increased sentence lengths ($\beta = 2.77$; $p \leq .000$). Finally, three decisions about the method of assault significantly predicted the length of a sentence: the presence of co-offenders ($\beta = 4.83$; $p \leq .000$), the presence of a weapon ($\beta = 1.88$; $p \leq .01$), and rendering the victim unconscious ($\beta = 12.66$; $p \leq .000$) all increased the length of sentences received as punishment by offenders.

Table 4.3. GEE models presenting the influence of sexually coercive decisions on negatives outcomes to sex crime events

	Verbal R ^a β	Nonviol. phys. R ^a β	Viol. phys. R ^a β	Delay detection ^a β	Conviction ^b β	Prison ^a β	Sentence length ^b β
Who?							
Victim age	-.025 [†]	-.018	.008	-.011 [†]	.003	.012*	.050
Victim sex (1=female)	.535***	.647***	.789 [†]	-.372**	.302 [†]	.113	-1.480 [†]
Relationship (1=known)	.156	-.006	-.021	.833***	-.311	.029	.287
Victim intoxicated (1=yes)	-.181	.738**	.330	-.256	-.534*	-.435*	4.453*
When?							
Time (1=light)	.421**	.249 [†]	-.289	-.130	.319	.030	.650
Day (1=weekend)	.025	-.070	.168	.190	-.045	-.054	.799
Season (1=summer)	.543**	.219	-.060	-.241*	.354	.264**	2.771***
Where?							
Encounter inside (1=inside)	-.129	-.210	-.043	-.211	.129	.209	.127
Encounter exposed (1=exposed)	-.698**	.086	-.173	-.555***	.028	.063	-1.834
Crime inside (1=inside)	-.445 [†]	-.309	-.410	.406*	.032	-.002	1.025
Crime exposed (1=exposed)	.688**	-.068	.508	.223	-.441	-.389*	.217
Mobility (1=change location)	.297	-.558***	-.183	.139	.510 [†]	.177	2.281
How?							
Co-offender/s (1=present)	-.367	-.240	.158	-.348 [†]	.316	.345 [†]	4.827***
Approach (1=coercive)	.245	.857***	.618*	.189	-.112	-.122	.918
Weapon (1=present)	-.646*	-.304	-.326	.380*	-.248 [†]	.009	1.876**
Blindfold (1=used)	-.553	-.967**	-.717 [†]	.333	-1.164*	-.179	-1.769
Physical restraints (1=used)	-.284	-.970**	-.432	-.125	.627 [†]	.294	2.552
Unconscious V (1=unconscious)	-4.571***	-1.980***	1.133 [†]	-.910*	.666	1.115**	12.660***
Arousing (1=present)	-1.209***	-.452***	.071	.190	.632*	.314*	.080
Noncontact sex (1=present)	1.052***	.662***	.076	.219 [†]	-.224	-.012	.610
Instrumental aggression during	1.417***	1.225***	.758**	-.008	.037	.095 [†]	.481 [†]
Expressive aggression during	.594***	.378***	.230***	-.136**	.140*	.078*	.239
Expressive aggression after	-.169	.044	.088	-.125 [†]	.219**	.145*	.742 [†]

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

^a Independent working correlation matrix was selected.

^b Unstructured working correlation matrix was selected.

4.4. Discussion

In Study 2, we used Clarke & Cornish's (1985) rational choice approach, specifically their model of decisions during crime events, to examine the costs and benefits of sexual offenders' offending decisions. Specifically, we investigated which decisions made during sexual crimes produced specific positive and negative outcomes for their perpetrators, testing Tremblay and Morselli's (2000) assertion that crime outcomes depend largely on "how one goes about doing it" (p. 645). In the next paragraphs, the results obtained are presented by type of decision and discussed in relation with the literature.

First, we examined decisions relative to the selection of victims by offenders. Results indicated that the four types of decisions made by offenders regarding the selection of victims in their sexual crimes impacted both positive and negative outcomes experienced as a result, but markedly more so for the production of various positive outcomes. The decision regarding victim's age was found to be related to completion, occurrence of sexual touching, total number of sexual acts, and repetition of the assault. Results specifically indicated that the selection of younger victims predicted completion of the assault, occurrence of sexual touching, repetition of the assault, and an overall higher number of sexual acts committed during the event; in addition, selection of a younger victim reduced some of the negative outcomes—particularly, a decreased likelihood of offenders receiving prison sentences as punishment, in line with Lussier et al.'s (2011) findings to the effect that the selection of child victims resulted in avoidance of sanction in sexual offenders. Possibly, the age of sexual victims relates to "inertia," one of the characteristics of a desirable or suitable target according to Felson (1996). In crimes with human targets, inertia refers to targets' ability to defend themselves. Because of their smaller size, weaker strength, and incomplete development, children are less able to defend themselves against sexual assault, and therefore constitute easier targets for sexual offenders. Our results clearly support such an assertion, considering the patterns of positive outcomes produced by the selection of younger victims.

In decisions about the sex of the victim, the selection of male victims increased the rate of completion of the assault, oral sex on the victim, sexual acts performed on the

offender by the victim, a higher variety of sexual acts, and repetition of the assault. The selection of male victims was also associated with a longer delay of detection by the police. These last two findings—repetition and delayed detection of offenses against males—are in line with previous findings noting the underreporting of sexual abuse by male victims, and hypothesizing that it was a result of current conceptions of masculinity and gender stereotypes (Cermak & Molidor, 1996; Esnard & Dumas, 2012; Finkelhor, 1984). Comparatively, the selection of female victims was associated with a higher likelihood of penetration of the victim, arousal and climax by the offender, and verbal and nonviolent physical resistance by the victim.

Offending decisions about the selection of a known or stranger victim also yielded interesting patterns in the outcomes they produced: offenses against victims that were known to offenders were associated with sexual touching, sexual acts performed by the victim on the offender, a higher number of sexual acts during the assault, more variety in the types of sexual acts that were committed, repetition of the assault, and delayed detection by the authorities, confirming Lussier et al.'s (2011) findings indicating that the selection of a victim inside the offender's family was generally associated with more assaultive events and a longer time before detection. A simple evaluation of opportunities to offend indicates that there are more opportunities to offend and reoffend sexually against a victim that is known to the offender. This is in accordance with the routine activities theory, which states that the convergence in time and space of three elements—a likely offender, a suitable target, and the absence of a capable guardian—creates a criminal opportunity when the routine activities of actors (offender and target) overlap (Cohen & Felson, 1979). Brantingham and Brantingham (2008) noted that this overlap in routine activities is “clear when a victim of a personal crime is a family member or an acquaintance” (p. 87).

The final offending decision about the victim regarded his/her state of intoxication. In addition to previous findings indicating that alcohol consumption heightens one's likelihood of sexual victimization (Abbey, 2002; Abbey, Zawacki, Buck, Clinton, & McAuslan, 2001, 2004; Pape, 2014; Parks & Fals-Stewart, 2004; Parks, Hsieh, Bradizza, & Romosz, 2008; Ullman, 2003), our analyses identified specific outcomes predicted by the selection of an intoxicated victim by an offender: it rendered the assaults more likely to be completed and to include more variety in the types of sexual acts completed, but

less likely to be repeated. In addition, it reduced the likelihood of some negative outcomes; the analyses demonstrated that offenses against intoxicated victims were less likely to result in criminal convictions and prison sentences. One cannot help but notice that the selection of an intoxicated victim produced positive outcomes while limiting negative outcomes.

Second, the influence of decisions relative to the environment of the offenses was examined in relation to the positive and negative outcomes they produced. Decisions about the overall time of the offenses over the day, the week, and the year contributed very little to the outcome models analyzed. Decisions regarding time of the day indicated it was a significant predictor of victim verbal resistance; specifically, offenses that occurred in daylight were more likely to include verbal resistance from victims, which can be explained by the higher likelihood of victims being awake during the day. Decisions relative to the day of the week did not contribute significantly to any outcome studied. Finally, results indicated that offenses committed during summer comprised a higher number of sexual acts and were associated with higher levels of victim verbal resistance. Summer is a period of the year when people's routine activities change a lot—no school, longer days, more activities outside due to better weather—which likely explains changes in patterns of sexual offending during that period (Cohen & Felson, 1979). These decisions, however, did not contribute to the minimization of negative outcomes, because results indicated that offenses during the summer period were associated with a shorter time before detection and a higher likelihood of receiving a prison sentence as punishment. Overall, we hypothesize that the reason for the lack of such contribution of decisions relative to the time is due to the nature of our sample, which included many types of offenses that can counterbalance each other. For example, Balemba and Beauregard (2012b) found that victims' age was the most important factor in distinguishing whether an offense was committed at night or during the day, which could explain why this variable was not significant in our models, considering that the sample studied comprised offenses against both adult and child victims. We suggest that crime-specific models might yield better insight in future studies on the impact of temporal factors (see Clarke & Cornish, 1985; Cornish & Clarke, 1986a).

Decisions about the locations of the offenses were the second type of environmental factors examined and they emerged as significant in many of the outcome

models analyzed. Overall, decisions relative to the encounter of a victim inside and in exposed locations were insignificant in most models. Although a little surprising, these results are explained when examining the statistical significance of the mobility variable in many positive outcome models. Specifically, mobility between encounter and crime locations was associated with completion of the assault, penetration of the victim, a higher number of sexual acts during the assault, a higher variety in the types of sexual acts, and arousal of the perpetrator. This suggests that the decision to change location can offset the encounter of a sexual victim in locations that do not offer the privacy and isolation required to complete the assault. This is in agreement with the results obtained by Beauregard and Busina (2013), who found that criminal mobility in sexual crimes is oriented toward the successful completion of the crime. In another study, a third of sexual offenders who used a car in their offenses mentioned that it provided them with a private, intimate, or isolated location (Beauregard & Leclerc, 2007). In our results, we saw a more direct impact of the type of location where the crime itself was committed; offenses that occurred inside increased penetration of the victim and repetition of the assault. On the other hand, crimes that occurred in exposed locations were associated with decreased oral sex on the victim, decreased penetration, a lower number of sexual acts and of variety of acts, and decreased sexual arousal of the offender. Overall, the results clearly indicate that the selection of a crime site is important in sexual offenses, adding to previous findings to his effect (Balemba & Beauregard, 2012b; Beauregard & Leclerc, 2007; Beauregard, Proulx, et al., 2007; Beauregard et al., 2010; Beauregard, Rossmo, et al., 2007; Deslauriers-Varin & Beauregard, 2010).

Third, we examined offenders' methods used to commit the assault in relation to crime outcomes. Generally, results indicated that these variables were important to understanding the variety of outcomes produced by these decisions, adding to the findings of Hewitt and Beauregard (2014), who found specific ways in which *modus operandi* impacted crime outcomes. A first aspect of the method of assault was measured in variables capturing an offender's overt coercion of the victim, namely, the presence of co-offenders, a coercive method of approach, the presence of a weapon, the use of a blindfold or gag, the use of physical restraints, and the incapacitation of the victim by rendering him/her unconscious. Results indicated that these methods were effective at producing positive crime outcomes and/or preventing immediate negative outcomes. For example, in the sample studied, the use of a coercive method of approach prevented nonviolent

physical resistance and violent physical resistance from victims. Similarly, the use of a blindfold and/or a gag on the victim predicted completion of the assault, penetration of the victim, a higher number of sexual acts, and a higher variety in types of sexual acts; it also circumvented victims' nonviolent physical resistance. The only significant contribution of the decision to physically restrain a victim during an assault was to preclude nonviolent physical resistance by victims. In other decisions examined, analyses revealed that even if the method of assault ensured the production of positive outcomes while limiting immediate negative outcomes, the nonimmediate negative outcomes produced were higher over the long term. For example, in the sample studied, the decision to commit sexual assault with the help of co-offenders increased penetration of the victim, variety in types of sexual acts, and arousal of the offender (similar to the findings of Ullman, 1999, about gang rape); it also increased the length of the prison sentence received as punishment. The presence of a weapon was found to increase penetration of the victim and offender's arousal and climax during the assault; it also constituted a useful means to prevent victims' verbal resistance during the assault and to delay detection by the authorities, in line with the findings of Beauregard and Leclerc (2007) in which some of the offenders studied reported using a weapon as a means to control their victims and prevent resistance. It did, however, also result in offenders receiving longer prison sentences. Finally, decisions to incapacitate the victim by making him/her unconscious were significant in only one positive outcome model: offenders who rendered their victims unconscious had less variety in types of sexual acts over the assault. Their decisions, however, made victims unable to resist verbally and in a nonviolent physical way (the likelihood of these two types of resistance decreased, respectively, by 99% and 86% in the sample studied). Interestingly, the results also indicated that incapacitation of victims was associated with higher levels of violent physical resistance from victims, but these results only approached statistical significance. This suggests the possibility that incapacitation decisions were made to deal with immediate negative outcomes, specifically in reaction to victims' initial violent physical resistance. Over the long term, however, the costs of incapacitating the victim were high: a short time before detection, more likely prison sentences, and longer prison sentences. Overall, results indicated that overtly coercive methods of assault were effective at producing positive crime outcomes while preventing immediate negative outcomes; in some cases, however, they did tend to produce more negative outcomes in the long term.

