

Identifying Critical Dimensions for Discriminating Among Rapists

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Considerable evidence has amassed in studies of both nonoffender and offender samples that demonstrates both that sexual aggression is determined by a multiplicity of variables and that convicted sexual offenders are markedly heterogeneous (Knight, Rosenberg, & Schneider, 1985; Malamuth, 1986). Attempts both to identify sexually coercive men in normal samples and to assess etiology, concurrent adaptation, treatment efficacy, and recidivism for convicted sexually aggressive offenders have also suggested that the critical determining components of sexual aggression interact in complex ways. The purpose of this article is to survey both the offender and nonoffender sexual aggression research for evidence about which dimensions should be included in multivariate models that attempt to discriminate rapists from nonrapists, to identify subgroups among rapists, or to enhance the efficiency of dispositional decisions about these offenders.

The sexual assault of women is a widespread phenomenon that inflicts untold physical and psychological harm. The extensiveness and seriousness of this problem demands a concerted, effective societal response. Adequate prevention and intervention programs, however, presuppose substantial knowledge about the causes and determinants of rape, and our present understanding remains rudimentary. Thus, there is a need for research programs aimed at clarifying the causes of such assaults, at identifying the constellations of problems that are common to these perpetrators, at designing prevention and intervention strategies, and at enhancing the validity of dispositional decisions for convicted or admitted offenders. To be successful in achieving these objectives, research strategies must match the complexity of the behaviors studied.

Heterogeneity of Rapists

For the purpose of this review, a rapist is defined as a man who sexually assaults a victim who is 16 years old or older. A large number of descriptive studies have attempted to identify discriminating characteristics of rapists (Knight, Rosenberg, & Schneider, 1985). The search for variables that differentiate ge-

neric rapists from other, presumably non-sex-offending, criminals has been elusive with the possible exception of deviant sexual arousal patterns (Earls & Quinsey, 1985). One unassailable conclusion is nevertheless evident from these descriptive studies: Rapists constitute a manifestly heterogeneous subgroup of criminals (Knight & Prentky, 1990; Quinsey, 1984). Offenders with widely varying family and developmental experiences, psychological profiles, psychiatric diagnoses, and criminal histories have been treated as a cohesive, homogeneous group by virtue of the presence of sexual coercion in their offenses. Their sexual offenses have varied markedly with respect to numerous features, such as location and time, frequency, the sex and age of their victims, the degree of planning in their crimes, the nature of the sexual acts in their offenses, and the amount of violence or sadism involved. Despite this manifest diversity, rapists have frequently been viewed as a homogeneous class of offenders. The discrepancy between the myth of their homogeneity and the reality of their heterogeneity has led inevitably to considerable inconsistency in research on these offenders.

Several strategies have emerged to examine the apparent heterogeneity of rapists. The earliest attempts were more rational than empirical. The observation that rapists in fact differed in their behavioral characteristics and varied in the likelihood of their subsequently assaulting women prompted clinical investigators, who worked with these offenders and who were required to make decisions about their treatment, management, and disposition, to propose typological systems intended both to increase group homogeneity and to inform clinical judgments (e.g., Cohen, Seghorn, & Calmas, 1969; Gebhard, Gagnon, Pomeroy, & Christenson, 1965; Groth, Burgess, & Holmstrom, 1977; Guttmacher & Weihofen, 1952; Kopp, 1962; Rada, 1978; Seghorn & Cohen, 1980). Only within the past decade, however, has this theoretical concern with the diversity of rapists been translated into a concerted effort to operationalize, apply, and

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test putative taxonomic models for rapists (Knight & Prentky, 1990).

A second related strategy aimed at reducing the heterogeneity among rapists has been the application of various clustering algorithms to profiles of critical discriminating variables (e.g., Rosenberg & Knight, 1988). Cluster analyses sort individuals into groups that are more like each other on the clustering dimensions than they are like the offenders in other groups. The resultant groups can then be analyzed to determine their discriminant, convergent, and predictive validity (e.g., Rosenberg & Knight, 1988).

A final strategy for analyzing the heterogeneity among rapists focuses more on the discriminating dimensions than on typological differentiation and classification. This strategy combines hypothetically important variables in multivariate models in an attempt either to distinguish sexually aggressive individuals in noncriminal samples (e.g., Lisak & Roth, 1988; Malamuth, 1986) or to predict relevant criminal behaviors in samples of convicted rapists (e.g., Knight, Prentky, Schneider, & Rosenberg, 1983; Rosenberg, Knight, Prentky, & Lee, 1988). These attempts clearly demonstrate the inadequacies of univariate approaches and suggest that it is essential to focus research efforts on linear composites of both relevant predictors and interactions among predictors (Malamuth, 1986) in attempts to identify men who are prone to sexual aggression, to account for the diversity among rapists, and to predict critical criterion behaviors in both normal (i.e., noncriminal) and criminal samples.

It should be obvious that the success of all of these strategies depends on the relevance and quality of the dimensions that have been chosen for the model. A rational typology that does not center on the most relevant dimensions may be reliable, but its practical utility will necessarily be suboptimal. Likewise, the more inductive approach of using multivariate dimension-reducing statistics and cluster analyses must also be guided both by theory and by the results of past empirical research in its choice of input variables, and it is likely to fail without the benefit of such direction (Blashfield, 1980). The difference between the rational/deductive and clustering/inductive approaches is that the more inductive approach requires less structuring and elaboration of the interrelation among predictors. When applying the clustering approach, one hopes that by analyzing hypothetically important variables with methods that are reasonable and consistent, valid organizing structures will emerge.

Like the multivariate clustering approach, multivariate regression models profit from some theoretical direction. The predictive power of any multivariate dimensional causal model will depend not only on the reliability and validity of both dependent and independent variables, but also on the correlation of each of the variables in the model with the criterion, on the intercorrelation among the predictors in the model, and on the ability of the investigator to select domains of predictors that account for as much of the variance of the criterion behavior as possible (Cohen & Cohen, 1983). The irrelevance of predictors and the tendency to include predictors that account for overlapping variance of the criterion behavior will inevitably reduce the explanatory power of any proposed model.

Thus, the identification of the domain of theoretically rele-

vant and empirically validated variables for rapists is a basic prerequisite for any strategy that attempts to reduce the manifest heterogeneity among these offenders and to create taxonomic or dimensional models aimed either at exploring the causes of such sexual aggression or enhancing the efficacy of treatment, management, and dispositional decisions for convicted offenders.

Identifying Hypothetical Discriminators

As we have indicated, there are two primary sources for hypotheses about the critical discriminating characteristics—the clinical speculations that are incorporated into proposed taxonomic systems for rapists and the descriptive empirical studies that have either simply attempted to delineate salient characteristics of rapists or have looked at the covariation of characteristics within samples of rapists.

Taxonomic Analysis

Typologies represent the best guesses that clinicians have generated about what typological structures and dimensions might be important in differentiating among rapists. Although the investigators who have proposed typologies for rapists have typically focused only on describing the salient characteristics of purported prototypic types, one can abstract critical discriminating dimensions from their descriptions by a comparative analysis of the types in the system (Knight et al., 1985). Figure 1 presents an example of this process. It is divided into two sections, top and bottom. The bottom section is delimited by the listing on the left of the table of seven rational typological systems. This section organizes the types proposed by the authors of these systems into six categories. The types proposed in each system are specified in the rows directly to the right of each author citation. The columns in this portion of the table are arranged so that comparable types across systems share the same column. The first five columns, which are labeled by the bold capital letters in the center of the table, represent primary rapist types, and the sixth is reserved for secondary types. The top section of the table designates the primary dimensions that hypothetically discriminate among the most commonly proposed types. This comparative analysis suggests that four dimensions have typically been seen by clinicians as critical for differentiating among rapists—the amount of aggression, the presence or absence of antisocial personality, sadism, and sexualization.

The dimension of aggression typically has been used to differentiate those offenders using “instrumental” force from those offenders using extreme force. In the former case, the amount of aggression generally does not exceed what is necessary to force victim compliance. In the latter case, the amount of aggression far exceeds what is necessary to force compliance, and the assault appears to be motivated primarily by the need to injure or humiliate the victim. Most of the typological systems in the table differentiate between these two levels of aggression.

A determination that the offender is *low* in aggression typically yields two additional dimensional decisions, one concerning the prominence of psychopathy or antisocial personality

	Diagnostic Considerations					
	Primary					Secondary
	Amount of Aggression					
	Low			High		
	Antisocial Personality			Sadism		
	Absent		Present	Absent	Present	
	Sexualization					
Absent	Present					
A	B	C	D	E		
Guttmacher & Weihsen (1952)		True Sex Offender	Aggressive Offender		Sadistic	
Kopp (1962)		Type I Compliant	Type II Aggressive Psychopath			Drunken
Gebhard et al. (1965)	Double Standard		Amoral Delinquent	Explosive	Assaultive Sadistic	Psychotic/ Alcoholic/ Mental Defective
Cohen, et al. (1969)		Compensatory	Impulsive	Displaced Anger	Sex- Aggression Defusion	
Rada (1978)	Situational Stress	Masculine Identity Conflict	Sociopathic		Sadistic	Psychotic
Groth et al. (1977)	Power- Assertive	Power- Reassurance		Anger- Retaliation	Anger- Excitation	
Seghorn & Cohen (1980)		Sexual Aim	Impulsive Type	Aggressive Aim	Sex- Aggression Defusion	

Figure 1. Discriminating dimensions for extant rationally derived typological systems for rapists.

disorder (APD) and the other concerning the prominence of sexualization, sexual fantasies, and paraphilias. When psychopathy or APD is a prominent feature and aggression is considered instrumental or low, the offender is classified as one of the types in column C (see Figure 1). When the offender does not present with a history of impulsive, antisocial acting out, and when there appears to be evidence that the assault was sexually motivated or there are other signs of sexual preoccupation, he is assigned to a type in column B.

Among those offenders identified as *high* in aggression, a second-order decision commonly is made regarding the presence of sadism. In classifying sadism, investigators have looked for evidence of a synergistic relationship between sexual and aggressive drives. As sexual arousal increases, aggressive feelings increase. Similarly, increases in aggressive feelings heighten sexual arousal. Although sadism has not been adequately operationalized, its classification has been assisted by the presumptive presence of bizarre, ritualistic acts. In Figure 1 the presence of sadism results in a column E type assignment.

Empirical Research

The second and more common method of selecting candidates for multivariate taxonomic and dimensional analyses focuses on univariate research for evidence that a variable might have discriminatory power. Evidence for such power would include the variable's ability to discriminate rapists from normal subjects or other criminal or pathological groups, its covariation with important criterion behaviors, its correlation with

other identified discriminators, its ability to define or discriminate between subgroups that evidence some concurrent or predictive validity, or its ability to contribute to the resolution of a reliability problem between subgroups that have evidenced some validity. Variables with especially large within-group (i.e., among rapists) variances or that are apparently bimodally distributed should also be carefully scrutinized to determine whether they are capturing meaningful true variance that is relevant to etiology, treatment decisions, disposition, or prediction of course.

The research literature on sexual offenders was reviewed in the early 1980s to identify potential candidates for multivariate analyses of rapists and child molesters (Knight et al., 1985). For convenience this research was subdivided into five research domains (legal, sociological, psychiatric, psychometric, and behavioral/physiological), and the strength of support for particular variables within each domain was rated on a 4-point scale. A summary of these ratings for rapists is presented in Table 1. Only the more extensively and strongly supported variables have been reproduced here. A blank (no asterisk) indicates that, for the studies reviewed within that domain at that time, no empirical evidence supporting the potential discriminating power of that particular variable was found. One asterisk means that minimal, tentative, or inconsistent evidence was found within that domain. A two-asterisk rating corresponds to reasonably strong support in a single study that was not contradicted by the results of another study in that domain. A three-asterisk rating was assigned to those variables that showed a consistent cross-study evidence of discriminatory power.

Table 1
*Empirical Support for Potential Discriminating Characteristics
 Among Rapists in the Research Before 1985*

Characteristic	Research perspective				
	Sociological	Legal	Psychiatric	Psychometric	Physiological/ behavioral
Offender					
Social competence					
Occupational status	**	**		**	
Education	*	*		**	
Intelligence	*	*	***	*	
Social skills		***		***	***
Heterosexual adaptation	**	***		**	
Criminal history					
Sexual		**		**	**
Nonsexual	**	***		***	
Personality/pathology					
Antisocial personality		*	***	*	
Hostility/aggression		*		*	
Personality style			***	***	
Level of psychopathology		*	***	***	
Alcohol abuse		***	***	***	
Deviant sexual arousal				*	***
Victim					
Relation to offender	**	***		**	
Offense					
Degree of planning	**	**		*	
Location	**	**			
Degree of violence	**	***		**	***
Sexual acts in offense	**	***		**	
Alcohol in offense	**	**			

Note. * = minimal, tentative, or inconsistent evidence; ** = reasonably strong support not contradicted by another study; *** = consistent, cross-study evidence of discriminatory power.

