Offender Profiling in Cases of Swedish Stranger Rapes

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"*Where there's a will, there's a way.*"
~ William Hazlitt

To my mother

Abstract

Swedish national statistics suggest that the number of reported stranger rapes is steadily increasing. Stranger rape is one of the most difficult types of crime for the police to investigate because there is no natural tie between the victim and offender. As a result, there is a need for more knowledge about how crime scene features could be used to make inferences of likely offender characteristics that could help investigators narrow down the pool of suspects. The aim in **Study I** was to examine how offender behaviors interact with contextual features, victim behaviors, and the assault outcome. Results suggest that the stranger rapes could be distinguished by five different dynamic rape pattern themes, which mainly differed on two dimensions: level of violence to control the victim, and level of impulsivity/premeditation characterizing the rapes. The results also highlight the importance of including contextual features when studying offender behaviors. The aim in **Study II** was to examine how single-victim rapists and serial rapists can be differentiated by the actions at their first stranger rape. Results suggest that three behaviors in conjunction: kissed victim, controlled victim, and offender drank alcohol before the offense, could be used to predict whether the offender was a single-victim rapist or serial rapist with a classification accuracy of 80.4 %. The aim in **Study III** was to examine how stranger rapists could be differentiated from a normative sample on background characteristics, and if stranger rapists' pre-assault and initial-attack behaviors could be used to predict likely offender characteristics. Results showed that the strongest predictions could be made for previous criminal convictions, offender age, and the distance traveled by the offender to offend. Overall, the present thesis has found some scientific support for the use of crime scene behaviors to make inferences of likely offender characteristics that could be useful for profiling purposes.

Keywords: Offender profiling, criminal profiling, stranger rape, serial rapists, prediction, rape themes, crime scene behavior, offender characteristics, situational features

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List of Studies

The present doctoral thesis is based on the following studies:

Study I: Corovic, J., & Salfati, C. G. (submitted). Dynamic patterns of stranger rape: Relating offender behavior to the context, victim resistance, and assault outcome.

Study II: Corovic, J., Christianson, S. Å., & Bergman, L. R. (2012). From crime scene actions in stranger rape to prediction of rapist type: Single-victim or serial rapist? *Behavioral Sciences and the Law, 30*, 764-781. *

Study III: Corovic, J., Bergman, L. R., & Christianson, S. Å. (submitted). Using stranger rapists' pre-assault and initial-attack behaviors to predict likely offender characteristics.

Contents

Introduction

What type of person may have committed this crime? This is one of the fundamental questions in the area of profiling. Offender profiling, also called criminal profiling, is based on the idea that behavior reflects personality, which means that by examining crime scene behavior investigators will be able to determine the type of person that is responsible for the crime (Douglas, Ressler, Burgess, & Hartman, 1986). The basic assumption in offender profiling is that there is a relationship between offenders' actions and their characteristics in that the way an offender commits a crime will say something about his or her psychological make-up and background characteristics.

The assumed relationship between offenders' behavior and their characteristics originates in early personality theory (Alison, Bennell, Mokros, & Ormerod, 2002). According to personality theory from the 1970s, a core belief has been that individuals are characterized by stable and broadly generalized personality dispositions, and that their behavior will be rather consistent across situations and over time (Shoda & Mischel, 2000). Later empirical studies have shown that human behavior is not always predictable because it is both determined by the individual's personality traits as well as the situation that the person is in. However, by knowledge of the situation, it would be possible to predict individuals' behavioral pattern across situations (Bem & Allen, 1974; Magnusson, 1976; Mischel, Shoda, & Mendoza-Denton, 2002; Shoda & Mischel, 2000). Funder (2006) explains how the three elements consisting of persons, situations, and behaviors, are mutually dependent on one another, and concludes that, "if one knew everything about a behavior and about a situation, it ought to be possible to predict the kind of person who would act that way under those circumstances" (p. 32). The underlying assumption in offender profiling, adopted from personality theory, is then that from knowledge about the offender's behavior during the crime, it ought to be possible to make inferences of the type of person who has committed the crime. The idea that crime scene behaviors reflect the offender's characteristics has also been described with regard to rape:

> The would-be offender approaches the rape event with some intent of achieving sexual gratification. He possesses certain personal and social characteristics which may influence his choice in securing a victim and his definition of the situation appropriate for perpetrating the offense. While his personal traits

become stimulants for the crime, the situation serves to release some personality predispositions. Some of these predispositions may be deep-seated and pathological; others temporary—for example, when he is under the influence of alcohol or when he interprets the behavior of the females as sexually suggestive. (Amir, 1971, p. 130)

The statements by Funder (2006) and Amir (1971) suggest that, at least in theory, by studying an offenders' behavior in a situational context (e.g., rape) it ought to be possible to make inferences of the offender's personal and social characteristics. Thus, a careful examination of the crime scene features could provide information about the offender's likely background characteristics (Ainsworth, 2001). The assumed relationship between crime scene actions and an offender's characteristics has been called the "*profiling equation*", A → C equation, where A stand for the offender's crime scene actions and C for the offender's background characteristics (Canter & Youngs, 2003), or the *homology assumption* (Alison et al., 2002). Moreover, this means that offenders who commit their crime in a similar fashion should also tend to share the same background characteristics, for example, occupation, age, ethnicity, previous convictions etc. (Alison et al., 2002). Profiling does not provide the specific identity of the offender, but rather provides clues to the type of person most likely to have committed the offense, and thus serve to narrow down the pool of suspects in the investigation (Douglas et al., 1986).

Offender profiling can be defined by two different investigative practices: using crime scene behaviors to *link a series of crimes* to the same offender, and *linking of crime scene behaviors to offender characteristics*. In linking of crimes to the same offender, the assumption is that there will be some *behavioral consistency* across crimes within a series, which allows the crimes to be linked to the same offender, and *behavioral distinctiveness* (specificity), which makes it possible to distinguish between crimes of different offenders (Canter, 2000; Alison et al., 2002; Woodhams, Hollin, & Bull, 2007). In linking of crime scene features to offender characteristics, the idea is that there are some psychologically important variations between crimes, which relate to differences in characteristics in the offenders who commit them (Canter, 2000). Offender profiling has traditionally been used to solve serial sexual offenses and homicide offenses, believed to have been committed by the same offender, where the police have had few clues as to who the suspect may be and are unsure of what type of individual they should be looking for (Ainsworth, 2001). One benefit of using crime scene behaviors for profiling purposes, is that physical evidence such as DNA or fingerprints may be missing, and such methods are often more time consuming and expensive (Santtila, Pakkanen, Zappala, Bosco, Valkama, & Mokros, 2008). Another advantage of focusing on behaviors is that "behav-

ioral evidence" cannot be removed from the crime scene or tampered with as can forensic trace evidence (Salfati & Kucharski, 2005).

Three main approaches to offender profiling evolved between the 1970s-1990s: *clinical*, *investigative*, and *statistical* (Alison, Goodwill, Almond, van den Heuvel, & Winter, 2010; Wilson, Lincoln, & Kocsis, 1997). The clinical approach to profiling is based on diagnostic evaluations by individual mental health practitioners consulted by investigators because of their extensive knowledge of personality theories and psychiatric disorders (Wilson et al., 1997). These clinical practitioners usually have not had any extensive experience in law enforcement, but have constructed profiles by diagnosing the probable psychopathology and/or personality type most likely to have committed the crime (Wilson et al., 1997). Some of the oldest and most famous profiles in history (e.g., of Jack the Ripper, the Mad Bomber of New York, and Adolf Hitler) were produced using this approach, and profiles constructed this way is what gave rise to the term "criminal personality profiling" and "psychological profiling" (Wilson et al., 1997). According to Wilson et al. (1997), profiles derived from psychological diagnoses, can vary widely among different practitioners, and although some profiles have been extremely accurate, the majority of profiles produced have been flawed. Because this clinical approach relies on individual practitioners knowledge and expertise, it prevents some comparative and adequate assessment of validity and utility (Wilson et al., 1997).

The investigative approach is based on the work by profilers at the FBI's Behavioral Science Unit in the United States, and came about in the 1970s from investigating various types of violent crime such as homicides, sexual assaults, and arson (Douglas et al., 1986). According to this approach, "The profiler's skill is in recognizing the crime scene dynamics that link various criminal personality types who commit similar crimes" (Douglas et al., 1986, p. 405). Furthermore, Douglas et al. (1986) state that, "Investigators traditionally have learned profiling through brainstorming, intuition, and educated guesswork. Their expertise is the result of years of accumulated wisdom, extensive experience in the field, and familiarity with a large number of cases" (p. 405). The investigative approach has been based on a careful examination of crime scene details and the interviewing of incarcerated offenders to produce typologies of various offender types. Descriptions of offender types for different categories of crime were later summarized in the book *Crime Classification Manual* (Douglas, Burgess, Burgess, & Ressler, 2006). In this book, it says that, "Investigative profiling is best viewed as a strategy enabling law enforcement to narrow the field of options and generate educated guesses about the perpetrator" (Douglas et al., 2006, p. 97). Further down it also says, "There have been no systematic efforts to validate these profile-derived classifications" (p. 98). Because there has been few efforts to scientifically validate the classifications made by profilers, and profiling is described as being based on "educated guesswork", some researchers hold

that profiling can best be seen as a pseudoscience until the practice can be sufficiently validated by research (Alison et al., 2002; Snook, Cullen, Bennell, Taylor, & Gendreau, 2008; Snook, Eastwood, Gendreau, Goggin, & Cullen, 2007).

Both the clinical approach and investigative approach have mainly been based on clinical practitioners'/investigators' experience, knowledge, and intuition in drawing inferences about offenders. Although the inferences made may have been accurate or useful in investigations, the fact that they are based on individuals' expertise in the area makes it difficult to judge to what extent the information provided is valid and based on falsifiable knowledge (Alison et al., 2010). This is one of the criticisms that led to the development of the statistical approach in the 1990s in Britain, which is based on using multivariate analyses of behavioral information to infer likely offender characteristics (Alison et al., 2010). One of the pioneers of this approach, David Canter, used psychological and criminological theories and experimental methods to produce frameworks that could be useful to investigations (Wilson et al., 1997). This meant using objective and observable crime scene features that would be readily available during the investigation, rather than motivational or psychodynamic explanations, to infer likely offender characteristics (Alison et al., 2010). A number of peer-reviewed studies on profiling have emanated from this approach with regard to various types of crime, such as burglary, robbery, homicide, arson, and sexual offenses (Alison et al., 2010). Although, the knowledge generated from this approach could be viewed as more scientifically sound (i.e., can be tested and is falsifiable), one critique has been whether the aggregated findings can be applied to specific cases, especially if base-rates of the crime scene behaviors are not taken into consideration or if unrepresentative samples have been used in the studies (Alison et al., 2010).