A second aspect of the method of assault was measured in variables capturing covert coercion by the offender over the victim: the arousal of the victim and the commission of noncontact sexual behaviors such as fetishism, exhibitionism, and transvestism as part of the method of assault. Results indicated that arousing the victim was an important contributor to many of the positive outcomes experienced by offenders during their sexual crimes: notably, arousal of the victim predicted oral sex on the victim, penetration of the victim, a higher number of sexual acts, a higher variety in types of sexual acts, arousal and climax by the offender, and repetition of the offense. Arousing the victim was also effective at preventing immediate negative outcomes and was associated with the absence of verbal and nonviolent physical resistance from victims. This identifiable effect of sexual arousal has been termed “the myth of complicity” (Gerber, 1990) considering that “the belief system is that arousal equals pleasure and pleasure equals complicity” (p. 173). This explains why victims who get sexually aroused during their abuse are more likely to blame themselves and consider that they have some responsibility for their victimization, as can be seen in this quote from an interview of a victim: “I wanted it. I mean I stayed there. I let it happen, it felt good” (Alaggia & Millington, 2008, p. 269). This ambiguity of the victim’s feelings is clearly an advantage for the offender. Results did indicate, however, that the arousal of victims produced serious nonimmediate negative outcomes: it predicted conviction for the offense and a prison sentence as punishment. Results about the role of noncontact sexual behaviors during the assault indicated that they predicted the occurrence of multiple positive outcomes in the sample studied: oral sex on the victim, a higher number of sexual acts during the offense, a higher variety in types of sexual acts, climax by the offender and repetition of the offense. These results revealed the sexual motivation behind these behaviors, in line with the findings of Freund, Watson, & Rienzo (1988), who analyzed the self-reported motivations by a sample of exhibitionists and found out that more than half of their participants viewed exhibitionism as an invitation to intercourse, and about a third expected that their victim would be sexually aroused as a result of their behavior. The use of noncontact sexual behaviors during sex offenses, however, produced various immediate and nonimmediate negative outcomes as well: the likelihood of all three types of victim resistance was heightened, along with the likelihoods of conviction and receiving a prison sentence. The bizarre nature of the behaviors might explain why the victims of these offenses resisted verbally, with nonviolent physical acts, and with violent physical acts. We hypothesize that the commission of these noncontact sexual behaviors played a role in the production of

positive outcomes for some offenders; specifically with regard to their sexual gratification, often to the point of disregarding the costs these behaviors produced. This is in line with the DSM-5 which classifies voyeurism, exhibitionism, fetishism, and transvestism as paraphilias characterized by sexual arousal to unusual objects or situations (American Psychiatric Association, 2013).

The last aspect of the method of assault examined was the use of force during and after sex crimes; results indicated that these variables also contributed to the crime outcomes examined. On one hand, results indicated that higher levels of aggression during the crime were generally associated with the experience of positive outcomes for offenders. For example, instrumental aggression during the crime was associated with penetration of the victim and arousal of the offender, and expressive aggression during the crime was associated with penetration. On the other hand, these higher levels of aggression during the crime were also associated with all three measures of victims' resistance during the crime, indicating that offenders' decisions to use force might have been required in order to secure the positive outcomes identified previously. This is in line with previous findings that indicated that the level of force used by victims matched that used by offenders (Ullman, 2007; Ullman & Knight, 1992). These findings are made clearer when read in conjunction with those of Beauregard and Leclerc (2007), who interviewed sex offenders. While recounting their reasons behind the level of force used during their sexual crimes, 63% of offenders who used no force indicated that it was because the victims showed no resistance, 86% of offenders who used minimal force said it was the amount necessary to control their victims and commit the crime, and 71% of offenders who used more than minimal force reported it was because of victims' resistance; these findings clearly establish the importance of victim resistance in determining offending decisions relative to use of force (see also: Balemba & Beauregard, 2012a; Balemba et al., 2012). The results obtained about the use of expressive aggression after the offense were different: expressive aggression after the crime was associated with many positive outcomes (completion, sexual acts by the victim on the offender, a higher number of sexual acts, and a higher variety in types of sexual acts), but none of the victims' resistance outcomes, suggesting that it constituted an "optional" behavior that simply added something to offenders' positive outcomes. After all, there is no more compliance to be gained from the victim after the completion of the assault, and the use of violence at

this time of the offense might indicate very different motivations for the use of force than what was found by Beauregard and Leclerc (2007).

Overall, the results obtained support Clarke and Cornish's (1985) second model of decision making in crime events. They specifically asserted that costs and benefits would explain decisions made in the context of crime events. We found strong support that this was the case in the sexual crime events examined and that MTC offenders made decisions intended to produce specific outcomes. It should be noted, however, that an identifiable pattern was observed in sexually coercive decisions made during their crime events: decisions related to the selection of a victim (*who?*), a time and place to offend (*when?* and *where?*), and the method of assault (*how?*) all appeared to be oriented toward the production of immediate positive outcomes and the prevention of immediate negative outcomes. Offenders' decisions seemed to address nonimmediate negative outcomes only limitedly, and meager weight was attributed to their consideration. This observed phenomenon is named "hyperbolic discounting" (Loughran, Paternoster, & Weiss, 2012) to represent the mathematical reality that benefits' utilities and costs' disutilities are not stable over time, but are time-dependent. Simply stated, it explains that immediate rewards trump nonimmediate costs, which are discounted by the decision maker. (Loughran et al., 2012) noted that "many (though not all) of the benefits of crime are immediate and many (though again not all) of the costs are delayed" (p. 624); therefore, the observation of the phenomenon of hyperbolic discounting in criminal offenders should not be surprising and it was clearly present in the sample of sexual offenders studied.

Chapter 5.

Study 3: An examination of the role of previous positive and negative outcomes in desistance and persistence in sexual offending

5.1. Study aim and Hypotheses

In their third and fourth models of criminal decision making, Clarke and Cornish (1985) built crime-specific models of persistence and desistance, respectively. Among other factors, they argued that persistence could be explained by increased professionalism that resulted in optimized decision making which, in turn, produced better crime outcomes, therefore positively reinforcing the commission of those types of criminal behaviors. On the other hand, their desistance model included experiences of negative outcomes in a series of crimes, causing offenders to reevaluate their involvement in those specific types of crimes and consider their knowledge about the increased costs attached to their criminality. According to the deterrence theory, one would expect offenders who accrued *more* punishment for their crimes to be less likely to commit those crimes again when released. However, we suggest that, according to the rational choice perspective, both costs and benefits are considered by rational decision makers; it follows that positive outcomes yielded by the commission of such crimes should also enter an explanatory model of persistence in or desistance from a crime type. Study 3 investigated specifically the influence of previous negative and positive crime outcomes on MTC offenders' decisions to reoffend or abstain from offending at their release from custody.

Very few issues have preoccupied the field of sexual aggression as much as sexual recidivism and its accurate prediction in offenders. The community at large has a vested interest in promoting desistance in sexual offenders, considering the important consequences of sexual violence (see introductory paragraph of Chapter 1). Previous studies on sexual offenders' recidivism have not looked at the costs and benefits of previous crimes to understand offenders' decisions to persist in or desist from sexual crimes. In a meta-analysis reviewing the effects of multiple factors, found in 82 recidivism studies comprising 29,450 sexual offenders, (Hanson & Morton-Bourgon, 2005)) identified two types of factors, both linked to an offender's personality: sexual deviancy and

antisocial orientation. In an earlier meta-analysis, results indicated that some offending decisions (stranger victims, extrafamilial victims, male victims, and diverse sexual crimes) were correlated with sexual recidivism, although specific crime outcomes (degree of sexual contact, use of force, and injury to victims) were not significant factors in sexual recidivism (Hanson & Bussière, 1998).

Study 3 investigated sexual offenders' decisions to persist in or desist from sexual crimes in the aftermath of their time at the MTC. The general research question examined was:

How do previous crime outcomes influence sexual offenders' decisions to desist from sexual offending?

Specifically, Study 3 investigated the aftermath of experiences of positive and negative outcomes and looked at evidence supporting the potential reinforcing and deterrent effects of previous outcomes experienced by offenders as results of sexual crimes on their decisions to persist or desist. By considering sexual offenders as rational decision makers, we expected them to consider both the costs and benefits experienced as results of their previous offenses when deciding to continue offending or not. To that effect, two hypotheses were tested:

- 1- Offenders who experienced more positive outcomes from their sexual offenses are more likely to persist in sexual offending.
- 2- Offenders who experienced more negative outcomes from their sexual offenses are more likely to desist from sexual offending.

5.2. Methodology

5.2.1. Unit of analysis

Clarke and Cornish (1985) clearly stated that offender-level analyses were appropriate to examine decisions about persistence in or desistance from criminal activity. Their argument was that the consideration of the offenders themselves allowed for the

consideration of a greater range of potentially influential variables: “Involvement decisions⁴ are characteristically multistage, extend over substantial periods of time, and will draw upon a large range of information, not all of which will be directly related to the crimes themselves” (Cornish & Clarke, 1986a, p. 2).

5.2.2. Sample

The sample studied comprised 547 male sexual offenders whose sexual dangerousness was evaluated at the MTC between 1959 and 1986 and who were followed up with after their release from the MTC. A large proportion of the sample was white (white: 91.6%; nonwhite: 8.4%). On average, they started criminally offending at 20 years old ($M = 20.00$, $SD = 8.18$) and had criminal careers that spanned over 10 years ($M = 10.07$, $SD = 8.56$). Over their criminal careers, they accrued an average of 13 criminal charges ($M = 13.27$, $SD = 12.95$), about four of which were sexual in nature ($M = 4.41$, $SD = 5.92$). On average, their percentage of specialization in sexual crimes was 44.9%, but there was an important variation in this value between offenders ($SD = 32.28$). Their index sexual offense occurred at 29 years old on average ($M = 29.99$, $SD = 10.49$). Regarding the nature of their sexual offenses, 35.1% of offenders victimized adults, 42.4% victimized children, 14.1% victimized both adults and children, and 8.5% committed other types of contact sexual offenses. Offenders were followed up with after a period of up to 25 years after their release from the MTC ($M = 11.58$, $SD = 8.20$).

5.2.3. Variables

There were three categories of variables examined in Study 3. Predictor variables captured previous outcomes in sex crimes. The outcome of interest was an offender’s decision about persistence in or desistance from sexual criminal activity upon release from custody. Finally, we also included measures of personality traits as control variables. The specific operationalization of these concepts in the study conducted are explained next, along with their coding. Their frequencies of occurrence in the sample studied are presented in Table 5.1.

⁴ Persistence and desistance decisions are decisions about criminal involvement, specifically about the continuation of criminal involvement.

Predictor variables: Previous crime outcomes

The nature of all previous crime outcomes but one were the same as those used in Study 2 (see section 4.2.3 for more complete descriptions of these variables measuring positive and negative outcomes). Overall, ten positive outcomes and seven negative outcomes were used as predictor variables in the multivariate analyses conducted. Each crime incident in offenders' sexual crime series prior to the MTC was examined for the following crime outcomes: completion, sexual touching, oral sex on victim, penetration, sexual acts by victim on offender, arousal, climax, repetition, verbal resistance, nonviolent physical resistance, violent physical resistance, delayed detection, conviction, and prison sentence. Each of these outcomes was coded dichotomously ([0] absent or [1] present). Three additional types of crime outcomes were continuous measures: number of sexual acts, variety in types of sexual acts, and length of prison sentence. The outcomes of each crime event committed by the same offender were subsequently combined into two measures to capture their overall experiences of positive and negative outcomes: *total* and *proportion*.

The first type of outcome measure captured the *total* level of these ten positive and seven negative outcomes in offenders' criminal careers. The total measure of an outcome constituted the arithmetic addition of the number of crimes for which an offender obtained this outcome. In previous outcomes that were dichotomous in nature, the total, therefore, represented the number of crimes over the sexual criminal career in which the outcome was coded as present; these variables included *total completions*, *total crimes involving sexual touching*, *total crimes involving oral sex on the victim*, *total crimes involving penetration of the victim*, *total crimes involving the commission of sexual acts by the victim on the offender*, *total crimes involving arousal*, *total crimes involving climax*, *total crimes involving repetitive offenses*, *total crimes involving verbal resistance from victims*, *total crimes involving nonviolent physical resistance from victims*, *total crimes involving violent physical resistance from victims*, *total crimes involving delayed detection*, *total crimes involving criminal conviction*, and *total crimes involving sentence to prison*. In previous outcomes that were continuous variables, the total represented the addition of the number recorded at each crime; these variables included *total sexual acts*, *total variety*, and *total length of sentence*. Measures of total positive outcomes were, therefore, highly dependent upon offenders' number of sexual crimes; only offenders with more sexual crimes could achieve high numbers in crime outcome totals. There are limitations to using only total

outcomes, because it is possible to imagine cases of offenders who, although they did not commit a high number of crimes, were able to get more positive and fewer negative outcomes from each of their infrequent offenses. In their cases, a clear reinforcing effect should be expected.