This earlier review of both the clinical typologies and the empirical literature provided the critical dimensions and rapist types that served as the point of departure for the Massachusetts Treatment Center (MTC) Typology Program. The comparative analyses of the extant typological systems laid the groundwork for the investigation of proposed rapist types, and the critical dimensions identified in the review guided the choice of input variables for cluster analytic studies (e.g., Rosenberg & Knight, 1988). Since the 1985 review the MTC program has made headway in examining the reliability and discriminatory power of many of these dimensions, and research from other programs has also contributed substantially to evaluating their validity. This special section, which centers on theories of sexual aggression, provides an opportunity to reexamine these dimensions in light of the new data that have been gathered. As in the previous review, our focus here will be propaedeutic, evaluating the viability of these dimensions as candidates for multivariate models. After assessing each dimension, we will briefly describe recent attempts to generate empirically valid multivariate models and point out some of the major obstacles that must be faced in this process.

Evaluating Hypothetically Discriminating Dimensions

Before we begin the assessment of individual dimensions, it is imperative to mention three major methodological problems

that plague research in this area and often cloud the interpretation of the results reviewed. First, because much of the research involves subjects who are in the criminal justice system, intractable constraints impinge on the accuracy of their self-report. Second, the archival records that often serve as the basis of information about these offenders are notoriously incomplete. Third, the composition of the samples assessed across studies may differ radically because of the variable reporting rate of rape and the vacillating exigencies that affect dispositional decisions in the criminal justice system. We will discuss each of these problems in turn.

Many studies depend on the self-report of rapists. Because of the perceived potential negative consequences that may result from revealing certain information about themselves, sexual offenders' reports may be significantly distorted by response sets (e.g., Abel, Mittelman, Becker, Cunningham-Rathner, & Lucas, 1983). Moreover, tests or interviews are often administered to rapists who have different legal statuses. That is, the offender's response set may vary with different legal statuses (whether the offender is a self-referred outpatient, a defendant awaiting trial, an observation case, a sentenced criminal, or a committed patient in treatment). Because the contextual conditions of testing and interviewing vary widely across the studies of rapists, the cross-study comparability of results may be compromised.

Archival records depend in part on the self-report of the of-

fender; in part on the thoroughness, theoretical orientation, training, caseload, and available resources of the report writers; and in the criminal justice system on the ability of law enforcement to apprehend perpetrators. All of these are highly fallible data sources. Moreover, it has been well established that criminals have often committed far more crimes than those for which they have been charged. Sexual offenses in particular appear to be especially susceptible to this "attrition" problem (see, e.g., Polk, 1985).

Finally, the samples of rapists that have been studied range from college students responding anonymously to questionnaires to sexual offenders who have been committed indefinitely as "sexually dangerous." Generalizations from one sample to another must be demonstrated, not assumed. For instance, the results from the MTC Typology Program may be specific to the repetitive or violent sexually dangerous offenders at the Treatment Center and may not even be true of rapists in a general prison population. Clearly, however, any consistency found across heterogeneous samples would suggest the possibility that a theoretically powerful dimension of sexual aggression has been tapped.

Amount and Meaning of Aggression

As can be seen in Figure 1, most typological models in the extant literature have introduced, implicitly or explicitly, a construct that assesses the amount and quality of aggression in sexual assaults. Although some have used a more differentiated scale, like Hazelwood and Burgess's (1987) 4-point scale (minimal, moderate, excessive, brutal), most commonly a simple dichotomization has been posited between (a) instrumental aggression or what Felson and Krohn (1990) in their sociosexual model call *strategic violence* and (b) expressive aggression or *nonstrategic violence* in Felson and Krohn's punishment model. The former represents the type of aggression purportedly used by rapists classified in the types presented in columns A, B, and C in Figure 1 and would be characteristic of most social acquaintance rapes. It is limited to the amount of aggression necessary to attain victim compliance. Anger is relatively absent, except in reaction to victim resistance. The latter type of violence is more extreme and characterizes offenders categorized in columns D and E in Figure 1. Here, the sexual component of the assault is secondary to, or in the service of, hurting or humiliating the victim. Rather than simply intending to gain victim compliance, the offender's behavior suggests a desire to injure, abuse, and degrade, and sometimes his physical aggression is also accompanied by verbal obscenities, accusations, or vilifications. Sadism is occasionally, but certainly not always, evident.

Despite the ubiquity and apparent consistency of the description of this distinction, recent results have not supported the central role that has traditionally been afforded this dichotomization. Although this distinction has shown a good degree of interrater reliability ($\kappa = .63$; Prentky, Cohen, & Seghorn, 1985), it has become apparent in categorizing rapists that a simple dichotomization is not sufficient. Some rapists are apparently motivated by sadistic or angry fantasies, but they refrain from inflicting severe physical injury. Moreover, it has been difficult to determine, even when detailed offense de-

scriptions are available, whether increased violence in response to victim resistance has been limited to gaining compliance and has lacked an expressive component (Prentky, Burgess, & Carter, 1986).

The instrumental-expressive aggression distinction's greatest problem has, however, been its validity. In a 25-year follow-up study of the criminal recidivism of 94 rapists through five separate criminal record sources, no differences in reoffense rates were found in survival analyses of six types of crime (Prentky, Knight, & Rosenberg, 1988). Moreover, a path analytic study of the life span correlates of various behavioral domains among rapists found that alcohol abuse in adulthood was the only component that significantly discriminated between low- and high-aggression types (Rosenberg et al., 1988). Another retrospective study, which attempted to explore the differential developmental antecedents of the violence done in the context of a sexual offense and the violence done in nonsexual contexts, was more successful (Prentky, Knight, et al., 1989). Whereas the history of childhood and juvenile institutionalization and physical abuse/neglect in the family of origin was found to correlate with general nonsexual aggressiveness in adulthood, the instability of caregivers in childhood and sexual abuse/sexual deviation in the family of origin predicted the amount of injury inflicted in sexual offenses. This study suggests that distinct, identifiable developmental paths may lead to different expressions of violence. Consequently, the nature of and motivation for violence must be more carefully differentiated.

It seems reasonable to conclude from these studies and from the attempts to implement this distinction that the amount and quality of aggression expressed in sexual assaults is highly variable and that the construct of aggression is not univocal. Aggression that is used only to force victim compliance may vary according to victim resistance, the use of alcohol or drugs, the presence of other offenders or victims, and situational or offender-specific factors. Thus, those rapists who intend only to force victim compliance are likely to vary widely in the amount of aggression evident in their offenses. When the aggression is expressive, the motivation and manifestation may also vary considerably. In the case of sadism, the aggression may be "sexualized" (focused on erogenous parts of the body), and the acts may have a bizarre quality or be fantasy-driven. In the case of a misogynistic rapist, the aggression does not appear to be sexualized, and the acts (and verbalizations) seem to be intended to demean, humiliate, or inflict injury on the victim. In the case of a globally angry rapist, the aggression is undifferentiated with respect to victims (i.e., men are as likely to be victims as women), and the acts reflect capricious and random violence directed at whoever gets in the way at the wrong time. Thus, the lack of differentiation among generic rapists may account, in part, for the failure to validate the construct of aggression. In addition to providing uniform, concrete operational criteria for the aggressive acts in sexual offenses, we must also assess the motivational underpinnings of these aggressive behaviors. Thus, we must tap the attitudes, cognitions, and fantasies of rapists. Also, assessing sexual arousal to varying degrees of force may offer some promise of enhanced discrimination, despite the fact that to date no controlled studies have examined

the covariation of sexual arousal and specific stimulus components of violence (Barbaree, 1990).

Life-Style Impulsivity-Antisocial Personality

As can be seen in Table 1, it was judged in the sociological, legal, psychiatric, and physiological/behavioral empirical literatures reviewed before 1984 that nonsexual criminal history and antisocial personality, both of which are reflections of a general life-style of impulsivity, were important discriminators among rapist samples. Likewise, as illustrated in Figure 1, in many of the early rapist typologies a type of rapist was proposed whose sexual assaults were hypothesized to constitute simply one component of a life of general impulsivity that also yielded extensive criminal activity. This offender type was hypothesized to be motivated more by contextual factors and opportunity than by any internally driven sexual fantasy. Thus, in both the empirical and clinical literatures on rape, life-style impulsivity has been seen as an important discriminator.

Since this earlier review, evidence about the role of life-style impulsivity as a differentiating characteristic among sexually aggressive males has continued to accumulate. Studies of its role both as an identifier of the proclivity to sexual aggressiveness among normal samples and as a discriminator within sexually aggressive samples have supported its importance as a contributor to sexual aggression, but such studies have also raised questions about the nature of its contribution and its interrelation with other components.

In studies of a variety of normal samples, the proclivity to antisocial behavior has been found to correlate significantly with the likelihood of sexually aggressive behavior. Although one study found that men who were sexually aggressive with acquaintances did not differ from nonaggressive men on several measures of psychopathy (Koss, Leonard, Beezley, & Oros, 1985), several other studies have found relations between impulsivity and the likelihood of aggressive sexual behavior. For instance, Rapaport and Burkhart (1984) found that sexually aggressive male college students were more likely to endorse items that have traditionally been found associated with antisocial behavior (i.e., immaturity, irresponsibility, and a lack of social conscience). Likewise, Malamuth (1986), using the Psychoticism scale on the Eysenck Personality Questionnaire (Eysenck, 1978) to assess antisocial characteristics, found a marginal correlation between such traits and normal subjects' reported level of sexual aggression. In multiple regression analyses, however, this scale failed to contribute independently to predicting sexual aggression, because dominance and hatred toward women accounted for its variance. In further analyses of these data, Malamuth (1989) found that the self-reported proclivity to engage in forced sex and to rape was significantly correlated with the self-reported proclivity to rob and murder. Malamuth's (1989) Attraction to Sexual Aggression Scale correlated with Eysenck's Psychoticism scale, which in turn was related in two separate samples to interest in bondage and of whipping/spanking. Finally, Lisak and Roth (1988) found that college men who reported having been sexually aggressive rated themselves as more impulsive than did nonaggressive men and also reported less respect for society's rules. Thus, there is converging evidence even within normal, noncriminal samples

that impulsivity and the likelihood of engaging in sexually aggressive behaviors have a limited but fairly consistent relation.

In the research on criminal samples, life-style impulsivity has continued to show impressive evidence of being a significant discriminating characteristic among sexual offenders. Using both the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed. (*DSM-III*; American Psychiatric Association, 1980) Axis II antisocial personality disorder criteria and Hare's Checklist for Psychopathy (Hare, 1980), Knight, Prentky, Fleming, Ames, and Straus (1991) categorized 106 incarcerated rapists. Consistent with previous research (e.g., Groth, 1979; Rada, 1978), the prevalence of antisocial personalities was found to be high (approximately 40% by each set of criteria). This large subsample of highly impulsive offenders certainly provides a basis for the speculations in the early rapist typologies that a psychopathic subgroup constituted a cohesive type among rapists.

In the MTC Typology Program, life-style impulsivity has evolved from its initial role as the major discriminating characteristic of a single type (impulsive type) to its role as a more generic taxonomic discriminator among multiple types. Figure 2 presents a flow chart of the major revisions of the rapist typology in this program.

The top row depicts the four most common types in the clinical literature (MTC:R1) that served as the point of departure for the rational/deductive strategy of the program (see Knight & Prentky, 1990). The second row (MTC:R2) shows the first revision of the system, and the third row (MTC:R3) presents the second, more radical revision that represents the system's current status. The arrowed lines show the constancies from one typology to the next. These lines are dashed for the second revision because the major changes in the classification criteria of these MTC:R3 types have resulted in only partial overlap with the MTC:R2 types.

