

Université de Montréal

**The relationship between personality disorders and
sexual preferences of sex offenders**

par

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Université de Montréal
Faculté des études supérieures

Ce mémoire intitulé :

The relationship between personality disorders and sexual preferences of sex offenders

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Abstract

The aim of this study was to examine the relationship between personality disorders and sexual preferences in rapists and child molesters. The sexual preference profiles of 174 rapists and 263 pedophiles, from a maximum security psychiatric hospital, were evaluated with a plethysmograph. Personality disorders were assessed with the MCMI. Two-step cluster analyses were performed. First, two profiles were established for the rapists and for the child molesters in terms of their personality disorders. The relationship between them and sexual preferences was nonsignificant. Second, two profiles for the rapists and four profiles for the child molesters were established in terms of their sexual preferences. The relationship between these sexual preference profiles and personality disorders was nonsignificant for the rapists; however, for the pedophiles significant results were obtained for profile 3 on the histrionic scale and for profile 4 on the compulsive scale.

Keywords : rapist - pedophiles - sexual arousal – deviant arousal - phallometry - penile plethysmography - MCMI

Résumé

Le but de cette étude était d'examiner le rapport entre les préférences sexuelles et les troubles de la personnalité des agresseurs sexuels. Les profils d'excitation sexuelle de 174 violeurs et de 263 pédophiles ont été évalués avec un pléthysmographe. Les troubles de la personnalité ont été évalués avec le MCMI. Des analyses typologiques (two-step cluster analyses) ont été effectuées. Premièrement, deux profils ont été établis pour les violeurs et pour les pédophiles selon leurs troubles de la personnalité. Le rapport entre eux et les préférences sexuelles était non significatif. Deuxièmement, deux profils pour les violeurs et quatre profils pour les pédophiles ont été établis selon leurs préférences sexuelles. Le rapport entre ces profils et les troubles de la personnalité était non significatif pour les violeurs, mais pour les pédophiles des résultats significatifs ont été obtenus pour le profil 3 à l'échelle histrionique et pour le profil 4 à l'échelle compulsive.

Mots-clés : violeur - pédophile - excitation sexuelle – excitation déviante - phallométrie - pléthysmographie pénienne - MCMI

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INTRODUCTION

Models of sexual aggression as well as recidivism studies have found that deviant sexual preferences and personality disorders are crucial factors in deviant sexual behaviors. These two dynamic risk factors¹ are stable personal dimensions which may interact together, as well as with situational factors to increase sexual aggression proclivity. Consequently, an analysis of the interaction between sexual preferences and personality disorders is pertinent to investigate in order to better understand sexual aggression. Hence, the introduction has three major parts: one on sexual preferences, another one on personality disorders, and a third one on the interaction between the two.

SEXUAL PREFERENCES

McGuire, Carlisle, and Young (1965) proposed that sexual deviations resulted from accidental conditioning. At some point in time, a deviant stimulus and physiological arousal become psychologically associated (respondent conditioning). Subsequently, this association becomes further reinforced by repeated masturbation to the deviant stimulus which is incorporated in fantasies (operant conditioning). Meanwhile, arousal to nondeviant stimuli becomes extinguished because of lack of reinforcement. Consequently, the extinction of nondeviant stimuli and the repeated arousal to deviant stimuli combine to make the latter more and more specific. This proposal evolved to become the sexual

¹ These factors are dynamic in the sense that they are changeable even though to a limited degree (Hanson & Harris, 2000).

preference hypothesis, which has become the most widespread hypothesis about sexual aggression proclivity.

The sexual preference hypothesis postulates that men who engage in sexually deviant acts will show a preference for deviant stimuli rather than for more socially acceptable ones because their gratification is greater with the deviant stimuli (Barbaree, 1990; Barbaree & Serin, 1993). Thus, deviant sexual behavior can be explained by deviant sexual preferences. This means that when assessed, rapists should exhibit greater responses to depictions of rape than to depictions of consensual sex with an adult woman, and when pedophiles are assessed they should show greater arousal to stimuli involving children than consensual sex with adults.

Some studies have found rapists to be equally aroused by mutually consenting sex and rape stimuli or not to be aroused by rape cues at all. So, as an alternative, the inhibition model was developed (Barbaree, 1990; Barbaree, Marshall, & Lanthier, 1979). This model posits that it is not that rapists are aroused by force, violence or nonconsent but that they are not inhibited by these factors as nonoffenders are. It is not known exactly how the inhibition works. It might be that the emotional response of nonrapists inhibits their sexual arousal or they may respond to experimenter demands.

These models have mostly emphasized the sexual component of sexual aggression. Feminist writers like Brownmiller (1975), on the other hand, have argued that sexual offending is primarily aggressive in nature and is an instance of a male-centered society's more general hostility toward women and children. However, it has become clear that sexual assault is most likely the product of both factors and both have been assessed with phallometry and other measurement methods.

MEASUREMENT METHODS OF SEXUAL AROUSAL

Phallometry (or penile plethysmography) consists in determining a man's sexual preference by recording his penile responses while deviant and nondeviant sexual stimuli are presented (Proulx, 1993). This is an objective method that permits to identify and quantify the sexual preferences of men (Proulx, 1993; Zuckerman, 1971). Moreover, phallometry seems to be the best measure because it is the only measure specific to male sexual arousal (Zuckerman, 1971).

There are two types of phallometry: volumetric and circumferential. The first studies in the 1950s in Czechoslovakia by Kurt Freund were conducted with a volumetric device (Freund, 1991; Marshall & Fernandez, 2003a). Freund used it to differentiate truly homosexual men from heterosexual men who were trying to avoid military conscription by claiming to be homosexual. The volumetric device represents a small glass cylinder that encloses the penis and measures total change in penile volume by measuring air displaced by penile size changes (Kalmus & Beech, 2005; Kuban, Barbaree, & Blanchard, 1999). In later studies a circumferential device was more commonly used. It measures changes in the girth of the penis with a stretch-sensitive mercury-in-rubber gauge or with a strain gauge (Kalmus & Beech, 2005; Kuban, Barbaree, & Blanchard, 1999).

Volumetric devices are believed to be more sensitive than circumferential plethysmographs (McConaghy, 1999) because during the initial stages of penile erection, some men experience an increase in penis length and no increase or a reduction in circumference, a phenomenon called "inverse" or "mirror" image (Kuban, Barbaree, & Blanchard, 1999). This reduction or lack of change in penis circumference may bias the findings of the circumferential method. However, other researchers (Wheeler & Rubin,

1987) have compared the two plethysmographs and have found that there was no difference between them. In addition, they found that the volumetric device was not more sensitive than the circumferential one and that it displayed more movement artifacts.

Kuban and his colleagues (1999) designed a study to examine the agreement between the two methods across various levels of arousal. They recruited 42 heterosexual men from a university campus. These men were simultaneously assessed with both a volumetric and a circumferential phallometric device. The stimuli consisted of slides of nude males, females, early pubescents and children. The slides were accompanied by audiotaped narratives describing sexual involvement with a person of the same age and gender as the one depicted in the slides. The results showed high concordance ($r = 0.90$) between volumetric and circumferential phallometry for high responders, i.e., men who had at least 2.5 mm circumference increase, or about 10% of full erection. The intermethod agreement, however, was poorer at lower levels of responding. Therefore, diagnosing low responders with the circumferential method may be inaccurate because the penis elongates before thickening and thus, the circumferential device cannot detect low arousal. Unfortunately, volumetric phallometry is complicated to use, cumbersome, and too intrusive that is why circumferential phallometry is preferred. In addition to being easy to use, the circumferential method is also more widely availability and inexpensive.

Kalmus and Beech (2005) have reviewed other physiological and nonphysiological techniques for measuring sexual arousal. First, the physiological techniques will be reviewed followed by the nonphysiological methods. One of the physiological techniques is the thermistor, which is a device that measures penile and groin temperature. Kalmus and Beech state that there is some evidence for its ability to identify arousal since three studies

found high correlations between this device, self-report, and phallometry in nonoffenders. However, thermistor measurements were slower than phallometry to detect initial arousal and its ability to detect arousal in sex offenders has not been tested. In addition, the number of stimuli that can be presented during a session is limited because time is needed for the surface temperature to return to pre-arousal level and this makes the period between stimuli presentation too long (Earls & Marshall, 1983).

Another measure is the photoelectric surface blood volume measurement. It measures the surface blood volume which increases as blood flow to the penile tissue increases. Kalmus and Beech (2005) cite only one study which compared this device to self-report and phallometry. In that study just 10 out of 24 maximum-security hospital patients showed a significant correlation between that measure and self-report and phallometry.

Galvanic skin response (GSR) measures the electrical conductivity of the skin. It has been more commonly used as a lie detector. Two studies, one carried out with nonoffenders (Card & Farrall, 1990), the other with child molesters (Farrall & Card, 1988) showed GSR to be effective in identifying voluntary arousal and suppression of sexual arousal during phallometric assessment. Studies reviewed by Zuckerman (1971), one of the very few comprehensive reviews of physiological sexual arousal measures to date, show that GSR activity and electrodermal responses, in general, cannot differentiate between positive and negative affective arousal and thus, are not specific enough to assess sexual preferences.