There have been some recent attempts to evaluate the scientific basis of profiling. Snook, Eastwood, Gendreau, Goggin, and Cullen (2007), performed a narrative review of 130 profiling articles and a two-part meta-analysis. In the narrative review they compared articles by if they used "commonsense arguments" or "empirical arguments" to explain different phenomenon. Examples of commonsense arguments would be if they had been based on: qualitative sources, from an analytical process, "tell it like it is" statements, explanation by naming, exceptions prove the rule etc. On the other hand, examples of empirical arguments would be if they had been based on: quantitative sources, data had been collected from case histories, surveys, experimental studies, and results had been described in probabilistic terms etc. Snook et al. (2007) found that overall the commonsense arguments were used more frequently than empirical arguments in the profiling literature (58 % of the time). The use of commonsense arguments was more common in articles that were clinical in orientation, published before 1990, from the United States, and written by law enforcement professionals. Em-

pirical arguments were, on the other hand, more commonly used in articles that had a statistical orientation, were published after the year 2000, published outside of the United States, published in peer-reviewed journals, and authored by academics. In their two-part meta-analysis that included four studies that met the inclusion criteria, Snook et al. (2007) first compared self-labeled profilers/experienced investigator groups to all other comparison groups who did not have any profiling or investigative experience (e.g., psychologists and students). With regard to predicting offender characteristics that belonged to specific sub-measures (offenders' cognitive processes, physical attributes, offense behaviors, or social habits and history), the profilers/experienced investigator groups did not make more accurate predictions than the other groups, but the profilers/experienced investigator groups made more accurate predictions of offender characteristics overall (62 % versus 38 % for comparison groups). In the study's second analysis, self-labeled profilers only, were compared to all other comparison groups (detectives, students etc.). Results showed that self-labeled profilers performed better than the comparison groups on all of the measures, but as the confidence intervals were greater than .10, the authors concluded that the results should be regarded as uncertain. With regard to the most robust finding (predicting overall offender characteristics), the success rate of the profilers was 66.5 % compared to 33.5 % for the comparison groups. Although, this result provides some support for the profilers' better predictive ability, Snook et al. (2007) hold that the success rate of the profilers was better but not strong enough for their ability to be viewed as "expert performance". The authors hold that experts are expected to perform better than non-experts (i.e., lay people) in any field, and that in a field such as profiling that relies on the profilers' expertise, an unacceptably high false-alarm rate may be detrimental to police investigations. The authors, therefore, concluded that more sound empirical research has to be conducted that provides evidence of profilers' expert predictive ability that is considerably higher, before it can be said that the practice of offender profiling is valid.

In a recent theoretical review article, Snook, Cullen, Bennell, Taylor, and Gendreau (2008) criticize the current view of offender profiling and question why people believe that offender profiling works when the practice lacks empirical basis. According to these authors, it is an illusion that criminal profilers can predict offenders' characteristics from crime scene evidence, and the reason that people believe in this illusion despite no sound theoretical grounding or strong empirical support for it, can partly be explained by that profilers only report success stories, and not when they have been unsuccessful (Snook et al., 2008, pp. 1264-1265). The authors' main arguments are: (1) most of the typologies that have been used to create criminal profiles have not been supported by empirical research, (2) the majority of criminal profiling approaches have been based on an outdated personality theory of human behavior that lacks empirical support, and (3) there is no compelling

evidence that professional profilers make predictions that are considerably more accurate than predictions made by non-profilers (they provide results from their two previous studies as evidence for the argument; Snook et al., 2008, p. 1259). Furthermore, Snook et al. (2008) hold that although the scientific support for criminal profiling is meager, profiling may actually work, but researchers have to conduct proper scientific evaluations to find empirical support for the practice, and that until then, the practice should be regarded with caution (p. 1270-1271).

General Aims of the Thesis

The reviewed literature suggests that there is a need for more research to find scientific support for the practice of offender profiling before the practice can be viewed more as a science than "educated guesswork". The general aim of the present thesis was to investigate one of the core assumptions in offender profiling, that is, if offender crime scene behaviors can be used to make inferences of offender characteristics. In Study I, the aim was to first get a better understanding of the dynamics in stranger rape by examining how offender behaviors relate to contextual features, victim behaviors, and the assault outcome, and how the interactions can be used to group stranger rapes into themes that reflect different dynamic rape patterns. In Study II, the aim was to examine how crime scene behaviors can be used to predict the likelihood that the unknown offender is a single-victim rapist or serial rapist. Furthermore, in Study III, the aim was to study how pre-assault and initial-attack behaviors, specifically, can be used to predict likely offender characteristics (e.g., demographic information, previous criminal convictions, and distance traveled by the offender to offend) of stranger rapists.

Stranger Rapes in Sweden: Defining the Problem

Violent crimes that involve attacks on strangers (e.g., stranger rapes) are the most difficult types of crimes for the police to investigate because there is no natural tie between the victim and offender that the police can use to find the offender. Therefore, in these types of crimes the pool of suspects will be considerably greater and the crimes more difficult to solve by traditional police methods (Ainsworth, 2001). There are different types of stranger rape that can be defined by the offender's method of approaching the victim. As described by Burgess and Holmstrom (1979), the offender may, for example, use a surprise approach by sneaking up on the victim outside or while sleeping, or use a blitz approach, which is similar to a surprise approach, but characterized by a direct ambush "out of the blue" with more violence. In contrast, the confidence approach (also called "con approach"), is characterized by the offender using verbal means rather than violence to "befriend the victim" under false pretenses, and then once gaining the victim's confidence, betrays that confidence. A confidence approach may for example include the offender posing as a taxi driver, asking for directions/help, offering help with something, or approaching the victim in a bar or at a house party etc.

Recent statistics from the Swedish National Council for Crime Prevention (*Brottsförebyggande rådet*) suggest that the number of reported rapes in general have more than tripled since the millennium. The number of reported rapes has increased from 2024 cases in the year of 2000, to 6532 cases in year of 2011 (Brå, n.d., a). During the same period the number of convictions for rapes has increased from 121 in the year of 2000, to 262 at most in the year of 2008, but then decreased to 168 cases in the year of 2011 (Brå, n.d., b). When considering these figures, the increase in conviction rates is far from proportional to the increase in reported rapes. Furthermore, in the year of 2011, Sweden had 69 reported rapes per 100 000 inhabitants (Brå, n.d., c), which according to Diesen and Diesen (2009) is 3-5 times as high as in the other Nordic countries in Europe. By looking at the trends of which types of rape that have generally increased, it has been stated that it is the cases in which the offender and victim were *strangers*, or had just met in connection to the night life, where the victim has been under the influence of alcohol or drugs, and cases involving multiple perpetrators (Brå, 2008a; Diesen & Diesen, 2009). According to national Swedish statistics in 2006, the

victim and offender were strangers in 33% of the rapes reported (Brå, 2008b). These results suggest that stranger rapes are not infrequent and pose great difficulties for the police in investigating them. Diesen and Diesen (2009) examined 454 cases of rape that took place in 2004, and 677 cases that took place in 2006, in Stockholm County. Out of all of these cases, 32 % had been committed by an offender who was unknown at the time of the report. In a third of these cases, the police was able to identify the perpetrator through an investigation, but in the remaining two thirds of the cases, the offender was still unknown and the investigation had to be closed down.

Because reported cases of stranger rape are increasing in Sweden, and the police have particular difficulties in investigating these types of rapes, there is a need for more knowledge about stranger rapes that could be useful in investigations. According to Santtila, Junkkila, and Sandnabba (2005), stranger rapes, compared to other types of crimes, are especially suitable for profiling and linking purposes because of the close interaction between the victim and offender, which can provide valuable information that can be used in analyses. This means that information about crime scene features could, for example, be used to study how different types of stranger rapes can be differentiated, and how crime scene features can be used to make inferences of offender characteristics.

Classification Models of Rape and Rapists

Offender Motivation and Psychological Disorders

In an early attempt to understand what type of individuals engage in what type of crime scene behaviors, a number of classification models and typologies have been developed of rapists since the 1970s that have mainly focused on the offenders' motivation for the crime. One of the first classification models of rapists, not limited to stranger rape, came about from clinical work with rapists, proposed by Groth, Burgess, and Holmstrom (1977). They created a typology of four different types of rape based on the offenders' motivation: *power reassurance*, *power assertive*, *anger retaliation*, and *anger excitement*. According to this model, rape is seen as an aggressive act where sexuality is used to express power and anger, rather than being an expression of sexual desire. The Groth et al. (1977) typology was later on extended and modified by Hazelwood and Burgess (1987), which came to serve as the foundation for the investigations of rapists by the FBI's National Center for the Analysis of Violent Crime (NCAVC) (Warren, Reboussin, Hazelwood, & Wright, 1991).

The classification model of rapists developed by Massachusetts Treatment Center (MTC) was based on criteria from the clinical diagnosis of antisocial personality disorder (from the Diagnostic and Statistical Manual of Mental Disorders, 3rd ed.) and Hare's Checklist for Psychopathy (Prentky & Knight, 1991). The first model, MTC: R1, consisted of four rapist types: *compensatory*, *impulsive*, *displaced aggression*, and *sex-aggression defusion*. In the second model, after revisions, it consisted of the four types *compensatory*, *exploitative*, *displaced anger*, and *sadistic*, which could each be further divided into low and high impulsivity. The last revision, MTC: R3, resulted in five rapist types: *opportunistic*, *pervasively angry*, *sadistic*, *sexual non-sadistic*, and *vindictive*, and each of these types could further be divided into subtypes depending on whether the rapist had high or low social competence.

Although the offenders' motivation for the crime, and type of personality disorders present could be interesting information in a psychological sense, it is questionable how useful such classifications would be to investigators in solving a stranger rape case, because such information usually becomes available during in-depth therapeutic interviews after the offender has been caught (Canter, 2000). According to Canter (2000), in order for any infer-

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ences of offender characteristics to be of value to investigators, they must be connected to features that would be available to police officers at the time of the investigation and that they can act on, for example overt offense behavior. The idea that offense behavior might be more useful to focus on from an investigative point of view, led to the development of more recent classification models that have been based on rapists' crime scene behavior.

Offender Crime Scene Behavior

One common statistical approach to generate classification models based on rapists' crime scene behavior has been through the use of multidimensional scaling analysis (MDS). Canter and Heritage (1990) studied 66 offenses committed by stranger rapists and found that the crime scene behaviors could be divided up into five different behavioral themes: *violence*, *impersonal*, *criminality*, *intimacy*, and *sexuality*. In a later study, Canter, Bennell, Alison, and Reddy (2003) found that rapes could be classified according to four different behavioral themes: *hostility*, *control*, *theft*, and *involvement*. Different variations of these themes have also been found in other studies: *aggression*, *criminality*, *sadism*, and *intimacy* (House, 1997); *brutality*, *ritual*, *intercourse*, and *chaotic* (Kocsis, Cooksey, & Irwin, 2002); *hostility*, *theft*, and *involvement* (Häkkänen, Lindlöf, & Santtila, 2004); *aggression*, *criminality*, and *intimacy* (Wilson & Leith, 2001); *hostility*, *dominance*, and *co-operation* (Alison & Stein, 2001); *violence*, *criminal sophistication*, and *interpersonal involvement* (Park, Schlesinger, Pinizzotto, & Davis, 2008); *hostility* (further divided up into sexual and physical) and *involvement* (further divided up into expressive and deceptive; Santtila, Junkkila, & Sandnabba, 2005). Although these classification models differ slightly in the generated themes and their labels, when taken together as well as when considering the crime scene behaviors within the themes, they suggest that rapes can be distinguished by three main behavioral themes that reflect the offenders' level of *violence*, *criminal sophistication*, and *interpersonal involvement* with the victim. The violence category characterizes behaviors that have to do with both physical and verbal violence in different forms. The criminal sophistication category has to do with behaviors that indicate some form of preparation for the crime, controlling of the victim (e.g., using a disguise, bringing tools, or binding, gagging, and blindfolding the victim) and for example displaying forensic awareness by being careful not to leave trace evidence at the crime scene. The interpersonal involvement category contains behaviors that imply that the offender is trying to engage in some form of relationship with the victim during the rape. This may for example involve the offender using a "con approach" as the method to get access to the victim (befriending the victim first before luring away), trying to kiss or compliment the victim, and for instance apologizing afterwards. Offenders

may display behaviors that belong to each of the different behavioral themes in the same rape, but the idea is that the offenders will express more behaviors belonging to one of the behavioral themes. This will make it possible to distinguish between rapists by the dominant behavioral theme that they display in their crime scene behavior. According to Wilson and Leith (2001), although rapes may contain behaviors that would belong to each of the three behavioral themes that reflect aggression, criminality and intimacy, rapes tend to display predominantly one of those themes.