The system's first revision was prompted by the unsatisfactory interrater agreement that was attained in the earliest attempt to assign cases to the four types that served as the program's point of departure (MTC:R1; see Knight et al., 1985). The majority of the classification disagreements were confined to distinguishing between compensatory and impulsive types. In a case-by-case analysis of assignment discrepancies, a prevalent mixed presentation group was identified that manifested the compensatory types' hypothesized nonimpulsive or somewhat planned offense style, but also showed the impulsive life-style of the impulsive type. Separating these two components of impulsivity—the impulsive, unplanned offense style and the more general, pervasive life-style impulsivity—and crossing the latter component with the four original types yielded MTC:R2 (see Figure 2) and provided a niche for the compensatory type with high life-style impulsivity. Subsequent analyses supported this partitioning of impulsivity, indicating that the two components were indeed statistically independent and covaried with different variable domains (Prentky & Knight, 1986).

The life-style impulsivity judgment that was crossed with the four offense styles of MTC:R1, creating low- and high-impulsive variants of each and consequently the eight types of MTC:R2 (see Figure 2), essentially assessed the presence of a pervasive and enduring pattern of poor impulse control and irresponsible behavior. It concentrated on preadolescent behaviors indicative

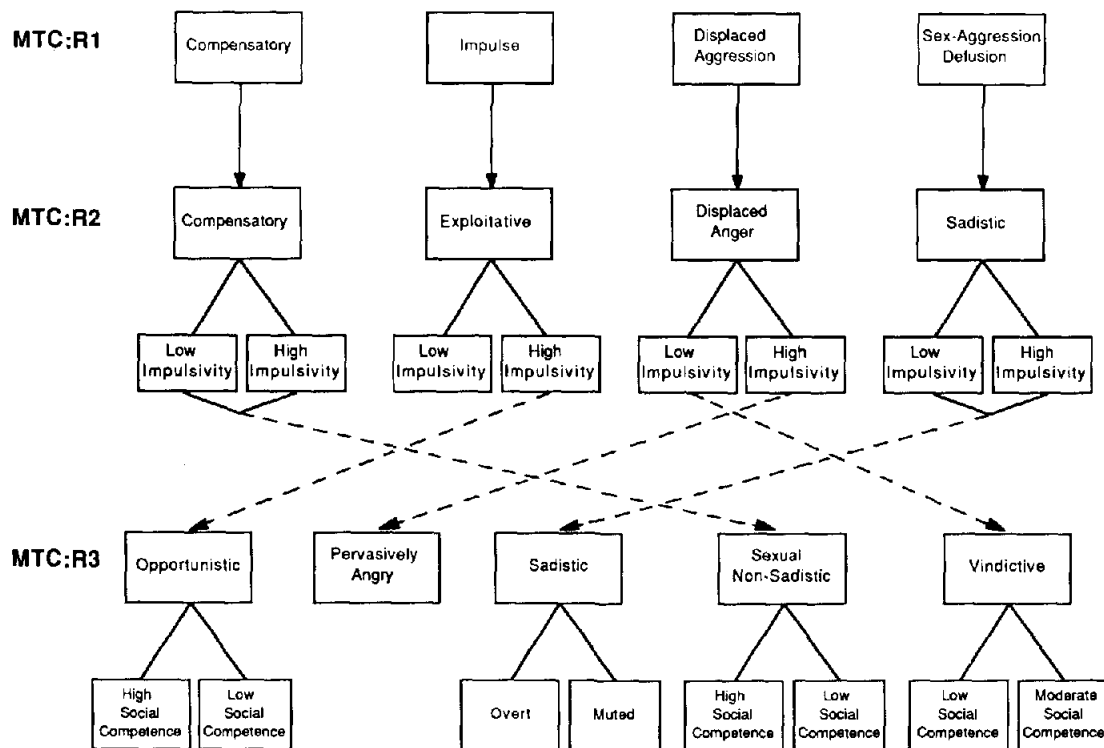


Figure 2. Flow diagram depicting changes in the Massachusetts Treatment Center (MTC) Classification System for Rapists.

of poor impulse control that developed into varied styles of acting out as adults (see Prentky et al., 1985). As part of MTC:R2, life-style impulsivity was subjected to extensive validity analyses (Knight & Prentky, 1987; Prentky et al., 1986; Prentky et al., 1988; Prentky & Knight, 1986; Rosenberg et al., 1988), which revealed both some strengths and some weaknesses.

On the positive side the relation of MTC:R2's life-style impulsivity to other measures of antisocial behavior and criminality indicated that it tapped a valid construct. The judgment correlated with independently assessed patterns of antisocial acting out in adolescence and adulthood (Prentky & Knight, 1986; Rosenberg et al., 1988). Most important, however, of all the criteria used to define the eight types of MTC:R2, it evidenced by far the strongest linkage with particular developmental antecedents, the greatest cross-temporal stability, and the most wide-ranging predictive potency among rapists. In a path analytic study of the developmental antecedents of this distinction, the judgment correlated with independently assessed patterns of antisocial acting out in adolescence and adulthood (Rosenberg et al., 1988). In adulthood it was correlated with a greater number of victim-involved and victimless crimes, as well as (and contrary to what had been predicted) with the number of rapes an offender had committed before incarceration (Prentky & Knight, 1986). In the follow-up study of 109 rapists released from MTC between 1960 and 1984 (Prentky, Knight, & Lee, 1991), a series of analyses of the proportional probabilities of reoffense in different crime categories for high- versus low-impulse offenders were performed. The hazard rate for rapists

classified as high in life-style impulsivity was at least twice as great as the hazard rate for the low-impulsivity offenders in all offense categories examined—nonsexual, victimless offenses; nonsexual, victim-involved offenses; and serious sexual offenses (i.e., those offenses involving physical contact with the victim). For nonsexual, victimless offenses, the hazard rate was almost 4 times as great. This study indicated that life-style impulsivity is a relatively robust predictor of reoffense risk across domains of criminal behavior. The differences in serious sexual offending are particularly noteworthy, because the entire sample was characterized by having committed repetitive or very aggressive sexual offenses. This relation between impulsivity and a wide range of offense domains is consistent with Hall's (Hall, 1988; Hall & Proctor, 1987) postdictive study of the offense histories of 342 nonpsychotic sexual offenders, who were examined at a state hospital, and Rice, Harris, and Quinsey's (1990) 46-month follow-up of 54 rapists. Hall (1988) found significant relations among the frequency of sexual offending against adults and a wide range of other criminal offenses, which suggested the presence of antisocial personality. Rice et al. (1990) found that the degree of psychopathy, as measured by Hare's (1980) checklist, predicted both sexual and violent offense recidivism.

On the negative side, the judgment of life-style impulsivity incorporated into MTC:R2 suffered from reliability problems, especially among the offender types that engaged in only instrumental sexual aggression (Prentky et al., 1985). In light of the *DSM-III* antisocial and Hare psychopathy assessments (Knight et al., 1991), the MTC:R2 judgment identified too great

a proportion of rapists as high in impulsivity (approximately 75%; Prentky et al., 1985). Most important, however, in cluster analyses the MTC:R2 life-style impulsivity dichotomization did not prove to be an effective group delimiter (Rosenberg & Knight, 1988). Thus, life-style impulsivity was capturing meaningful variance, but it was not defined with sufficient stringency and clarity to attain optimal reliability and discrimination. Furthermore, the cluster analyses suggested that it might be important to examine its interaction with other critical dimensions. All these constraints were taken into account in creating MTC:R3.

Thus, converging lines of evidence from both noncriminal and criminal samples support the inclusion of life-style impulsivity as a significant component of any multidimensional model of adult sexual aggression. It remains to be determined which operationalization of the construct maximizes its etiological and predictive efficacy, and substantial work remains to ferret out the precise interaction of this construct with other components of a complex model.

Social Competence

Sexual offenders have often been characterized as having poor heterosocial and interpersonal skills (e.g., Becker, Abel, Blanchard, Murphy, & Coleman, 1978; Quinsey, 1977), and several investigators have speculated that these deficits may contribute to sexual offending (Becker et al., 1978; Quinsey, 1977). The empirical support for such hypotheses has, however, remained inconclusive. Stermac and Quinsey (1986) found that although rapists and nonsexual offenders were inferior to normal control subjects on behavioral measures of social competence, they did not differ from each other. Only self-reports of low assertiveness differentiated the rapists from the other two groups (Stermac & Quinsey, 1986). Segal and Marshall (1985) compared groups of child molesters, rapists, nonsexual offenders, and low and high socioeconomic status (SES) control subjects on behavioral measures of social competence. Although they found clear differences between the low and high SES controls, no differences emerged between the low SES controls, rapists, and nonsexual offenders. Child molesters distinguished themselves as being the most socially inept. In general, across studies low assertiveness has been the only facet of poor social competence that has consistently distinguished rapists as a group (e.g., Stermac & Quinsey, 1986).

Social skills training has been widely adopted as a component of sexual offender treatment programs (Becker et al., 1978; Marshall, Earls, Segal, & Darke, 1983). Its widespread clinical appeal appears to derive, however, largely from the intuitive sense it makes and not from compelling empirical data. McFall (1990) has argued that there is little evidence to support the treatment efficacy of this component in sexual offender therapy programs, and its application has lacked "a solid foundation of coherent theory" (p. 311). Indeed, it is likely that "social skills" embraces a wide range of different abilities (e.g., assertiveness, appropriate communication of affect, social problem solving, and general communication skills) and should not be considered a univocal construct, either in treatment or when assessing its covariation with other components of sexual aggression (see, e.g., Stermac & Quinsey, 1986).

Thus, deficits in social skills have received at best weak support as a discriminator between rapists and other criminal groups and have encountered empirical and theoretical problems in social skills training programs. In contrast, social competence, when assessed by the presence and durability of interpersonal relationships and the stability of the offender's employment and wage-earning history, has shown promise as a potential discriminator among subgroups of rapists (cf. Table 1 and Knight et al., 1985). Indeed, in recent cluster analytic studies it has emerged as a critical discriminating dimension among rapists, identifying distinguishable subtypes within compensatory (Rosenberg & Knight, 1988), exploitative (Prentky et al., 1988), and displaced anger groups (Knight & Prentky, 1990). Moreover, path analytic studies of the developmental antecedents of critical components of adaptation among sexual offenders have provided evidence that social incompetence may be preceded by two distinct childhood and adolescent behavioral patterns. It is predicted both by childhood and adolescent histories of social and academic incompetence (Knight, Prentky, Schneider, & Rosenberg, 1983) and by juvenile impulsive, antisocial behavior (Rosenberg et al., 1988). These results, when considered in light of the clustering studies, suggest that among sexual offenders social incompetence may be multiply determined and that the adult manifestations of such incompetence may derive from different developmental antecedents in different types of offenders. There have been some speculations in the clinical literature on sexual offender typologies that social competence is complexly related to sexual aggression among different types of offenders (Cohen et al., 1969; Groth et al., 1977). Knight and Prentky (1987) found, however, that some of these hypotheses were seriously mistaken in the role that was attributed to social competence. Types purported to have high social competence (displaced anger types) were low, and types thought to have low social competence (compensatory types) actually attained the highest level among the groups tested.

In summary, there is evidence that social competence plays an important but complex role in sexual offending. It does not appear to be a uniformly distinguishing trait of all rapists, and speculations about its role in proposed taxonomies have been misguided. Rather, low social competence appears to characterize subgroups of rapists and possibly to represent in these different types the outcome of different developmental courses. Thus, it could play a significant moderating role in sexual aggression and should be considered in proposed models.

Sexual Fantasies

Sexual fantasy refers to cognitive activity that focuses on thoughts and images involving sexual content. As indicated in the 1985 review (see Table 1, deviant sexual arousal), studies investigating the relation of such cognitions to sexual aggression have typically used plethysmographic assessment to monitor sexual arousal to auditory and visual stimuli that purportedly tap specific fantasy preferences. The basic guiding premise of these studies has been that sexual fantasy is an important precursor to deviant sexual behavior (Abel & Blanchard, 1974).

Phallometrically based assessment has become popular partially because it was hypothesized that such measures would reduce the response set problems of self-report indicators dis-

cussed earlier. Detection of patterns of deviant sexual interests with these assessment techniques, when offenders denied such interests in their self-report, supported these hypotheses (e.g., Marshall & Christie, 1981). These measures are, however, not immune to faking (Quinsey & Chaplin, 1988; Quinsey & Earls, 1990). Although clever techniques to reduce dissimulation have been developed for auditory stimuli (Quinsey & Chaplin, 1988), no such demonstrably effective techniques are available for visual stimuli. Moreover, the procedures for the presentation of visual and auditory stimuli have not been standardized. There are also wide divergencies in the types of tumescence measures used and reported, ranging from temporal measures (e.g., latency, rise time, and recovery or detumescence time) to magnitude measures (e.g., total circumference change, shape of the detumescence curve, total area under the curve, and sampling of average circumference during stimulus presentation) and ratios (e.g., Abel, Barlow, Blanchard, & Guild, 1977). In addition, there remains some controversy about what should be measured, penile volume responses or penile circumference responses (McConaghy, 1989). Finally, the experimental control of stimulus material in phallometry studies has been far from optimal, and it is frequently difficult to determine which component of the stimulus is sexually arousing to the subject (Barbaree, 1990). Thus, until these methodological problems—faking, nonresponding, validation of stimuli and determination of the excitatory components of stimuli, and standardization of procedures and stimuli—are addressed, phallometry studies must be interpreted with appropriate caution.