Zuckerman (1971) also reviewed the evidence for cardiovascular measures. The studies show that increases in heart rate were not specific to sexual arousal because they

also could be obtained in response to watching a suspense movie. Blood pressure was the only measure of the cardiovascular ones to show any significant response to erotic stimuli. In addition, it showed a graded reaction, that is, more arousal to erotic movies than to naked pictures.

In reviewing the studies on respiratory measures, Zuckerman (1971) concluded that they are not useful because they do not show any change in respiration when erotic stimuli are presented.

Another physiologic measure that has been examined is pupillometry. Pupillometry measures the involuntary responses of the pupils. It is thought that pupils dilate in participants when presented with sexually preferred images and constrict when participants are presented with nonpreferred stimuli. However, there are methodological problems that may have affected the measurement of pupillary responses such as the luminescence of the stimulus, spontaneous pupillary activity, and whether the person is fixating his gaze on the stimulus or not. In addition, it is not clear whether once the preferred image is removed the pupil will return immediately to baseline (Zuckerman, 1971). Like Zuckerman (1971), Kalmus and Beech (2005) concluded that pupillometry has not been demonstrated to be reliable in distinguishing sexual preferences especially in sex offenders.

Electroencephalographic measurement “measures the neurological effect of anticipation when participants know they are about to be presented with a sexually preferred visual stimulus” (Kalmus & Beech, 2005, p. 203/204). Kalmus and Beech stated that this technique is promising because in one study homosexual and heterosexual men and women as well as child molesters could be differentiated according to their sexual preferences. The nonoffenders showed a preference for an adult partner, whereas the child

molesters failed to discriminate between child and adult stimuli. Moreover, because this technique measures the neurological response it may be less vulnerable to faking because the response would be difficult to manipulate. However, more research is needed and with different types of sex offenders.

As can be seen, some physiological measures seem promising. Others however, like cardiovascular and respiratory measures might lack emotional specificity. Emotions such as anger, fear, and pain can elicit similar responses to sexual arousal (Zuckerman, 1971). The lack of research, in general, and with sex offenders in particular with these techniques is notable. As Zuckerman wrote in 1971 this research is still exploratory, includes a small number of subjects, lacks adequate controls, methodology, or comparison groups or is poor in quality. And this does not seem to have changed much in the past 34 years perhaps because, as Kalmus and Beech (2005) have observed, phallometry has been the most commonly used measure and researchers might have had little incentive to use and examine other measures.

Other techniques that have been used to evaluate sexual preferences have been nonphysiological. Kalmus and Beech subdivided them into two categories: self-report and attentional. Self-reports can be obtained through clinical interview, card sort, and standardized inventories and questionnaires. During a clinical interview a man is simply asked to report his arousal. It has been used in many studies but obviously it depends on the honesty and the willingness of the person to disclose his sexual preferences.

Card sort uses stimuli similar to the ones used in phallometry, however, instead of measuring a physiological response, the person is asked to rate the attractiveness of the stimuli. Kalmus and Beech (2005) report several studies which have found that card sorts

have a good accuracy in discriminating different types of sex offenders. However, because this technique relies on self-report it is vulnerable to faking.

The third type of self-report measure is the questionnaire. Some of the most commonly used questionnaires for assessing deviant sexual preferences are the Clarke Sexual History Questionnaire (CSHQ), the Thorne Sex Inventory (TSI), and the Multiphasic Sex Inventory (MSI). Kalmus and Beech (2005) report that the CSHQ has a relatively good discriminant accuracy with sex offenders and nonoffenders. The discriminant validity² of the TSI is more questionable. As for the MSI, no data has been published that it can differentiate sexual preferences; however, it has proven good at identifying elements of denial such as cognitive distortions, justifications, and response desirability (Schlank, 1995). Thus, it may be more useful in discerning an offender's denial of deviant sexual behavior rather than in differentiating types of offenders. However, the CSHQ and the TSI are too transparent and so, vulnerable to faking.

The attentional methods include viewing time and information processing. Viewing time involves asking the subject to rate pictures of children and/or adults and without him being aware measuring the time he spends looking at a picture. It is assumed that subjects will look at images they prefer longer than at images they dislike. An example of a viewing time measure is the Abel Screen, which assesses sexual interest by combining covert measures of viewing time with self-report. The subject is asked to rate his sexual arousal to slides of semi-clothed and nude children, adolescents, and adults. Then the subject's self-report is compared with the time he spent viewing each image (Abel, Lawry, Karlstrom,

² Discriminant validity is the degree to which scores on a test do not correlate with scores from other tests not designed to measure the same construct.

Osborn, & Gillespie, 1994). Abel and his colleagues (1994) have reported good results with this test in discerning homosexual and heterosexual pedophiles, however the test is vulnerable to faking.

Another method is based on information processing during the presentation of sexual stimuli. It assumes that increased attention to a stimulus will impair simple information processing. The more attractive or preferred the stimulus, the more attention the person will pay to it and the more impaired his information processing will be. The effect of people's attention on their reaction time was assessed by two different tasks. First, participants were shown nude images of men and women and were asked to press one of five buttons according to where the dot appears on the images (Wright and Adams, 1994). When the subjects saw a preferred image the latency to press the button significantly increased. The second task consisted in assessing the effect of sexual interest on blinking. Child sex offenders and nonoffenders were first shown a target image of either a child or an animal and immediately after they were shown a second target image of a chair or a train (Kalmus, 2003 cited in Kalmus & Beech, 2005). Child sex offenders had more trouble identifying the second target when they viewed a child stimulus first. Hence, in both tasks the subjects performed worse when they viewed preferred images because this interfered with their cognitive performance (Kalmus & Beech, 2005). Among the psychological measures, information processing seems to be the most promising because it could not be as easily faked as self-reports, questionnaires, and card-sorts.

In conclusion, most psychological measures seem transparent and vulnerable to faking and, as with the physiological measures, their psychometric properties need to be better demonstrated. More research is needed and the usefulness of these methods with

different sex offenders must be assessed. Consequently, phallometric evaluation seems to be the best measure for assessing sexual preferences for the moment.

PHALLOMETRY

TYPES OF STIMULI

Five types of stimuli are used to induce sexual arousal during a phallometric evaluation. These include video, pictures, audio descriptions (told in first, second, or third person), written text, and fantasy (Kalmus & Beech, 2005) or a combination of two stimuli. However, not all stimuli possess the same ability to detect deviant preferences (Lalumière & Quinsey, 1993). Video is usually not used because it elicits a maximum response, or ceiling effect, in both deviant and nondeviant men and this makes differentiation between them difficult (Abel, Blanchard, & Barlow, 1981; Harris & Rice, 1996; Proulx, 1993). Julien and Over (1988) compared heterosexual males' objective and subjective responses for each of the five stimuli which were matched in content and also found that video elicited the greatest response, followed by audiotapes, slides, written text, and fantasy. Written text and fantasy also are rarely used because it is the subject and not the experimenter who has control over the stimuli. Proulx (1993) states that pictures and audio descriptions are the most commonly used stimuli, with pictures measuring age and gender preference and audiotapes assessing behavioral preferences. Lalumière and Harris (1998) also assert that age and gender preferences are best assessed with pictures of males and females at different age stages and that audio stimuli are better when it comes to assessing preferences for coercive sex with women or children. In addition, these authors state that the more graphic the stimuli, the better their discriminant validity.

The number of stimuli per category and the presentation time are also important validity issues. Researchers recommend using more than one stimulus per category because several stimuli enhance reliability and consequently validity (Lalumière & Quinsey, 1994). Harris and Rice (1996) report they have obtained good validity with two stimuli per category.

On the other hand, the duration of the stimulus may influence the amplitude of the penile response. If the length of the exposure is short, the participants may not achieve a high level of arousal, if too long subjects can have more time to voluntarily control their arousal. So, some authors suggest using the same length of time as in the already established stimulus sets. Murphy and Barbaree (1988) state that for circumferential devices the presentation should last 2 to 4 minutes.

VOLUNTARY CONTROL OF SEXUAL AROUSAL

The review of the different measures of sexual arousal showed that for the time being phallometry is the best available objective measure of sex offenders' sexual arousal. However it is not without limitations. There is evidence that like the other methods, phallometry is also vulnerable to faking. Faking is the voluntary control of penile arousal. Voluntary control has been found in rapists and pedophiles across all existing stimulus modalities (Abel, Blanchard, & Barlow, 1981). It has also been found in normal men when slides, audiotapes and audiovisual stimuli have been used (Henson & Rubin, 1971; Golde, Strassberg, & Turner, 2000; Quinsey & Carrigan, 1978). More often faking is achieved by suppressing rather than by enhancing responses to stimuli (Adams, Motsinger, McAnulty, & Moore, 1992; Lalumière & Harris, 1998). Adams et al. (1992) assessed nondeviant heterosexual and nondeviant homosexual men and found that both groups were able to

suppress their erectile responses significantly to preferred sexual stimuli, however, neither was able to enhance their responses to nonpreferred sexual stimuli.

Studies investigating voluntary control found that subjects use either cognitive or physical strategies to increase or decrease their penile responses. Cognitive techniques such as performing an arithmetic task, focusing on the nonsexual elements of the stimulus or getting the stimulus out of focus usually serve to distract the subject from it, in order to enable him to inhibit his response. On the other hand, generating alternative sexual fantasies and muscle contraction serve to increase a man's penile response (Kalmus & Beech, 2005). Physical methods of increasing response, like muscle contraction, produce characteristic peaks, and thus could be recognized (Proulx, 1993). Cognitive strategies however, are more difficult to detect.