The reviewed classification models of the main behavioral themes are important in order to understand how to differentiate between different types of rape, and to distinguish between rapists. However, a rape results from an interaction between a victim and offender within a situational context, and therefore, other types of crime scene features in addition to the offenders' behavior could also be important to consider in a classification model. Rape is a dynamic process consisting of different elements, such as contextual features, offender behaviors, and victim behaviors, which may influence one another and the rape outcome. Therefore, it would be important to consider features from the different crime elements when generating behavioral themes. The majority of the reviewed studies have focused on offender behavior when generating the behavioral themes (Canter, Bennell, Alison, & Reddy, 2003; Canter & Heritage, 1990; House, 1997; Häkkänen, Lindlöf, & Santtila, 2004; Park, Schlesinger, Pinizzotto, & Davis, 2008; Wilson & Leith, 2001). Although three of the reviewed studies (Alison & Stein, 2001; Kocsis, Cooksey, & Irwin, 2002; Santtila, Junkkila, & Sandnabba, 2005) included some information about contextual features or victim behaviors. For example, Alison and Stein (2001) included whether the offender had been drinking alcohol before the assault, Santtila et al. (2005) included whether the crime had occurred at night, the type of crime location, if the crime occurred during a weekday, and whether the victim had been drinking alcohol before the assault, whereas, Kocsis et al. (2002) included victim resistance behaviors. Considering that rapes always occur within a situational context, it is important to find out the role that situational features have in rape by studying offender behavior along with other situational features.

Role of Situational Features in Rape

The reviewed literature on the influence of situational features in rape, such as contextual features and victim behaviors, suggest that such features may be related to the rape outcome, for example, if the rape ends as a completed rape. Studies have for example found that aspects such as the attack occurring at night, offender using a weapon, rape taking place indoors, or at isolated locations, have generally been found to be associated with greater rape completion (Ullman, 1997; Quinsey & Upfold, 1985). In contrast, features such as the victim using physical resistance, especially if using more resistance strategies and acting immediately (Ullman, 1997), and the presence of bystanders (a person, event, or noise that interrupted the offender during the rape event) (Clay-Warner, 2002) have been related to greater rape avoidance.

Mixed results have been found with regard to the effectiveness of different resistance strategies when the offender had a weapon. Some studies have found that resistance strategies seem to be as effective with offenders who carry a weapon as with the ones without a weapon for avoiding rape (Ullman, 1997), whereas, one study found that physical resistance was more effective for avoiding rape when the offender did not carry a weapon (Clay-Warner, 2002). With regard to different resistance strategies in general, physical resistance by the victim has been associated with rape avoidance without increasing or decreasing the risk of physical injury (Quinsey & Upfold, 1985; Ullman, 1998; Ullman & Knight, 1992). Forceful verbal resistance (e.g., screaming or yelling) has been related to less severe physical abuse in one study (Ullman & Knight, 1991), but was found to be ineffective in a different study (Clay-Warner, 2002). However, non-forceful verbal resistance, such as begging, pleading, and reasoning, has been associated with more rape completion (Bart, 1981; Clay-Warner, 2002), as well as not resisting the offender at all (Ullman, 1997).

Studies have examined if the effectiveness of different resistance strategies depends on the type of offender the victim encounters. One study found that combative victim resistance was related to a higher incidence of aggression for all of the rapist types in their sample (Prentky, Burgess, & Carter, 1986), whereas, another study found that victim resistance was not related to the amount of force used by the rapists (Hazelwood, Reboussin & Warren, 1989). In a later study, it was found that there was no difference in the effectiveness of women's resistance strategies for avoiding rape according to

rapist type (Ullman & Knight, 1995), but a more recent study has found that that offender use of physical force and threat was related to greater rape completion (Brecklin & Ullman, 2010).

Different results have been found with regard to the relationship between pre-assault alcohol use and the rape outcome. One study found that offender pre-assault alcohol use was associated with greater rape completion (Brecklin & Ullman, 2002), whereas, two other studies did not find that offender pre-assault alcohol use was related to rape completion (Brecklin & Ullman, 2010; Ullman & Knight, 1993). On the other hand, Brecklin and Ullman (2010) found that victims who were using substances were usually assaulted by offenders who had also been using substances, and a different study (Clay-Warner, 2003) found that victims were more likely to physically resist when facing an offender who had used alcohol or drugs before the assault.

Altogether, the results from the reviewed rape completion/avoidance literature suggest that contextual features, and victim behaviors may be important to consider when studying offender behaviors and the associated assault outcome.

Differentiating Single-Victim Rapists from Serial Rapists

One question that investigators may pose when investigating a stranger rape, is whether the case has been committed by a single-victim rapist or a serial rapist (i.e., whether the stranger rape case in question may be part of a series of rapes committed by the same offender). Surprisingly few studies have examined how rapes committed by single-victim rapists can be differentiated from rapes committed by serial rapists based on the crime scene behavior. One of the first researchers to do this was LeBeau (1987a) who studied the differences between single-victim rapists and serial rapists by focusing on their geographical behavior. More specifically, LeBeau examined how single-victim and serial rapists differed by method of approaching the victim, the victim-offender relationship, and the distance traveled to commit crime. With regard to method of approach, LeBeau (1987a) found that single-victim rapists were more likely to use a con approach (especially by having the victim accept a ride/hitchhike, or approach the victim at a bar/party), whereas the serial rapists tended to use more a of a blitz style approach. With regard to victim-offender relationship, the single-victim rapists were less likely than the serial rapists to target a stranger victim. Furthermore, the rapes by single-victim rapists tended to involve multiple crime scenes when committing their crime and they traveled longer distances with their victim than the serial rapists. Davies (1997) state that in a study of 210 stranger rapes, it was possible to predict if the offender was a single-victim rapist by the use of five crime scene features in the logistic regression model. The rapist was more likely to be a single-victim rapist in cases where the offender had not taken fingerprint precaution, not taken departure precaution, had been drinking alcohol, had either used forced entry, or used a confidence approach to get access to the victim.

In a more recent study, Park, Schlesinger, Pinizotto, and Davis (2008) studied how single-victim and serial rapists could be distinguished by their crime scene actions. They studied 66 cases of rape that had been committed by 22 single-victim rapists and 22 serial rapists (two randomly chosen crimes were included per serial rapist). These authors found that single-victim rapists were more likely to engage in violent behaviors than the serial rapists. More specifically, the single-victim rapists were more likely to threaten the victim, use manual hitting and kicking, and engage in more vag-

inal penetration and/or oral penetration. Single-victim rapists were also found to engage in more interpersonal involvement behaviors with the victim, than the serial rapists, by for instance making sexual comments and induce the victim to participate in the sexual activity. Serial rapists on the other hand, were more likely to display criminally sophisticated behaviors by displaying more forensic awareness, were more likely to deter the victim's resistance, gag the victim, use a surprise approach, ask the victim questions, and complete the act of rape. The authors concluded that the major difference between the two groups of rapists was that the single-victim rapists were more verbal than the serial rapists, whereas, the serial rapists were more criminally sophisticated, and that this information could serve as an investigative aid for the police.

Because cases of stranger rape are the most difficult type of rape for the police to investigate, it would be important for the police to be able to determine if the case under investigation is the work by a serial rapist. This is because the case to be investigated may be part of a series of rapes that could be linked to other existing unsolved cases (or solved cases, which would help the investigation), or cases yet-to-come belonging to the same offender. Although the reviewed empirical research on how single-victim rapists can be differentiated from serial rapists provides valuable knowledge, only one of the reviewed studies (Davies, 1997) focused solely on stranger rape. Consequently, there is a need for more research that specifically focuses on stranger rapes, to determine how crime scene behaviors can be used to distinguish between crimes committed by single-victim rapists from crimes committed by serial rapists that could be of use in police investigations.

Linking Offender Behavior to Offender Characteristics

Demographic Characteristics and Previous Criminal Records

There have been different approaches to studying how crime scene behaviors relate to different types of offender characteristics. Moreover, there has been a debate in the literature as to which type of crime scene features to use and in connection to which type of offender characteristics (Goodwill, Alison, & Beech, 2009), as well as which statistical approach to take: using clusters of behaviors (thematic approach) or use direct bivariate associations between variables, to predict likely offender characteristics (Alison et al., 2010). Some studies have used a thematic approach and looked at groups of behaviors, and examined how the generated crime scene themes are related to the generated offender background themes. Others have used a direct association technique and examined relationships between specific crime scene features and specific background characteristics.

Studies on stranger rape that have used a thematic approach have found mixed results. Kocsis, Cooksey, and Irwin (2002) studied serial rapists and found that it was possible to classify crime scene behaviors in different themes and that each theme corresponded to different offender background characteristics. For instance, they mention that offenders in the "brutality theme" who use a con approach to lure the victim and then express explosive anger by the use of blunt force throws/and or strangulation, tend to be older, have scars, have a criminal record, and be in a marital relationship at the time. On the other hand, Mokros and Alison (2002) found that stranger rapists who offended in a similar way were not more similar with respect to age, employment situation, ethnicity, or previous convictions. The authors explained the results by stating that the situational aspects had not been taken into consideration in the study, and that they may have influenced the offenders' offense behavior more than the background characteristics have. Another study on stranger rapists by Häkkänen, Lindlöf, and Santtila (2004) found that offenders who had a crime scene theme characterized by theft, tended to also have a background theme characterized by property crimes, which suggests some consistency in the crime scene behavior of stealing from the victim and the offender having a criminal history involving theft.

House (1997) found that rapists who displayed crime scene behavior belonging in the criminality theme, tended to have the most deviant criminal background overall, however, the rapists in the intimacy theme and sadism theme had higher incidents of deceptive crimes (e.g., fraud or impersonation).

Studies on stranger rape that have used a direct associations technique approach have also found mixed results. Goodwill and Alison (2007) found that victim age is a significant predictor of offender's age if both evidence of planning and over-aggressiveness is present in the offense. In these cases, offender's age can be predicted by the victim's age within less than 3 years. Aggressive and well-prepared offenders tended to be closer in age to the victim. Scott, Lambie, Henwood and Lamb (2006) found that it is possible to predict stranger rapists' previous convictions from crime scene features. They found that rapists who intruded into the victim's residence were more likely to have previous convictions for grievous assaults, theft and trespassing, whereas rapists who stole from their victim were more likely to have previous convictions of robbery and theft. The majority of the rapists did not exhibit any forensic awareness, but the 15 % of the rapists who did exhibit such behavior had previous convictions, and the authors' suggested "forensic knowledge is a strategy that is probably learned from exposure to the legal system" (p. 273). Moreover, the authors did not find that degrees of violence (minimal or extreme) during the rape were indicative of distinct criminal histories.