Despite these problems, substantial evidence has emerged supporting the relation between fantasy (i.e., phallometrically assessed sexual preferences) and sexually deviant behavior (e.g., Marshall, Abel, & Quinsey, 1983; Quinsey & Earls, 1990). For instance, differential arousal patterns to specific sexual/aggressive stimuli have discriminated rapists from nonrapists and differentiated among rapists (Abel et al., 1977; Barbaree, Marshall, & Lanthier, 1979; Quinsey, Chaplin, & Upfold, 1984). Moreover, more recent studies have provided evidence that deviant sexual arousal patterns are an important identifier of sexually coercive men in noncriminal samples (Malamuth, 1986, 1989; Malamuth, Check, & Briere, 1986). Finally, phallometrically measured sexual interest in nonsexual violence has been found to be a predictor of both sexual and violent offense recidivism (Rice, Harris, & Quinsey, 1990).

Sexual fantasies have also received considerable clinical attention. The frequent targeting of such fantasies for therapeutic intervention (e.g., Laws, 1985; Marshall, 1973; Quinsey & Earls, 1990) reflects the widely held belief that the content, frequency, and intensity of deviant sexual fantasies have important implications for the identification and treatment of sexual aggression. Indeed, the presence of deviant sexual fantasies does appear to increase the likelihood of subsequent deviant sexual behavior (see, e.g., Abel & Blanchard, 1974). Moreover, the moderate success at increasing nondeviant arousal and behavior by applying techniques aimed solely at modifying arousal to deviant sexual fantasies (Marshall, Abel, & Quinsey, 1983) supports the hypothesis that deviant fantasies not only lead to and maintain deviant sexual behavior, but also impede normal sexual adaptation.

The theoretical, empirical, and clinical focus on sexual fanta-

sies has, however, generated more questions than it has provided answers. Aggressive sexual fantasies do not appear to be necessary or sufficient for sexual aggression. Some rapists, like nonrapists, evidence less arousal to stimuli depicting rape than to stimuli depicting consenting sexual activity (e.g., Baxter, Barbaree, & Marshall, 1986). Some nonrapist control subjects are as aroused by rape as by consenting sex (Abel, Becker, Blanchard, & Djenderedjian, 1978; Baxter et al., 1986). It is not clear whether such findings should be taken at face value as yet again another manifestation of the multifaceted nature of sexual aggression and another reminder of our ignorance about how the components of such aggression interact. In contrast, they could simply be attributed to methodological artifacts or the vulnerability of plethysmographic assessment to faking (e.g., Wydra, Marshall, Earls, & Barbaree, 1983) or to the vagaries of the stimuli typically used, which have not been standardized, and which are compound stimuli comprising complex elements that elicit a variety of responses (Barbaree, 1990).

The notion that sexual fantasy is complexly related to sexual aggression gains some support from evidence that the presence or absence and nature of such fantasies may be important in distinguishing subtypes of rapists (Brittain, 1970; Burgess, Hartman, Ressler, Douglas, & McCormack, 1986; Knight & Prentky, 1990; MacCulloch, Snowden, Wood, & Mills, 1983; Marshall et al., 1983; Prentky, Burgess, et al., 1989; Quinsey et al., 1984). The taxonomic importance of fantasy is most evident in the highly repetitive (or serial) offender. Indeed, there are some suggestions that the degree of deviant sexual arousal may be related both to the frequency of offending and to the amount of violence in offenses (Abel et al., 1977). Prentky, Burgess, et al. (1989) found that sexual fantasy differentiated between solo and serial sexual murderers. Moreover, there is retrospective evidence in the detailed studies of 41 serial rapists (Burgess, Hazelwood, Rokous, Hartman, & Burgess, 1988; Hazelwood, Reboassin, & Warren, 1989) that the onset of repetitive sexually aggressive behavior coincided with the first appearance of rape fantasies and that these repetitive offenders were also characterized by a high incidence of paraphilias. In such repetitive cases it has been hypothesized that the offender continually attempts to "stage" his fantasy, and the unsuccessful match between the reality of his attempts and the richness of his fantasies contributes to reoffending (MacCulloch et al., 1983).

It has been further hypothesized that the script or content of the sexual fantasy in these repetitive cases derives from explicit, protracted, sexually deviant and pathological experiences first sustained in early childhood (Prentky & Burgess, *in press*). That is, age of onset, duration, and degree of violence associated with sexual abuse may be functionally related to the likelihood of long term "encoding" in fantasy. Sexual abuse is not, however, a prerequisite of generic sexual aggression. Rather, it appears that sexual abuse and sexually deviant experiences, like sexual fantasy itself, may be a core feature of a subgroup of rapists distinguished principally by repetitiveness (Burgess et al., 1988; Hazelwood et al., 1989). Burgess et al. (1988) reported, for instance, that 56% of their highly repetitive rapists (average number of victims per subject = 30) had been sexually abused, compared with 23% reported by Seghorn, Prentky, and Boucher (1987) using a sample of less repetitive rapists (average number of victims per subject = 3).

The converging lines of evidence point to sexual fantasies as a key element, essential to any multivariate model of sexual aggression. The extant data also highlight significant gaps in our knowledge about these fantasies. In addition to our having little data on the content, intensity, and prevalence of various fantasies both in rapist and nonrapist populations, we also know very little about the relation of such fantasies even to other sexual aberrations among rapists (e.g., exhibitionism, voyeurism, fetishism, and transvestism). Nor do we know the relation of the frequency and intensity of sexual and sexually coercive fantasies to the frequency of sexual arousal, to the frequency of sexual relations and masturbation, to specific etiologic factors, to the use of pornography, to the frequency of concerns about sexual inadequacy and masculine self-image concerns, and to the frequency of uncontrollable sexual urges. The relation of sexual fantasies to other sexual behaviors and to the other dimensions of rape that we have identified is critical to a full understanding of sexual aggression.

Sadism

The salience and magnitude of the violence in a sadistic offense has attracted substantial clinical attention. As can be seen in Figure 1, virtually every proposed classification system has included a category for the sadistic offender. The apparently widespread conviction that an empirically valid, theoretically cohesive set of behaviors can be specified that define a sexually sadistic type of offender has also been reflected in the inclusion in *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed., rev. (*DSM-III-R*; American Psychiatric Association, 1987) of a diagnostic category for a sadistic paraphilia. Despite this attention in the clinical literature, little empirical data have been generated on sadism. Indeed, neither the typological systems cited in Figure 1 nor *DSM-III-R* have provided even adequate operational criteria for judging sadism. Typically, central to the definition of sadism is a pattern of extreme violence in the offense that has often focused on erogenous areas of the body and that may be considered bizarre or appear ritualized. Hypothesized associated characteristics of overt sadism have also included manipulative, impulsive behavior; clear lack of empathy with the victim; unstable interpersonal relationships; a history of nonsexual offenses; childhood and adolescent behavior patterns characterized by cruel and malicious acts; and early signs of psychiatric disturbance (Knight et al., 1985; Langevin, 1983; Prentky et al., 1985). Little evidence exists, however, either about the specificity of such violence or about the association of purported characteristics with sadistic rapists.

In the series of validity studies carried out on MTC:R2 (Knight & Prentky, 1987; Prentky et al., 1986; Prentky et al., 1988; Rosenberg et al., 1988), many of the clinical speculations about the characteristics thought to differentiate sadistic offenders were not supported. Only minor corroborations emerged from these data. Sadists were differentiated from displaced anger and compensatory types by a higher propensity for acting out impulsively as adults and by a faster reoffending rate (Prentky et al., 1988; Rosenberg et al., 1988). They were, however, less impulsive and antisocial as children and adolescents than were exploitative rapists (Rosenberg et al., 1988). Sadists were found to have been more psychiatrically disturbed

as adults than the exploitative rapists, but not significantly more disturbed than compensatory or displaced anger rapists (Rosenberg et al., 1988). Sadists also offended more frequently against victims who were close friends or family (19.4% of their victims) than did compensatory, exploitative, or displaced anger types (2.5–8.0%; Prentky et al., 1986). The major characteristics that seemed to differentiate sadistic from nonsadistic offenders involved sexual deviation and abuse, with sadists more often coming from families in which there was sexual deviation, more frequently engaging in other paraphilias, and typically manifesting the lowest level of heterosexual pair-bonding and the highest level of homosexual pair-bonding (Knight & Prentky, 1987; Prentky et al., 1988). Paraphilias have been associated with sadism in a number of other studies as well (e.g., Langevin et al., 1988; MacCulloch et al., 1983).

One explanation for the poor discrimination of the sadistic type from other types in the MTC:R2 analyses may be the interrater reliability problems encountered in discriminating among violent, expressively aggressive offenders in this system (Prentky et al., 1985). For instance, although the initial decision, separating the expressively aggressive displaced anger and sadistic offenders from the instrumentally aggressive compensatory and exploitative types, showed a good degree of interrater reliability (Prentky et al., 1985), the subsequently applied distinction between the two expressively aggressive types was barely acceptable ($\kappa = .44$; Prentky et al., 1985). One factor that reduced agreement between these two types became evident in subsequent analyses (Knight & Prentky, 1990). A previously unspecified type of expressively aggressive offender, who exhibited neither the focused misogynistic anger of the displaced anger type nor the sexualized aggression of the sadistic type, emerged. These men seemed indiscriminately angry and inflicted considerable damage on female and male victims, but could not be reliably placed in either expressive type. In cluster analyses of the entire resident population at MTC, this type emerged as a cohesive cluster (Cluster 4; Rosenberg & Knight, 1988). Subsequently, it reappeared both in a cluster analysis of all the rapists in the resident and released samples from MTC and again in a cluster analysis of only expressively aggressive rapists (Knight & Prentky, 1990). Because this type has good cohesion and its inclusion could possibly help to improve the reliability of classifying expressively aggressive offenders, it has been included in the most recent version of our typology (Knight & Prentky, 1990). In this new system (MTC:R3) we have also attempted to provide concretized criteria for sadism. Although the new listing of purported sadistic behaviors has somewhat improved the judgment, a clear operationalization of the construct has remained elusive because of the inferential nature of the motivational and arousal components involved. Inferring sexual arousal to injury or distress even from detailed descriptions of offense behavior is a formidable task.

One of the fundamental, unresolved, theoretical questions about sadism involves the purported core feature that has proved so difficult to judge from offense behavior—the sexual arousal of sadists in response to the infliction of pain or distress. Indeed, this hypothesis appears to be counter to one recent model of sexual arousal in rapists. Barbaree (1990) has argued that studies that have examined the sexual arousal of both nonrapists and generic rapists to various sexual situations,

varying from mutually consenting sex to rape to nonsexual violence, can best be understood by a model that combines both excitatory and inhibitory effects. It is hypothesized that the inhibitory component is related inversely to the proclivity to sexually assault women and is therefore the more critical component in sexual aggression. Basically, men respond to sexual stimuli with sexual arousal. Among men without a proclivity to sexual aggression (i.e., those with prosocial attitudes and behaviors toward women), sexual arousal is hypothetically inhibited by the presence of force or violence or by the woman's nonconsent or distress. Rape-prone men purportedly lack this inhibitory response to varying degrees. Barbaree (1990) attributes to experimental artifact both the significant but small response of nonrapists to nonsexual violence and the somewhat larger, but not consistently found, arousal of rapists to nonsexual violence. Because the nonsexual violent depictions used in studies are typically embedded within a sequence of other conditions that contain explicit sexual material, it is difficult to determine what produces the low levels of arousal—violence per se or the subject's anticipation, based on his experience with previous conditions, that the violent scene will eventually contain sexual activity (Barbaree, 1990). It appears unlikely, however, that whatever arousal has been detected in response to nonsexual, violent scenes is a function of the violence per se, because such arousal is negligible when the violent scene involves two men rather than a man and a woman (Quinsey et al., 1984).