One could easily argue that a higher proportion of positive and lower proportion of negative outcomes would produce an incentivizing effect toward the continuation of similar criminal activity. We used the second alternative type of outcome to account for this possibility and capture the *proportion* of sex crimes that saw the realization of these ten positive and seven negative outcomes over offenders' sexual criminal careers. The proportional measure of outcomes calculated the percentage of occurrence of these outcomes over all of each offender's sex crimes. In previous outcomes that were dichotomous in nature, the proportion therefore represented the proportion of crimes over the sexual criminal career in which the outcome was coded as present; these variables included *proportion of crimes completed*, *proportion of crimes involving sexual touching*, *proportion of crimes involving oral sex on the victim*, *proportion of crimes involving penetration of the victim*, *proportion of crimes involving the commission of sexual acts by the victim on the offender*, *proportion of crimes involving arousal*, *proportion of crimes involving climax*, *proportion of crimes involving repetitive offenses*, *proportion of crimes involving verbal resistance from victims*, *proportion of crimes involving nonviolent physical resistance from victims*, *proportion of crimes involving violent physical resistance from victims*, *proportion of crimes involving delayed detection*, *proportion of crimes involving criminal conviction*, and *proportion of crimes involving sentence to prison*. In previous outcomes that were continuous variables, the proportion represented the average of the number recorded at each crime; these variables included *average number of sexual acts*, *average variety*, and *average length of sentence*.

A final type of outcome included in the current analyses was the legal determination that was made regarding offenders' status as sexually dangerous persons (*SDP status*). This variable captured, specifically, whether offenders were declared sexually dangerous persons (coded [0] not SDP or [1] SDP) and submitted to the procedure of civil commitment at the MTC. The legal criteria to be declared a sexually dangerous person and sent to the MTC was offenders' failure to control their sexual impulses, as evidenced by the commission of repetitive, compulsive, or violent/aggressive

sexual offenses. We consider this variable to offer a combination of positive and negative outcomes. On one end, SDP offenders were likely to have experienced more positive outcomes from their sexual offenses, considering the burden of proof required to meet the SDP legal criterion. On the other end, they also accrued some of the most severe punishments by being submitted to the civil commitment procedure.

Outcome variable: Persistence or desistance decision

One outcome measure was analyzed in the present study and it captured offenders' decisions about persistence in or desistance from sexual crimes. There were two aspects recorded in this decision. First, the occurrence of *desistance* was dichotomously coded ([0] no desistance or [1] desistance). Offenders who were not charged with an offense of a sexual nature during the length of the follow-up were considered to have desisted, while offenders who were charged with a new sexual crime upon release were considered to have persisted. Second, the *time of exposure to risk* in weeks was recorded. In any case, the time of exposition to risk came to an end at the earliest of two events: a new sexual charge or the end of the follow-up period (2007).

Control variables: Personality traits

The nature of all four control variables used to measure personality traits in the present study were the same that were used in Study 1 (see section 3.2.3 for more complete descriptions of these variables measuring offenders' traits). Two specific variables measuring general impulsivity were considered: impulsivity and psychopathy. The *impulsivity score (IS)* is a continuous variable ranging from 0 to 7, respectively indicating the lowest and highest level of impulsivity of an offender's lifestyle. Psychopathy was measured using an offender's *score on the Psychopathy Checklist-Revised (PCL-R)* (Hare, 1991, 2003), measured on a scale from 0 to 40, respectively indicating the lowest and highest level of psychopathy. Two other variables were used to measure impulsivity of a sexual nature, specifically: promiscuous sexual behavior and compulsive masturbation. Both items were dichotomously coded and recorded the presence or absence of a history of promiscuity and compulsive masturbation in the histories of offenders ([0] absent or [1] present). We argue that these two measures of offenders' traits—respectively, general impulsivity and sexual impulsivity—generally correspond to the two important factors measuring criminal propensities that have been identified from

the sexual recidivism literature: antisociality and sexual deviance (Hanson & Morton-Bourgon, 2005).

5.2.4. Statistical analysis

To test our hypotheses, we conducted multiple semi-parametric Cox proportional hazards regression models (Allison, 1984; Cox, 1972) in order to determine the association of previous positive and negative sex crime outcomes with time to new sex offense in the MTC follow-up sample. There is only one assumption of Cox regression models: that the hazards (or risks) are proportional over time (Allison, 1984). We inspected the plots graphing each predictor variable's residuals against survival times and concluded that the hazards were proportional. Cox regression is a statistical method that produces estimates of risk (or hazard) for an event of interest in the presence of covariates. The coefficients estimated by the Cox regression procedure relate to the risk of the event occurring; positive coefficients therefore indicate a worse prognosis (higher risk of sexual recidivism) while negative coefficients indicate a better prognosis (lower risk of sexual recidivism). We ran six nested Cox regression models, first entering only offenders' personality traits as predictors to establish a baseline, then adding previous outcomes as the second step, and finally, adding offenders' SDP status in the last step of the full model. The first four models examined, respectively, the influence of only positive and negative outcomes on sexual recidivism, using the two alternative measures (total and proportion) of positive and negative outcomes. The last two models examined the influence of all previous crime outcomes, including total and proportion of both positive and negative outcomes in the same model. All statistical analyses were run using SPSS version 22.

Table 5.1. Frequencies of variables measuring traits, previous outcomes, and decision about persistence/desistance upon release (n = 547 offenders)

PREVIOUS CRIME OUTCOMES				
<i>Positive outcomes</i>				
Previous total	<i>M (SD)</i>		Previous proportion	<i>M (SD)</i>
Total completion	3.57 (5.93)		% w/ completion	80.16 (33.06)
Total sexual touching	1.33 (1.51)		% w/ sexual touching	69.28 (40.36)
Total oral sex on victim	0.38 (0.85)		% w/ oral sex on victim	20.88 (36.92)
Total penetration	0.91 (1.08)		% w/ penetration	43.05 (42.56)
Total sex acts by victim	0.51 (0.84)		% w/ sex acts by victim	29.99 (41.73)
Total no sexual acts	4.15 (3.85)		Average no sexual acts	1.82 (1.24)
Total variety	2.15 (2.36)		Average variety	1.50 (0.91)
Total arousal	0.78 (0.78)		% w/ arousal	39.34 (42.69)
Total climax	0.36 (0.63)		% w/ climax	20.05 (34.76)
Total repetition	0.61 (1.05)		% w/ repetition	28.75 (40.82)
<i>Negative outcomes</i>				
Previous total	<i>M (SD)</i>		Previous proportion	<i>M (SD)</i>
Total verbal resistance	0.95 (1.10)		% w/ verbal resistance	84.17 (35.11)
Total nonviolent physical resistance	0.67 (0.97)		% w/ nonviolent physical resistance	64.06 (45.43)
Total violent physical resistance	0.18 (0.45)		% w/ violent physical resistance	14.78 (32.96)
Total delayed detection	0.98 (1.37)		% w/ delayed detection	35.67 (38.46)
Total conviction	1.26 (1.06)		% w/ conviction	57.96 (39.39)
Total prison sentence	1.03 (0.99)		% w/ prison sentence	50.92 (40.76)
Total Length of sentence	6.41 (14.01)		Average length of sentence	0.67 (1.45)
<i>Combination of outcomes</i>				
High positive & high negative SDP status		%		
		44.4		
TRAITS			DESISTANCE	
	<i>M (SD)</i>	%	<i>M (SD)</i>	%
Impulsivity score	1.72 (1.35)		Desistance	77.7%
PCL-R score	13.72 (6.51)		Time at risk (months)	127.03 (102.90)
Promiscuity		85.7%		
Compulsive masturbation		11.5%		

5.3. Results

Cox regression models are presented in Tables 5.2 and 5.3, respectively estimating the contribution of previous positive outcomes and previous negative outcomes on overall survival function. First, we examined the influence of personality traits on risk of sexual recidivism over the follow-up period to establish a baseline model. Results indicated that three variables were significant predictors of time to sexual recidivism in the baseline model using only traits as predictors: IS, PCL-R, and a history of compulsive masturbation. Specifically, offenders with higher impulsivity scores (IS) were at higher risks of sexual recidivism ($\exp\beta = 1.18$; $p \leq .05$); a point increase in an offender's IS increased the probability of sexual recidivism by 18%. Offenders with higher levels of psychopathy also had shorter survival time ($\exp\beta = 1.07$; $p \leq .000$) and results indicated, specifically, that a point increase in the PCL-R score increased the probability of sexual recidivism by 7% in offenders. Finally, offenders with a history of compulsive masturbation were also more likely to recidivate sexually ($\exp\beta = 1.86$; $p \leq .05$).

5.3.1. The influence of previous positive outcomes on sexual recidivism

The first part of our analysis assessed the effects of offenders' experiences of previous positive outcomes on time to sexual recidivism. We used two alternative measures of positive outcomes: (1) offenders' *total* previous positive outcomes; and (2) offenders' *proportion* of positive outcomes experienced over the sexual criminal career before release from the MTC. Results of the two Cox regression models are presented in Table 5.2.

The first Cox regression model used total positive outcomes in previous sexual crimes to predict time to sexual recidivism. The partial model—including personality traits and previous total positive outcomes only—was significant ($-2\text{ll} = 958.44$; $\chi^2(14) = 72.18$; $p \leq .000$). Results indicated that two trait variables were significant (out of the three trait variables that were significant in the baseline model): higher IS ($\exp\beta = 1.20$; $p \leq .05$) and higher psychopathy ($\exp\beta = 1.07$; $p \leq .000$) both predicted shorter survival time. The results were in the expected direction but did not reach significance for compulsive masturbation ($\exp\beta = 1.74$; $p \leq .10$). In addition to variables measuring offenders' traits, results indicated that experiencing more of three types of positive outcomes in previous

sexual crimes impacted offenders' risk to recidivate sexually. A higher total of offenses with oral sex on victims ($\text{exp}\beta = 1.45$; $p \leq .05$) and with victims' penetration ($\text{exp}\beta = 1.45$; $p \leq .01$) predicted increases in the likelihood of sexual recidivism. The results for total offenses with sexual touching ($\text{exp}\beta = 1.27$; $p \leq .10$) were almost significant. Comparatively, offenders with more repetitive sexual offenses had longer survival times and were less likely to recidivate sexually ($\text{exp}\beta = 0.78$; $p \leq .05$). The full model—including personality traits, previous total positive outcomes, and SDP finding—was also significant ($-2\text{ll} = 953.24$; $\chi^2(15) = 76.43$; $p \leq .000$). Results indicated that the same two trait variables that were significant in the partial model stayed significant in the full model: higher IS ($\text{exp}\beta = 1.21$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.06$; $p \leq .01$) both still predicted an increased likelihood of sexual recidivism. In addition, the same three variables measuring total experiences of positive outcomes stayed significant in the full model. Specifically, a higher total of offenses with oral sex on victims ($\text{exp}\beta = 1.51$; $p \leq .01$) and with victims' penetration ($\text{exp}\beta = 1.51$; $p \leq .01$) predicted shorter survival time. Similar to the partial model, offenders with more repetitive sexual offenses had longer survival times and were less likely to recidivate sexually ($\text{exp}\beta = 0.77$; $p \leq .05$). The final variable added in the full model, SDP finding, was also significant; results indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 1.96$; $p \leq .01$).

The second Cox regression model used the other alternative measure of positive outcomes in previous sexual crimes; specifically, the proportion of previous sexual crimes with positive outcomes was used to predict sexual recidivism. The partial model—including only personality traits and proportion of positive outcomes—was significant ($-2\text{ll} = 739.42$; $\chi^2(14) = 59.59$; $p \leq .000$). Results indicated that the same three personality traits that were significant in the baseline model were also significant in the full model: higher IS ($\text{exp}\beta = 1.23$; $p \leq .01$), higher psychopathy ($\text{exp}\beta = 1.07$; $p \leq .000$), and history of compulsive masturbation ($\text{exp}\beta = 2.02$; $p \leq .05$) each predicted shorter survival time. In addition to variables measuring offenders' traits, results indicated that higher proportions of offenses with sexual touching ($\text{exp}\beta = 1.01$; $p \leq .05$), with oral sex on victims ($\text{exp}\beta = 1.02$; $p \leq .000$), and with victims' penetration ($\text{exp}\beta = 1.01$; $p \leq .05$) predicted increases in the likelihood of sexual recidivism. Finally, the results also indicated that offenders with a higher proportion of repetitive sexual offenses had longer survival time ($\text{exp}\beta = 0.99$; $p \leq .000$). The full model—including personality traits, proportion of positive outcomes in

previous sex crimes, and SDP finding—was also significant ($-2\text{ll} = 734.37$; $\chi^2(15) = 62.93$; $p \leq .000$). Results indicated that two personality traits were significant in the full model: higher IS ($\text{exp}\beta = 1.21$; $p \leq .01$) and higher psychopathy ($\text{exp}\beta = 1.06$; $p \leq .05$) both still predicted increased likelihood of sexual recidivism. A history of compulsive masturbation was no longer a significant predictor in the full model. In addition, three variables measuring proportion of positive outcomes over the sexual criminal career were significant in the full model. Specifically, higher proportions of offenses with oral sex on victims ($\text{exp}\beta = 1.51$; $p \leq .000$) and with victims' penetration ($\text{exp}\beta = 1.51$; $p \leq .05$) predicted shorter survival time. A higher proportion of offenses with sexual touching, which was statistically significant in the partial model, did not reach significance in the full model, but was in the expected direction ($\text{exp}\beta = 1.01$; $p \leq .10$). Similar to the partial model, offenders with more repetitive sexual offenses had longer survival times and were less likely to recidivate sexually ($\text{exp}\beta = 0.99$; $p \leq .01$). The final variable added in the full model, SDP finding, was also a significant contribution; results indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 2.12$; $p \leq .01$).