One task that has been found successful in preventing voluntary control of penile responses is the semantic tracking task (Harris, Rice, Chaplin, & Quinsey, 1999; Proulx, Côté & Achille, 1993; Quinsey & Chaplin, 1988a). This task consists in pushing one button when the content of the stimulus is sexual and another button when the content is violent, and both buttons when the content is both sexual and violent. It was developed by Quinsey and Chaplin (1988a) in the late 80s. In their study they assessed the arousal of nonoffenders to rape and consenting sex under three conditions: normal/uninstructed responding, instructions to fake, and instructions to fake accompanied by the semantic tracking task. In the two fake conditions subjects were told that in order to appear interested in rape they should either think of something that was sexually exciting or focus on the sexual elements of the rape stimuli only. To fake in response to the consenting sex subjects were instructed to focus on the nonsexual features of the stimuli or to generate some nonsexual thoughts.

During the normal/uninstructed responding session, subjects exhibited normal preferences. When instructed to fake they were able to successfully fake preference for rape, and could increase their responses to nonsexual violence. However, when they were asked to fake and to use the semantic tracking task, they were unable to fake a deviant response. So, the semantic tracking task was successful in preventing faking.

Similarly, Proulx, Côté, and Achille (1993) conducted two experiments. In the first, homosexual pedophiles unfamiliar with phallometric testing were assessed under normal instructions. Even though the semantic tracking task was used, there was no difference between the group that performed it and the group that did not, perhaps because the subjects were not familiar with phallometric evaluation. In the second experiment, homosexual pedophiles familiar with the evaluation were asked to perform the semantic task. In this case, the mean pedophilic index was higher than the mean index obtained in the session where they were assessed without performing the task. Hence, it seems that faking is made more difficult when a semantic tracking task is used, especially when subjects had a prior experience with phallometric assessment (Adams et al., 1992; Proulx, Côté, & Achille, 1993; Quinsey & Chaplin, 1988a). Despite the success of the semantic tracking task, it has been acknowledged that cognitive methods of controlling penile erection are hard to detect (Marshall & Fernandez, 2003a).

RELIABILITY

There has not been as much research on reliability as on validity. Reliability is the extent to which a test is consistent in its evaluation of the same individuals. It depends on the length of the interval, the stimulus content, the number of stimuli per category, and the way the data is presented (raw scores, z-scores, or percent of full erection) (Marshall &

Fernandez, 2003a; Simon & Schouten, 1991). Two types of reliability that have been examined for sexual preferences are internal consistency and test-retest reliability.

TEST-RETEST

The first reliability measure is test- retest. It determines reliability by repeatedly administering a test to the same participants. Poor test-retest reliability means that the test is not reliable over time and consequently we cannot interpret the meaning of the changes observed during treatment. Potential problems in determining the reliability of erectile measures are practice effect and habituation. One of the most important aspects of practice effect is the improved ability to fake with repeated assessment as a result of familiarity with the procedures and stimuli. Habituation is “a systematic decrease in the magnitude of a response with repeated presentation of an eliciting stimulus” (O’Donohue & Greer, 1985, p. 234). It has been found to occur within and across assessment sessions (Marshall & Fernandez, 2003a). O’Donohue and Geer (1985) and O’Donohue and Plaud (1991), for example, found that when the same stimulus was shown there was a decrease in physiological responding both within and across the sessions, however, when stimuli were varied this decrease did not occur.

There are few studies on test-retest reliability. A review of six studies with sex offenders by Marshall and Fernandez (2003a) revealed coefficients for test-retest reliability ranging from 0.21 to 0.86. However, most of the studies summarized have serious flaws. They have combined different types of subjects into one category and the period over which the subjects were tested was too short, varying from one day to one week (Marshall and Fernandez, 2003a). Thus, distinct coefficients should be determined for the different groups and for the different classes of stimuli.

Fernandez and Marshall (2002a, cited in Marshall & Fernandez, 2003a) attempted to do just that by assessing child molesters and rapists on two occasions separated by a 6 month-interval. The sex offenders received no treatment. Subjects displaying arousal less than 10% full erection at either session were eliminated. Consequently, 51 rapists and 40 extrafamilial child molesters were left. All analyses were performed on z-score transformations of the raw data. On the Age Gender Assessment (slides) the coefficients of child molesters ranged from 0.11 to 0.75 for each stimulus category with 5 categories having unacceptable coefficients. On the audio assessment of sexual interests in rape, the rapists' coefficients ranged from - 0.11 to 0.56. So, none reached an acceptable level.

As these studies show the reliability coefficients vary widely. These variations in reliability may be accounted for by differences in test procedure, stimulus materials, instructional set, examiner characteristics, demand characteristics and scoring methods (Simon & Schouten, 1991). Therefore, at present, we cannot evaluate reliability very well because of these methodological problems.

INTERNAL CONSISTENCY

Internal consistency is how consistently subjects respond to each stimulus within a particular category. Marshall and Fernandez (2003a) summarized six studies of internal consistency. The coefficients in these studies ranged from as low as 0.49 to as high as 0.96. However, as for test-retest reliability, all studies have combined different types of sex offenders (e.g., rapists, child molesters, and nonsexual offenders) and different stimulus categories (e.g., which varied by age and gender).

A recent study by Fernandez and Marshall (2002b, cited in Marshall & Fernandez, 2003a) on child molesters has tried to make up for these shortcomings. The researchers calculated the coefficient for each stimulus subcategory in the visual and the audiotaped stimulus sets, and separately for incest and extrafamilial child molesters. For the visual stimulus set (Age-gender assessment) alpha was moderate to high for the incest offenders ($\alpha = 0.87$ to 0.95) and the extrafamilial offenders ($\alpha = 0.72$ to 0.83) across each category (prepubescent, pubescent, and adult, for both male and female victims, and the neutral category). For the audio stimulus set (Child sexual violence assessment) the coefficients were mostly in the moderate to high range for the incest offenders ($\alpha = 0.74$ to 0.94), whereas for the extrafamilial offenders three of the categories had an alpha below acceptable standards (alpha in the 0.40s for passive female child, sexual coercion of a boy, and nonsexual violence of a boy).

Another study conducted by Fernandez and Marshall (2002c, cited in Marshall & Fernandez, 2003a) calculated alphas separately for the different audiotaped stimulus categories and for three subject groups: incest offenders, extrafamilial child molesters, and rapists. For incest offenders alpha ranged from 0.61 to 0.86; for the extrafamilial it ranged from 0.52 to 0.85; and for the rapists it ranged from 0.69 to 0.85.

So, when assessed properly, internal consistency seems adequate. In fact, Fernandez and Marshall (2003a) state that the internal consistency is surprisingly high considered that it was expected offenders would respond selectively. That is to say, that they would not find all stimuli attractive, in the same way that nondeviant men do not find all adult women attractive, and that child molesters are not attracted to all types of children. In light of this, we can conclude that sexual preference is a relatively stable trait. However, there are other

dispositional or situational factors such as emotional or cognitive states that may increase the rape arousal in men who otherwise show inhibition to rape arousal.

SEXUAL AROUSAL DISINHIBITORS

One factor that disinhibits sexual arousal is permissive instructions. Barbaree and Murphy (cited in Barbaree and Marshall, 1989) observed that subjects who were told that sexual arousal to rape stimuli is normal showed disinhibited arousal to rape stimuli, that is, the discrimination between rape and consenting cues was reduced.

Another disinhibitor that has been examined is alcohol intoxication. However, its effects are not that clear. Some studies show it is mostly the subject's expectation that accounts for the effect, and other studies find that intoxicated men show less discrimination between consenting and rape cues (Barbaree, Marshall, Yates, & Lightfoot, 1983). Thus, any conclusion before further studies have been conducted may be inaccurate.

As to the emotional states, Yates, Barbaree, and Marshall (1984) demonstrated that men who have been angered beforehand showed equally strong responses to rape cues and to consenting cues. In addition, Malamuth and Check (1981) found that undergraduate students who were exposed to a sexually violent film became more accepting of interpersonal violence.

Again, the same authors, Malamuth and Check (1983), varied the way a victim of a sexual assault was portrayed and her response to the assault and observed the subjects' penile responses. Their results showed that the subjects were more aroused by the rape stimuli when the victim was portrayed as more aroused than when she was portrayed as horrified by the sexual assault.

In the same vein, Sundberg, Barbaree, and Marshall (1991) examined the role of victim blame in disinhibiting arousal to rape cues. Victim blame was manipulated by varying the victim's dress (revealing vs. conservative) and location (deserted park vs. library). The 384, male and female, university undergraduates rated the victim with revealing clothing walking in a deserted park as the most blameworthy. Later, the erectile responses of the male students to the different scenarios were assessed. The students' erectile responses were the most elevated when the students listened to the scenario with the victim rated as the most blameworthy. Thus, victim blame acted as a disinhibitor to rape.

Barbaree and Seto (cited in Barbaree & Marshall, 1989) also demonstrated that when rape cues were preceded by information that "excused" the rapist's behavior (e.g., intoxication, he was sexually involved with the victim) sexual arousal to rape cues was disinhibited.