Most of the studies that have examined the possible covariation between the infliction of injury and plethysmographically measured sexual arousal have focused, however, on generic samples of rapists rather than exclusively on sadists, partially because of the difficulties, which we have discussed above, in reliably identifying sadism. The few studies that have examined more aggressive rapists have found some evidence that these more violent offenders respond to nonsexual violence more than do control subjects (Quinsey et al., 1984). It appears that the weakness of inhibitory controls of sexual arousal in the presence of force, violence, nonconsent, and victim distress may be more important for most rapists than their sexual arousal to violence. It is not yet clear, however, whether there is a small subset of offenders for whom the violence and victim distress are themselves sexually arousing. Clearly, the significant place afforded sadism in typological systems has more clinical than empirical support, and substantial definitional work and empirical scrutiny are required to determine the constructs that contribute to sadistic violence.

Irrational Attitudes/Cognitive Distortions

The social and cultural factors that have been hypothesized to contribute to sexual violence include the permissive responses of a wide variety of social systems and institutions that function to perpetuate rape myths and misogynistic attitudes, the objectification and exploitation of children and women in pornography, and the often similar but more subtle messages conveyed in advertising, that support, or at least condone, sexual harassment (see Stermac, Segal, & Gillis, 1990, for a recent review). Indeed, many facets of sexual aggression represent institutionalized, normative behaviors that are deeply ingrained in the social fabric.

Social attitudes and likelihood of rape. The causal relation among demeaning and misogynistic attitudes, attributions, moral evaluations, and sexual violence is, arguably, one of the more important areas of inquiry in the domain of research on sexual aggression. This area of research, emerging both from the laboratories of experimental social scientists and from the writings of feminist theorists, dovetails nicely with the clinical and experimental psychopathology research on cognitive distortions. Whereas social and feminist research has tended to focus on rape myths and rape-supportive attitudes held by a cross-section of society (i.e., *nonoffenders*), the clinical research has focused on the irrational and offense-justifying attitudes expressed by offenders (i.e., child molesters and rapists).

Despite considerable consensus on the critical importance of this dimension, few investigators have focused on developing and testing multifactorial models that seek to link irrational attitudes and sexually aggressive behavior. The studies that have been done indicate that such attitudes are related to a higher probability of coercive sexual behavior. For instance, Malamuth (1981, 1989) found that the likelihood of rape as assessed by the Attraction to Sexual Aggression Scale was associated with callous attitudes about rape and the endorsement of rape myths. Such misinformed attitudes about rape are quite prevalent. Burt (1980) found that over half of a random sample of 598 men and women in Minnesota believed that reports of rape were usually due to women concealing a pregnancy or seeking reprisal against a man. These subjects also believed that in the majority of rape cases the victim was promiscuous or had a bad reputation.

The growing body of literature on rape tolerance (e.g., Hall, Howard, & Boezio, 1986; Malamuth, 1981, 1989) suggests that rape proneness is a continuum within the general male population. If an individual is in the upper end of the continuum, he can be identified as a "high risk" for raping. This cognitive or attitudinal factor is assumed to interact with other constitutional (e.g., disinhibition) and situational (e.g., opportunity) factors in fostering coercive sexual behavior.

Cognitive distortions of offenders. The covariation of rape myths, negative attitudes toward women, and rape-prone attitudes with sexual coercion in nonoffender samples would suggest that sexual offenders would, as a group, be significantly deviant on scales measuring these or related constructs. Rapists' attitudes about the traditional roles of women and their freedom and independence were, however, found not to differ from nonsexual offenders and low SES nonoffender control subjects on Spence and Helmreich's (1972) Attitudes Towards Women Scale (Segal & Stermac, 1984). Moreover, none of the three groups differed significantly from the original standardization sample for the scale. In their review of the literature, Segal and Stermac (1990) concluded that, whether the control subjects were selected from inside or outside of prison, rapists did not differ from low-SES control subjects on attitudes concerning women's role in society, fear of devaluation in social encounters with women, or personal statements expressed during conversation with female confederates.

Such results do not, however, exonerate the cognitions of rapists. The importance of cognitions in moderating sexual arousal has been repeatedly demonstrated (e.g., Segal & Stermac, 1990), and clinical observations have suggested that many

sexual offenders harbor offense-justifying attitudes (e.g., Malamuth, 1981; Murphy, 1990; Scully & Marolla, 1985; Segal & Stermac, 1990). One possible explanation for the failure to differentiate generic rapists from control subjects on their attitudes toward women and rape is that these offenders are heterogeneous in such attitudes. Indeed, many typologies describe a particular subgroup as distinctly misogynistic, holding generalized negative and demeaning attitudes about women (Cohen et al., 1969; Groth, 1979; Knight et al., 1985; Prentky et al., 1985; Scully & Marolla, 1985). To the extent that these attitudes are held only by particular subtypes but not by others, differentiation of generic rapists on these attitudes would not be expected. As Segal and Stermac (1990) have suggested, typological examination of the role of distorted cognitions and attitudes is essential.

It has been hypothesized that maintenance of irrational attitudes may serve the purpose of justifying sexually coercive behavior and thereby increasing the probability of recidivism (e.g., Burt, 1980). Certain attitudes may serve the role of disinhibiting sexual aggression in particular men (Lipton, McDonel, & McFall, 1987). Yet, there is a dearth of empirical data on the frequency and variety of offense facilitating cognitions, or of their precise relation to offense behavior, to offender characteristics, or to offender types. The potential importance that these data can provide both to cognitive therapeutic interventions and to the elucidation of the motivational components facilitating and maintaining sexually aggressive behavior warrant further investigation.

Control and Dominance

The early association between dominance and sexual behavior emerged from two major areas of inquiry, primatological and psychoanalytic (see Abernethy, 1974). Abernethy (1974) marshaled support for the hypothesis that whereas male dominance facilitates male-female copulation, female dominance inhibits it. A variety of perspectives—clinical/motivational (Groth et al., 1977; Lisak & Roth, 1988; Malamuth, 1986; Scully & Marolla, 1985), attitudinal (Malamuth, 1989), sociocultural (Darke, 1990; Sanday, 1981), and ideological (Malamuth et al., 1986)—share an assumption that themes of dominance and control are also importantly related to sexual assault.

The transmission of "rape-supportive" attitudes is hypothesized to occur, from a sociocultural vantage, through the socialization of men to assume a macho dominant role and of women to assume a submissive role (Malamuth et al., 1986). In this instance, the masculine role within the male peer system is defined and supported by "conquering" and sexually using women. The expectation that women will behave in passive, powerless ways, particularly in sexual encounters, is perceived as their birthright as men.

Malamuth et al. (1986) used a male dominance scale derived from a factor analysis of Burt's (1980) instrument for assessing attitudes about sexual aggression. This scale significantly discriminated among three groups of "sexual arousal to force." That is, the higher the arousal from the use of force, the greater the endorsement of male dominance. The dominance scale used by Malamuth (1986) was highly correlated with the hostility toward women scale, the acceptance of interpersonal vio-

lence against women scale, and (self-reported) sexual aggression. Dominance did not, however, account for unique variance. In a series of regression analyses, Malamuth (1986) found that this predictor interacted with the three above-mentioned variables. In two subsequent studies using the same scale, the criterion of dominance was correlated with several predictors, most notably the Attraction to Sexual Aggression Scale, the likelihood to force item, and the likelihood to force/rape index. As in the case of the 1986 study, a series of regression analyses yielded a more complex picture, suggesting shared variance among predictors.

From a clinical perspective, the role of dominance is embodied in the "compensatory masculinity hypothesis" (Babl, 1979). According to this hypothesis, rape can be understood as an antisocial expression of exaggerated masculine-typed behaviors, originating in acute feelings of social and sexual inadequacy. Such compensatory masculinity purportedly motivates the potential offender to overcome feelings of inadequacy by asserting control, and indeed dominance, in the most potentially threatening arena—sexual behavior. Masculinity, as it is generally conceived, embraces sexual dominance (Darke, 1990). A predictable outcome of experienced inadequacies in the realm of masculinity is to shore up those deficits with exaggerated or hypermasculine behavior. The constellation of clinical features associated with compensatory masculinity has been hypothesized to be found most often in the "power-reassurance" or "compensatory" rapist (see Groth et al., 1977; Prentky et al., 1985). Although many clinicians have incorporated into their motivational models of rape the implicit, if not explicit, role of dominance and control, we have little or no empirical data to corroborate such speculation.

Dominance and control remain, at this point, in the realm of untested hypothetical motives for rape. Although the dominance or control motive is clinically and theoretically attractive, it has not been examined empirically among offenders. In addition, it is important to distinguish the different manifestations of dominance. The data examining dominance in noncriminal samples emphasize its covariation with hostility toward women. The clinical speculations just discussed associate it with compensatory masculinity. Also, a macho form of dominance has been hypothesized to exist among some impulsive antisocial offenders, who have little or no evidence of sexualization (see column C in Figure 1). This form of dominance may appear very different from the compensatory sociosexual inadequacy of the power-reassurance rapist. Both of these patterns of dominance may be quite dissimilar from the expressions of dominance and control occasionally observed among sadistic offenders (see MacCulloch et al., 1983). Clearly, the construct requires operational refinement, and a detailed exploration of its components, their relation to each other, and their relation to other dimensions is necessary.

Disinhibitors

A number of factors may be called disinhibitors, because they hypothetically circumvent normal controls, thereby increasing the probability of a variety of sexually anomalous behaviors, including rape. These factors are generally considered to be alcoholism, psychosis, organicity/senility, and mental re-

tardation. Each of these factors has been found to be present in a notable minority of sex offenders (Gebhard et al., 1965; Knight et al., 1985; Rada, 1975). Specifying the role that each of these factors play, however, remains quite problematic. Some writers have argued that these factors are sufficiently critical to the offense behaviors and life adaptations of some offenders that they deserve their own subtypes. For instance, Gebhard et al. (1965) included categories for alcoholic, mentally defective, and psychotic rapists. Rada (1978) defined one type of rapist as psychotic.

In evaluating the role of these disinhibitors, three critical issues must be considered: sample prevalence, covariation, and etiology. First it must be determined whether the sample prevalence of these disinhibitors among sex offenders is sufficient to warrant further scrutiny. Although the reports are highly variable, it would appear that alcoholism is a reasonable candidate for further examination by virtue of its prevalence. The weight of evidence thus far seems to suggest that about half of all sex offenders were drinking at the time they committed their offenses or were identified as having a serious problem with alcohol (see Ladouceur & Temple, 1985; Langevin, Paitich, & Russon, 1985; Rada, 1975). Despite the high sample prevalence, the role that alcohol plays remains unclear (Quinsey, 1984). At this point, psychosis, retardation, or organicity do not seem sufficiently prevalent to be major components of any explanatory model (Knight et al., 1985), but they might be important for a small number of individuals.

Little data have been gathered that address the *second* issue, the covariation of these disinhibitors with other dimensions of rape. Although there is a growing literature that examines the possible neuroanatomical correlates of sexual aggression (e.g., Langevin, 1990; Langevin et al., 1988; Lewis, Shanok, & Pincus, 1981; Prentky, 1985), no reliable evidence specifies how such deficits may be differentially related to offender types. A reasonable hypothesis is that structural and functional impairment will more likely be related to the dimension of aggression, especially sadism (Langevin et al., 1988), than to dimensions involving traits of personality (e.g., psychopathy), social competence, or misogynistic attitudes. One speculative model, however, proposes possible biological substrates of fantasy-driven repetitive sexual aggression (Prentky & Burgess, in press).

The data on psychosis and mental retardation provide very little support for a relation between either "insanity" or retardation and rape (Knight et al., 1985; Quinsey, 1984). Even among sadists, the subgroup of rapists that would appear to be most severely disturbed, Brittain (1970) found no evidence of psychosis. Although MacCulloch et al. (1983) excluded psychotics from their study, they noted that they had observed in their clinical work only two cases of sadistic offenders with a history of schizophrenia. Alcohol has often been associated with aggression and violence in sexual and nonsexual offenses (e.g., Collins, 1989; Rosenberg et al., 1988). There is little evidence, however, to support its covariation with any of the other dimensions discussed here. From a typological standpoint, we would speculate, along with Quinsey (1984), that the role of alcohol use may differ among rapists (e.g., whereas "exploitative" rapists may use alcohol to disinhibit their victims, "compensatory" rapists may use alcohol to disinhibit themselves), but no data exist that support this contention. The gist of these results sug-

gests that several disinhibitors (particularly alcohol and possibly brain damage) may covary with typological or dimensional assignments in specifiable ways and that they may contribute to our understanding of particular types of rapists.