Goodwill, Alison, and Beech (2009) found that offenders who used a weapon were 17.7 times more likely to have a previous conviction for violence, and 7.5 times more likely to have previous convictions for drugs and/or weapon charges, than offenders who did not use a weapon during the rape. Jackson, van den Eshof, and Kleuver (1997) found that rapists who used an expressive form of violence (more than necessary to commit the crime) more often had previous conviction for violence, and rapists who committed the rapes within a home more often had previous convictions for burglary than rapist who committed the rape outdoors. With regard to forensic awareness, there were no differences in criminal background between rapists who displayed such behavior and the ones who did not. Davies (1997) found that in a sample of rapists with diverse criminal backgrounds it was possible to predict the type of previous criminal histories from specific acts of precaution. For example, a rapist who took "fingerprint precautions" were four times more likely to be a burglar than a rapist who did not engage in such behavior, while a rapists who engaged in "semen destruction" was four times more likely to have previous convictions for sexual offenses that an offender who did not take such precautions. A more recent study, by Ter Beek, van den Eshof, and Mali (2010), also found support for the relationship between the crime scene features and offenders' previous convictions. They tested whether various crime scene features could be used to predict likely offender characteristics. They found that four of the five models test-

ed, had a prediction accuracy over 70% (whether the offender lived within 3 km from the crime location, whether the offender lived with a partner at the time of the crime, whether the offender had previous violent convictions, and whether the offender had previous rape convictions), and that all the models performed better than the 'best guess method' (pp. 43-44). The authors concluded that crime scene characteristics can be used to predict probable offender characteristics in cases of stranger rape, and stated that the model for distance traveled and previous convictions for violence should be particularly promising (pp. 43-44).

With regard to the debate of whether a thematic approach or direct associations statistical technique would be more appropriate to use in predicting likely offender characteristics, Goodwill, Alison, and Beech (2009) empirically compared the two methods. These authors compared different thematic approaches to the direct associations technique, and found that the direct associations technique was more powerful in predicting likely offender characteristics (in this case previous criminal convictions). Goodwill et al. (2009) suggest that more emphasis should be placed on examining the relationship between crime scene features and offender characteristics on the individual variable level (e.g., bivariate relationships between crime scene behaviors and offender characteristics) rather than using themes, to find the behavioral features that would be the most pragmatically useful (p. 528).

Regardless of whether a thematic approach has been used or a direct associations technique, the most promising findings from the reviewed studies on the link between offender crime scene behaviors and offender characteristics have been found with regard to previous criminal convictions. It has been suggested that prediction of previous criminal records should be of actual value in investigations as such information would be readily available to investigators (Alison et al., 2010). Studies have found that the majority of stranger rapists have previous criminal convictions, and that their criminal backgrounds tend to be versatile, which means that they tend to commit different types of crime other than sexual offenses (Davies, 1997; Goodwill et al., 2009; Jackson, van den Eshof, & Kleuver, 1997; Ter Beek, van den Eshof, & Mali, 2010). When stranger rapists' criminal backgrounds have been compared to that of other offender groups, more similarities than differences have been found, which could cause some concern for profiling purposes. For example, one study (House, 1997) found that 90 % of the rapists in the sample had been arrested for a crime previously. Of these, 91 % had been arrested for a property offense, 76.5 % for a crime of violence and 48.1 % for a sex crime. The author mentioned that similar results were found in the criminal backgrounds of sex killers as well, when comparing the two offender groups (p. 184). In a different study, Jackson, van den Eshof, and Kleuver (1997) found that 70% of their rapist sample had previous convictions for property crimes. Other common previous convictions were for violence and traffic violations (e.g., driving while under the influence of alco-

hol) and 44% had previous convictions for sexual offenses. When comparing the rapists' previous convictions to a sample of bank robbers, Jackson, van den Eshof, and Kleuver (1997) found that there were more similarities than differences. The authors came to the conclusion that rapists are not specialized in the type of crimes they commit, and because their criminal histories could not be differentiated from robbers', previous criminal convictions alone are not sufficient data to base offender profiling on (p. 122).

Distance Traveled by Rapists to Commit Crime

According to Brantingham and Brantingham (1993), offenders seek out places to offend where they feel comfortable and that fits with their mental template of what constitutes an appropriate crime site. "An offender searches for a 'suitable target', whether some object or some person, positioned in time and space in a 'good' crime site and situation" (Brantingham & Brantingham, 1993, p. 5). Furthermore, according to these authors, the search process for a suitable target is not random, but involves looking for targets along the criminal's usual travel paths such as to/from the residence, work, school, or leisure activities. Studies on rape that have examined the distance traveled by offenders from their residence to commit crime have found that rapists tend to travel rather short average distances: 1.84 km (Santtila, Laukkanen, Zappala, & Bosco, 2008); 2.44 km (Santtila, Laukkanen, & Zappala, 2007); 2.5 km (1.53 miles; Canter & Larkin, 1993); 4.0 km (2.5 miles; LeBeau, 1987b; 5.1 km (3.14 miles; Warren, Reboussin, Hazelwood, Cummings, Gibbs, & Trumbetta, 1998). Some studies have examined the relationship between different offender characteristics and the distance traveled to offend. For example, older rapists have been found to travel farther than younger rapists, and "white" rapists tend to travel farther than offenders from other ethnic groups (Canter & Gregory, 1994; Davies, 1997; Warren et al., 1998). However, as has been pointed out by Beauregard, Proulx, and Rossmo (2005), surprisingly few studies have examined the relationship between sex offenders' crime scene behavior and the distance traveled to offend (p. 600).

The few studies that have examined a relationship between offenders' behavior and distance traveled to offend have found that some crime scene behaviors are related to rapists traveling longer distances. For example, LeBeau (1987b) found that the rapists' method of approach (illegal entry, kidnap-attack, accept ride, meet outdoors, public building, or meet at a party/bar) was related to the distance traveled to offend. Santtila, Laukkanen, Zappala, and Bosco, (2008) found that crime scene behaviors that involved planning (e.g., stealing from the victim or using a disguise), using weapons such as a gun, belt or scissors, and making verbal threats were significantly related to the offender traveling longer distances. Warren et al. (1998) found

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that rapists who used bindings or restraints in the offense tended to travel farther than offenders who did not, and offenders who burglarized their victims tended to travel farther than offenders who did not. Canter and Gregory (1994) found that offenders who attacked their victim outdoors traveled approximately 2.7 times as far to offend than offenders who committed their crime indoors. In addition, although not significant, trends of the data showed that offenders who committed their crimes during the weekend tended to travel farther (average minimum distance was 2.5 times greater) than offenders who committed their crime during the week. On the other hand, crime scene features such as the crime occurring at night, and the offender kissing the victim, have been found to be significantly related to the rapists traveling shorter distances (Santtila, Laukkanen, & Zappala, 2007).

The reviewed literature suggests that some crime scene features may be significantly related to the distance traveled by the offenders', but more research is needed to explore this relationship further. Considering that the location of suspects' residence can easily be found in registers by the police, information about which crime scene behaviors and how they are related to the distance traveled by the offender may potentially be useful to the police in narrowing down the search area and prioritizing suspects.

Summary of Some Key Issues from the Literature Review

Overall, the literature review suggests that there is a need for more research in offender profiling with regard to using crime scene behaviors to make inferences of likely offender characteristics before it can be said that profiling works. Some more specific issues have to do with: (1) that offender behavior has usually been studied on its own, in isolation from other crime scene features in developing typologies or classification models. Offender behavior has almost been treated as static crime scene characteristics in that there has been a neglect of studying how it relates to other elements of the crime, such as contextual features, victim behaviors and the assault outcome. (2) There is a lack of research of how stranger rapes by single-victim rapists can be distinguished from stranger rapes by serial rapists. When police investigate a stranger rape case, they may not know if it is the work by a single-victim rapist (i.e., a "one-off rapist") or a serial rapist, which may be important if the case under investigation need to be linked to other unsolved cases. Therefore, there is a need for more research of which crime scene behaviors can be used to differentiate between the two types of offenders and provide information about whether the unknown offender is likely to be a serial rapist. (3). Although, some research has been conducted on the relationship between offenders' crime scene behaviors and background characteristics, different types of crime scene behaviors and offender characteristics have been used in the different studies, and mixed results have been found. In addition, none of the reviewed studies provide information on how stranger rapists differ from the general population with regard to the background characteristics, that is, which background characteristics would be the most useful to focus on that distinguish stranger rapists. Because investigators search for unknown offenders among the general population, information about how offenders who commit stranger rape differ from the general population may be helpful in narrowing down and prioritizing suspects. As a result, more research is needed that can establish in what way stranger rapists differ from the general population with regard to background characteristics, and to search for crime scene behaviors that would be the most useful to focus on for making inferences of likely offender characteristics.

Method

To be able to conduct research on stranger rape for the purpose of writing a doctoral dissertation, the author of this thesis, Jelena Corovic, initiated an unfinanced research project in 2008 and carried out the work under the supervision by her Swedish supervisors. There were many different steps in the implementation of the research project. First, the project had to be planned and a coding dictionary created. Second, an application had to be written to the Ethical review board with a request to conduct research on convicted single-victim rapists and serial rapists to be able to gather sensitive data. Third, an extensive and time-consuming data collection was carried out that involved the co-operation between various governmental institutions, such as the Swedish police, Swedish courts, Forensic Psychiatric Clinic in Huddinge, and Swedish National Council for Crime Prevention. The process of creating a coding dictionary, gathering of data, coding of the cases and measuring inter-rater reliability, establishing the inclusion criteria for the cases to be included in the studies, and defining the study sample, will be discussed in separate sections below.

Creating a Coding Dictionary

To get an idea of which variables would be important to include in a coding dictionary when studying rape, a review of the literature was conducted. One source of information was the recommendations made by Groth and Birnbaum (1979) in the book *Men Who Rape*, but information was also gathered from the reading of a large amount of research articles on rape and the variables included in those studies. Many of the studies did not include detailed descriptions or definitions of the variables used and similar variables were defined differently in different studies. This posed some difficulties in creating variables that would be consistent with variables mentioned in the reviewed literature. To get a better understanding of additional variables that could be important to include that may not have been included in the reviewed literature, three stranger rape cases acquired from one of the supervisors were also reviewed to generate new ideas. To create variables that assessed alcohol and drug intoxication, an expert was contacted at the Swedish National Laboratory of Forensic Science (*Statens Kriminaltekniska Laboratorium, SKL*). The expert was asked about how it can be determined if an

individual was likely to have alcohol or drugs in the system at the time of the crime that may have affected the individual's functioning (e.g., by how long alcohol and different types of drugs stay in the blood and urine after intake), in order to be able to formulate as clear and reasonable definitions as possible for those variables.

The entire process of creating variables resulted in a coding dictionary with 282 mostly dichotomous variables. The coding dictionary was named *Rape Coding Dictionary* and contains variables that pertain to many different variable elements such as: timing and location of the crime, pre-crime behavior, offender's method of approaching the victim, offender communication with the victim, victim reaction during the crime, various crime scene behaviors and length of time, forms of sexual activity, forms of violent behaviors, post-crime behavior, forensic trace evidence found, theft behaviors, tools/weapon use, wounding type and location on victim's body, offender motivation, pre-assault alcohol/drug use, distance traveled by the offender to commit the crime, victim background characteristics, offender background characteristics, offender mental health functioning, offender responsibility for the crime, offender planning/victim selection, offender memory, victim memory, offender attitude towards the crime, and offender criminal history.