In addition to cognitive and emotional states, the amplitude of physiological response can also be related to anxiety, penis size, the length of time since the man last masturbated, nervousness, aging, health, drugs, and alcohol (Annon, 1988; Castonguay, Proulx, Aubut, McKibben & Campbell, 1993; Seto, 2001). Most of these factors decrease the physiological response.

SENSITIVITY AND SPECIFICITY

Sensitivity is the likelihood of detecting real deviant preferences. Specificity is the likelihood of not detecting deviant preferences when they are not there. Many researchers have found that phallometry has better specificity than sensitivity (Lalumière & Quinsey, 1993; Harris & Rice, 1996). Others, like Freund and Watson (1991), have found evidence

both of good sensitivity and good specificity. Freund and Watson assessed the specificity and sensitivity of phallometry with child molesters. They found the specificity to be 96.9% with rapists and 80.6% with normal men. The sensitivity was 78.2% for heterosexual child molesters and 88.6% for homosexual child molesters who had molested at least two minors. Lalumière and Quinsey (1993) analyzed 14 data sets which used only auditory stimuli and no special instructions. They calculated a rape index for all studies and found that most studies achieved statistically reliable classification. However, only brutal and graphic stimuli allowed to reliably classify the groups. When an index of 1.00 was chosen to examine the specificity and sensitivity, again only the most graphic stimuli achieved statistically significant classification. A rape index of 1.00 led to very few false positive errors while allowing the identification of many rapists as deviant. Eight data sets showed sensitivity values of 60% or more when specificity was set at 90%.

DISCRIMINANT VALIDITY STUDIES

PEDOPHILE STUDIES

Comparative studies with pedophiles have consistently shown statistically significant differences between the pedophile group and the nonoffender group (Barbaree & Marshall, 1989; Barsetti, Earls, Lalumière, & Bélanger, 1998; Bélanger, 1991; Grossman, Cavanaugh, & Haywood, 1992; Marshall, Barbaree & Butt, 1988; Quinsey & Chaplin, 1988B; Seto, Lalumière, & Kuban, 1999).

A somewhat unique study was conducted by Barbaree and Marshall (1989). These researchers assessed the age preference profiles of 21 heterosexual child molesters, 40 heterosexual incest offenders, and 22 nonoffenders. Color pictures of nude females, ranging in age from 3 to 24 years, in sexually explicit poses were presented. The individual profiles

of all men were drawn on a graph and the two authors sorted them into categories according to the similarities in the shape of their profiles. After arriving at a consensus concerning the number and the variety of age preference profiles, three independent judges were invited to classify the 83 individual profiles into the five categories agreed on by the authors (*Kappa* ranged from .81 to .94, $p < .001$). Afterwards, a computer program was written to sort the profiles into the five categories in order to confirm the three judges' classification. There was a good agreement between the judges and the computer program: $Kappa = 0.80, p < .001$.

The five established profiles were: the adult profile (that is, a sexual preference for adults); the teen-adult profile (a preference for teens and adults); the non-discriminating profile (no particular preference, a moderate arousal to all stimuli); the child-adult profile (a preference for children and adults but not teens); and the child profile (a preference for children only). Most of the nonoffenders (68%) exhibited the adult profile and none of them showed the child or the child-adult profile. The incest child molesters were equally distributed between the adult (40%) and the non-discriminating profiles (40%). The extrafamilial child molesters were the only ones to exhibit the child profile and more precisely a sexual preference for prepubescent girls (35%). The other 65% of this group were approximately equally distributed among the other four profiles. As far as the teen-adult profile is concerned only about 15% of non-offenders, 15% of incest child molesters and 25% of extrafamilial child molesters showed that profile.

Marshall, Barbaree, and Butt (1988) examined the sexual preferences for age, gender and type of sexual activity of 21 homosexual child molesters and 18 nonoffenders. First, color pictures of nude males (varying in age from 3 to 24 years) in sexually explicit

poses were shown. Then six audiotapes, describing sexual interactions between a man and a boy were presented. Three episodes involved noncoercive sexual interactions (mutual fondling of genitals; mutual oral-genital contact; anal intercourse) and three episodes involved coercive sexual interactions (anal intercourse with the threat of physical violence; anal intercourse with physical force; anal intercourse with slapping and punching). At the end, a series of color slides of nude females ranging in age from 5 to 24 years were shown. The results showed that homosexual child molesters were more aroused by the male slide stimuli than were nonoffenders. The nonoffenders showed very low levels of arousal to the slides. Both the child molesters and the nonoffenders responded more to the adult female slides than to the younger female slides. The child molesters were more aroused by the audiotapes than the nonoffenders and were more aroused by the noncoercive than the coercive sexual stimuli. Further, the authors computed an index of homosexuality/heterosexuality (arousal to adult males divided by arousal to adult females) for each of the offenders. An index of one or greater indicates homosexuality. Based on that index the child molesters were re-classified into a homosexually-oriented group (7 subjects) and a heterosexually-oriented group (14 subjects). These two subgroups showed different sexual preference patterns. The homosexually-oriented subgroup was overall more aroused by the male slides than the heterosexually-oriented subgroup. In addition, they were more aroused by the adult male stimuli and showed a gradual decrease in responding to younger males. In contrast, the heterosexually-oriented subgroup showed moderate arousal to the youngest males and a gradual decrease to the older stimuli. This group also showed greater arousal to the female adults than the homosexually-oriented subgroup. In fact, its responses were almost identical to those of the nonoffender group. The homosexually-oriented

subgroup also showed an overall greater arousal to the audiotapes (both the coercive and the noncoercive ones) than the other subgroup. Thus, the heterosexually-oriented subgroup was more aroused by prepubescent males perhaps because they were more feminine (e.g., no body hair, soft and smooth body), whereas the homosexually-oriented subgroup preferred pubescent males who already had secondary sexual features.

In another study, Quinsey and Chaplin (1988a) compared 14 heterosexual, 7 homosexual and 4 bisexual child molesters with two control groups, one composed of 6 nonsex offenders and one composed of 8 men recruited from the community. The authors used audiotapes as stimuli to examine the behavioral aspect of sexual preferences by varying the coercion described in the narratives. The stimuli included neutral categories, consenting sex with an adult female, non violent sex with a passively resisting girl/boy, coercive sex with a girl/boy using threats and physical force, violent sex with a girl/boy, and nonsexual violence involving a girl/boy. The child molesters could be clearly differentiated from the comparison groups. The two control groups overlapped in their responses. They responded exclusively to the stories describing consenting sex with adult females. In contrast, the child molesters responded more to the child stimuli both in comparison to their own responses to the adult female category and in comparison to the control groups. Furthermore, all child molesters, regardless of the gender of their victims, showed a substantial interest in children of both genders. There was a close correspondence between the data from the heterosexual and bisexual child molesters. In addition, the child molesters did not respond to depictions of nonsexual violence involving children but responded to stories describing passive, coercive or violent sex with children and responded more to coercive sex with children if they have physically injured their victims.

Bélanger (1991) compared 21 homosexual and 15 heterosexual extrafamilial child molesters with 33 nonoffenders using slides. The child molesters were more aroused by the child stimuli. The heterosexual child molesters were more aroused by the child and prepubescent female stimuli, whereas the homosexual child molesters were more aroused by the prepubescent male stimuli. Also the nonoffenders and the heterosexual child molesters were more aroused by the female stimuli with the nonoffenders showing sexual excitement to female adolescents (13 to 17 years old) and adult women.

Grossman, Cavanaugh, and Haywood (1992) assessed 31 extra- and intrafamilial child molesters and 21 nonoffender subjects with five color slides of partially or fully nude adults and six slides of partially or fully nude children (boys and girls) ranging in age from 4 to 12 years. Control subjects were more aroused by adult stimuli than by child stimuli, whereas the two child molester groups showed equivalent levels of arousal to child and adult stimuli. In addition, the extrafamilial child molesters were more than twice more aroused by child stimuli than the controls and twice more aroused by child stimuli than the intrafamilial child molesters. The intrafamilial child molesters showed less than half the arousal to adult stimuli as controls. Extrafamilial child molesters showed more arousal to both child and adult stimuli than did incestuous child molesters. In addition, the results showed that homosexual molesters were more aroused by slides of boys and that heterosexual molesters were more aroused by slides of girls. Furthermore, both extra- and intrafamilial child molesters had significantly higher scores than controls on the pedophilia index (maximum response to child stimuli divided by maximum response to adult stimuli).

Barsetti, Earls, Lalumière, and Bélanger (1998) also compared 19 intrafamilial and 20 extrafamilial heterosexual child molesters with 18 heterosexual nonoffenders. The

subjects were assessed with 27 audiotapes describing either consensual sex with an adult woman, incestuous sexual contact with a passive 8 or 10 year old child (boy or girl), sexual contact with a boy and a girl using different degrees of force and violence, nonsexual aggression against a child and neutral stimuli. The responses of the three groups to the descriptions involving males were minimal and were not analyzed. The authors found that nonoffenders exhibited a clear preference for the female adult consensual stimuli than for any other stimulus category. In contrast, the intrafamilial and the extrafamilial child molesters did not discriminate between the adult and child stimuli. They showed similar arousal patterns. Compared to them the nonoffender group responded significantly more to the adult female stimuli and significantly less to the sexual activity with a passive female child stimuli and the incestuous sexual activity with a passive female child stimuli. Both child molester groups responded about equally to the stimuli depicting consensual sex with an adult woman and nonviolent sex with a female child. These findings differ from those of Barbaree and Marshall (1989) and Grossman et al. (1992) which observed greater arousal to the child stimuli for the extrafamilial child molesters and greater arousal to the adult stimuli for the incest child molesters and the nonoffenders. One possibility for this difference may be the stimuli used. Perhaps the studies that found a difference between extrafamilial and intrafamilial child molesters used stimuli that were better able to discriminate the two groups or the subjects were more deviant.