The *third* issue focuses on whether these disinhibitors possess etiologic significance. That is, can these four factors, independently, explain the occurrence of sexually deviant behavior? It has elsewhere been argued that the answer is no (Prentky et al., 1985). Disinhibitors contribute to the relaxation of controls and the expression of a preexisting tendency to engage in a particular behavior. That is, no matter how intoxicated someone is, it is highly unlikely that that person will rape if the inclination to do so did not exist prior to getting drunk. The importance of cognitive processes in mediating the expectancy effects of alcohol on sexual and nonsexual violence has been the subject of considerable inquiry (e.g., George & Marlatt, 1986). It appears that alcohol *can* modify the expression of sexually aggressive behavior and that these effects are most likely to occur in concert with a cognitive expectation of the impact of the alcohol and with situation-specific events. As with alcohol, it may be argued that those who are mentally retarded, psychotic, or organically impaired are not, *simply by virtue of their debility*, at increased risk to be sexually aggressive. Although none of these disinhibitors alone possess motivational homogeneity, each may be differentially important when situational and taxonomic factors are considered.

Summary of Unidimensional Validity

Table 2 presents an evaluative summary of the empirical support for each of the eight dimensions provided by the studies surveyed in this article. The asterisks in this table represent judged discriminatory power of each dimension in each of four research domains. The first domain, childhood and juvenile antecedents, refers to early life history variables that may be related to the dimension. In the text we have often referred to this domain as "etiology." Causality is *not*, however, necessarily implied. The second domain, offense history, refers to a dimension's relation to the frequency of offenses or to reoffense. The third domain, concurrent validity, refers to the correlation of theoretically relevant contemporaneous measures with the dimension. The fourth domain, treatment, refers to clinical intervention that attempts to modify the dimension. A dash indicates that although there is considerable clinical speculation, little empirical support for the dimension has emerged. A single asterisk suggests weak empirical support (a single study or inconclusive findings). Two asterisks suggest moderate empirical support (two studies providing clear support). Three asterisks suggest strong empirical support (three or more studies providing support). We will summarize the support for each dimension in turn.

The amount or quality of aggression has long been assumed to differentiate between offenders who were, and those who were not, willing to use extreme force to gain victim compliance. The dimensionalization of aggression has, for the most part, failed to capture the subtle nuances of offense-related anger (e.g., forcing the victim to engage in acts that the offender perceives to be humiliating but that do not cause extreme physical injury) as well as *non-offense-related* anger (e.g., in consent-

Table 2
Empirical Support for Unidimensional Discriminability

Dimension	Childhood/juvenile antecedents	Offense history	Concurrent validity	Treatment
Aggression	*	*	*	—
Impulsivity	**	***	***	—
Social competence	*	*	*	*
Sexual fantasies	—	***	***	***
Sadism	*	*	***	—
Cognitions	—	—	***	*
Dominance/control	—	—	***	—
Alcohol use	—	—	***	—

Note. Dash = frequent clinical speculation with little empirical support; * = weak empirical support; ** = moderate empirical support; *** = strong empirical support.

ing relationships). In addition, situational determinants may alter or modify the level and quality of aggression in a given offense. From the standpoint of etiology, although earlier sex offender studies, which treated aggression as a univocal construct, found little evidence for developmental antecedents, a recent study has provided evidence that distinct aspects of developmental pathology were differentially related to the amount of sexual and nonsexual aggression in adulthood (see Prentky, Knight et al., 1989). The few studies that have examined aggression provide only weak or inconsistent support for its concurrent validity or its role in predicting recidivism. The importance of anger management for offender treatment is rightly assumed by clinicians. The efficacy of anger management modules has, however, not been tested.

Impulsivity has long been a cynosure for the general criminal literature and, more recently, the sexual assault literature. The etiologic significance of life-style impulsivity is, however, unclear. Impulsivity may be viewed as one component of a larger nosologic entity (e.g., psychopathy or episodic dyscontrol) or as an independent dimension. There is evidence that impulsivity is highly stable over the life course, inextricably interwoven with antisocial behavior and associated with a variety of taxonomic outcomes (Rosenberg et al., 1988). Considerable work is required to determine whether impulsivity conveys unique etiologic importance or whether it is a feature embraced by a larger personality disorder. Life-style impulsivity has been found to be a powerful predictor of recidivism (Prentky et al., 1991) as well as frequency of offending (Hall, 1988; Hall & Proctor, 1987; Prentky & Knight, 1986; Rice et al., 1990; Rosenberg et al., 1988). Lisak and Roth (1988) found impulsivity to be related to self-reported sexual aggression among college men. The fact that this dimension has emerged as an important discriminator across such widely divergent samples suggests that it is a powerful theoretical component of rape. Clinicians have long recognized the importance of impulsivity for relapse and have introduced self-control and impulsivity management modules into treatment. As in the case of aggression, however, the efficacy of these modules for sexual offenders has not been tested.

Social competence is a temporally stable, multiply determined dimension that affects, in varying degrees, offenders as well as nonoffenders. Although many studies have examined the relation of social competence to sexual aggression, its role is far from clear. Because it has many components, specifying

what aspect one is assessing is critical. For instance, there is rather consistent support that rapists have assertiveness problems, but differences in other components of their social competence are less evident. Because social competence appears factorially complex and because in recent studies it has had a poor showing as a main effect, in Table 2 we have assigned it a single asterisk rating, weak empirical support, in the four research domains. As we have indicated, social competence is complexly related to etiology and recidivism for some types of offenders. Its validity and discriminatory power must be examined interactively with other dimensions. The role of social competence is most often entertained when designing treatment plans. Despite a long tradition of social skills training, the evidence that supports its efficacy is deemed to be questionable (McFall, 1990). Understanding the role of social competence may ultimately be deciphered only in the context of typological analyses (Knight & Prentky, 1990).

The relation of childhood or juvenile antecedents to adult deviant sexual fantasies has generated a substantial amount of theoretical speculation (e.g., Burgess et al., 1986; Marshall et al., 1983; Prentky & Burgess, in press), but no empirical studies have directly addressed this critical issue. One of the more promising candidates may be sexual abuse. Much work is needed, however, to identify the complex interactive conditions under which such abuse increases the likelihood of sexual aggression in adulthood. Although the predictive power of sexual fantasies is implied in the relation of phallometrically measured sexual interest to sexual offense recidivism (Rice et al., 1990), the presumptive criticality of sexual fantasies for reoffense is most evident in the research on serial rape (e.g., Burgess et al., 1988; Hazelwood et al., 1989; Warren, Reboassin, Hazelwood, & Wright, 1991). The concurrent validity of sexual fantasies is supported by many studies that demonstrate the discriminability of deviant sexual arousal patterns for rapists as well as sexually coercive men in nonoffender samples. Although considerable empirical data have been marshaled supporting the validity of phallometrically assessed sexual arousal patterns, ample contradictory evidence also exists, suggesting both methodological variance among studies and the complex nature of the dimension. A number of typological studies have suggested the differential importance of sexual fantasies for particular types of offenders (e.g., Hazelwood et al., 1989; Prentky, Burgess, et al., 1989; Warren et al., 1991), pointing to its potential

importance in etiologic and reoffense domains for those types. The modification or extinction of sexual fantasies has been a major focus of treatment intervention. Clinical efforts thus far have been moderately successful at modifying deviant arousal and behavior through the use of a variety of behavioral techniques.

There is a paucity of empirical literature on sadism, leaving the dimension richly described but unanchored by data. There is weak evidence in both etiologic and reoffense domains, suggesting that sadists, relative to other types of rapists, may be more likely (a) to have come from a family in which there was sexually deviant behavior, (b) to have had the lowest level of heterosexual adaptation, (c) to have offended against victims who were known to them, and (d) to have recidivated more quickly. Concurrent validity receives somewhat stronger support, primarily from the greater association of paraphilic behaviors with sadism than with other offender types. These sexually anomalous behaviors are presumed to reflect an active fantasy life that is dominated by deviant thoughts and impulses. Although procedures for clinical intervention with sadists have been described (e.g., Langevin, 1983), only case studies are available.

The dimension of irrational attitudes and cognitive distortions, which spans social, experimental psychopathology, and clinical research, represents a critical area of inquiry. Studies focusing primarily on nonoffenders have provided considerable support for the concurrent validity of these attitudes. These "rape proneness" studies have demonstrated clearly the prevalence of offense-justifying attitudes in the general male population. Inconsistent support for such attitudes among samples of rapists suggests the need for subtype differentiation. The use of generic or undifferentiated offender samples and failure to control for the independent effect of "attitudes" have undermined attempts to relate this dimension to offense history. Thus far, the dimension has not been incorporated into multivariate outcome models that would permit examination of its prepotence as an antecedent factor or its interaction with other critical dimensions. As with sexual fantasies, the modification of irrational attitudes has been a major focus of treatment intervention. Clinical efforts at modifying such attitudes through a variety of behavioral techniques have proven promising; but because in the extant literature it is difficult to disentangle the specific effects of altered cognitions from other effects, we have assigned only a single asterisk rating to treatment. As in the case of sexual fantasies, however, success at changing attitudes, even over the long term, cannot be related to risk of reoffense because these individual components (e.g., fantasies or attitudes) have not been examined separately in criminal outcome studies.

Although it has a long theoretical history, dominance has been subjected to empirical scrutiny only recently. Indeed, all of the evidence for its validity derives from concurrent studies in which it has been found to discriminate between sexually coercive and noncoercive college students (see Table 2). At this point, very little is known about its antecedents or about its relation to recidivism. The dimension of dominance undoubtedly embraces a wide range of attitudes that exist, in varying degrees, throughout the nonoffending, as well as the offending, population. Thus, its etiologic importance is almost certainly a

function of other interrelated dimensions. Malamuth (1986) found, for instance, that dominance did not account for unique variance, but that it interacted with three other predictors. Although issues of dominance and control are often raised and addressed in the context of treatment, no information is presently available on the treatment efficacy of these selected attitudes. Dominance may be a subset of attitudes that falls under the larger umbrella of cognitive distortions and, as such, deserves to be incorporated within that domain.

The role of alcohol in the commission of sexual offenses has received considerable attention. Despite the numerous studies that have suggested a presumptive etiologic contribution of alcohol to sexual aggression, the actual role that alcohol plays remains unclear. Alcohol may, in some instances, be necessary, but it is highly unlikely that it is ever sufficient to motivate rape. In general, there is more evidence to support its concurrent validity than its postdictive validity. Alcohol, as a disinhibitor, is associated both with an increase in violence and with a decrease in self-control. Thus, assessing the covariation of alcohol with the dimensions of aggression and impulsivity is essential for appraising its concurrent validity and its discriminability with respect to recidivism. Moreover, alcohol undoubtedly covaries with offender type. Treatment for alcohol abuse plays an integral role in many treatment programs. The differential efficacy of this component for treatment has not, however, been examined.

Thus, this summary of the univariate dimensions hypothesized to be critical for building models of rape indicates that, although there are methodological problems that plague rape research in general, and each dimension has its own set of methodological dilemmas, rape is a multidetermined behavior that will ultimately be explained only by models incorporating a multitude of dimensions. Such multivariate models are, however, going to be only as solid as the univariate dimensions they embrace. The discussions of each dimension indicate that if these dimensions are going to serve as building blocks for multivariate structures, substantial empirical research is required at the univariate level (a) providing better, more behaviorally anchored, reliable assessments of each domain; (b) exploring ways to reduce the response sets that distort the assessment of each domain; (c) differentiating the various critical operative components within each domain; (d) assessing the prevalence and incidence of the components of each domain in various rapist, criminal, and normal populations; and (e) determining the covariation of each domain with various therapeutic interventions.

Creating Models of Sexual Aggression

Although multivariate models obviously profit from having reliable, homogeneous, valid univariate dimensions on which to build, the process is not one of merely refining univariate dimensions until they can be nicely structured into tight models. Rather, the process is a complex, interactive, iterative one in which the fashioning of the dimensions and the structuring of their interrelation is bootstrapped (Meehl, 1990a). As is true in the history of all sciences, either commonsensical models; or vague theoretical models; or models borrowed from other possibly related, more developed areas; or models of preset, general

structures like statistical algorithms will be applied to crude measures resulting in partly or completely inaccurate clusterings of attributes or people. Then by a complex refinement process, the measurement of dimensions and the assessment of the interrelations among dimensions will be fine-tuned until theoretically powerful dimensional and taxonomic indicators emerge. Thus, the refinement of univariate dimensions and the developing and testing of multivariate models are parallel rather than serial processes.