The coding dictionary comprises variables that can mainly be coded in the following way: 1 = the behavior occurred, 0 = the behavior did not occur, 999 = unknown, there is not enough information to determine whether the behavior occurred or not, and 777 = the behavior is not applicable to the case in question. A pilot testing of using the coding dictionary was carried out by having two separate individuals (the author of this thesis and a research assistant) code the same three stranger rape cases. Thereafter, the codings were compared between coders and the variables that had been difficult to interpret were rewritten and more clearly defined to reduce the level of ambiguity between coders.

Requesting Cases from the Police

After the coding dictionary had been created, and the project had been approved by the Ethical review board, the data collection began. This process started by sending out a letter to all of the 21 police jurisdictions in Sweden with a request to obtain case files of stranger rapes where the offender had been apprehended and convicted of the crime. Some police jurisdictions sent boxes with case files right away, but the cases sent were not always restricted to stranger rape cases and many of the cases had not led to a conviction. As a result a second letter was sent out with a more detailed description of the type of cases that were of special interest. These were cases where offenders who were 18 years old or above had been convicted of one or more "completed" rapes (i.e., by the legal definition) that had been committed

against a female or male victim of any age that the offender had no prior relationship with/was a stranger (this excluded cases of familial rape and rape within romantic relationships). Furthermore, cases were requested that had been committed from 1990 and onward, or whatever was available to get hold of from the police. After having sent out the second letter, more cases that met the requested criteria were obtained from the police. One police agency (in Falun, Dalarna) invited the author to this thesis, Jelena Corovic, to visit for a few days to go over case records in their computerized registers to find cases that would be of interest to the project. Jelena also paid a visit to the courts in Falun and Mora and went through old court records and computerized registers. Although useful information about suitable cases was acquired from the "field trip" to Dalarna, which led to that many cases could be requested from the police, it was apparent that a more time-efficient and cost-efficient data gathering method had to be applied. It was important for the project that the cases received from the police had led to a conviction, but the police may not necessarily know which cases that they investigated later led to a conviction. Therefore, it was determined that it would be better to contact courts first to find out about suitable cases, and then use the information from the court records to request the individual cases from the different police jurisdictions, which work independently of one another.

Requesting Court Records

Swedish courts were contacted both to verify that the cases received from the police had led to a conviction, and then place an order for the court records, but also to find information about new suitable cases that could be requested from the police. Many different courts in different parts of Sweden were contacted and requests were made to obtain court records where male offenders had been convicted of stranger rape. According to the Swedish law, *rape* is defined as an act where:

> The person who through physical abuse or else with violence or threat of a criminal act forces another to intercourse or to engage in or tolerate a different sexual act that is of a similarly insulting nature and the circumstances overall are comparable to intercourse, will be convicted of rape and sentenced to prison, for a minimum of two and a maximum of six years. (Gregow, 2009, p. 966; This text was translated verbatim into English by the author to this thesis)

The core of this legal definition has been the same since 1984, although the wording has changed a bit with every revision since. With the last revision of the Swedish rape law, that took place on 1st of April 2005, another segment was added to the existing definition. The rape definition became broader in the sense that cases were included where a person had been sub-

jected to sexual acts when he or she was in a "vulnerable state" (i.e., because of unconsciousness, sleep, alcohol- or drug intoxication, disease, physical injury or mental illness), which had previously been labeled as cases of "sexual abuse" (Gregow, 2004, 2009).

Once the obtained court records had been reviewed to make sure that the cases had ended in a conviction, and that they met the project's inclusion criteria, the case files were requested from the police.

Online and Newspaper Searches

It was important for the project to obtain cases that had been committed by both single-victim rapists and serial rapists. However, because it had been difficult to find enough cases that had been committed by serial rapists, additional data gathering methods had to be applied. Individual police investigators were contacted directly to find out about serial cases that they had worked on themselves or knew about. Online searches and short notices from newspapers served as additional tools to find out about possible cases that could be included in the project. Information from these additional data gathering methods was used to first obtain the court records and make sure that the cases met the project's inclusion criteria and then the cases were requested from the police.

Information from Psychiatric Evaluations

The police files gathered did usually not contain all the information necessary about the offenders' background characteristics, such as social background characteristics and mental health functioning. Therefore, the Forensic Psychiatric Clinic in Huddinge, Stockholm, was contacted with a request to review the offenders' psychiatric evaluations. This resulted in that the thesis author was able to visit the clinic in Huddinge for a couple of weeks and examine the psychiatric evaluations of 45 offenders for whom it was available out of the 81 possible offenders for whom case files had been gathered.

Criminal Conviction and Suspect Records

To find out about the offenders' criminal history, a request was sent to the Swedish National Council for Crime Prevention (*Brottsförebyggande rådet*) to obtain information about the offenders' conviction and suspect records. As one of the aims in the project was to study how the crimes by single-victim rapists could be distinguished from the crimes by serial rapists, it was deemed important to be able to as reliably as possible determine if the of-

fenders had been convicted of/reported for more than one sexual assault (i.e. if they were single-victim rapists or serial rapists). The criminal conviction records obtained cover all of the crimes that the person in question had been convicted of in Sweden from 1973 – December 31st 2010. The suspect report records cover all of the crimes in which the person in question was a suspect, from 1995 - December 31st 2010.

Coding and Inter-Rater Reliability

Copies of original unmasked case files were obtained from 18 out of 21 different police jurisdictions in Sweden. The process of finding out about some stranger rape cases, obtaining the court records, sending a request to the police, and obtaining the requested case files, could take up to a couple of months. As a result, the stranger rape cases obtained were coded during different periods on an ongoing basis during 2008-2011.

Each case file typically included the initial rape report, victim testimony and/or witness testimony, medical examiner's report, crime scene report and/or crime scene photos, forensic laboratory results report, and the interrogation report with the suspect once caught. When the police files obtained included several sexual assault cases committed by the same offender (i.e., serial offenders) the order of the victims was determined by the date when the crime hade taken place, out of the sexual assaults that the offender had been convicted of.

The author of this thesis coded a total of 174 sexual offenses belonging to 81 different rapists. Using the coding dictionary developed for the project, each sexual offense took on average between three to five hours to code. All the data has been handled confidentially and coded in such a way that each individual offender has become anonymous, according to the guidelines of the Ethical committee that approved of the project.

To establish inter-rater agreement between coders for the variables included in the coding dictionary, a research assistant was hired. The author to this thesis and the research assistant independently coded the same 30 cases belonging to 20 offenders. Ten of the cases belonged to single-victim rapists and the remaining 20 cases belonged to 10 serial rapists (their first two crimes in the series).

Inclusion Criteria for the Cases

Although case files were received from as many as 18 out of 21 different police jurisdictions, the sample of cases cannot be viewed as a fully random sample. For example, as previously mentioned, the process of finding out about suitable cases, requesting cases, and obtaining the cases were depend-

ent on various sources and individuals who had to help out in providing the material of interest. This process may have enabled a certain degree of selection of cases that were included in the project. The cases found out about and obtained this way may therefore not be representative of all of the stranger rape cases that are available in Sweden. Furthermore, although all of the cases included in the studies were "completed rapes" (by their legal definition), the cases may differ in the type of sexual acts perpetrated against the victim. The current legal definition of rape in Sweden does not require that the cases involve penile vaginal penetration, but a case could for example involve the genitals having touched, digital penetration (i.e., penetrating with the fingers/hand), oral penetration, or anal penetration, as long as the act had been judged to be "of a similarly insulting nature and the circumstances overall are comparable to intercourse" by the court. Legal definitions of rape differ from country to country. Because the inclusion criteria for the cases to be included in the studies are based on the police file's and/or court verdict's labeling of the case (which is based on the legal definition of rape that leaves room for subjective judgment), it may have resulted in that the sample of rapes used in the studies may differ in some regards from other rape samples in the literature. In addition, only cases that had led to a conviction had a chance of being included in the studies, which means that the cases included may not be representative of stranger rape cases that did not lead to a conviction.

More specific inclusion criteria for the rape cases to be included in the studies were that they had been committed by lone offenders, who had offended against stranger victims, one victim at a time, and at a single occasion. Stranger rape was defined as a case of rape where the victim and offender had met for the first time during the day or night of the offense, within the last 24 hours. Although case files belonging to 81 offenders had been coded, 74 offenders had committed a crime that met these inclusion criteria and could be included in the studies that are part of this thesis.

Study Sample

The first stranger rape case that had led to a conviction was chosen for each of the 74 offenders to be included in the studies. Of the 74 cases included, 31 cases had been committed by *single-victim rapists* (i.e., convicted of only one rape and neither convicted nor reported for any other sex offense), 35 cases had been committed by *serial rapists* (i.e., convicted of at least two rapes; the first stranger rape was included in the analyses), and eight cases had been committed by offenders who fell somewhere in between as they could not be distinguished as either single-victim rapists or serial rapists by these definitions. The eight cases belonged to offenders who had either been convicted of one rape and additional sexual assaults other than rape (e.g.,

indecent touching, exhibitionism), or been convicted of one rape and reported for additional sexual assaults that did not end in a conviction.

All of the offenders in the study sample were male, and had a mean age of 29.8 years (median = 28 years, range: 15-56 years old), and 80 % of the offenders were between 20-40 years old at the time of the rape. The majority of victims were female (69 out of 74, 93.2 %) and the victims' mean age was 23.4 years (median = 19.5, range: 5-81 years old), and 80 % of the victims were between 10-41 years old. Furthermore, 14 of the 74 victims (18.9 %) were "child" victims in that they were below the age of 15, which is the age of legal consent in Sweden.

Study I and Study III are based on this sample of 74 cases. Study II, however, is based on 66 of these cases, the 31 cases committed by single-victim rapists and 35 cases committed by serial rapists, as the aim was to use crime scene features to distinguish between the two types of offenders. With regard to the variables used in the three studies, the variables were selected from the coding dictionary on theoretical grounds by what the reviewed literature for each study had suggested and based on each study's aim(s).

Statistical Analyses

As almost all of the variables used in the analyses are dichotomous variables, statistical methods had to be used that were appropriate for such data. In all of the three studies, descriptive statistics were used to examine the prevalence (%) of different variables in the sample of stranger rapes. With regard to significance testing, because of the small sample size and imbalanced tables (with some zero-cell frequencies), cross tabulations using Fishers exact test of a four-field table was used to test the associations. Fishers exact test calculates the exact probability in a 2 x 2 table, which makes it more accurate when using small samples and the expected frequencies are low (Field, 2009).

Because the aim in Study I was to examine how offender behaviors interact with contextual features, victim behaviors, and the assault outcome, and to test if the stranger rapes could be grouped into themes that reflect different dynamic rape patterns by using several crime scene variables simultaneously, it was determined that a nonmetric Multidimensional Scalogram Analysis (MSA) would be an appropriate statistical method. MSA is a form of Multidimensional Scaling (MDS), which portrays multiple comparisons of individuals' profiles across a number of variables simultaneously, and allows for detection of structural patterns among the profiles (Guttman & Greenbaum, 1998). This statistical method maps profiles (corresponding to individuals, cases, or objects) in a Euclidean space of minimal dimensionality and creates a visual representation of the profiles as points in space. The more similar the profiles are in their values across the variables, the closer will the pro-

files appear to one another as points in space (Guttman & Greenbaum, 1998). Profiles that share exactly the same value across the different variables would be represented by the same point in the geometrical space (Wilson, 2000). Besides providing a visual representation of all the profiles in a geometrical space, MSA also provides an individual plot for each of the variables included. These plots show the value that each of the profiles in the space had for that particular variable (Guttman & Greenbaum, 1998). By examining the individual variable plots, the researcher can identify the region of occurrence for each of the variables in the geometrical space. The goal in MSA is for the configuration of points to create clear regions that can provide a summary of how similar or different the cases are and the reason for that. The way the variables overlap allows the researcher to explain the meaning of the configuration based on the regions created (Wilson, 2000).