Seto, Lalumière, and Kuban (1999) demonstrated the heterogeneity of incest offenders. They examined six groups of heterosexual sex offenders: 70 fathers who have offended only against their biological daughters (biological incest), 73 fathers who have offended only against their stepdaughters (legal incest), 87 who have offended only against

extended family members (extended incest), 253 extrafamilial child molesters, 64 mixed offenders (who had both intra- and extrafamilial victims) and 84 rapists. In addition, to the six offender groups, 101 heterosexual nonoffenders were assessed with film clips depicting nude individuals of both sexes from four age categories (5 to 8 yrs. old; 8 to 11; 12 to 13; and physically mature) accompanied by audiotapes describing the targets as involved in nonsexual activities such as swimming and emphasizing features of their body shape. The researchers found that child molesters, as a group, were different from nonchild molesters (rapists and controls), that is, they showed a significant preference for children. Nonchild molesters responded more to adult stimuli than did child molesters. In addition, incest offenders, as a group, were different from extrafamilial and mixed child molesters combined together. They responded less to child stimuli than extrafamilial molesters but the two did not differ in their responses to adult stimuli. Biological incest offenders were the least deviant group and mixed offenders the most deviant one. Furthermore, among the incestuous child molesters, extended offenders responded more to child stimuli than did the biological fathers and stepfathers but did not differ in their responses to adult stimuli. Thus, incestuous child molesters were relatively less sexually aroused by child stimuli in comparison to nonincestuous child molesters. However, as a group, they were still deviant because they differed significantly from the rapists and controls (Table I).

TABLE I
SUMMARY OF STUDIES COMPARING CHILD MOLESTERS AND NONOFFENDERS

STUDY	NUMBER OF SUBJECTS	TYPE OF STIMULI	DIFFERENCES BETWEEN THE SEXUALLY DEVIANT AND NONDEVIANT GROUPS
Marshall, Barbaree, & Butt (1988)	21 homosexual child molesters and 18 nonoffenders	Color pictures of nude males and 6 audiotapes	Yes
Quinsey & Chaplin (1988a)	14 heterosexual, 7 homosexual and 4 bisexual child molesters with two control groups: 6 nonsex offenders and 8 men from the community	22 audiotapes	Yes
Barbaree & Marshall (1989)	21 heterosexual child molesters, 40 heterosexual incest offenders, and 22 nonoffenders	Slides of nude females	Yes
Bélanger (1991)	21 homosexual and 15 heterosexual extrafamilial child molesters with 33 nonoffenders	Slides	Yes
Grossman, Cavanaugh, & Haywood (1992)	31 extra- and intrafamilial child molesters and 21 nonoffenders	5 Color adult slides and 6 color child slides	Yes
Barsetti, Earls, Lalumière, & Belanger (1998)	19 intrafamilial and 20 extrafamilial heterosexual child	27 audiotapes	Yes
Seto, Lalumière, & Kuban (1999)	6 groups of heterosexual sex offenders: 70 fathers who have offended only against their daughters (biological incest), 73 who have offended only against their stepdaughters (legal incest), 87 who have offended only against extended family members (extended incest), 253 extrafamilial child molesters, 64 mixed offenders (who had both intra- and extrafamilial victims) and 84 rapists; 101 heterosexual nonoffenders	Film clips accompanied by audiotapes	Yes

So, as Proulx (1993) has observed by examining nine studies carried out with pedophiles, each study reviewed here, found a significant difference between the child molester group and the nondeviant group. As a group child molesters show greater arousal to children than nonoffenders, but they also show a substantial arousal to adult stimuli. However, the differences between the extrafamilial and the intrafamilial child molesters are not always clear. Usually extrafamilial pedophiles can be distinguished from nonoffenders and incest offenders, however, the intrafamilial pedophiles usually seem more similar to the nonoffender group (i.e., show more arousal to adult stimuli). Only one study reviewed here (Barsetti, Earls, Lalumière, & Bélanger, 1998) failed to discriminate between incest and extrafamilial offenders. In addition, studies like that of Marshall, Barbaree, and Butt (1988) have shown that child molesters constitute a heterogeneous group.

RAPIST STUDIES

In contrast to the pedophile studies, comparative studies with rapists and nonoffenders have not established clear cut differences between the two groups.

Quinsey, Chaplin, and Upfold (1984) assessed 20 heterosexual rapists, 10 nonsex offenders, and 10 controls from the community with 40 audiotapes narrated by a male in the first person. There were 10 categories with 4 stories per category. The story categories were: neutral situation, consenting sex with a woman, rape of a woman, nonsexual violence against a woman, consenting bondage and spanking of a woman, masochistic bondage and spanking of a woman, non-consenting bondage and spanking of a woman, consenting sex with a man, rape of a man, and nonsexual violence against a man. The two control subjects responded very similarly and were combined in the analyses. Rapists were found to respond less to consenting sex with a woman than control subjects but more to rape of a woman and

nonsexual violence against a woman. Rapists did not respond more than nonsex offenders to the sadistic or sadomasochistic bondage and spanking stories whether consenting or not. They responded as much to the latter stimuli as to the nonsexual violence ones. Control subjects responded more to the bondage and spanking stories than to the rape and nonsexual violence against a female stories. The stimuli with male victims were not significant.

Baxter, Barbaree, and Marshall (1986) assessed the sexual preferences of 60 rapists and 41 undergraduate students in two sessions. They used three consensual and three rape audiotaped sexual episodes as stimuli. The consensual episodes varied in the consent given by the woman about the sexual activity. In one she was enthusiastic, in another passive and in the third, reluctant but finally ceding to the demands of the man. The rape episodes, on the other hand, varied in the force and violence used by the man. They varied from verbal threats only to physical restraint to restraint and physical assault. All other aspects of the interactions, including the sexual behaviors, were held constant across episodes with the sexual activity occurring at approximately the same temporal locus. The undergraduate students showed strong discrimination between rape and consent stimuli, with greater arousal to consent. From the three consenting episodes they showed greater arousal to the one depicting an enthusiastic female compared to those depicting reluctant or passive women. As far as the rape episodes, the violent cues in the most violent rape episode inhibited the arousal of the undergraduate students because they displayed less arousal to the most violent rape compared to the other two rape episodes. In addition, there were changes in arousal in the second session. The discrimination between rape and consensual episodes was more marked. This increased discrimination was due to an increased

responding to the consenting stimuli. In the second session, there was also an increased discrimination between the most severe rape and the other two rapes. Like the undergraduate students, the rapists showed discrimination between rape and consent, and exhibited greater arousal to the consensual episodes. They also discriminated the most violent rape from the other two rapes and showed less arousal to it. In contrast to the undergraduate students, the rapists did not show greater arousal to the enthusiastic consenting female compared to the other two consensual episodes. Contrary to the control group, the rapists did not show improved discrimination between rape and consensual episodes in the second session. However, like the undergraduates, their discrimination between the most violent rape and the other two rapes was greater in the second session. When the two groups are compared, the undergraduates show significantly greater discrimination between consensual and rape cues than the rapists. This is due to the increased discrimination evidenced by the control group in the second session. However, as the results show, both groups responded significantly less to the rape episodes than to the consenting episodes. The responding of the rapists was not very different from that of the undergraduate students.

Similarly, Earls and Proulx (1986) assessed the sexual preferences of 10 rapists and 10 nonrapists using four classes of audiotaped stimuli: neutral, mutually consenting, rape (sexual activities and physical violence), and aggression (physical violence). The two groups did not respond differently to the mutually consenting, neutral and aggression stimuli. However, compared to the nonrapists, the rapists responded more to the rape stimuli. The nonrapists responded significantly less to the rape episodes than to the

mutually consenting ones. For the rapists there were no significant differences between these stimuli, although there was a tendency for the rape responses to be higher.

Another study by Proulx, Aubut, McKibben, and Côté (1994) was conducted with 10 less physically violent rapists, as assessed by the criteria of Avery-Clark and Laws, and by two judges and 10 men from the community. All rapists had volunteered to participate and had admitted their crimes. The same stimuli as in Earls and Proulx (1986) were used with the addition of the rape with humiliation stimulus. The authors reasoned that rapists being a heterogeneous population and not always responding to the physical coercion rape scenario there could be a group of rapists showing a preference for a different type of rape. Thus, they included a humiliation rape scenario. In addition, a semantic tracking task was used in this study in order to force the subjects to pay attention to the stimuli and to reduce faking. The rapists showed lower mean penile responses than the nonrapists for the consenting stimuli. For the humiliation rape, however, the rapists exhibited a greater mean penile response than the nonrapists. The authors did not find significant differences between the two groups for the physical rape, aggression, and neutral stimuli. These results demonstrate that less physically violent rapists cannot be distinguished from nonrapists based on their responses to physical rape stimuli but they can when a humiliation rape scenario is used. In addition, two rape indices (humiliation and physical rape indices) were calculated for the rapist and nonrapist groups. The findings with these indices were similar to the ones with the standardized scores. The rapists' mean physical rape index was not significantly larger than that of the nonrapists. However, the rapists' humiliation rape index was significantly higher than that of the nonrapists. These studies show that rapists are a heterogeneous population⁷. There are rapists who have a preference for rape with physical

violence and there are those who are more aroused by rape with humiliation, and perhaps still others who are aroused by both physical and humiliation rape.