The process of generating and testing multivariate models is, of course, fraught with its own set of methodological and theoretical pitfalls, a discussion of which goes far beyond the bounds of this article. The researcher who uses the multivariate methods appropriate for testing such models faces a vast array of statistical problems, including, among others, multicollinearity, meeting the assumptions of the statistics used (e.g., normality, linearity, and homoscedasticity), and attaining adequate statistical power to test theoretical models (see Cohen & Cohen, 1983; Meehl, 1990b; Tabachnick & Fidell, 1989). Moreover, in both designing and interpreting studies, the investigator inevitably encounters the knotty theoretical and methodological quandaries of problematic auxiliary theories and *ceteris paribus* clauses that mediate between the multivariate models and their testing and disconfirmation (Knight & Prentky, 1990; Meehl, 1990b). Finally, one must confront the pervasive, often neglected, "crud factor," the problem in soft areas of psychology that because of obscure and complex causal influences, everything one measures tends to correlate with everything else (Meehl, 1990b).

Preliminary attempts at building multivariate models for rape have only begun, and it is our intent simply to introduce them here as indications of starting points. Even these primitive, initial, integrative forays suggest that simple additive, linear models will not be sufficient to account for the complexity of the behaviors observed (see Knight & Prentky, 1990; Malamuth, 1986). It is becoming increasingly clear that sexual aggression is the product of an aggregation of interacting components and that concurrent and predictive validity will be maximized only by applying diverse research strategies to a range of populations and by examining models in which multiple variables interact to produce sexual aggression.

Multivariate Regression Approach

In noncriminal populations, the identification of sexually coercive men has been enhanced when multiple factors were taken into account (Lisak & Roth, 1988; Malamuth, 1986), indicating that multiple variables do not simply provide redundant information. Moreover, when interactions among significant components have been considered, the predictive validity of multiple regressions has been found to increase significantly (Malamuth, 1986). To date, however, the consideration of interacting factors in noncriminal populations has been limited to assessing their empirical contribution to enhancing predictive validity. The nature of the interactions found has not been statistically explored by examining the changes in predictive power of one component for subdivisions of other components (Cohen & Cohen, 1983), and these interactions have not been incorporated into theoretical models of sexual aggression. Such

testing of interactions and more complex model building are certainly high priorities for future research.

Taxonomic Approach

In the studies of criminal populations, considerations of the interactions among multiple variables have been largely confined to studies exploring taxonomic models. The MTC Taxonomy Program has attempted to apply an iterative, empirically responsive integration of both rational/deductive and empirical/inductive taxonomic strategies to generate, test, revise, integrate, and refine taxonomic models for rapists (see Knight & Prentky, 1990). The history of the taxonomic revisions in this program is illustrated in Figure 2. For the purpose of the present discussion, we will focus on two developments in this taxonomic program. First, the data-driven nature of this program has at each stage of development forced the introduction of additional dimensions to account for previously unexplained variance in the system, so that the final model now incorporates most of the dimensions that we discussed above. Second, the simultaneous application of deductive/rational and inductive/empirical taxonomic strategies has provided an investigative structure in which questions of interacting dimensions have been proposed and objectively assessed. We will consider each of these developments in turn.

Data-driven multidimensionality. We arrived at the first hypothetical taxonomic model for rapists (MTC:R1) by comparing extant systems (see Figure 1) and determining what types had consistently appeared across typological models. The four types in the Cohen et al. (1969) system represented the most commonly proposed types, and they became the focus of our preliminary investigation. An analysis of the features purportedly differentiating among these types led us to focus on the amount and nature of the aggression in the crime, the degree of offense planning (i.e., the degree to which the sexual assault was the function of preoccupation with a sexual fantasy rather than an impulsive action), and the presence or absence of sadistic components. As we indicated earlier, in attempting to apply this first "rationally" derived typology (see Knight et al., 1985), we were forced because of reliability problems to introduce life-style impulsivity as an additional diagnostic criterion to resolve assignment discrepancies and to account for types that emerged when we attempted to apply the system. Thus, we generated our first revision of the rational diagnostic system (MTC:R2; see Knight et al., 1985; Prentky et al., 1985) by introducing life-style impulsivity into the hierarchical decision structure (see Figure 2).

In parallel with our consideration of the reliability and validity of a rationally derived typology, we implemented an inductive/empirical strategy, in which we cluster-analyzed rapists and child molesters on hypothetically critical variables (Rosenberg & Knight, 1988). From these analyses, social competence and pervasive anger emerged as important components that were accounting for significant taxonomic variance. The integration of validity analyses that were carried out on MTC:R2 (Knight & Prentky, 1987; Prentky & Knight, 1986; Prentky et al., 1986; Prentky et al., 1988; Rosenberg et al., 1988) and a series of cluster analyses on the same sample (Knight & Prentky, 1990; Rosenberg & Knight, 1988) ultimately led to a second revision of

the typology that reorganized the typological structure in accord with the cluster analytic solutions and introduced both social competence and pervasive anger as taxonomic criteria (see Knight & Prentky, 1990). This reorganization of the types, so that similar types were juxtaposed, is illustrated in Figure 2. The lines connecting the types of MTC:R2 to their MTC:R3 analogues are dashed to indicate that although the new types bear some thematic and motivational similarities to their predecessors, the substantial changes in assignment criteria have altered the type compositions. The new MTC:R3 system provided a flexible framework that either solved or could efficiently accept solutions to the major difficulties we had identified in our reliability and validity analyses of MTC:R2. Thus, our data-driven approach to taxonomic testing and revision has forced us to operationalize and introduce the majority of the critical dimensions we have reviewed in this article. Only irrational cognitions and disinhibitors, whose taxonomic status still remains untested, have not been incorporated into MTC:R3.

Specifications of interactions. Our dual-strategy, multivariate approach to taxonomy generation and testing has also yielded a polythetic typological structure that incorporates multiple interactions among the major dimensional criteria. In our early attempts to revise MTC:R2, we tried to maintain the hierarchical, monothetic structure of that typology (see Knight & Prentky, 1990), but extensive experimentation with alternative monothetic models produced only cumbersome systems with numerous types that had no empirical reality. The prototypic, polythetic structure of MTC:R3 requires that assignment to each proposed type be determined by a case reaching an independently specified set of criteria for each type, rather than by being classified through a hierarchical dichotomization of relevant criteria. Thus, some criteria are not relevant to assignment to particular types, and multiple interactions among criteria are embedded in the system. These interactions are currently being subjected to empirical scrutiny. After the reliability and validity of the system have been tested, assessment of the generalizability of the system to broader samples of rapists (general criminal populations and outpatients) will follow.

Hopefully, both the multivariate dimensional model-building approach of Malamuth, which incorporates multiple interactions among dimensions, and our taxonomic approach should coalesce on the structures that are consistent across widely varying samples. Together they should provide the basis for a unified theory of sexual aggression that incorporates sociocultural, situational, constitutional, and developmental explanatory constructs. Clearly, however, extensive work remains before the enigmatic complexity of sexual aggression is deciphered.

References

- Abel, G. G., Barlow, D. H., Blanchard, E. B., & Guild, D. (1977). The components of rapists' sexual arousal. *Archives of General Psychology*, 34, 895-908.
- Abel, G. G., Becker, J. V., Blanchard, E. B., & Djenderedjian, A. (1978). Differentiating sexual aggressives with penile measures. *Criminal Justice and Behavior*, 5, 315-332.
- Abel, G. G., & Blanchard, E. B. (1974). The role of fantasy in the treatment of sexual deviation. *Archives of General Psychiatry*, 30, 467-475.
- Abel, G. G., Mittelman, M. S., Becker, J. V., Cunningham-Rathner, J., & Lucas, L. (1983, December). *The characteristics of men who molest young children*. Paper presented at the World Congress of Behavior Therapy, Washington, DC.
- Abernethy, V. (1974). Dominance and sexual behavior: A hypothesis. *American Journal of Psychiatry*, 131, 813-817.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- Babl, J. D. (1979). Compensatory masculine responding as a function of sex role. *Journal of Consulting and Clinical Psychology*, 47, 252-257.
- Barbaree, H. E. (1990). Stimulus control of sexual assault: Its role in sexual assault. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 115-142). New York: Plenum Press.
- Barbaree, H. E., Marshall, W. L., & Lanthier, R. D. (1979). Deviant sexual arousal in rapists. *Behavior Research and Therapy*, 17, 215-222.
- Baxter, D. J., Barbaree, H. E., & Marshall, W. L. (1986). Sexual responses to consenting and forced sex in a large sample of rapists and nonrapists. *Behavior Research and Therapy*, 24, 513-520.
- Becker, J. V., Abel, G. G., Blanchard, E. B., Murphy, W. D., & Coleman, E. (1978). Evaluating social skills of sexual aggressives. *Criminal Justice and Behavior*, 5, 357-367.
- Blashfield, R. K. (1980). Propositions regarding the use of cluster analysis in clinical research. *Journal of Consulting and Clinical Psychology*, 48, 456-459.
- Brittain, R. P. (1970). The sadistic murderer. *Medicine, Science and the Law*, 10, 198-207.
- Burgess, A. W., Hartman, C. R., Ressler, R. K., Douglas, J. E., & McCormack, A. (1986). Sexual homicide: A motivational model. *Journal of Interpersonal Violence*, 1, 251-272.
- Burgess, A. W., Hazelwood, R. R., Rokous, F. E., Hartman, C. R., & Burgess, A. G. (1988). Serial rapists and their victims: Reenactment and repetition. In R. A. Prentky & V. L. Quinsey (Eds.), *Human sexual aggression: Current perspectives* (Vol. 528, pp. 277-295). New York: Annals of the New York Academy of Sciences.
- Burt, M. R. (1980). Cultural myths and support for rape. *Journal of Personality and Social Psychology*, 38, 217-230.
- Cohen, J., & Cohen, T. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cohen, M. L., Seghorn, T. K., & Calmas, W. (1969). Sociometric study of sex offenders. *Journal of Abnormal Psychology*, 74, 249-255.
- Collins, J. J. (1989). Alcohol and interpersonal violence: Less than meets the eye. In N. A. Weiner & M. E. Wolfgang (Eds.), *Pathways to criminal violence* (pp. 49-67). London: Sage.
- Darke, J. L. (1990). Sexual aggression: Achieving power through humiliation. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 55-72). New York: Plenum Press.
- Earls, C. M., & Quinsey, V. L. (1985). What is to be done? Future research on the assessment and behavioral treatment of sex offenders. *Behavioral Sciences & the Law*, 3, 377-390.
- Eysenck, H. J. (1978). *Sex and personality*. London: Open Books.
- Felson, R. B., & Krohn, M. (1990). Motives for rape. *Journal of Research in Crime and Delinquency*, 27, 222-242.
- Gebhard, P. H., Gagnon, J. H., Pomeroy, W. B., & Christenson, C. V. (1965). *Sex offenders: An analysis of types*. New York: Harper & Row.
- George, W. H., & Marlatt, G. A. (1986). The effects of alcohol and anger on interest in violence, erotica, and deviance. *Journal of Abnormal Psychology*, 95, 150-158.