The aims in Study II and Study III, involved using various crime scene behaviors to predict likely offender characteristics, and for this purpose binomial Logistic Regression Analysis (LRA) was considered appropriate. In LRA the dependent variable is dichotomous and the independent variables can be either categorical or continuous. According to Tabachnick and Fidell (2007), one goal in logistic regression analysis is to correctly predict the category of outcome for individual cases. The first step is to first examine whether there is a significant relationship between the predictor variables and the outcome variable, and then try to simplify the model by reducing the number of predictor variables while still maintaining strong prediction (p. 439). In some cases a stepwise LRA was used with the purpose of finding the variables that significantly contributed to the prediction of the outcome. LRA has also been suggested to be particularly appropriate for research on profiling (Goodwill et al., 2009).

Summary of Studies

Study I: Dynamic Patterns of Stranger Rape: Relating Offender Behavior to the Context, Victim Resistance, and Assault Outcome

Background and Aims

Rape is a dynamic process and results from an interaction between the victim and offender within a situational context. The body of literature on classification models of rapists that have mainly focused on offender behavior, when taken together, suggests that rapes can be distinguished by three main behavioral themes that pertain to the level of violence, criminal sophistication, and interpersonal involvement with the victim (Alison & Stein, 2001; Canter, Bennell, Alison, & Reddy, 2003; Canter & Heritage, 1990; House, 1997; Häkkänen, Lindlöf, & Santtila, 2004; Park, Schlesinger, Pinizzotto, & Davis, 2008; Santtila, Junkkila, & Sandnabba, 2005; Wilson & Leith, 2001). Research that have looked at the role of contextual features such as: time of day, pre-assault alcohol use by the victim and offender, and situational variables such as victim resistance strategies, have found that such aspects may be related to offender behaviors and the assault outcome (Brecklin & Ullman, 2002, 2010; Clay-Warner, 2002, 2003; Prentky, Burgess, & Carter, 1986; Quinsey & Upfold, 1985; Ullman, 1997, 1998; Ullman & Knight, 1991, 1992, 1993, 1995). To understand the dynamics in stranger rape and in which situational contexts different offender behaviors tend to occur, offender behaviors need to be studied in relation to contextual features, victim behaviors, and the assault outcome. The aim of the study was to examine how offender behaviors interact with contextual features, victim behaviors, and the assault outcome, and how stranger rapes could be grouped into themes that reflect different dynamic rape patterns.

Method

The sample consisted of 74 stranger rapes committed by convicted male offenders. Twelve variables were used in the main analysis that pertain to offender behavior (violent behaviors, criminal sophistication behaviors, and interpersonal involvement behaviors), the context (time of day, and pre-

assault alcohol use by the victim and offender), victim behaviors (screamed, physical resistance), and whether the offender had "completed the act of rape" (i.e., the rape ended when the offender was "done with the victim" and not because the victim managed to escape due to resistance or interruption by a third source during the rape). Frequency analyses were performed to see how prevalent the different crime scene variables were across the sample, and a non-metric Multidimensional Scalogram Analysis (MSA) was used to test the presence of themes that would reflect different dynamic rape patterns.

Results and Conclusion

The results showed that the stranger rapes could be distinguished by five distinct dynamic rape pattern themes: *physically violent* rape, *physically and verbally violent* rape, *verbally violent* rape, *interpersonal rape*, and *premeditative* rape. These themes mainly differed on two dimensions: the level of violence used by the offender to control the victim, and the level of impulsivity/premeditation characterizing the rapes. Although the contextual features tended to co-occur with one another and were high frequency behaviors in that they occurred in the majority of rapes, the contextual features were still useful when looked at *in combination* with the offender behaviors, as they tended to co-occur with different types of offender behaviors. For example, the context of the rapes occurring at night, having been committed by an offender who had been drinking alcohol, and who had targeted a victim who had been drinking alcohol, was shared by three themes (physically violent rape, physically and verbally violent rape, and interpersonal rape). These themes could be distinguished by a more impulsive and physical nature, in terms of the level of violence used and/or that the offender engaged in kissing of the victim. In contrast, the rapes that occurred in the morning/day/evening rather than at night, and where the offender had usually not been drinking, and the victim had not been drinking, characterized two themes (verbally violent rape, and premeditative rape) that could be distinguished by the type of verbal means, by using threats or conning, to get access to/control the victim, and whether the offender had engaged in preparatory action before the rape. The five themes further differed in terms of the co-occurring victim behaviors and assault outcome, which, however, tended to more closely co-occur with the offender behaviors than the contextual features. In sum, the results highlight the importance of studying offender behaviors in relation to contextual features to get a better understanding of in which type of situational contexts different offender behaviors tend to occur, and how contextual features can be used to help distinguish between types of stranger rape.

Study II: From Crime Scene Actions in Stranger Rape To Prediction of Rapist Type: Single-Victim or Serial Rapist?

Background and Aims

Few studies have compared the crimes by single-victim rapists to those by serial rapists. LeBeau (1987a) found that single-victim rapists were more likely to use a confidence approach, whereas, serial rapists used more of a blitz style approach. Furthermore, single-victim rapists were less likely than the serial offenders to target a stranger victim, their rapes tended to involve multiple crime scenes, and they traveled longer distances with their victim than the serial offenders. A more recent study by Park, Schlesinger, Pinizotto, and Davis (2008) found that single-victim rapists were more likely to engage in violent behaviors (verbally threaten the victim, use manual hitting and kicking, and engage in more vaginal penetration and/or oral penetration), and were also more likely to engage in interpersonal involvement with the victim (making sexual comments and induce the victim to participate in the sexual activity). On the other hand, serial rapists were more likely to display criminally sophisticated behaviors in that they displayed more forensic awareness, were more likely to deter the victim's resistance, gag the victim, use a surprise approach, ask the victim questions, and complete the act of rape. However, none of these studies focused solely on stranger rape. Therefore, the aim of the present study was to examine how single-victim rapists and serial rapists can be differentiated by the actions at their first stranger rape, and whether those distinguishing behaviors can be used to predict the rapist type, that is, the likelihood that the unknown offender is a single-victim rapist or serial rapist.

Method

The sample consisted of 66 stranger rape cases, 31 that had been committed by single-victim rapists and 35 that had been committed by serial rapists (convicted of two or more rapes; only the first stranger rape was included in the main analyses). A total of 38 variables were used in the analyses that had been chosen on theoretical grounds. A cross-tabulation was made between, on one hand, each of the crime scene variables (the 38 individual variables and five index variables), and on the other hand, whether the offender was a single-victim rapist or a serial rapist. Thirteen crime scene variables were then chosen as predictors of rapist type and used in a stepwise logistic regression model, by first finding the significant single predictors (one analysis for each of the 13 predictors), and in a second step, use all of the significant

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predictors in a single logistic regression analysis. The dependent variable was rapist type.

Results and Conclusion

The results showed that serial rapists were more criminally sophisticated than the single-victim rapists and better at controlling their victim, whereas the single-victim rapists were significantly more likely to engage in the interpersonal involvement behavior of kissing the victim during their rape, and engage in pre-assault alcohol use. Results from the logistic regression analyses indicated that three behaviors in conjunction: kissed victim, controlled victim, and offender drank alcohol before the offense, could be used to predict whether an unknown offender is a single-victim rapist or serial rapist with a classification accuracy of 80.4 %. If the offender did not kiss the victim and had not been drinking alcohol before the rape, but had engaged in controlling of the victim (e.g., smothered or displayed a weapon) there was a greater likelihood that the unknown offender was a serial rapist than a single-victim rapist. These results may have implications for the practice of offender profiling in that those behaviors could be used to tentatively predict if an unknown offender was a single-victim rapist or serial rapists, and should therefore be useful for the police to focus on when making inferences in cases of stranger rape.

Study III: Using Stranger Rapists' Pre-Assault and Initial-Attack Behaviors to Predict Likely Offender Characteristics

Background and Aims

Offender profiling rests on the assumption that there is a relationship between offenders' actions and their characteristics, which means that a careful examination of the crime scene features could provide information about the likely characteristics of the offenders (Ainsworth, 2001; Alison, Bennell, Mokros, & Ormerod, 2002; Canter & Youngs, 2003). Some rape studies have found a relationship between offenders' crime scene behavior and: offender age (Goodwill & Alison, 2007), previous criminal convictions (Davies, 1997; Goodwill, Alison, & Beech, 2009; Häkkänen, Lindlöf, & Santtila, 2004; Jackson, van den Eshof, & Kleuver, 1997; Scott, Lambie, Henwood & Lamb, 2006), and distance traveled to commit crime (Canter & Gregory, 1994; LeBeau; 1987b; Santtila, Laukkanen, & Zappala, 2007; Santtila, Laukkanen, Zappala, & Bosco, 2008; Warren, Reboussin, Hazel-

wood, Cummings, Gibbs, & Trumbetta, 1998). However, it has been suggested that the scientific findings are not compelling enough to conclude that the practice of offender profiling has been supported and there is a need for more research (Alison et al., 2002; Snook et al., 2007; Snook et al., 2008). It has been suggested by Alison et al. (2010) that for research on profiling to have any value in investigations, it is essential that the predicted offender characteristics would be the type of information that is readily available to investigators at the time of the investigation, such as information about previous criminal records, offender age etc. Because offenders' behavior during a crime is likely to be influenced by both the offender's personality traits as well as influences from the situational context, situational variables also need to be considered in the analyses (Alison et al., 2002; Goodwill & Alison, 2007; Mokros & Alison, 2002). The challenge would then be to choose the type of behaviors and information about the situation that would be the most useful in predicting the most probable type of person involved without including too much "noise" from the interaction with the victim, because such variables could be more dependent on the type of victim the offender encounters. Offender behaviors occurring in the pre-assault and initial-attack stage of the crime are more likely to reveal the offenders' preferences, as those behaviors are more likely to have been chosen to be engaged in by the offender, as opposed to being an expression from the interaction with the victim once the rape has begun. Likewise, situational variables that have to do with the context (e.g., timing, type of crime location, pre-assault alcohol use by the offender etc.) that the offender has some control over/can choose would therefore be preferable over using situational variables that have to do with victim behaviors (e.g., victim resistance strategies) that will likely depend more on the type of victim the offender meets. Furthermore, it would be important to choose the type of offender background characteristics that would be the most useful to focus on for profiling purposes. There is, however, a lack in the literature of how stranger rapists differ from the general population with regard to background characteristics. Therefore, the first basic aim was to describe the differences in background characteristics (e.g., demographic characteristics and previous criminal convictions) between the present rapist sample and a normative sample, to find the most important offender characteristics to focus on because they are the ones that distinguish the stranger rapist sample from the general population. The second aim was to examine how well crime scene features pertaining to pre-assault and initial-attack behaviors, that the offender theoretically has more control over, can predict likely offender background characteristics.