In a review of 10 studies of rapists and nonrapists (Proulx, 1993) only three did not find statistically significant differences. One of them used movies as stimuli. The remaining seven that found statistically significant differences used audiotaped stimuli which suggests that audiotapes are better suited than movies to assess sexual preference in rapists. As for the remaining two studies that failed to find significant differences it is possible that the rapists that were evaluated were less violent than the rapists evaluated in the studies that found significant differences. It is also possible that the significant studies were conducted with rapists who have admitted their crimes.

Hall, Shondrick, and Hirschman (1993) conducted a meta-analysis of nine studies, totaling 434 rapists. They included in their meta-analysis only studies conducted with sex offenders who have admitted their crimes (admitters), studies which have used audio stimuli and which have used circumferential plethysmography, and maximum amplitude responses. In their analyses, they used two effect size estimates, raw score and rape index. The raw score analysis indicated that rapists exhibited just slightly more arousal to rape stimuli than the comparison groups (effect size = 0.27). Similarly, the rape index analysis, indicated that the rape arousal of rapists was moderately greater than that of the comparison groups (effect size = 0.71). In four of the nine studies reviewed by the authors, group means suggested that rapists exhibited greater arousal to consenting sexual stimuli than to rape stimuli. Thus, it can be concluded that nonsex offenders and sex offenders cannot always be discriminated and that rapists do not always show a preference for rape.

In order to elucidate the disagreement that reigns in the literature, Lalumière and Quinsey (1994) conducted a meta-analysis of 16 studies for a total of 415 rapists and 192 control subjects (including nonsexual offenders and nonoffenders). It reported an average size of 0.82. In all 16 studies only audiotaped stimuli were used. In nine of these studies the rape index was greater than 1.00 for rapists and only one study reported an average rape index greater than 1.00 for nonsex offenders. This means that, as a group, rapists responded more to rape than to consenting sex cues in comparison to controls. However, not all rapists demonstrated a preference for rape. Therefore, this confirms the findings of the previous studies. In addition, the authors found that certain variables can account for the divergent findings. For example, they found that stimuli that contained more graphic and brutal rape descriptions produced better discrimination between the two groups and that stimulus' sets that contained more exemplars of rape descriptions tended to achieve better discrimination. However, as Marshall and Fernandez (2003) have pointed out, several of the studies that were included in this meta-analysis were conducted by a few authors or in similar settings and this may have biased the findings. So, future meta-analyses should try to sample more diverse studies.

Another study conducted by Howes (1998), who examined 40 rapists, 10 extrafamilial pedophiles and 50 nonsexual offenders found that the rapist and nonsex offender groups were equally deviant. They differed only in their response to the adult heterosexual rape stimuli, with rapists showing greater arousal than nonsex offenders. The only difference between the sex offender (rapists and pedophiles) and the nonsex offender groups was that nonsex offenders were more able to inhibit their arousal to deviant stimuli. Only one nonsex offender was unable to inhibit his arousal, whereas 27 of the 40 rapists

and 9 of the 10 pedophiles were unable to accomplish this. The stimuli used were slides and audiotapes accompanied by slides, so stimulus modality may partly account for the divergent findings between this study and others who have found a difference between sex offenders and nonsex offenders using audiotaped stimuli only.

Harris, Rice, Chaplin, and Quinsey (1999) examined the sexual preferences of 38 rapists and nonrapists with 18 audio stimuli describing neutral interactions, consenting sex, rape and nonsexual violence. 20 rapists were tested with the stories being told by a male voice and 18 were tested with the same tapes but recorded in a female voice. In addition, half of the rapists were examined without and half were examined with a semantic tracking task (the same one as in Proulx et al., 1994a). It was found that nonrapists showed more arousal to the consenting stimuli and that rapists exhibited deviant preferences with or without the task. However, when the semantic task was used phallometric assessment better discriminated between rapists and nonsex offenders. That is, more rapists were deviant when the semantic task was used. And in particular there was a greater difference when sex offenders have already had previous experience with phallometric assessment. So, the lack of discrimination between rapists and nonrapists in the previous studies could partly be due to the fact that a semantic tracking task was not used.

A very similar study to the one above was conducted by Lalumière, Quinsey, Harris, Rice, and Trautrimas (2003). They evaluated 24 rapists, 11 nonsexual violent offenders and 19 nonoffenders from the community with 14 audiotapes describing neutral social interactions, consenting sex, nonconsenting violent sexual aggression, and nonsexual but violent interactions. Half of the narratives were told by a woman from her point of view and half by a man from his point of view. The two comparison groups responded in much

the same way. Both responded more to consenting sex stimuli (especially when told from the female perspective) than to any other categories. However, the rapists failed to discriminate between rape and consenting sex stimuli. They responded to both rape and consenting scenarios described from the female perspective, and less to consenting scenarios from the male perspective. Responses to nonsexual violence were low for all three groups and similar to responses to neutral scenarios (Table II).

TABLE II
SUMMARY OF STUDIES COMPARING RAPISTS AND NONOFFENDERS

STUDY	NUMBER OF SUBJECTS	TYPE OF STIMULI	DIFFERENCES BETWEEN THE DEVIANT AND NORMAL GROUPS
Quinsey, Chaplin, & Upfold (1984)	20 heterosexual rapists, 10 non-sex offenders, and 10 controls from the community	40 audiotapes	Yes
Baxter, Barbaree, & Marshall (1986)	60 rapists and 41 undergraduate students	12 audiotapes	No
Earls & Proulx (1986)	10 rapists and 10 nonrapists	Audiotapes	Yes
Proulx, Aubut, McKibben, & Côté (1994a)	10 rapists and 10 nonrapists	Audiotapes	Yes
Hall, Shondrick, & Hirschman (1993)	meta-analysis of nine studies, totaling 434 rapists	Audiotapes	Yes, in 5 out of 9 studies
Lalumière & Quinsey (1994)	meta-analysis of 16 studies for a total of 415 rapists and 192 control subjects (including nonsexual offenders and nonoffenders)	Audiotapes	Yes in only 9 studies
Howes (1998)	40 rapists, 10 extrafamilial pedophiles and 50 nonsexual offenders	Slides; audiotapes; and audiotapes accompanied by slides	Yes
Harris, Rice, Chaplin, & Quinsey (1999)	38 rapists	18 audiotapes	Yes
Lalumière, Quinsey, et al. (2003)	24 rapists, 11 nonsex offenders and 19 nonoffenders	14 audiotapes	No

Thus, as Proulx (1993) and Murphy and Barbaree (1988) have stated, compared to rapists the presence of deviant sexual preferences is better established in child molesters. In addition, there is no agreement about the rapists' sexual preferences. Indeed, in a study conducted by Beauregard, Lussier and Proulx (2004) only about 25% of the rapists showed a sexual preference for rape (either rape with physical violence or rape with humiliation).

As can be seen much of the research on phallometry has focused on its discriminant validity. However, the question of whether or not phallometry can reliably distinguish between groups of sex offenders and nonsex offenders is still being debated. Some authors have claimed that phallometry has good discriminant validity, whereas others are more cautious. Seto (2001), for example, concluded that phallometry reliably distinguishes between groups of child molesters and nonsex offenders, and between rapists and nonrapists. However, this discrimination is not perfect and there is an overlap between the sex offender and the nonsex offender groups.

According to Launay (1999) the ability of phallometry to distinguish groups depends on whether we look at its ability to identify gender preference, age preference or preference for violence. He says that the ability to identify gender preference is excellent and that of identifying age preference is also very good. However, its ability to detect a sexual preference for violence is more controversial.

In conclusion, the evidence of phallometry's discriminant validity is satisfactory overall. This means that there are differences between sex offenders and nonoffenders and that these differences can account for the propensity of sex offenders to commit sexual assaults.

PREDICTIVE VALIDITY

Predictive validity assesses the extent to which phallometric data permits to assess dangerousness and to predict reoffending. A meta-analysis based on 61 different data sets confirmed the existence of a strong positive relationship between phallometric data and reconvictions (Hanson & Bussière, 1998).

Malcolm, Andrews, and Quinsey (1993) divided 172 convicted sex offenders into three groups: sexual recidivists, nonsexual recidivists, and nonrecidivists. Of the 172 men, 152 had an opportunity to recidivate. Of these 152, 56 were convicted of a new offense: 34 were convicted of a nonsexual offense and 22 of a sex-related offense. The sexual recidivist group recidivated faster than the nonsexual recidivist group. Furthermore, the recidivists showed a greater preference for children than did the nonrecidivists. In addition, the sexual recidivists responded more to slides of children than did the nonsexual recidivists. There was no statistical difference between the nonsexual recidivists and the nonrecidivists.

Lalumière and Harris (1998) also concluded that phallometric results reliably predict violent recidivism among sexual offenders and they claimed furthermore that no other information provides a more reliable way to discriminate sexual from nonsexual offenders.