Table 5.2. Cox regression models presenting the influence of previous positive outcomes on time to sexual recidivism

	Baseline model	First alternative model: Total previous positive outcomes experienced		Second alternative model: Proportion of previous offenses w/ positive outcomes	
	β	Partial model β	Full model β	Partial model β	Full model β
Traits					
IS	.165*	.182*	.186*	.204**	.211**
PCL-R score	.066***	.071***	.055**	.062***	.041*
Promiscuous	-.218	-.305	-.226	-.266	-.165
Compulsive Masturbation	.622*	.551 [†]	.323	.705*	.457
Positive outcomes					
Completed offenses		-.042	-.026	-.005	-.005
Offenses w/ sexual touching		.237 [†]	.205	.010*	.009 [†]
Offenses w/ oral sex on victim		.374*	.409**	.018***	.018***
Offenses w/ penetration		.368**	.410**	.012*	.013*
Offenses w/ sex acts by victim on offender		.000	.007	.006	.005
Number of sex acts per offense		.006	-.001	-.160	-.206
Number of variety per offense		-.084	-.086	-.590	-.555
Offenses w/ arousal		-.107	-.154	-.002	-.002
Offenses w/ climax		.029	.043	.003	.004
Offenses w/ repetition		-.248*	-.252*	-.009***	-.009**
Combination					
SDP status			.673**		.751**
-2ll		958.440	953.239	739.419	734.374
χ^2		72.184***	76.184***	59.599***	62.926***

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

5.3.2. The influence of previous negative outcomes on sexual recidivism

The second part of our analysis assessed the effects of offenders' experiences of previous negative outcomes on time to sexual recidivism. We used two alternative measures of negative outcomes: (1) offenders' total previous negative outcomes; and (2) offenders' proportion of negative outcomes experienced over the sexual criminal career. Results of the two Cox regression models are presented in Table 5.3.

The first Cox regression model used total negative outcomes in previous sexual crimes to predict time to sexual recidivism. The partial model—including only personality traits and previous total negative outcomes—was significant ($-2\text{ll} = 958.30$; $\chi^2(11) = 72.97$; $p \leq .000$). Results indicated that two trait variables were significant (out of the three trait variables that were significant in the baseline model): higher IS ($\text{exp}\beta = 1.20$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.07$; $p \leq .000$) both predicted shorter survival time. In addition to variables measuring offenders' personality traits, results indicated that only one type of total negative outcomes in previous sexual crimes impacted offenders' risk to recidivate sexually. A higher total of offenses with verbal resistance from victims predicted shorter survival time and an increased likelihood of sexual recidivism ($\text{exp}\beta = 1.32$; $p \leq .05$). The full model—including personality traits, previous total negative outcomes, and SDP finding—was also significant ($-2\text{ll} = 954.55$; $\chi^2(12) = 76.49$; $p \leq .000$). Results indicated that the same two trait variables that were significant in the partial model stayed significant in the full model: higher IS ($\text{exp}\beta = 1.19$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.05$; $p \leq .01$) both still predicted increased likelihood of sexual recidivism. In addition, the same variable measuring total experiences of negative outcomes stayed significant in the full model; specifically, a higher total of offenses with verbal resistance from victims ($\text{exp}\beta = 1.27$; $p \leq .05$) predicted shorter survival time. The final variable added in the full model, SDP finding, was also statistically significant; results indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 1.74$; $p \leq .05$).

The second Cox regression model used the other alternative measure of negative outcomes in previous sexual crimes; specifically, the proportion of previous sexual crimes with negative outcomes was used to predict sexual recidivism. The partial model—including only personality traits and proportion of positive outcomes—was significant ($-2\text{ll} = 529.48$; $\chi^2(11) = 30.88$; $p \leq .000$). Results indicated that the same three personality traits that were significant in

the baseline model were also significant in the full model: higher IS ($\text{exp}\beta = 1.19$; $p \leq .05$), higher psychopathy ($\text{exp}\beta = 1.07$; $p \leq .000$), and history of compulsive masturbation ($\text{exp}\beta = 1.96$; $p \leq .05$) each predicted an increased likelihood of sexual recidivism. Results indicated that higher proportions of offenses with delayed detection predicted longer survival time ($\text{exp}\beta = 0.98$; $p \leq .01$). Higher proportions of convictions in previous sexual crimes also predicted a decreased likelihood of sexual recidivism ($\text{exp}\beta = 0.99$; $p \leq .01$), while a longer average sentence received for previous sexual offenses predicted an increased likelihood of sexual recidivism ($\text{exp}\beta = 0.98$; $p \leq .05$). The full model—including personality traits, proportion of positive outcomes in previous sex crimes, and SDP finding—was also significant ($-2\text{ll} = 523.29$; $\chi^2(12) = 35.94$; $p \leq .000$). Results indicated that two personality traits were significant predictors in the full model: higher IS ($\text{exp}\beta = 1.19$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.05$; $p \leq .01$) both still predicted an increased likelihood of sexual recidivism. A history of compulsive masturbation, although not statistically significant like in the partial model, was almost significant ($\text{exp}\beta = 1.64$; $p \leq .10$). Three variables measuring proportion of negative outcomes over the sexual criminal career were significant in the full model. Specifically, results indicated that higher proportions of offenses with delayed detection ($\text{exp}\beta = 0.98$; $p \leq .01$) and higher proportions of offenses resulting in convictions ($\text{exp}\beta = 0.98$; $p \leq .01$) both predicted longer survival time, while a longer average sentence received for previous sexual offenses predicted an increased likelihood of sexual recidivism ($\text{exp}\beta = 1.19$; $p \leq .05$). The final variable added in the full model, SDP finding, was also a significant contribution to the model; results indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 1.87$; $p \leq .01$).

Table 5.3. Cox regression models presenting the influence of previous negative outcomes on time to sexual recidivism

	Baseline model	First alternative model: Total previous negative outcomes experienced		Second alternative model: Proportion of previous offenses w/ negative outcomes	
	β	Partial model β	Full model β	Partial model β	Full model β
Traits					
IS	.165*	.167*	.174*	.177*	.176*
PCL-R score	.066***	.064***	.049**	.069***	.053**
Promiscuous	-.218	-.396	-.351	-.096	-.069
Compulsive Masturbation	.622*	.474	.334	.671*	.494 [†]
Negative outcomes					
Victims' verbal resistance		.274*	.240*	-.002	-.002
Victim's nonviolent physical resistance		-.033	-.005	.001	.001
Victims' violent physical resistance		-.294	-.323	-.005	-.004
Delayed detection		.071	.071	-.017**	-.016**
Conviction		.035	-.001	-.014**	-.014**
Prison sentence		.230	.253	.001	.001
Length of sentence		.000	.000	.183*	.175*
Combination					
SDP status			.556*		.623**
-2ll		958.300	954.551	529.480	523.288
χ^2		72.974***	76.486***	30.878***	35.938***

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

5.3.3. The influence of all previous crime outcomes on sexual recidivism

The third and final part of our analysis assessed the effects of offenders' overall experiences of outcomes, including positive and negative outcomes, on time to sexual recidivism. We used two alternative measures of outcomes: (1) offenders' total previous crime outcomes; and (2) offenders' proportion of crime outcomes experienced over the sexual criminal career. Results of the two Cox regression models are presented in Table 5.4.

The first Cox regression model used total crime outcomes in previous sexual crimes to predict time to sexual recidivism. The partial model—including only personality traits and previous total crime outcomes—was significant ($-2\text{ll} = 942.81$; $\chi^2(21) = 92.97$; $p \leq .000$). Results indicated that two trait variables were significant (out of the three trait variables that were significant in the baseline model): higher IS ($\text{exp}\beta = 1.22$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.07$; $p \leq .000$) both predicted shorter survival time. In addition to variables measuring offenders' personality traits, results indicated that two types of total positive outcomes and one type of total negative outcomes were significant predictors of offenders' risk to recidivate sexually. A higher total of offenses with oral sex on victims ($\text{exp}\beta = 1.53$; $p \leq .01$) and with victims' penetration ($\text{exp}\beta = 1.52$; $p \leq .01$) predicted increases in the likelihood of sexual recidivism. In addition, a higher total of offenses with verbal resistance from victims predicted shorter survival time and an increased likelihood of sexual recidivism ($\text{exp}\beta = 1.34$; $p \leq .05$). The full model—including personality traits, previous total negative outcomes, and SDP finding—was also significant ($-2\text{ll} = 937.49$; $\chi^2(22) = 96.74$; $p \leq .000$). Results indicated that the same two trait variables that were significant in the partial model stayed significant in the full model: higher IS ($\text{exp}\beta = 1.23$; $p \leq .05$) and higher psychopathy ($\text{exp}\beta = 1.05$; $p \leq .01$) both still predicted an increased likelihood of sexual recidivism. In addition, the same two variables measuring total experiences of positive outcomes stayed significant in the full model; specifically, a higher total of offenses with oral sex on victims ($\text{exp}\beta = 1.58$; $p \leq .01$) and with victims' penetration ($\text{exp}\beta = 1.52$; $p \leq .01$) both predicted shorter survival time. The only negative outcome that was significant in the partial model—total offenses with verbal resistance—did not reach significance in the full model but was in the expected direction ($\text{exp}\beta = 1.28$; $p \leq .10$). The final variable added in the full model, SDP finding, was also statistically significant; results

indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 1.89$; $p \leq .01$).

The second Cox regression model used the other alternative measure of crime outcomes in previous sexual crimes; specifically, the proportion of outcomes over previous sexual crimes was used to predict sexual recidivism. The partial model—including only personality traits and proportion of crime outcomes—was significant ($-2\text{ll} = 415.19$; $\chi^2(21) = 40.12$; $p \leq .01$). Results indicated that the same three personality traits that were significant in the baseline model were also significant in the full model: higher IS ($\text{exp}\beta = 1.26$; $p \leq .01$), higher psychopathy ($\text{exp}\beta = 1.07$; $p \leq .000$), and history of compulsive masturbation ($\text{exp}\beta = 2.05$; $p \leq .05$) each predicted an increased likelihood of sexual recidivism. Results also indicated that higher proportions of offenses with sexual touching ($\text{exp}\beta = 1.01$; $p \leq .05$), with oral sex on victim ($\text{exp}\beta = 1.02$; $p \leq .001$), and with penetration ($\text{exp}\beta = 1.01$; $p \leq .05$) each increased the likelihood of sexual recidivism over the follow up period, while higher proportions of repetitive offenses decreased it ($\text{exp}\beta = 0.99$; $p \leq .05$). Higher proportions of convictions in previous sexual crimes also predicted a decreased likelihood of sexual recidivism ($\text{exp}\beta = 0.98$; $p \leq .01$). The results were similar for delayed detection, but did not reach statistical significance ($\text{exp}\beta = 0.99$; $p \leq .10$). The full model—including personality traits, proportion of positive outcomes in previous sex crimes, and SDP finding—was also significant ($-2\text{ll} = 408.08$; $\chi^2(22) = 44.17$; $p \leq .01$). Results indicated that two personality traits were significant predictors in the full model: higher IS ($\text{exp}\beta = 1.27$; $p \leq .01$) and higher psychopathy ($\text{exp}\beta = 1.05$; $p \leq .05$) both still predicted an increased likelihood of sexual recidivism. A history of compulsive masturbation was not significant anymore ($\text{exp}\beta = 1.65$; $p > .10$). In addition, the same three variables measuring experiences of positive outcomes stayed significant in the full model; specifically, a higher total of offenses with oral sex on victims ($\text{exp}\beta = 1.02$; $p \leq .001$) and with victims' penetration ($\text{exp}\beta = 1.01$; $p \leq .01$) both predicted shorter survival time, while a higher proportion of repetitive offenses predicted longer survival time ($\text{exp}\beta = 0.99$; $p \leq .05$). The proportion of convictions received for previous offenses was also a significant predictor of longer survival time ($\text{exp}\beta = 0.99$; $p \leq .05$). The final variable added in the full model, SDP finding, was also a significant contribution to the model; results indicated that offenders who had positive SDP status had shorter survival times and were more likely to recidivate sexually during the follow-up period ($\text{exp}\beta = 2.02$; $p \leq .01$).