- Groth, A. N. (1979). *Men who rape: The psychology of the offender*. New York: Plenum Press.
- Groth, A. N., Burgess, A. W., & Holmstrom, L. L. (1977). Rape: Power, anger, and sexuality. *American Journal of Psychiatry*, 134, 1239-1243.
- Guttman, M. S., & Weihofen, H. (1952). *Psychiatry and the law*. New York: Norton.
- Hall, E. R., Howard, J. A., & Boezio, S. L. (1986). Tolerance of rape: A sexist or antisocial attitude? *Psychology of Women Quarterly*, 10, 101-108.
- Hall, G. C. N. (1988). Criminal behavior as a function of clinical and actuarial variables in a sexual offender population. *Journal of Consulting and Clinical Psychology*, 56, 773-775.
- Hall, G. C. N., & Proctor, W. C. (1987). Criminological predictors of recidivism in a sexual offender population. *Journal of Consulting and Clinical Psychology*, 55, 111-112.
- Hare, R. D. (1980). A research scale for the assessment of psychopathy in criminal populations. *Personality and Individual Differences*, 1, 111-119.
- Hazelwood, R. R., & Burgess, A. W. (1987). The behavioral-oriented interview of rape victims: The key to profiling. In R. R. Hazelwood & A. W. Burgess (Eds.), *Practical aspects of rape investigation: A multidisciplinary approach* (pp. 151-168). New York: Elsevier.
- Hazelwood, R. R., Reboussin, R., & Warren, J. I. (1989). Serial rape: Correlates of increased aggression and the relationship of offender pleasure to victim resistance. *Journal of Interpersonal Violence*, 4, 65-78.
- Knight, R. A., & Prentky, R. A. (1987). The developmental antecedents and adult adaptations of rapist subtypes. *Criminal Justice and Behavior*, 14, 403-426.
- Knight, R. A., & Prentky, R. A. (1990). Classifying sexual offenders: The development and corroboration of taxonomic models. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *The handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 23-52). New York: Plenum Press.
- Knight, R. A., Prentky, R. A., Fleming, R., Ames, A., & Straus, H. (1991). *Antisocial personality disorder and Hare assessments of psychopathy among sexual offenders*. Manuscript in preparation.
- Knight, R. A., Prentky, R. A., Schneider, B., & Rosenberg, R. (1983). Linear causal modeling of adaptation and criminal history in sexual offenses. In K. Van Dusen & S. Mednick (Eds.), *Prospective studies of crime and delinquency* (pp. 303-341). Boston, MA: Kluwer-Nijhoff Publishing Company.
- Knight, R., Rosenberg, R., & Schneider, B. (1985). Classification of sexual offenders: Perspectives, methods and validation. In A. Burgess (Ed.), *Rape and sexual assault: A research handbook* (pp. 222-293). New York: Garland.
- Kopp, S. B. (1962). The character structure of sex offenders. *American Journal of Psychotherapy*, 16, 64-70.
- Koss, M. P., Leonard, K. E., Beezley, D. A., & Oros, C. J. (1985). Non-stranger sexual aggression: A discriminant analysis of the psychological characteristics of undetected offenders. *Sex Roles*, 12, 981-992.
- Ladouceur, P., & Temple, M. (1985). Substance use among rapists: A comparison with other serious felons. *Crime and Delinquency*, 31, 269-294.
- Langevin, R. (1983). *Sexual strands: Understanding and treating sexual anomalies in men*. Hillsdale, NJ: Erlbaum.
- Langevin, R. (1990). Sexual anomalies and the brain. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault* (pp. 103-113). New York: Plenum Press.
- Langevin, R., Ben-Aron, M. H., Wright, P., Marchese, V., & Handy, L. (1988). The sex killer. *Annals of Sex Research*, 1, 263-301.
- Langevin, R., Paitich, D., & Russon, A. (1985). Are rapists sexually anomalous, aggressive or both? In R. Langevin (Ed.), *Erotic preference, gender identity and aggression in men* (pp. 17-38). Hillsdale, NJ: Erlbaum.
- Laws, D. R. (1985). Sexual fantasy alternation: Procedural considerations. *Journal of Behavior Therapy and Experimental Psychiatry*, 16, 39-44.
- Lewis, D. O., Shanok, S. S., & Pincus, J. H. (1981). Juvenile male sexual assaulters: Psychiatric, neurological, psychoeducational, and abuse factors. In D. O. Lewis (Ed.), *Vulnerabilities to delinquency* (pp. 89-105). New York: SP Medical & Scientific Books.
- Lipton, D. N., McDonel, E. C., & McFall, R. M. (1987). Heterosocial perception in rapists. *Journal of Consulting and Clinical Psychology*, 55, 17-21.
- Lisak, D., & Roth, S. (1988). Motivational factors in nonincarcerated sexually aggressive men. *Journal of Personality and Social Psychology*, 55, 795-802.
- MacCulloch, M. J., Snowden, P. R., Wood, P. J. W., & Mills, H. E. (1983). Sadistic fantasy, sadistic behaviour and offending. *British Journal of Psychiatry*, 143, 20-29.
- Malamuth, N. M. (1981). Rape proclivity among males. *Journal of Social Issues*, 37, 138-157.
- Malamuth, N. M. (1986). Predictors of naturalistic sexual aggression. *Journal of Personality and Social Psychology*, 5, 953-962.
- Malamuth, N. M. (1989). The Attraction to Sexual Aggression Scale: Part 2. *Journal of Sex Research*, 26, 324-354.
- Malamuth, N. M., Check, J., & Briere, J. (1986). Sexual arousal in response to aggression: Ideological, aggressive, and sexual correlates. *Journal of Personality and Social Psychology*, 50, 330-340.
- Marshall, W. L. (1973). The modification of sexual fantasies: A combined treatment approach to the reduction of deviant sexual behavior. *Behaviour Research and Therapy*, 11, 557-564.
- Marshall, W. L., Abel, G. G., & Quinsey, V. L. (1983). The assessment and treatment of sexual offenders. In S. Simon Jones (Ed.), *Sexual aggression and the law* (pp. 43-52). Burnaby, B. C., Canada: Criminology Research Centre, Simon Fraser University.
- Marshall, W. L., & Christie, M. M. (1981). Pedophilia and aggression. *Criminal Justice and Behavior*, 8, 145-158.
- Marshall, W. L., Earls, C. M., Segal, Z., & Darke, J. (1983). A behavioral program for the assessment and treatment of sexual aggressors. In K. D. Craig & R. J. McMahon (Eds.), *Advances in clinical behavior therapy* (pp. 148-174). New York: Brunner/Mazel.
- McConaghy, N. (1989). Validity and ethics of penile circumference measures of sexual arousal: A critical review. *Archives of Sexual Behavior*, 18, 357-369.
- McFall, R. M. (1990). The enhancement of social skills: An information-processing analysis. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 311-330). New York: Plenum Press.
- Meehl, P. E. (1990a). Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. *Journal of Personality Disorders*, 4, 1-99.
- Meehl, P. E. (1990b). Why summaries of research on psychological theories are often uninterpretable. *Psychological Reports*, 66, 195-244.
- Murphy, W. D. (1990). Assessment and modification of cognitive distortions in sex offenders. In W. L. Marshall, D. R. Laws, & H. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 331-342). New York: Plenum Press.
- Polk, K. (1985). A comparative analysis of attrition of rape cases. *British Journal of Criminology*, 25, 280-284.
- Prentky, R. A. (1985). The neurochemistry and neuroendocrinology of sexual aggression. In D. P. Farrington & J. Gunn (Eds.), *Aggression and dangerousness* (pp. 7-55). Sussex, UK: Wiley.
- Prentky, R. A., & Burgess, A. W. (in press). A fantasy-based traumatic model for repetitive sexual aggression: Biological correlates.

- In A. W. Burgess (Ed.), *Rape and sexual assault* (Vol. 3). New York: Garland.
- Prentky, R. A., Burgess, A. W., & Carter, D. L. (1986). Victim responses by rapist type: An empirical and clinical analysis. *Journal of Interpersonal Violence*, 1, 73-98.
- Prentky, R. A., Burgess, A. W., Rokous, F., Lee, A., Hartman, C., Ressler, R., & Douglas, J. (1989). Serial vs. solo sexual homicide: The role of fantasy. *American Journal of Psychiatry*, 146, 887-891.
- Prentky, R. A., Cohen, M. L., & Seghorn, T. K. (1985). Development of a rational taxonomy for the classification of sexual offenders: Rapists. *Bulletin of the American Academy of Psychiatry and the Law*, 13, 39-70.
- Prentky, R. A., & Knight, R. A. (1986). Impulsivity in the lifestyle and criminal behavior of sexual offenders. *Criminal Justice and Behavior*, 13, 141-164.
- Prentky, R. A., Knight, R. A., & Lee, A. (1991). *Impulsivity as a typological discriminator for recidivism among rapists*. Manuscript submitted for publication.
- Prentky, R. A., Knight, R. A., & Rosenberg, R. (1988). Validation analyses on the MTC Taxonomy for Rapists: Disconfirmation and reconceptualization. In R. A. Prentky & V. L. Quinsey (Eds.), *Human sexual aggression: Current perspectives* (Vol. 528, pp. 21-40). New York: Annals of the New York Academy of Sciences.
- Prentky, R. A., Knight, R. A., Sims-Knight, J., Straus, H., Rokous, F., & Cerce, D. (1989). Developmental antecedents of sexual aggression. *Development and Psychopathology*, 1, 153-169.
- Quinsey, V. L. (1977). The assessment and treatment of child molesters: A review. *Canadian Psychological Review*, 18, 204-220.
- Quinsey, V. L. (1984). Sexual aggression: Studies of offenders against women. In D. Weissstut (Ed.), *Law and mental health: International perspectives* (pp. 84-121). New York: Pergamon Press.
- Quinsey, V. L., & Chaplin, T. C. (1988). Preventing faking in phallogometric assessments of sexual preference. In R. A. Prentky & V. L. Quinsey (Eds.), *Human sexual aggression: Current perspectives* (Vol. 528, pp. 49-58). New York: Annals of the New York Academy of Sciences.
- Quinsey, V. L., Chaplin, T. C., & Upfold, D. (1984). Sexual arousal to nonsexual violence and sadomasochistic themes among rapists and non-sex-offenders. *Journal of Consulting and Clinical Psychology*, 52, 651-657.
- Quinsey, V. L., & Earls, C. M. (1990). The modification of sexual preferences. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 279-295). New York: Plenum Press.
- Rada, R. T. (1975). Alcoholism and forcible rape. *American Journal of Psychiatry*, 132, 444-446.
- Rada, R. T. (1978). *Clinical aspects of the rapist*. New York: Grune & Stratton.
- Rapaport, K., & Burkhart, B. R. (1984). Personality and attitudinal characteristics of sexually coercive college males. *Journal of Abnormal Psychology*, 93, 216-221.
- Rice, M. E., Harris, G. T., & Quinsey, V. L. (1990). A follow-up of rapists assessed in a maximum-security psychiatric facility. *Journal of Interpersonal Violence*, 5, 435-448.
- Rosenberg, R., & Knight, R. A. (1988). Determining male sexual offender subtypes using cluster analysis. *Journal of Quantitative Criminology*, 4, 383-410.
- Rosenberg, R., Knight, R. A., Prentky, R. A., & Lee, A. (1988). Validating the components of a taxonomic system for rapists: A path analytic approach. *Bulletin of American Academy of Psychiatry and the Law*, 16, 169-185.
- Sanday, P. R. (1981). The socio-cultural context of rape: A cross-cultural study. *Journal of Social Issues*, 37, 5-27.
- Scully, D., & Marolla, J. (1985). Rape and vocabularies of motives: Alternative perspectives. In A. Burgess (Ed.), *Rape and sexual assault: A research handbook* (pp. 294-312). New York: Garland.
- Segal, Z. V., & Marshall, W. L. (1985). Heterosexual social skills in a population of rapists and child molesters. *Journal of Consulting and Clinical Psychology*, 53, 55-63.
- Segal, Z. V., & Stermac, L. (1984). A measure of rapists' attitudes towards women. *International Journal of Law and Psychiatry*, 7, 437-440.
- Segal, Z. V., & Stermac, L. E. (1990). The role of cognition in sexual assault. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 161-174). New York: Plenum Press.
- Seghorn, T. K., & Cohen, M. (1980). The psychology of the rape assailant. In W. J. Curran, A. L. McGarry, & C. Petty (Eds.), *Modern legal medicine, psychiatry, and forensic science* (pp. 533-551). Philadelphia: F. A. Davis.
- Seghorn, T. K., Prentky, R. A., & Boucher, R. J. (1987). Childhood sexual abuse in the lives of sexually aggressive offenders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 26, 262-267.
- Spence, J. T., & Helmreich, R. L. (1972). The Attitudes Towards Women Scale: An objective instrument to measure attitudes toward the rights and roles of women in contemporary society. *JSAS Catalog of Selected Documents in Psychology*, 2, 66.
- Stermac, L. E., & Quinsey, V. L. (1986). Social competence among rapists. *Behavioral Assessment*, 8, 171-185.
- Stermac, L. E., Segal, Z. V., & Gillis, R. (1990). Social and cultural factors in sexual assault. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault: Issues, theories, and treatment of the offender* (pp. 143-159). New York: Plenum Press.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics*. New York: Harper & Row.
- Warren, J. I., Reboussin, R., Hazelwood, R. R., & Wright, J. A. (1991). Prediction of rapist type and violence from verbal, physical, and sexual scales. *Journal of Interpersonal Violence*, 6, 55-67.
- Wydra, A., Marshall, W. L., Earls, C. M., & Barbaree, H. E. (1983). Identification of cues and control of sexual arousal by rapists. *Behavior Research and Therapy*, 21, 287-294.

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