In conclusion, the sexual preferences hypothesis seems to apply mostly to pedophiles because 50% of them show a deviant sexual preference for children (Lussier, Proulx, & Beauregard, 2005) whereas only 25% of rapists show a deviant profile (Beauregard, Lussier, & Proulx, 2004). The inhibition hypothesis seems more suitable to explain the sexual arousal of rapists because it may be that they do not have a sexual

preference for rape but that they fail to be inhibited by nonconsent and force. Such lack of inhibition may be related to psychopathic personality traits.

PERSONALITY DISORDERS

As we saw physiological arousal is an important component in sexual aggression but certainly not the only one. Most theories have emphasized a single factor and subsequently they have not been able to explain the diversity of sex offending behavior. A complete model that strives to help us understand the sexual aggressor and the reasons behind sexual assault should consider other factors as well. Marshall and Barbaree (1990), for example, have advanced the view that rape results from the interactive and synergistic effect of factors such as a sexual preference for rape, antisocial personality, biological factors and transitory disinhibitors such as negative affects, alcohol, pornography, and cognitive distortions.

Hall and Hirschman (1991) also have suggested several factors in their quadripartite model of sexual aggression. According to their model physiological arousal alone is not sufficient to produce sexual aggression in all cases. Cognitive factors, such as justifications and appraisals (e.g., rape myths), affective dyscontrol (e.g., anger, hostility or depression), and personality disorders (e.g., antisocial personality) increase the probability that a sexually aggressive act will be committed. However, physiological, cognitive, and affective factors may be situation-specific and state dependent. In contrast, personality disorders are more enduring and they may account for the “chronicity and severity of sexually aggressive behavior”. The authors further highlight the importance of personality disorders by stating that “state factors alone may not produce sexually aggressive behavior in a person with adequate functioning” (p. 665).

Whereas Hall and Hirshman stated that sexual aggression occurs because of a specific characteristic of the person, Malamuth, Heavey, and Linz (1993) proposed that it is the result of the confluence of six factors: sexual responsiveness to rape, motivation for dominance, hostility toward women (which can act as a motivation or a disinhibitor), attitudes facilitating aggression against women, antisocial personality/ psychoticism, and sexual experience. These factors interact with opportunity factors to affect the likelihood that sexual coercion will occur. In addition, these variables are domain specific, that is, they do not predict aggression against men. Malamuth et al. (1993) organized these factors into a model comprised of two primary paths – the hostile masculinity and the sexual promiscuity paths. Most of the predictor variables are part of the hostile masculinity path (sexual arousal to aggression, dominance motives, hostility toward women, and attitudes facilitating aggression against women). These variables are part of a controlling, adversarial male orientation toward women. The second path, sexual promiscuity, “involves delinquent tendencies expressed as sexual acting out” (p. 81). According to this model a hostile home environment is a distal factor that leads to aggression against women and its influence is mediated by delinquency. The two paths are influenced by delinquency. Children from hostile homes frequently associate with delinquent peers and engage in antisocial behaviors. These delinquent experiences may affect characteristics mediating aggression against women such as attitudes, rationalizations, motivations, emotions, and personality characteristics. In addition, the precocious adoption of adult roles can result in precocious sexual behavior, which may lead to sexual aggression. With increasing levels of hostility, high promiscuity would result in more sexual aggression. The authors hypothesized that the

hostility path may moderate the relationship between sexual promiscuity and sexual aggression. The authors have found some support for their model.

From all these multifactorial models it is clear that a single factor cannot account for all aspects of sexual aggression and that it is important to examine the personality disorders of sex offenders. Empirical evidence shows that the prevalence of personality disorders among sex offenders is particularly high. Proulx, McKibben, Côté, Aubut, and Fournier (1995) found a high incidence and diversity of personality disorders in rapists. In their study, all rapists had at least one personality disorder. In Earls and Proulx's study (1986) 8 out of 10 rapists were diagnosed as personality disordered and in Harris et al.'s (1999) study 36 out of 38 rapists had a personality disorder. The prevalence in child molesters is also very high. In Quinsey and Chaplin's (1988) study 23 out of 25 child molesters were diagnosed as personality disordered. In Berner et al. (1992) in a mixed sample of 30 rapists and child molesters, 23 had at least one personality disorder, which means that only about a quarter had an exclusively sexual problem. In addition, the distribution of diagnoses in the rapists and child molesters was not significantly different.

PSYCHOPATHY

The most commonly assessed personality disorder in sex offenders is psychopathy. Dorr (1998) conducted a review of empirical studies, which have used the Minnesota Multiphasic Personality Inventory (MMPI), and confirmed that the prevalence of psychopathy among homosexual pedophiles, heterosexual pedophiles, and incest perpetrators is quite high. However, the MMPI could not distinguish the pedophiles from other sex offenders, such as rapists, and it could not distinguish the different subgroups of

pedophiles. Similarly, in a review of the literature on child molesters, Quinsey and Lalumière (1996) also noticed a high prevalence of psychopathy in pedophiles.

Porter, Fairweather, and Drugge (2000) examined five groups of sex offenders and one group of 100 nonsexual offenders who have been assessed with the Psychopathy Checklist-Revised (PCL-R). The five sex offender groups included 48 extrafamilial, 37 intrafamilial and 16 mixed (extra- and intra-) child molesters, 103 rapists and 25 mixed rapist-child molesters. The last group, the mixed rapist-child molester group, had the highest rate of psychopathy (64%). Child molesters had low rates of psychopathy (between 6% and 10%) and rapists (35.9%) and nonsexual (34%) offenders had moderate rates.

SADISM

As the above studies show, psychopathy is quite prevalent in sex offenders and certainly plays an important role in their deviant sexual behavior but other personality disorders are also common in this heterogeneous population and should be considered. Sadism is one of them. Berger, Berner, Bolterauer, Gutierrez, and Berger (1999) assessed 27 child molesters, 33 rapists and 10 murderers with a structured interview. A total of 62 subjects exhibited at least one personality disorder. Sadistic personality disorder (SPD) was the most frequent personality diagnosis, occurring in 19 subjects. The second most common disorder was the antisocial personality disorder (in 18 participants), followed by the paranoid personality disorder (15 subjects) and the borderline personality disorder (11 subjects). SPD was more represented in the rape and homicidal groups and less so in the child molester group. Sexual sadism was more frequently diagnosed in subjects with SPD, thus, from the 19 subjects with SPD, 42.1% were also diagnosed with sexual sadism. Also

in a previous study, Berner et al. (1992) found that 9 out of 30 patients showed a high rate of sadistic personality disorder.

OTHER PERSONALITY DISORDERS

We can see that psychopathy and sadism are prevalent in sex offenders. We also saw that models of sexual aggression are general and thus, did not take into account the diversity of personality disorders in rapists and child molesters.

The following studies use the MMPI as a personality test although it was developed as a measure of psychopathology and has been validated only as such (Levin & Stava, 1987). As a result, this biases the results of these studies since only psychopathy has a chance to appear in the results, the other scales measuring psychopathology only.

Armentrout and Hauer (1978) compared the MMPI group mean profiles of 13 rapists, 21 heterosexual child molesters, and 17 nonrapist sex offenders. The rapists produced an elevated 8-4 profile, the child molesters a less elevated but still identifiable 4-8 (Psychopathic Deviate-Schizophrenia) profile, and the non-rapists showed a 4 profile. Thus, all three groups had similar elevations on scale 4 but differed in their elevations on scale 8. The 4-8 profile indicates a person who is hostile, irritable, very impulsive, and often in conflict with authority. The 4 profile indicates a person who is impulsive, pleasure-oriented, socially non-conforming, and unable to delay gratification or tolerate frustration, but is less hostile than the 4-8 profile. Thus, the authors conclude that rapists are more angry, resentful, and alienated than child molesters, and these two types of offenders are more like each other compared to nonrapists. Thus, sex offenders seem to be characterized not just by sexual deviance but also by an antisocial personality.

Panton (1978) analyzed the MMPI mean scale scores of 30 rapists, 20 violent child molesters, and 28 nonviolent child molesters. There were no significant mean differences between the rapist and the violent child molester groups. However, both of these groups obtained significantly higher mean scores than the nonviolent child molester group on the Psychopathic Deviate, Schizophrenia, and Hypomania scales, whereas the nonviolent child molester group had significant scores on the Hysteria scale and an empirically derived Pedophilia scale. The characteristic profile for the rapist and violent molester groups was 4-8 (Psychopathic Deviate-Schizophrenia) implying hostility, resentment, social alienation, self-centeredness, and impulsive acting-out. The characteristic profile for the nonviolent molester group was 4 (Psychopathic Deviate) suggesting self-alienation, low self-esteem, self-doubt, anxiety, inhibition of aggression, feelings of inadequacy and insecurity. Although all three groups obtained high scores on the Psychopathic Deviate scale, their response patterns differed. Rapists and violent child molesters scored higher on authority conflict and social alienation, whereas child molesters scored higher on family conflict and self-alienation. This study replicates that of Armentrout and Hauer (1978) and the fact that in rapists and violent child molesters motivation may be more aggressive than sexual.