Table 5.4. Cox regression models presenting the influence of all previous crime outcomes on time to sexual recidivism

	Baseline model	First alternative model: Total previous crime outcomes (including positive and negative)		Second alternative model: Proportion of previous crime outcomes (including positive and negative)	
		Partial model	Full model	Partial model	Full model
	β	β	β	β	β
Traits					
IS	.165*	.197*	.207*	.233**	.235**
PCL-R	.066***	.065***	.049**	.066***	.048*
Promiscuous	-.218	-.334	-.278	-.290	-.238
Comp. mast.	.622*	.406	.226	.717*	.499
Crime outcomes					
Offenses w/ completion		-.151	-.146	-.007 [†]	-.007 [†]
Offenses w/ sexual touching		.190	.161	.011*	.010 [†]
Offenses w/ oral sex on victim		.427**	.456**	.019***	.019***
Offenses w/ penetration		.421**	.450**	.014*	.014**
Offenses w/ sex acts by victim		.072	.062	.007	.007
No sex acts		-.007	-.012	-.113	-.157
No variety		-.098	-.099	.680 [†]	-.658
Offenses w/ arousal		-.149	-.184	-.003	-.003
Offenses w/ climax		.001	.022	.003	.004
Offenses w/ repetition		-.118	-.142	-.012*	-.012*
Offenses w/ verbal resistance		.290*	.247 [†]	.001	.001
Offenses w/ nonviolent physical resistance		.046	.067	-.001	.000
Offenses w/ violent physical resistance		-.2752	-.293	-.005	-.006
Offenses w/ delayed detection		-.012	.021	-.013 [†]	-.011
Offenses w/ conviction		.026	.017	-.016**	-.015*
Offenses w/ prison sentence		.196	.210	.000	.000
Length sentence		-.004	-.004	.129	.116
Combination of outcomes					
SDP status			.636**		.704**
-2ll		942.812	937.489	415.192	408.083
χ^2		92.966***	96.744***	40.116**	44.174**

[†] $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

5.4. Discussion

The current study examined an aspect of Clarke and Cornish's (1985) third and fourth models of criminal decision making that has been seldom investigated: positive and negative outcomes of previous sexual crimes as explanatory factors in offenders' decisions to continue or stop sexually offending. Although the criminological deterrence theory hypothesizes that reduction in criminal activity would be due to negative outcomes to crimes—specifically in the form of criminal punishment—Clarke and Cornish modeled that both positive and negative crime outcomes impact persistence and desistance decisions. Specifically, they expected positive outcomes to have an incentivizing effect toward the continuation of criminal activity and negative outcomes to deter such continuation; we tested these two hypotheses in the MTC sample. Next, we review the findings yielded by our analyses, and discuss them in relation with the hypotheses and the larger literature on the topic.

Although not within the primary scope of inquiry of the present study, we wanted first to account for the influence of offenders' criminal proclivity in the models of sexual recidivism, considering their importance in the empirical literature (Hanson & Morton-Bourgon, 2005). Specifically, two types of factors have been consistently identified as important in meta-analytic studies of sexual recidivism: antisociality and sexual deviance. We used personality trait variables to account for these aspects in our models of sexual recidivism and results indicated that they were statistically significant predictors. In the baseline model, three traits were significant: a higher level of impulsivity in the offender's lifestyle, a higher level of psychopathy, and the presence of a history of compulsive masturbation all predicted an increased likelihood of sexual recidivism, as expected. This is in line with previous findings that have indicated that these factors were associated with recidivism of a sexual nature (lifestyle impulsivity: Prentky, Knight, Lee, & Cerce, 1995; psychopathy: Hawes, Boccaccini, & Murrie, 2013; sexual preoccupation: (Hanson, Harris, Scott, & Helmus, 2007; Knight & Thornton, 2007). In our full models, however, only the two measures of general impulsivity remained significant predictors. Considering our research question, however, we were mostly interested to see if predictors entered in addition to offenders' traits would also contribute to the prediction of sexual recidivism. Results indicated that they did.

The first hypothesis tested was that offenders who accrued more positive outcomes from their sexual criminal careers would be more likely to recidivate upon their release from the MTC. We found support for this hypothesis, and the results obtained were consistent in all models. Similar results were obtained in models specific to positive outcomes and in models including all previous crime outcomes, using both alternative measures of previous positive outcomes (*total* and *proportion*): offenders who experienced more instances of sexual touching, oral sex on their victim, and penetration of their victims were more at risk of sexual recidivism upon release. This is in line with Clarke and Cornish's (1985) model of persistence in crime, according to which criminal continuation is, in part, the result of better decision making producing better crime outcomes. Results also indicated that for only one type of positive outcome did its more frequent occurrence predict desistance from sexual offending: offenders with more repetitive offenses were less likely to recidivate upon release. We argue that this finding indicates a simple shift in the offending opportunities of these two types of offenses (Cohen & Felson, 1979). Repetitive offenses were more frequent within acquaintance and/or familial relationships; these relationships are more likely to be damaged or terminated as a result of sexual offending. It is likely that repetitive offenders simply no longer had access to the intimate and trusting settings that allowed their assaults in the first place. In comparison, one-time offenses were more frequent against stranger victims, whose access does not require any relationship with the offender. Simply stated, the observed abstinence from offending could be a simple artifact of lack of opportunities: while there are few acquaintance and family members available without supervision after release from prison, there are still plenty of strangers.

The second hypothesis tested was that offenders who accrued more negative outcomes as a result of their sexual crimes would be less likely to recidivate when released from the MTC. We did not find support for this hypothesis. First, it should be noted that both alternative measures of negative outcomes over the sexual criminal career (*total* and *proportion*) did not yield similar results, which indicates that we were right in using two conceptualizations of outcomes, potentially representing two types of offenders: (1) those who accrue many/fewer outcomes overall; and (2) those who accrue many/fewer outcomes in proportion to their rate of offending. This distinction in offenders' reaping of crime outcomes is consistent with Lussier et al. (2011) argument that better crime outcomes for sexual offenders can be explained by the commission of a large volume of

crimes (i.e., the event-oriented strategy) or by the commission of fewer crimes maximizing the rewards (i.e., the victim-oriented strategy). In models using measures of *total* outcomes (including the model specific to negative outcomes only and the model including all previous crime outcomes), only one negative outcome was a significant predictor of a longer time to sexual recidivism: verbal resistance from victims. No measure of nonimmediate negative outcomes was associated with sexual recidivism, offering no support for a deterrent effect to *total* criminal sanction. Different results surfaced when using the *proportion* measures of outcomes, as opposed to *total*. In the model including all crime outcomes, which we argue is more appropriate according to the rational choice approach, which states that both costs and benefits are considered during decision making, only one variable was a significant predictor: offenders that experienced a higher proportion of conviction over their sexual offenses were less likely to sexually recidivate. This would indicate a deterrent effect of criminal sanction.

It is worth noting however, that different results would have been obtained if a deterrence approach had been taken, and the models chosen had only included measures of negative outcomes. The results obtained would have offered even weaker support for a deterrent effect of criminal sanctions. Only one variable was in the expected direction and specified a deterrent effect: results indicated that a higher proportion of conviction for sexual crimes resulted in the prediction of desistance from sexual crime over the follow up period. In the case of delayed detection and length of sentence, however, the results indicated results opposite to any deterrent effect. With regard to delay in detection, which can be understood as the opposite of celerity of punishment, results indicated that a longer time to detection was associated with desistance from sexual offending for the offenders followed up with. These results seem to indicate not only that swiftness of punishment did not have the expected deterrent effect but in fact, had an incentivizing effect. It is a possibility that these results are simply explained by the absence of detection of sexual recidivism over the follow up period, considering that these offenders have a history of evading detection. Nonetheless, even as they are, these results are not necessarily surprising, considering that there is a lack of empirical evidence supporting the influence of celerity of punishment on criminal activity reduction (Nagin & Pogarsky, 2001; Yu,

1994)⁵. We also found an effect incentivizing the continuation of sexual offending in the variable measuring average sentence received per sex offense: results indicated that offenders who received longer sentences per offense were more likely to recidivate, offering no support for a deterrent effect of severity of punishment. Similar results were obtained in a study that followed a national sample of sex offenders on probation; its results also indicated a positive and significant relationship between jail sentences and rearrest for a sexual crime within the three year follow-up period (Meloy, 2005). Overall, the results obtained about the influence of previous negative crime outcomes are mixed and offer little support for any deterrent effect of criminal sanction on offenders' persistence and desistance decisions upon release.

Overall, the results indicated that positive outcomes influenced offenders' decisions about persistence in or desistance from sexual offending. On the other hand, the total negative outcomes were found to be unrelated to offenders' decisions, while the proportions of negative outcomes were found to incite offenders to continue offending. While it is not our contention that offenders really do make a list of pros and cons when deciding to commit a new sexual offense after release, it seems that their mind is intuitively reminded of the positive outcomes produced by their previous sexual crimes, while previous negative outcomes are ignored. Perhaps the variable most likely to enlighten the debate about the role of positive and negative outcomes in sexual offenders' persistence and desistance decisions is offenders' SDP status, the last variable entered in each Cox regression model. This variable captured whether offenders were considered sexually dangerous persons and submitted to the procedure of civil commitment. The legal criteria for an offender to be declared a sexually dangerous person was the repetitive or violent nature of his offenses. Specifically, we argue that SDP offenders were likely to have accrued more positive outcomes from their sexual offenses in order to meet this criteria. On the other end, they also accrued some of the most severe punishments by being submitted to a civil commitment procedure. This particular variable, therefore, offered the opportunity to see if sexual recidivism was, in fact, linked with positive or negative

⁵ Empirical results have indicated that some types of costs are preferred if realized quickly (Loewenstein, 1987) and that some decision makers would favor the swift realization of costs (Nagin & Pogarsky, 2001). It has been hypothesized that this quick realization might alleviate the guilt and negative anticipation of their decision making (Loughran, Paternoster, & Weiss, 2012). Generally, these results "[challenge] a key assumption on which the existence of a celerity effect exists" (Nagin & Pogarsky, 2001, p. 880).

outcomes. The results obtained offered a simple answer: although they were severely punished for their sexual offenses, SDP offenders were more likely to sexually recidivate. This reinforces the important role played by positive outcomes in offenders' decisions to persist or desist.

Chapter 6.

Conclusion

6.1. Summary of findings and models of decision making

Although sexual offenders are often described as irrational and compulsive (Pithers, 1990; Simon & Zgoba, 2006), a growing body of literature has documented the evidence of rationality in their offenses (e.g., Beauregard & Leclerc, 2007). The present dissertation adds to these findings with its examination of a sample of sexual offenders through the lens of instrumental rationality proposed by Clarke and Cornish (1985) in their rational choice perspective. According to their approach, decisions of a criminal nature are not different than any other type of decisions, and are thus orientated toward the satisfaction of commonplace needs. We adopted this approach and looked at a sample of sexual offenders as decision makers and framed their sexually coercive decisions as means to obtain specific desired outcomes. We conducted three studies that investigated aspects of decision making by sexual offenders in the context of their sexual crimes, inspired in no small measure by Clarke and Cornish's four models of decision making. Specifically, we investigated, first, the idea that sexual offenders make decisions that are contextualized; second, that offending decisions are oriented toward the production of desired outcomes; and third, that these outcomes are integrated into subsequent sexually coercive decisions. The following general conclusions are drawn:

- 1- Offenders' personality traits, their specialized knowledge about sexual coercion, and their states at the onset of their offenses impact decision making during sexual crimes and over their sexual criminal careers;
- 2- Decisions about the selection of a victim, the location and time of the offense, and the method of assault all contribute to the production and avoidance of, respectively, specific immediate positive and negative outcomes for offenders;
- 3- The experience of previous positive outcomes in sexual crime is a significant explanatory factor of offenders' decisions to persist in or desist from sexual crime upon release.

Next, the findings obtained are summarized in models of decision making (see Figures 6.1, 6.2, and 6.3) and discussed in relation to Clarke and Cornish' original models,

before being integrated in one complete model of decision making by sexual offenders (see Figure 6.4).