Method

The rapist sample consisted of 74 stranger rapes committed by convicted male offenders, and the comparative normative sample consisted of 710

males taken from the longitudinal database *Individual Development and Adaptation* (IDA; see Magnusson, 1988). A total of 29 variables were used in the different analyses: 11 variables that pertained to pre-assault and initial-attack behaviors; eight variables that pertained to demographic information, presence of a mental disorder, having a history of alcohol abuse, and offender distance traveled to offend; and 10 variables that pertained to previous criminal convictions for various types of crime. The prevalence (%) of different background characteristics was compared between the stranger rapist sample and the normative sample. For the stranger rapists sample, relationships between crime scene features and background characteristics were tested using Fisher's exact test of a four-field table, and crime scene features were used as predictors of various background characteristics in logistic regression analyses.

Results and Conclusion

Results showed that a number of background characteristics were significantly more common in the stranger rapist sample than in the normative sample. These were: not having a job, not having completed high school, having some mental disorder, having a history of alcohol abuse, having a previous conviction for two or more crimes, and specifically having a previous conviction for violence. A little over half of the sample of stranger rapists (54 %) lived within 2 km from the crime site, which suggest that many stranger rapists tend to commit their crime close to their residence. When examining the role of the crime scene behaviors, results showed that some of them (kissed, outdoors, con attack, offender drank alcohol, and preparatory action) were more important than others, because in combination they could add to the predictive model in inferring likely offender characteristics. Using these crime scene behaviors, the strongest predictions could be made for previous criminal convictions (whether or not the offender had a criminal record for at least one crime, two or more crimes, and specifically for violence), whether the offender was 30 years old or above at the time of the crime, and whether or not he lived within 2 km from the crime site. Although, the results found would support the use of some crime scene features to predict likely offender characteristics, the results are tentative because of the small sample size.

General Discussion

Relating Offender Behavior to the Situational Context

The body of literature that has focused on examining rapists' crime scene behavior in an attempt to distinguish between types of rape, has suggested that rapists' crime scene behavior can be divided into anything from three to five behavioral themes, that in some way reflect offenders' level of violence, criminal sophistication, and/or interpersonal involvement with the victim (Alison & Stein, 2001; Canter, Bennell, Alison, & Reddy, 2003; Canter & Heritage, 1990; House, 1997; Häkkänen, Lindlöf, & Santtila, 2004; Park, Schlesinger, Pinizzotto, & Davis, 2008; Santtila, Junkkila, & Sandnabba, 2005; Wilson & Leith, 2001). Furthermore, the body of literature from the rape avoidance literature suggests that contextual variables, such as time of day, pre-assault alcohol use by the victim and offender, and situational variables such as victim resistance strategies, may be important to consider as they may be related to both the offender's behavior and the rape outcome (Brecklin & Ullman, 2002, 2010; Clay-Warner, 2002, 2003; Prentky, Burgess, & Carter, 1986; Quinsey & Upfold, 1985; Ullman, 1997, 1998; Ullman & Knight, 1991, 1992, 1993, 1995). The aim in Study I was therefore, to examine how offender behaviors (that pertain to violence, criminal sophistication, and interpersonal violence) interact with contextual features, victim behaviors, and the assault outcome and to test if the stranger rapes could be grouped into themes that would reflect different dynamic rape patterns. Broadly in line with the rape avoidance literature, and the study's expectation, offender behaviors were found to co-occur with different contextual features, victim behaviors, and assault outcome. Five themes emerged (physically violent rape, physically and verbally violent rape, verbally violent rape, interpersonal rape, and premeditative rape) that reflected different dynamic rape patterns. Although the contextual features had a high prevalence across the rapes in general, they were found to co-occur with different types of offender behaviors and were in that way helpful in distinguishing between thematic types of rape. The results found in the study are in line with previous literature that state that to get a better understanding of rapists' behavior, it needs to be studied in relation to situational variables (Alison et al., 2002; Goodwill & Alison, 2007; Mokros & Alison, 2002). As rape is a dynamic event with many different elements that influence one another, to understand the nature of different types of rape, offender behavior should not be studied

in isolation, but in connection to crime scene features pertaining to other elements of the crime.

When examining the way offender behaviors tended to co-occur, that had been suggested by previous literature to belong to the same behavioral theme (e.g., Alison & Stein, 2001; Park, Schlesinger, Pinizzotto, & Davis, 2008; Wilson & Leith, 2001), Study I found slightly different results. For example, previous literature has usually included physical violence and verbal violence in the same theme, con attack and kissing of the victim in the same theme, and planning behaviors and controlling behaviors (such as binding, gagging, and blindfolding) in the same theme (Alison & Stein, 2001; Park, Schlesinger, Pinizzotto, & Davis, 2008; Wilson & Leith, 2001). However, it was found in Study I that the behaviors that supposedly belong to the same theme as suggested by the literature, tended to not co-occur in the same stranger rapes in the majority of cases. More specifically, offenders tended to engage in either physical or verbal violence, with only a minority of offenders who engaged in both. Likewise, the offenders tended to engage in either a con attack or kissing of the victim, with a minority who did both. Moreover, offenders who engaged in smothering (i.e., using their hand to prevent victim from making noise, which could be viewed as similar to gagging with restraints) tended to not have engaged in preparatory action at all, but these two behaviors tended to instead be found in completely different rapes. These results suggest that although the behaviors that have been suggested by previous literature to belong to the same theme may be similar in some respects, the behaviors may not be as closely related as one may think in that they tended to not co-occur in the same rapes in the majority of cases. On the other hand, these findings may have to do with the sample and variables used in the present sample, which may differ in some regards from those used in other studies. More research is needed to establish how closely related the offender behaviors are and to what extent they tend to co-occur, as this type of information can be used to develop more reliable classification models of stranger rape.

In sum, results from Study I suggest that contextual features could be important to study in order to understand in which types of situations different types of offender behaviors tend to occur. If contextual features are related to different types of offender behaviors, they may help to distinguish between types of rapes. Furthermore, if the different types of rape could further be linked to offender characteristics, the knowledge could possibly be useful for profiling purposes.

Differentiating Single-Victim Rapists from Serial Rapists

As there was a great gap in the literature of how to differentiate stranger rapes committed by single-victim rapists from stranger rapes committed by serial rapists, the aim of Study II was to examine which crime scene behaviors could be used as predictors of whether the unknown offender was likely to be a single-victim rapist or serial rapist. Broadly the results supported what has been found in previous literature (Park et al., 2008) in that serial rapists were found to be more criminally sophisticated than the single-victim rapists and better at controlling their victim, whereas, the single-victim rapists were more likely to engage in interpersonal involvement with the victim, such as for example kissing the victim. However, in contrast to the previous literature (Park et al., 2008), no significant difference was found with regard to violent behaviors or sexual behaviors between the two rapist samples. These differences could possibly be explained by that there were differences between the two samples used. In Study a sample was used that only consisted of stranger rapes, and only included one crime per serial offender that was compared to the crimes by single-victim rapists. The study by Park et al. (2008), however, used a sample with a mixed composition in terms of victim-offender relationships that was not equally balanced between the offender groups, and used two crimes per serial offender that were compared to the crimes by single-victim rapists. Previous research has shown that the victim-offender relationship is related to the rape outcome (Ullman, 2007). It has also been found in previous literature that sex offenders are somewhat consistent in their actions across offenses, which means that they tend to either display or not display the same type of behaviors across offenses (Beauregard, Rossmo, & Proulx, 2007; Hazelwood, Reboussin, & Warren, 1989; Santtila, Junkkila, & Sandnabba, 2005). Therefore, to not control for such factors may affect the results. This may be one explanation for the differences in findings between this study and the study by Park et al. (2008).

The strongest behavioral predictor in Study II was whether the offender had kissed the victim, which was much more common for single-victim rapists. In the criminological literature (Canter et al., 2003; Park et al., 2008) kissing a victim has been viewed as an interpersonal act of "pseudo-intimacy". According to Canter (2000) offenders can be distinguished by how they treat their victim: as a *person*, as an *object* or as a *vehicle*. When offenders view their victim as a person, they will try to engage in "pseudo-intimate" behaviors to establish some sort of relationship with the victim. When offenders view their victim as an object, they will control the victim through restraints and threat, and may commit additional crimes such as stealing. Whereas, when offenders view their victim as a vehicle for their own emotional state, such as anger and frustration, the victim is subjected to extreme violence (Canter & Youngs, 2003).

By applying Canter's (2000) model to the findings from Study II, the behavior of kissing the victim would suggest that the offenders view the person more as a person and try to engage in some form of pseudo-intimate relationship with the victim. Furthermore, it was found that controlling of the victim was a useful predictor if the unknown offender is a serial rapist. Controlling of the victim, on the other hand, would according to Canter's model suggest that offenders view the victim more as an object to be used for their own gain. Considering that controlling of the victim has been suggested to indicate that the offender views the victim more as an object, and it was found that offenders who control the victim are significantly more likely to be serial rapists than single-victim rapists, it could be speculated whether it is in fact the way offenders view others, as objects, that could explain why some stranger rapists are more likely to continue committing similar sexual assaults than others. This thought would deserve further inquiry in a future study, by for example conducting interviews with the offenders to learn more about their thought processes, why they chose their victim, how they viewed their victim, and their emotions at the time. By getting a better understanding of why some offenders are more likely to continue committing similar offenses, the knowledge may be of use for both profiling practices, but also for rehabilitative work with offenders.

Linking Offender Behaviors to Offender Characteristics

The aim in Study III was to investigate how pre-assault and initial-attack behaviors, specifically, can be used to predict likely offender characteristics (e.g., demographic information, previous criminal convictions, presence of a mental disorder, history of alcohol abuse, and distance traveled by the offender to offend). Before examining the link between crime scene behaviors and offender characteristics, the stranger rapists sample was first compared to a normative sample to find out which particular background characteristics distinguishes them as a group, and for that reason would be more useful to focus on during an investigation. In Study III it was found that some background characteristics were significantly more common among the stranger rapists than can be found in the general population, and as some of the crime scene behaviors had moderate relationships with these more distinguishing background characteristics, those crime scene behaviors could potentially be of additional use for profiling purposes.

As there is a lack of information in the profiling literature on how stranger rapists can be differentiated from the general population with regard to background characteristics, those results cannot be related to previous profiling literature. With regard to using crime scene behaviors to predict likely offender characteristics, some results were found that are in line with previous literature. For example, as expected, Study III found that offenders who

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committed their crime in the morning/day (between 06:00-18:00) were much more likely to have some mental disorder at the time of the crime, which is in line with the results by Sturup, Karlberg, Fredriksson, and Kristiansson (2012). Furthermore, as expected, offenders who committed the crime outdoors were more likely to travel farther to commit their crime (i.e., they were less likely to live within 2 km from the crime site). This finding is also in line with previous literature (Canter & Gregory, 1994). However, some results were also found that were not in line with the expectations or previous literature. For example, offenders who engaged in preparatory action were more likely to live within 2 km from the crime site, which is in contrast to the results by Santtila, Laukkanen, Zappala, and Bosco (2008) who found that crime scene behaviors that involved planning behaviors were related to the offenders traveling longer distances. It was also expected that offenders who used threats or displayed a weapon would be more likely to have previous convictions for violence, as suggested by previous literature (Goodwill et al., 2009). However, it was instead found that committing the crime indoors and not having drunk alcohol before the crime, in conjunction, predicted that the offender had a previous conviction for violence. The most promising findings in Study III had to do with using certain combinations of crime scene behaviors to predict the likelihood of criminal history variables (in general and for violence) for the stranger rapists that distinguished them from the normative sample. These findings are in line with the results by Ter Beek, van den Eshof, and Mali (2010), who found that the best prediction models in their study on stranger rape were to predict the likelihood of previous convictions for violence, and the distance traveled to offend by the offenders (if the offender lived within 3 km from crime site).