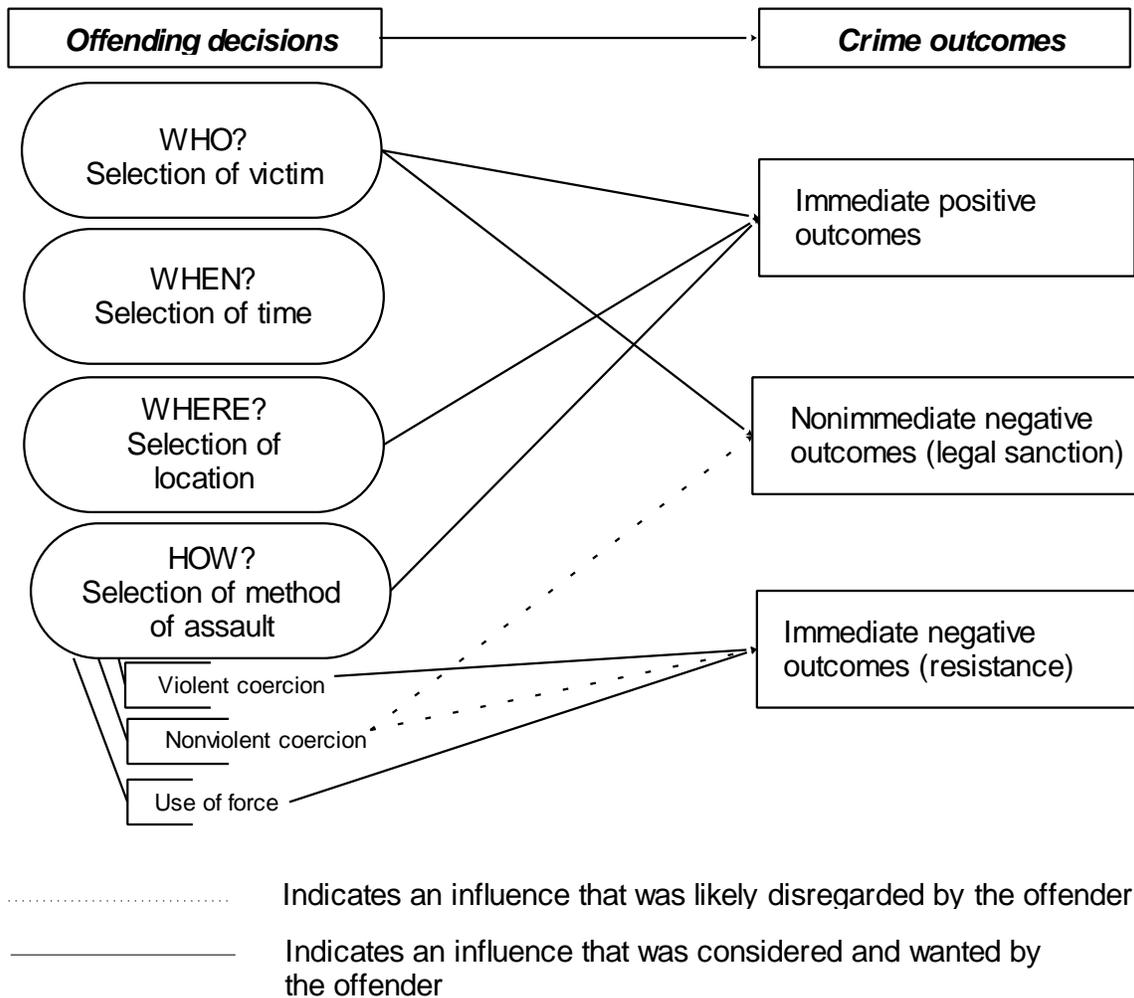


Figure 6.1. Revised model of decision making including the influence of traits, knowledge and states

In the first study, we examined various contextual influences on sexual offenders' criminal decisions, called "background factors" by Clarke and Cornish in their first model of decision making. These factors had often been discounted in previous empirical inquiries utilizing the rational choice approach. While Clarke and Cornish hypothesized that background factors would only influence offenders' general readiness to commit crime, the results indicated instead that these predispositional factors impacted how decisions were made in crime events and in overall decision patterns over the sexual criminal career. Figure 6.1 presents the summary of findings. Specifically, impulsive

personality traits and specific states (young, under the influence of drugs, sexually aroused) resulted in identifiable patterns in offenders' costs/benefits analysis: potential benefits to sexually coercive actions were considered more than their costs, which resulted in overall riskier decisions. The impact of specialized knowledge about sexual coercion however, was different: these offenders appeared to have given more consideration to the potential costs of their sexually coercive actions.

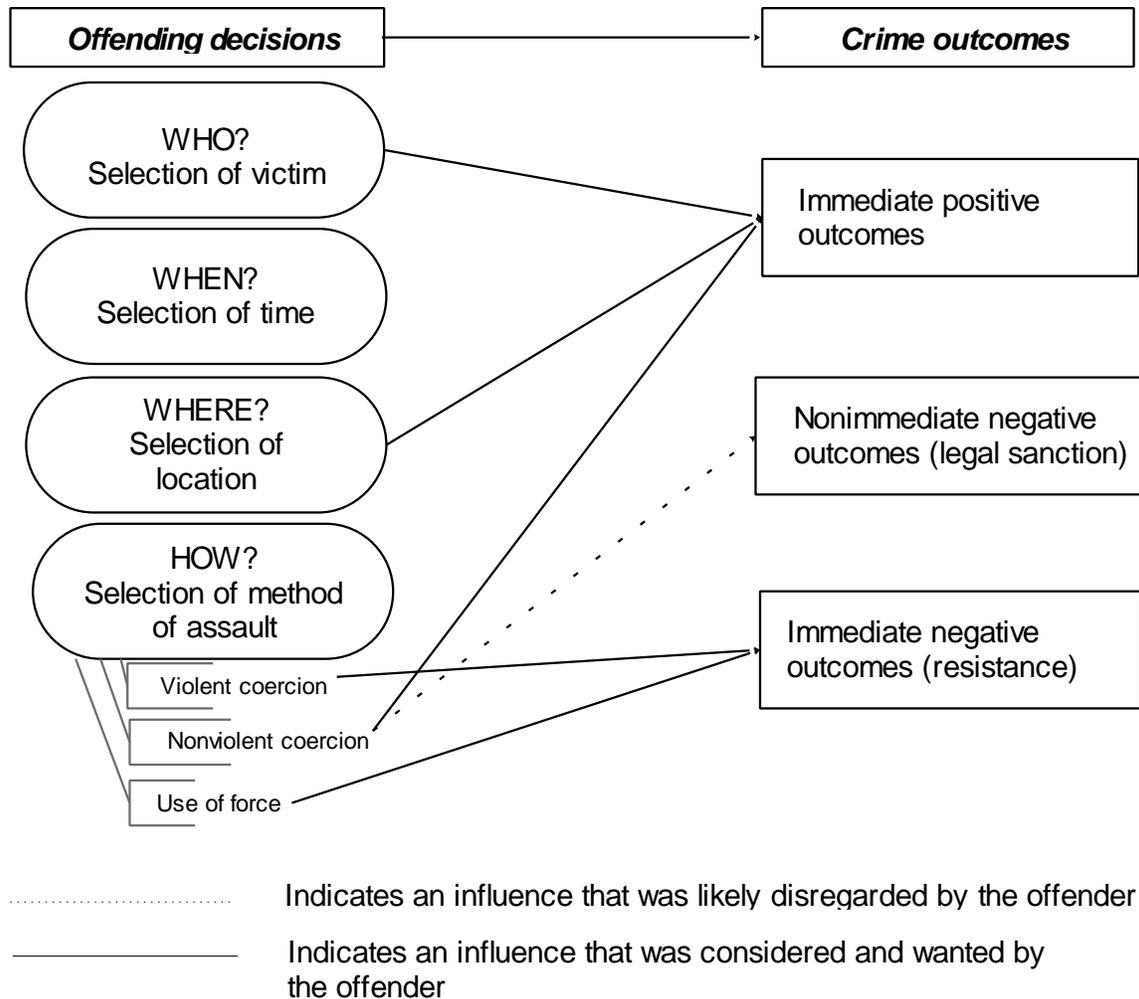


Figure 6.2. Revised model of decision making including the influence of decisions on the production of crime outcomes

The second study examined the costs and benefits of the various offending decisions made by sexual offenders during crime events, and specifically identified what decisions produced particular positive and negative outcomes, utilizing Clarke and Cornish's second model of decision making as a framework. Figure 6.2 summarizes the

influence of offenders' decisions on their realization of positive and negative crime outcomes. Decisions about the selection of victims were important to the production of both positive and negative outcomes experienced by offenders, while decisions about the environment of offenses (time and place) impacted mostly the realization of desired positive outcomes. Finally, the use of different methods to commit the assault addressed the production of immediate positive outcomes and the avoidance of immediate negative outcomes. Overall, the results obtained indicated that offending decisions during crime events dealt mostly with immediate outcomes.

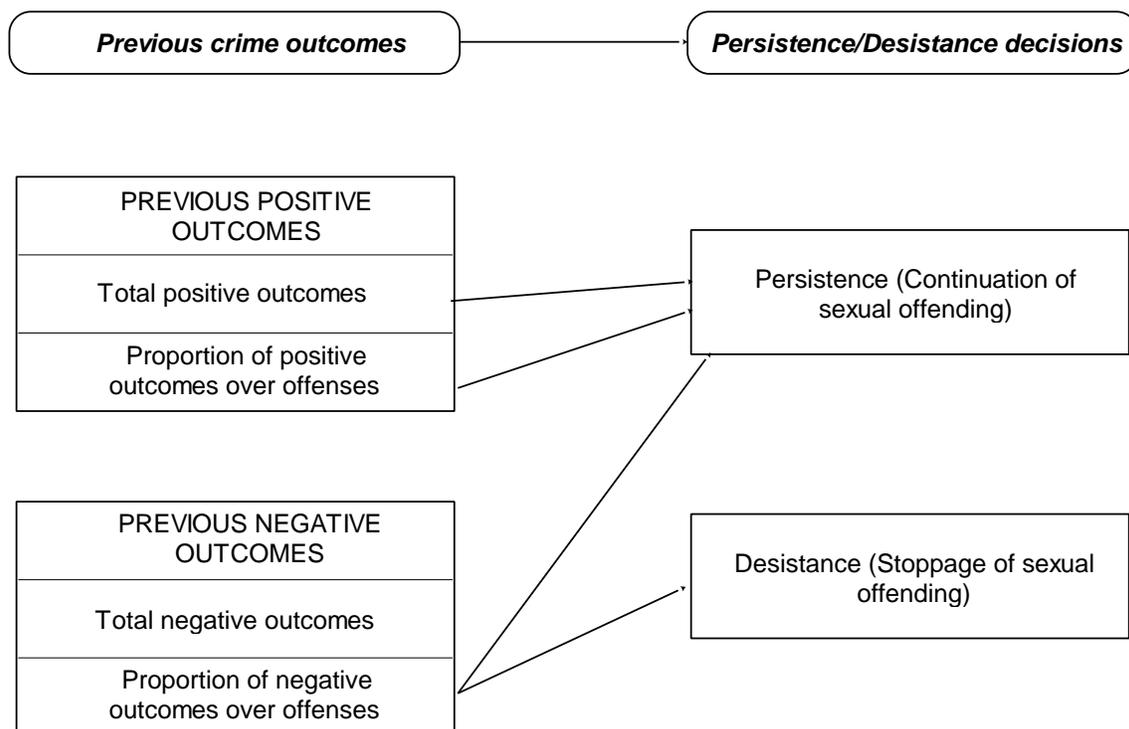
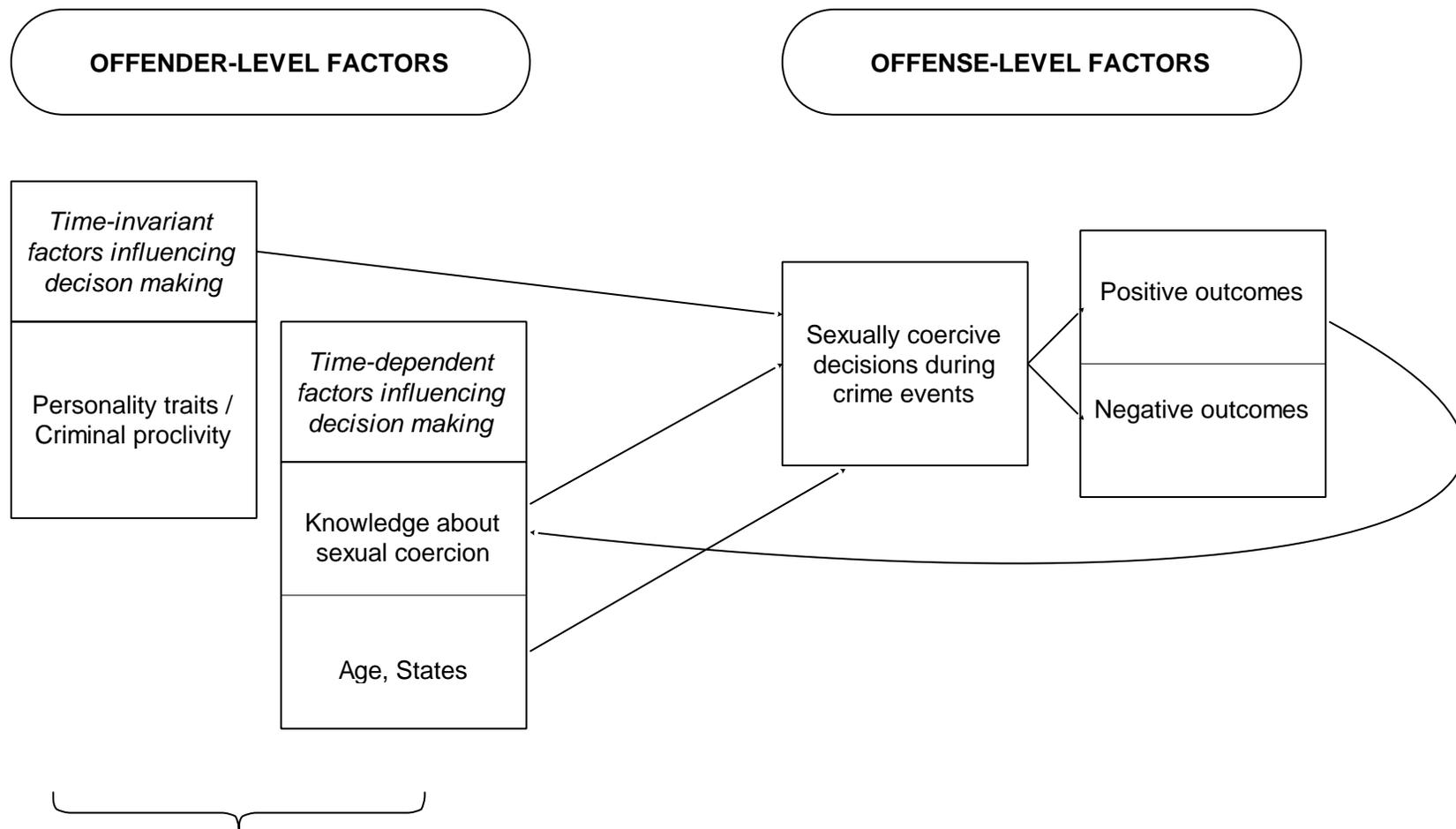


Figure 6.3. Revised model of decision making including the influence of previous crime outcomes on offenders' decision to persist or desist

Finally, the third study examined the influence of previous crime outcomes on offenders' decisions about the continuation or stoppage cessation of sexual offending upon release, drawing upon Clarke and Cornish's third and fourth models of criminal decision making. Figure 6.3 summarizes the results. Generally, some previous positive outcomes were consistent predictors of persistence in sexual offending, in addition to offenders' personality traits measuring criminal proclivities. There is some uncertainty about the role of previous negative outcomes: some measures indicated no impact of criminal sanction, while others indicated both a possible small deterrent and instigative

effect at the same time. Overall, it seems that offenders were intuitively influenced more by previous positive outcomes of sexual crimes than by previous negative outcomes, even if the negative outcomes were severe. Results obtained in the second study suggested that offending decisions limitedly included consideration of nonimmediate negative outcomes; the results of the third study indicated that the same was true after offenders' release from custody.

Overall, the results obtained in the present dissertation indicate that the model of bounded rationality argued by Clarke and Cornish in their rational choice approach is suitable to the study of decisions made by sexual offenders. In addition, the examination of the various costs and benefits was found to be appropriate to understand not only decision making during crime events but also offenders' decisions about the direction of their sexual criminal career. One way in which the three studies conducted expand on Clarke and Cornish is that they propose that the integration of offender and offense-level models is appropriate (see Figure 6.4). This was evident from the analyses conducted, considering that we used a variety of offender and offense-level factors and that both types emerged as important. Figure 6.4 presents our attempt at building an integrative model of decision making by sexual offenders, including the important findings from the three studies conducted. As indicated, although we distinguish between offender and offense-level factors, we did not construct separate models as Clarke and Cornish did, but instead integrated the two types of factors into the same model in order to represent the interrelations between these factors. On one end, we modeled decisions perpetrated during specific crime events to be primarily influenced by the immediate context and their various costs and benefits, but still included the influence of offender-level factors, including traits, specialized knowledge, and states, on the evaluation of these costs and benefits. On the other end, we modeled that decisions about the overall direction of a criminal career are the product of offenders' overall situations, which include factors experienced as results of previous crime events, assumed to be incorporated into offenders' knowledge about crime, sexual coercion, and the criminal justice system.



Decisions about direction of criminal career:
initial involvement, persistence, desistance

Figure 6.4. Integrative model of decision making by sexual offenders

6.2. Implications

6.2.1. Theoretical implications

The most important theoretical contribution of the present dissertation is to expand and clarify Clarke and Cornish's (1985) four models of criminal decision making. Specifically, in three of their four models, Clarke and Cornish integrated factors that were related to offenders, and speculated that offender-level factors would explain three types of involvement in criminal activities: initial participation, persistence or continuation of participation, and desistance or cessation of participation. The other model of criminal decision making focused instead on explaining crime events, and Clarke and Cornish speculated that offense-level factors, mostly related to the costs and benefits of the various possible courses of action, would explain the occurrence of crime in specific environmental conditions. Although these four models of decision making received equal consideration in Clarke and Cornish's initial paper, the significance of their contribution to the topic of criminal decision making has been mostly limited to various empirical tests using the rational choice framework of analysis to examine the specific costs and benefits of various crime events,⁶ leaving the examination of offender-level factors to researchers with different theoretical interests. This has been even more so the case in the literature about sexual offending, having, on one end, a large body of literature focused on offenders' predispositional factors (e.g., Daversa & Knight, 2007; Knight & Sims-Knight, 2003; Marshall & Barbaree, 1990; Ward, Hudson, Johnston, & Marshall, 1997; Ward, Hudson, Marshall, & Siegert, 1995) and, on the other end, investigations focused uniquely on the situational aspects to the commission of sexual crime (Balemba & Beauregard, 2012b; Beauregard & Leclerc, 2007; Beauregard et al., 2010; Beauregard, Rossmo, et al., 2007). In the present dissertation's studies, we included factors that captured both offender-level and offense-level aspects of sexual offending in order to study patterns of decision making by sexual offenders. Our results indicated that both types of factors were

⁶ A large body of literature has utilized the principle of rational choice decision making to understand the specific costs and benefits of many crimes and have subsequently implemented situational crime prevention measures, heightening the costs of crime.

important and contributed to a better understanding of sexually coercive decision making (see figure 6.4).

Specifically, our results highlighted the importance of what Clarke and Cornish called “background factors.” Although Clarke and Cornish included personality factors in their models of decision making, they estimated that these factors would only influence offenders’ overall readiness to commit crime. Personality factors have historically been very limitedly included in analyses utilizing the rational choice approach, although it was previously noted there was no inherent contradiction between recognizing the influence of individual personality factors on decision making and applying the rational choice approach (Nagin & Paternoster, 1993). As for the distinct influence of states, it was not included in any of Clarke and Cornish’s models, although the potential influence of alcohol on the evaluation of costs and benefits was briefly mentioned in the text. The results reported in the present dissertation add to the recent work by Van Gelder and colleagues on the topic (Van Gelder, 2012; Van Gelder & de Vries, 2012; Van Gelder, de Vries, & van der Pligt, 2009) and asserts that Clarke and Cornish underestimated the role of personality factors and neglected the impact of states on criminal decision making. Our results clearly indicated that personality traits and states experienced at the onset of the offense influenced sexually coercive decisions in identifiable patterns. Personality variables were also significant predictors of decisions that occur later in an offender’s sexual criminal career (after release from custody) and they did contribute to the prediction of decisions about persistence in or desistance from sexual offending. Although Van Gelder (2012) ultimately argued in favor of a new model of criminal decision making that differentiates between “hot” and “cool” states to better model the impact of states on criminal decision making, we suggest instead that states can be integrated into a rational choice model of decision making (see Figure 6.4). There is ample space within the rational choice perspective and its model of “bounded rationality” to account for the influence of traits and states and their impact on the making of criminal decisions. Accounting for the influences of these background factors is not incompatible with a rational choice approach to decision making, but can instead shed light on additional and important layers of the decision-making process. By integrating offender-level factors and offense-related factors, the full process of sexually coercive decision making is clarified and accurately reflects that

various sexually coercive decisions do, in fact, integrate aspects of their perpetrators, their backgrounds, and their situations at the time of the offense.

Another theoretical contribution of the present dissertation concerns the clarification it proposes to Clarke and Cornish's (1985) assumption of "bounded rationality" by decision makers. In their second model of criminal decision making, Clarke and Cornish modeled that immediate costs and benefits enter offenders' costs/benefits analysis but that the analysis omits the nonimmediate costs of criminal sanction. The results obtained in the present studies confirmed their speculation and indicated that offenders generally considered and addressed costs and benefits that were immediate but ignored those that were delayed by time. Generally, the present dissertation offers little support for the theory of deterrence. Deterrence theory focuses on high costs (specifically in the form of criminal punishment) to control criminal behavior. At best, the results obtained in the second and third studies raised doubts about the impact of costs—especially nonimmediate costs like criminal sanction—on criminal behavior perpetration. Instead, the results pointed more to the production of immediate positive outcomes or the removal of immediate negative outcomes to explain offending decisions. Experiencing previous positive outcomes was also a meaningful predictor of continuation or cessation of involvement in sexual crimes after release from custody. Generally, these results can be understood within the confines of the rational choice model of bounded rationality, but it should be noted that positive outcomes emerged as markedly more important factors. We believe this can be better explained by the introduction of offender-level factors in models of decision making (see Figure 6.4), considering that many of these personality factors and states have been demonstrated to focus the decision maker's attention exclusively on the benefits while discounting all other factors (see section 2.4).

Finally, one cannot help but remark that general models of criminal decision making were found to be appropriate and adapted to the examination of decisions made by sexual offenders, a group of offenders that has typically been considered irrational (Pithers, 1990; Simon & Zgoba, 2006). Clearly, the study of sexual offenders should not be left to the fields of psychiatry, psychology, or social work; rather, it is firmly part of the criminological realm and can contribute to the improvement of criminal decision-making models in general.

6.2.2. Implications for policy

Current policies imposed on sexual offenders, more so in the US but also to some extent in the UK, Canada, Australia, and New Zealand (Pratt, 2000), comprise a range of legal provisions managing sexual offenders and submitting them to a strict legal regimen, including electronic monitoring, registration, community notification, chemical castration, residency restrictions, and indefinite restriction of liberty via procedures of civil commitment. Two characteristics of these policies are challenged by the findings of the present dissertation: (1) that sexual offenders are a unique type of offender that require an intervention that is tailored to specifically address their sexual offending; and (2) that severe punishment can prevent sexual offenders from reoffending sexually. The assumed uniqueness of sexual offending is a primary aspect of current policies that is questioned by the dissertation's findings. Like what was hypothesized by Clarke and Cornish (1985) in their first model of criminal decision making, our results indicated that sexual offenders have specific goals that they want to fulfil, and they make decisions oriented toward the satisfaction of those goals. Our research indicated nothing specific to the decision making processes of sexual offenders that would allow a distinction between sexual crimes and other types of crime: like other types of offenders, they were influenced by contextual factors and they considered various costs and benefits when perpetrating their offenses. Of course, the costs and benefits are specific to their crimes, but that can be said about any type of crime. In addition, a finding that was consistent throughout the second and third studies conducted is that nonimmediate negative outcomes (i.e., legal sanction) in sexual crimes had very little impact on offenders' decisions during crime events and after their release when deciding whether or not to continue their involvement in sexual crimes. These findings, specifically the lack of a deterrent effect of criminal punishment, question the effectiveness of the very severe punishment regimen imposed on sexual offenders.

Generally, it should be remembered that recidivism rates of sexual offenders are low (about 13% according to Hanson & Bussière, 1998) and that sex offenders are, in fact, more likely to recidivate with nonsexual crimes upon release (Hanson & Bussière, 1998). The validity of a system dealing with offenders in a very specialized and punitive way is questioned; after all, our findings indicated that sexual offenders do not make offending decisions in ways that are different from any other type of offenders and that they are not

likely to be deterred by penal sanction. None of these findings suggest that the actual system dealing with sexual offenders—one that is both specific and punitive—is likely to impact the commission of sexual crimes. Clearly, the policies in place, drawing both heavily on mental health and criminal justice interventions, are inadequate.

6.2.3. Implications for prevention

Considering that our findings indicated that offenders reacted to *immediate* costs and benefits, it follows that the current mental health and criminal justice interventions are very unlikely to impact the commission of sexual crime because their scope of intervention is limited to the aftermath of the offense and relative to nonimmediate crime outcomes. Instead, the results obtained indicated that prevention can be achieved by heightening immediate costs of crimes in order to make committing crime less attractive as a course of action to secure the desired goal (Cohen & Felson, 1979). We suggest, specifically, that adopting a public health approach—instead of the current mental health and criminal justice approaches—to the prevention of sexual violence has the potential to significantly increase the costs of sexual crimes for offenders by increasing “crime controllers” (see Hollis, Felson, & Welsh, 2013 for a recapitulation of the development of the term). Our argument is explained next.