In sum, the findings from Study III suggest that some background characteristics are more common among stranger rapists than in the general population, and that certain crime scene behaviors that are associated with those more common background characteristics can be used to add to the prediction of the likelihood that the stranger rapists have those background characteristics. These distinguishing background characteristics and crime scene behaviors were therefore found particularly suitable for profiling purposes. However, a word of caution is that this does not mean that an individual who has the predicted characteristics automatically is likely to be the offender. The probability that the suspect is the offender may increase by having the predicted offender characteristic that sets stranger rapists apart from the general population, but it is not enough to make the assumption that a person who possesses that characteristic is the offender. The results from the predictions only state how much more likely it is that "an offender who does X has the characteristic Y, than an offender who did not do X", but these are only statistical probabilities on group level among the stranger rapists that cannot on their own be used as information to point out a specific individual as the perpetrator. For that, other types of information are also needed, including

how common the target characteristics are in the general population of non-offenders. The probability that a specific person is the perpetrator, considering all the available information, is a complex conditional probability statement and in an ideal situation might be analyzed using *Bayes theorem* to calculate the conditional probability of the suspect's guilt given all the facts available (Freeman, Rossignol, & Hand, 2009; Saini, 2009). As such, Bayes theorem could be useful for profiling purposes. However, some of the probabilities necessary to validly apply this formula are difficult to obtain.

Strengths and Limitations

There were both some strengths and limitations to the studies that are part of this thesis. A main strength is that the studies are based on cases that comprise comprehensive information. Copies of original unmasked police files with all the confidential information from the investigation that were later used in the court were obtained and served as the main source of information for the variables in the study. To find out about further details about the case that could have come up in court, and to make sure that the case led to a conviction, court transcripts were also used as a source of information. Information from psychiatric evaluations that contain confidential information about the offenders' social background and cognitive functioning were also obtained. In addition, information was obtained from confidential national registers of criminal convictions and suspect records. Considering that the data had been collected from several governmental institutions that work independently of one another makes this collection of data that the thesis is based on both rich and rare. Another strength is that this thesis focuses on offender profiling and cases of stranger rapes in Sweden, because there is not much previous research on stranger rape in a Swedish context.

There were also some limitations to the studies in this thesis worth mentioning. First of all, rather small sample sizes were used, which for practical reasons is common in this research field. However, a small sample lowers the power of the analyses and it is possible that some moderate real differences between groups, or variables, did not reach significance. Only cases that led to a conviction were used in the research that is part of this thesis because it was deemed important that the individuals studied were "true" stranger rapists (had been found guilty by law). To focus on cases that have led to a conviction make sense if the purpose is to examine the link between offender behavior and background characteristics, in that background characteristics may not be known in cases that have only been reported where no suspect has been identified. Likewise, cases leading to prosecution that are closed down or end in an acquittal could not be used either for this type of research as the person has not been found guilty for various reasons, and the results derived about background characteristics may be faulty and not rep-

resentative of true (i.e., guilty) offenders. For this reason, the sample of rapes used in this thesis has been based on cases that led to a conviction. However, because cases that lead to a conviction may differ in the crime scene features and offender characteristics from cases that do not lead to a conviction, the cases used in the thesis may not be fully representative of all the stranger rapes that are reported in Sweden.

Although police files were obtained from as many as 18 out of 21 different police jurisdictions, there may have been some degree of selection in the cases that were obtained from the police. The requested cases had been found out from court records, short notices in newspapers, from online searches, and by contacting investigators directly about the cases that they had worked on. The cases found out about this way may not be representative of all the stranger rape cases that are available in Sweden. In addition, various police agencies from different jurisdictions (which work independently of one another) and individual investigators were contacted about the cases that they had worked on. The cases obtained this way may be the cases that the investigators remembered the best out of the pool of cases that they had knowledge about, and may therefore not be representative of all the cases that they had worked on.

The police files used to gather data for the research that is part of this thesis, were not created for research purposes. The police files have therefore varied in their quality in terms of the crime details included, which has led to more missing values for some variables than for others. In addition, there may have been differences in the type of information that the investigators asked about when interrogating the victim and offender, as well as differences in the type of information that was written down in the police file by the investigators. The information included in the police files may be the type of information that the investigators thought was the most important in investigating the crime. As a result, information that could have been important for research purposes may not have been included in some of the police files.

The coding of the variables for the research in this thesis that had to do with the crime event had mainly been based on victims' statements, especially when they differed from the offenders' statements. This is because in cases where the victim's and the offender's version differed, the court had usually ruled that the victim's statements should be used as the foundation for what had happened in the case.

Conclusions and Future Directions

Overall, the present thesis has found some scientific support for the use of crime scene behaviors to make inferences of offender characteristics. Certain crime scene behaviors were found to have moderate relationships with some

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of the offender characteristics, which could potentially be useful for profiling purposes. Examples of promising findings are: the use of certain crime scene behaviors to predict the likelihood that the unknown offender is a single-victim rapist or serial rapist, and the use of certain crime scene behaviors to predict offender characteristics that distinguish stranger rapists from the general population, such as the likelihood that the stranger rapist has a previous criminal conviction record in general, and for violence against person in particular. Certain crime scene behaviors could be used to predict the likelihood that the stranger rapist was 30 years old or above at the time of the crime, and some crime scene behaviors could be used to predict the likelihood that the stranger rapist lived within 2 km from the crime site. Additional interesting findings using crime scene behaviors that were significantly related to distinguishing background characteristics in the stranger rapist sample were: offender drinking alcohol before the crime was strongly related to the offender having a history of alcohol abuse, and committing the crime in the morning/day was related to the offender having some mental disorder at the time.

The practice of offender profiling has been criticized for lacking a solid theoretical foundation (Alison et al., 2002; Snook et al., 2008). It has been suggested that overt offender characteristics, for example demographic characteristics such as offender age, and previous criminal records etc., would be useful information for investigators in solving a case and would therefore be suitable for profiling purposes (Alison et al., 2010). However, as the theoretical assumption derived from personality psychology mainly holds that there should be a relationship between behavior and personality traits, it has also been questioned why a relationship is even expected to exist between offender behaviors and offender characteristics, such as demographics (Alison et al., 2002). Although this is a valid question, it may be that some of the relationships found between offender behaviors and demographic characteristics exist because they are related through a third variable that have to do with personality traits. For example, an offender's behavior is an expression of the individual's personality traits within a situational context, and an individual's personality traits may further govern the type of lifestyle the individual leads, which can in some aspects be reflected in the individual's demographic characteristics.

Although some of the findings from the studies in this thesis support what has been found in previous literature, there were also some findings that differed from what has previously been found. There are some possible explanations for this. In the process of creating the coding dictionary for the project, previous literature was reviewed to ensure that important variables were included and that the variables were defined in similar ways as they had been defined in the previous literature. However, even though many studies include similar variables, that tend to be dichotomous in nature, there is no standard for how the variables should be defined, and as a result, dif-

ferent studies define the variables differently. Some studies do not even in-
clude descriptions of how the variables have been defined. Consequently,
when comparing results between studies it is in some cases difficult to know
if the differences in findings may have to do with differences in the variables
used and the way the data has been coded. Another possible explanation for
differences in findings between studies may have to do with differences in
the samples used. For example, some studies use a sample that is confined to
cases of stranger rape, whereas, others use a sample with a mixed composi-
tion with regard to the victim-offender relationship. Some studies include
rape cases that have been reported, whereas, others include cases that have
led to a conviction, and yet others use a mix of both. Furthermore, as rape
laws differ between countries, the way that rape has legally been defined in a
country will have an affect on the type of cases that may have ended in a
rape conviction, and furthermore, the type of cases that have a likelihood of
being included in a rape sample. In addition, many studies use small sam-
ples, and the differences in findings may be due to sampling error rather than
to real differences. All of these issues raised could be used as possible ex-
planations for some of the differences in findings between the studies in this
thesis and other studies in the reviewed literature.

Even though the studies in this thesis have found some support for the use
of crime scene behaviors to make inferences of offender characteristics, the
question is still how applicable these findings would be in a practical sense
in a police investigation of a new stranger rape case. Would the knowledge
from the generated findings be useful to investigators? The offender behav-
ior-characteristic relationships have been studied by using a direct-
associations technique and certain variables among many possible variables
were selected to test these associations in this thesis. However, the police
most certainly do not limit their investigations to only focusing on a couple
of variables. They most likely consider all of the information available at the
same time to make inferences of likely offender characteristics, including
information that would be difficult to study scientifically. For example, it
may be the combination of that the stranger rapist attacked a certain type of
victim at a certain place, at a certain time of the day and week, and some-
thing in particular that the offender said right before or after engaging in
some particular behavior…etc., that together is used to make some type of
inference about some offender background characteristic. How could such a
unique and complicated combination of variables be studied scientifically in
a way that would be ecologically valid to formulate general rules for making
inferences of offender characteristics? It could even be speculated if the way
validity of offender profiling is studied in research corresponds to the way
profilers work in reality because studies do no take into account all the myri-
ad of behaviors that the police may use when investigating a real case. As
the goal in research on offender profiling is to provide scientifically based
knowledge that can aid police in directing the investigation and narrowing

down the pool of suspects, there is a need to bridge the gap between research and the practice by law enforcement. A closer co-operation between the two disciplines could provide researchers with a better insight into how investigators work, which could lead to more ecologically valid research. Furthermore, researchers would be able to get feedback from the police of how useful the generated research findings are in a practical sense when investigating new stranger rape cases.

In sum, this thesis has furthered the knowledge regarding offender profiling in some respects. It provides a detailed examination of both crime scene behaviors and offender characteristics in cases of Swedish stranger rapes. This type of information may be particularly useful for the Swedish police and law enforcement personnel, especially because the number of reported rapes is steadily increasing in Sweden. This thesis provides some information about the dynamics in stranger rape, by having examined how offender behaviors interact with contextual features, victim behaviors, and the assault outcome, and how the interaction can be used to distinguish between thematic types of stranger rape. This thesis also provides some information about which crime scene behaviors that can be used to differentiate between stranger rapes committed by single-victim rapists and serial rapists. Furthermore, information is provided on how stranger rapists can be differentiated from the general population with regard to different types of background characteristics, and which crime scene features in cases of stranger rape would be the most useful to focus on to make inferences of likely offender characteristics.

There is a need for more research on how offender behaviors interact with other situational features to obtain a better understanding of in which situational contexts different types of offender behaviors tend to occur. If such interactions could further be linked to probable offender characteristics, the generated knowledge could be useful for profiling purposes. There is limited research on how to differentiate between crimes committed by single-victim rapists and serial rapists, especially in cases of stranger rape. Therefore more research is needed. We also need to learn more about how stranger rapists can be differentiated from the general population with regard to background characteristics to find out which background characteristics would be the most useful to focus on for profiling purposes. Because many studies in the field of profiling tend to be based on small samples, which create statistical uncertainties, some differences in findings between studies may be attributable to these statistical uncertainties rather than to real differences. A way to tackle this problem would be to carry out further meta-analyses to aggregate findings from the different studies.

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