The public health approach is used by the Centers for Disease Control and Prevention (CDC) to investigate and address health problems in society, according to its mission to promote health and quality of life by preventing and controlling diseases and injury. It is unsurprising that the CDC has identified violence—specifically, violence of a sexual nature—to be a matter of public health (Foege, Rosenberg, & Mercy, 1995; Mercy, Rosenberg, Powell, Broome, & Roper, 1993) in light of the dramatic consequences it has on the physical and psychological health of a large number of members of society (see introductory remarks of Chapter 1). An important principle of the public health approach is that it emphasizes prevention in combination with treatment in order to reduce the harm. For example, the public health model has been used to address the harms caused by smoking by developing parallel efforts to prevent people from starting smoking on one hand and treat smokers and secondhand smokers on the other. Similar efforts in the case of sexual violence would therefore require more primary prevention efforts to preclude the

occurrence of any sexual harm from the start and prevent members of society from ever becoming offenders and victims in addition to providing treatment to offenders and victims after the harm. Primary prevention efforts are absent from the current mental health and criminal justice approaches, which deal with offenders only after the perpetration of the sexual harm. Multiple scholars in the field of sexual aggression have advocated for the framing of sexual violence as an issue of public health (Laws, 2000; McMahon, 2000; McMahon & Puettl, 1999; Mercy, 1999; Schafran, 1996) and we second their suggestion. An important aspect of the public health model is its focus on the dissemination of accurate information about the problem, its conditions of occurrence, and possible methods of prevention, notably regarding the “time-person-place” dimensions (Powell, Mercy, Crosby, Dahlberg, & Simon, 1999, p. 176). Situational analyses of sex crimes are therefore particularly well positioned to offer critical information to the public about the aspects of sexual violence—victims, times, and places—but will need to shift their focus from stranger rape events to sexual violence perpetrated by family members and/or acquaintances.

We argue that adopting the public health model of prevention can significantly increase the immediate costs of sexual violence for potential offenders by increasing overall guardianship against sexual violence. According to the routine activities theory, guardians are an important aspect of crime opportunities (Cohen & Felson, 1979); specifically, they “are people whose presence, proximity and absence make it harder or easier to carry out criminal acts” (Hollis et al., 2013, p. 67). Refinements to the literature on guardianship have distinguished between three types of guardians, named “controllers”: handlers, guardians, and managers (Eck, 1994; Felson, 1995; Sampson, Eck, & Dunham, 2010). Each type of crime controller has a guardianship role toward a different aspect of the crime opportunity: handlers supervise potential offenders while guardians control potential victims, and managers are in charge of specific places. It is our contention that providing better information to the public about sexual violence and its prevention can heighten levels of guardianship against sexual violence in three ways: (1) potential victims can be better equipped to provide better self-guardianship for themselves; (2) parents, teachers, and others with a supervisory role can learn about ways to educate, detect, and overall offer better supervision of potential victims against sexual

violence; and (3) place/activities managers can design sexual abuse and coercion out of their locations of control.

Talking about self-guardianship by victims is tricky and it should be remembered that the responsibility to prevent sexual victimization should never be put on victims. However, there are indications in the literature that some self-guardianship measures by victims are effective in preventing their sexual victimization. In their game theory-based analysis of victim-offender moves in violent interactions, (Griffiths et al., 2012) argued that offenders consider victims' potential for self-guardianship (or capacity to retaliate) when assessing the suitability of victims. In the case of sexual abuse, this notion of self-guardianship needs to be adapted, considering that, in most cases, the perpetrator of sexual violence (likely an adult male) will be stronger and bigger than child or female adult victims. Instead of physical strength, there are empirical results indicating that verbal assertiveness by child victims is one of those effective self-guardianship measures (Leclerc, Wortley, & Smallbone, 2011b); see also accounts by offenders on the type of child selected: Conte, Wolf, & Smith, 1989; O'Brien, 1986). Some empirical evaluations reported that children receiving training reported using self-guardianship techniques (Finkelhor & Dziuba-Leatherman, 1994) and had reduced risk of sexual victimization (L. E. Gibson & Leitenberg, 2000).

In addition, campaigns of information about the phenomenon of sexual violence in society, its settings, and likely victims, can also provide valuable information to guardians and/or handlers⁷ and train them to provide effective guardianship against the risks of sexual violence, oriented toward the prevention not only of the danger presented by strangers, but mostly that occurring in private settings and as part of ongoing relationships. In addition, guardians can be trained to recognize the range of behavioral changes in victims of sexual violence and intervene to prevent further sexual harm once it has been perpetrated, an important consideration in light of previous findings indicating that victims of sexual abuse are at higher risk of sexual revictimization (Breitenbecher, 2001; Classen et al., 2005; Desai et al., 2002; Macy, 2007; Maker et al., 2001; Messman & Long, 1996).

⁷ Considering that most sexual abuses are perpetrated by an offender who is known to the victim, it is not unlikely that potential victims' guardians are also potential offenders' handlers, notably in cases of intrafamilial sexual abuse.

Finally, the role of place/activities managers is also critical. Our results demonstrated that the selection of a location impacted crime outcomes for offenders, and it is evident that crime opportunities can generally be reduced by increasing guardianship of places (Cohen & Felson, 1979). Because the commission of sexual assault requires privacy and isolation, places and activities involving the presence of likely victims should be designed specifically with the prevention of sexual violence in mind. For example, it has been suggested that activities involving children should be regulated by guidelines governing the access to children of caregivers or supervisors, and specifically require that an adult is never left alone with a child (Kaufman, Mosher, Carter, & Estes, 2006; Smallbone, Marshall, & Wortley, 2008; Wortley & Smallbone, 2006). The multiple activities available to children today, which can be used by offenders to identify victims, require their providers be targeted specifically for the purposes of prevention and provided with information about the patterns of occurrence of sexual violence in the settings or activities they supervise. This allows the evaluation of their overall functioning and management of space so that motivated offenders, even in the presence of suitable victims, cannot find locations lacking guardianship to perpetrate the abuse (for an example in the context of church activities, see Terry & Ackerman, 2008). The examination of places and target-rich environments, such as college parties, is also pertinent in cases of sexual violence against adult victims in order to develop better crime prevention strategies (Balemba & Beauregard, 2012b; Deslauriers-Varin & Beauregard, 2010). In addition to place managers and the development of procedures managing access to potential victims at controlled places, the influence of more informal forms of guardianship might also be considered. (Hollis-Peel, Reynald, van Bavel, Elffers, and Welsh (2011) stated that “a guardian is any person on the scene of a potential crime that may notice and intervene” (p. 57).) Recent empirical findings that looked at the role of potential guardians indicated that the *perception* of guardianship might be sufficient; specifically, in sexual offenses against children, the presence of potential guardians (i.e., other children) reduced the duration of the assault and the risk of penetration (Leclerc, Smallbone, & Wortley, 2015). The results obtained in the second study indicated a similar influence to exposed locations: the simple possibility of easy intervention by potential bystanders reduced the likelihood of oral sex on the victim, penetration, and arousal, and reduced the variety of sexual acts. We argue that public information campaigns about sexual violence are likely

to increase informal guardianship in more locations, simply because more people then become aware of the patterns of sexual violence.

Considering that a majority of sexual crimes are committed in intimate settings and within pre-existing relationships, there is no easy intervention for those settings. The public health model and its primary prevention measures of public information, notably about the “time-person-place” dimensions, offer the possibility to educate the public and rectify incorrect perceptions about the nature of sexual violence. This might offer the best concrete way to intervene indirectly in private settings and relationships, specifically by heightening guardianship against sexual violence in society. In accordance with the routine activities theory, increases in guardianship should decrease offending opportunities (Cohen & Felson, 1979). In addition, increases in guardianship, as opposed to increases in punishment, also constitute immediate costs, which our results indicated were considered by offenders at the time of their offending.

6.2.4. Implications for treatment

A finding that was consistent throughout the studies conducted is that positive outcomes in sexual crimes are important for offenders, both in decisions about specific crime events and in decisions about the continuation of their involvement in sexual crimes. Because the production of those positive outcomes emerged as an important goal for sexual offenders, part of their treatment should focus on obtaining these goals via other means, as suggested in the Good Lives Model (GLM) of offender rehabilitation (Ward, 2002a, 2002b). In contrast to previous models of offenders’ rehabilitation that focused mostly on *avoidance* of many triggering or high-risk situations for sexual offenders, the GLM of offender rehabilitation goes beyond the criminogenic needs of offenders to also focus on the *achievement* of good lives by offenders. According the GLM approach, there are ten common life goals (i.e., [1] good life; [2] knowledge; [3] mastery and excellence; [4] personal choice and independence; [5] peace of mind; [6] relationships and friendships; [7] community; [8] spirituality; [9] happiness; and [10] creativity) (for descriptions, see Laws & Ward, 2011; Yates, Prescottt, & Ward, 2010). These goals represent outcomes that are universally sought after; there are, however, different means or strategies that are used to secure these goals, some of which are prosocial and others of which are antisocial. As a

general example, it is possible to consider that the goal of peace of mind can be achieved by exercising or by taking alcohol and drugs; while both strategies produce the same outcome, they are very different in nature and in the harm they produce. Similarly, it is possible to understand sexually coercive actions as means toward some of these common goals. For example, the goal of personal choice and independence can be satisfied by controlling or dominating others and the goal of relationships and friendships can be obtained in abusive relationships with age-inappropriate sexual partners. The GLM therapeutic intervention therefore builds on offenders' strengths and provides them with prosocial and nonharmful ways to obtain these common life goals. Such a model of treatment appears to be very much in line with Clarke and Cornish's framework of criminal offenders as decision makers wanting to satisfy commonplace needs and it seems appropriate that it focuses on finding alternative prosocial means to their satisfaction, considering how important the positive outcomes produced by their sexually coercive actions were for the offenders studied.

6.3. Limitations

The present dissertation and the three studies conducted are not without limitations. Looking retroactively at information about sexual offenses and offenders in archival files that have been compiled decades ago is, at times, challenging, and offers suboptimal measurement of some concepts. Specifically, in the first study, measuring the manifestations of larger concepts such as traits, states, and knowledge was limited by the data at hand. While we were able to operationalize general impulsivity using scale variables, it was not the case for our measures of sexual impulsivity. We used two dichotomous variables recording specific behavioral manifestations of sexual impulsivity. Sexual impulsivity is a dimensional construct that would be better measured by multiple behavioral indicators added to create a scale. In addition, while the four states considered are important in the literature, the role of anger could not be evaluated specifically, because not enough information about it was extracted from the crime narratives in offenders' files. Two of the variables measuring specialized knowledge—being a witness to sexual offenses and being a victim of sexual offenses—were measured dichotomously; this is an obvious limitation as it recorded only the presence or absence of a learning

experience, without measuring specifically the content of these learning experiences. In the second study, we assumed that arousal and/or climax were absent from all offenses that did not mention it explicitly; it would be recommended for future studies to validate those findings in samples for which this information was systematically collected. In addition, delayed detection would be better measured with a continuous variable instead of the dichotomy we used. In the third study, we measured persistence in or desistance from sexual offending as a dichotomy, while some findings suggest that the nature of desistance is best captured as a process (Harris, 2014; Laws & Ward, 2011), which can include a slow transition in the frequency or severity of offending. The dichotomous measure used could not capture any of those possible meaningful but subtle nuances.

Finally, it should be noted that we investigated models of decision making in a sample that comprised various types of sexual offenders. While it was a pertinent exercise, the examination of subtypes of sexual crimes might yield more detailed insight, in accordance with Clarke and Cornish's recommendation (Clarke & Cornish, 1985; Cornish & Clarke, 1986a).

6.4. Future research

One interesting finding from the present dissertation concerns the importance of immediate crime outcomes for offenders. A primary relevant avenue for future research would be to turn to qualitative methods of inquiry to deepen our understanding of decision-making processes at play in sexual offenses, specifically regarding the nature of and processes relative to positive and negative outcomes of sexual crimes. In addition to patterns identified using statistical techniques, it would be useful to gather offenders' personal accounts on the topic and delve into the meaning of the various positive and negative outcomes for offenders. It would be valuable to replicate parts of Scully and Marolla's (1985) study about the rewards of sexual assault, but we would want to also ask offenders about the costs of sexual coercion, and to generally examine offenders' narratives about both immediate and nonimmediate crime outcomes.

Another avenue for future research is to conduct experimental research about decision making in a sample of convicted sexual offenders. There have been interesting

experiments conducted to predict sexual coercion in nonoffending samples (Ariely, 2010; Ariely & Loewenstein, 2006). We suggest that conducting similar experiments in offending samples while manipulating for various states (neutral, anger, arousal, sadness) and in various situational settings could yield more accurately measured data and add layers of specificity to the proposed integrated model of decisions making. We specifically recommend the use of virtual reality tools as part of these experiments as a replacement for traditionally used written vignettes to create a deeper immersion of participants in the scenario (Van Gelder, Otte, & Luciano, 2014).

Finally, a third avenue to investigate in future studies is relative to the *quality* of decisions made by offenders. The study of criminal achievement is a new aspect of the criminal career that has examined offenders who are “good” or “productive” at committing crime (Lussier et al., 2011; Tremblay & Morselli, 2000). Qualitative results have indicated that “experts” in sexual offending had many more offending scripts and made decisions more automatically (Bourke et al., 2012). It would be interesting to investigate how experts conform to or differ from the general models of decision making constructed in the present dissertation. Is their success in crime due to more rational decisions in the absence of some factors (including traits and states) predisposing them to risk taking, or do they simply navigate their offending process more smoothly in spite of such predisposing factors?

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