Erickson, Luxenberg, Walbek, and Seely (1987) also assessed the MMPI profiles of 403 convicted sex offenders. Sex offenders showed more 4-5 (narcissism and fear of rejection by women) and 4-8 profiles than other prisoner groups. Rapists were more likely to have a 4-9/9-4 profile, whereas child molesters were more likely to have 4-2/2-4 profiles (passive-dependent, uncomfortable in social interactions, impulsive and alcoholic). Even so, only 15.4% of all rapists and 12.6% of all child molesters showed these profiles. For

incestuous biological fathers the 4-3 profile (chronic anger, overcontrolled hostility, passive-aggressive personalities, and marital discord) was the most common. For the incestuous stepfathers, the 4-7/7-4 profiles (insensitivity to others, alcoholism) were more common. The 4-2/2-4 and 4-8/8-4 profiles were more common among the extrafamilial than among the intrafamilial child molesters. Thus, only scale 4 was truly prevalent. The 4-8/8-4 profiles were more common among rapists and extrafamilial child molesters.

Kalichman, Szymanowski, McKee, Taylor, and Craig (1989) conducted a multivariate cluster analysis on the MMPIs of 120 incarcerated rapists. They identified five MMPI profile subgroups. Subgroup one obtained high but nonsignificant scores on the Psychopathic and Hypomania scales. Subgroup two had significant elevations on the Depression, Psychopathic, Paranoia, and Schizophrenia scales. Subgroup three had a single significant elevation on the Psychopathic scale, whereas subgroup four had high elevations on the Psychopathic, Schizophrenia, and Hypomania scales. Finally, subgroup five had significant elevations on the Depression, Psychopathic, Paranoia, Psychastenia, Schizophrenia, and Hypomania, and higher scale elevations than the other subgroups on most other scales.

The previous studies used the MMPI although it was not an adequate measure of personality. The Millon Clinical Multiaxial Inventory (MCMI) is better suited as a personality measure because it was specifically developed for that purpose. Thus, Chantry and Craig (1994) administered the MCMI to 201 child molesters, 195 rapists and 205 nonsexually aggressive offenders. Then they performed three separate hierarchical cluster analyses on the MCMI scales for each group. They found a three-cluster solution for the child molesters and rapists and a two-cluster solution for the nonsexually aggressive

offenders. Child molesters in cluster 1 did not show any elevated scores. Those in cluster 2 had significant elevations on the Dependent, Passive-aggressive, and Avoidant scales. The child molesters in cluster 3 had significant elevations on the Dependent, Schizoid, and Avoidant scales. Rapists in cluster 1 had a mild elevation on the Compulsive scale. Rapists in cluster 2 had elevations on the Narcissistic and Antisocial scales and a mild elevation on the Paranoid scale. Rapists in cluster 3 had significant elevations on the Avoidant, Dependent, Schizoid, and Passive-aggressive scales. As far as the nonaggressive offenders are concerned, the researchers found that those in cluster 1 showed mild dependent personality traits and those in cluster two showed mild narcissistic personality traits. Both the child molesters and the rapists showed elevations on the Dependent, Avoidant, Schizoid, and Passive-aggressive scales. However, only rapists showed narcissistic and antisocial personality traits. Therefore, the child molesters showed primarily a detached personality style with dependent personality traits and with or without passive-aggressive features. There was also a group that showed no personality disorders. The rapists, on the other hand, showed either an emotionally detached personality with dependent features, or an independent personality style with narcissistic and antisocial features. A third group showed compulsive traits. The nonsexually aggressive offenders fell into two groups. One group was characterized by a detached emotional style and dependent traits, whereas the other was characterized by an independent personality style with narcissistic features.

Ahlmeyer, Kleinsasser, Stoner, and Retzlaff (2003) also assessed 223 rapists, 472 child molesters and 7 226 nonsex offending inmates with the MCMI-III. In general, sex offenders were different from nonsex offenders. The nonsex inmates had higher scores on the antisocial, narcissistic and sadistic scales, whereas sex offenders had more elevated

scores on the schizoid, avoidant, dependant, and schizotypal scales. Thus, nonsex offenders were more traditionally criminal, whereas the sex offenders had a more pathological personality profile. In addition, child molesters were different from rapists. They had high scores on the avoidant, depressive, dependant, dysthymia and anxiety scales. Hence, both rapists and child molesters show a diversity of personality disorders, however, the child molesters seem to be more pathological than rapists.

So, these personality studies demonstrate the heterogeneity of sex offenders in terms of personality disorders. They show that testing a group and attributing it the mean profile found can be misleading. Furthermore, in the case of rapists personality disorders seem to be related to the level of physical violence during rape. Thus, Proulx, Aubut, Perron, and McKibben (1994b) assessed the personality disorders of 31 less physically violent rapists and of 18 more physically violent rapists using the MCMI. The less physically violent rapists had higher scores on the avoidant, dependent, passive-aggressive and schizoid scales and the more physically violent rapists had higher scores on the antisocial scale. Moreover, 98% of the rapists had at least one personality disorder and in accord with these disorders they have committed rapes which differed in their level of violence.

Theodore Millon (1981) defined personality as the way a person interacts with his environment. This way of interacting consists of cognitions, emotions and behaviors, which have a certain stability over time and in different situations. According to Millon, personality is the product of biological predispositions and learning experiences. A personality disordered person is characterized by rigid and inappropriate interpersonal relationships, which lead to interpersonal conflicts and/or stress for that individual. If we consider sexual aggression as a type of interpersonal relation and that the nature of the

personality disorder determines the characteristics of this type of rapport, it is plausible to conclude that the nature of the personality disorder will also determine, partially at least, the scenario of sexual aggression. Thus, the sexual aggression would be a continuation or a compensation of the way this person relates to his environment which depends on the nature of his personality disorder in its cognitive, affective and behavioral dimensions (Proulx, 2005).

Personality disorders have been associated with the *modus operandi* of rapists and child molesters. Proulx, St-Yves, Guay and Ouimet (1999) assessed 78 rapists with the MCMI. First, the rapists were subdivided into three groups according to their *modus operandi*: sadistic, opportunistic and angry. None of the rapist's group had any acute clinical disorders, however, the rapists in the sadistic group had elevated scores for the schizoid, avoidant and dependant personality disorders. The rapists in the opportunistic group and the angry group did not have significantly elevated scores for any of the personality disorder scales. However, the opportunistic group had scores close to significance on the narcissistic and paranoid scales.

In a similar study, Proulx, Perreault, Ouimet and Guay (1999) examined 51 extrafamilial child molesters. Again, the child molesters were subdivided into three groups according to their *modus operandi*: nonfamiliar heterosexual molesters, nonfamiliar homosexual molesters and familiar heterosexual molesters. The nonfamiliar homosexual molesters had higher scores on the dependant scale and nonsignificant but close to significance scores on the avoidant and schizoid. The nonfamiliar heterosexual molesters had higher scores on the avoidant, dependant and schizoid scales. And the familiar heterosexual molesters had elevated scores on the dependant scale.

RELATIONSHIP BETWEEN PERSONALITY DISORDERS AND SEXUAL PREFERENCES

In addition to the established relationship between *modus operandi* and personality disorders, following from Millon's theory we can expect to find an association between personality disorders and sexual preferences. Some studies have found just that. As with the personality disorder studies, most of them have focused on only one personality disorder namely, psychopathy. Thus, Serin, Malcolm, Khanna, and Barbaree (1994) examined 65 federally incarcerated sexual offenders: rapists, incest child molesters and extrafamilial child molesters. Most of the sex offenders' victims were female. The researchers found a significant positive relationship between psychopathy and deviant sexual arousal, most notably for extrafamilial child molesters. For incest offenders the correlation was negative and nonsignificant. Rapists scored higher on the psychopathy checklist than incest child molesters, however, this difference was not statistically significant.

A study conducted by McAnulty, Adams, and Wright (1994) examined the correspondence between MMPI scores and plethysmographic profiles among 90 accused heterosexual child molesters. The plethysmographic profiles were evaluated with both slides and audiotapes. Thirty of the 90 subjects exhibited significant arousal to child cues and the rest showed a normal profile (i.e., preference for adult women). In addition, the MMPI scores on the depression scale distinguished child molesters who had deviant sexual preferences from those who did not. This scale was nearly three times more elevated in the child molesters with deviant sexual preferences than in the ones with nondeviant sexual preferences. The most common MMPI profile was the psychopathic/ paranoid (9%) however, no MMPI profile could be described as characteristic of the child molesters.

In another study Proulx, McKibben, Côté, Aubut, and Fournier (1995) used the MCMI to examine the relationship between sexual preferences and personality disorders in 42 rapists who volunteered to participate. Two audiotaped stimuli per category were presented. The five categories were: mutually consenting sex; physical rape (sexual activities and physical violence); humiliation rape (sexual activities and humiliation); aggression (physical violence) and neutral (no violence and no sexual activity). A semantic tracking task was also used to prevent voluntary control of penile responses. The researchers found a diversity of sexual preferences and personality disorders among the rapists and a high incidence of personality disorders. The rapists were classified into four categories according to their sexual preferences and the personality disorders of the offenders varied according to these preferences. Group 1 showed a preference for both physical and humiliation rape. This group was characterized mostly by the antisocial personality disorder (77.8%). Group 2 showed a humiliation rape preference and was characterized by the avoidant personality disorder (92.3%). In contrast, group 3 did not show a sexual preference for rape and the dependent personality disorder was more present in this group (64.7%). Finally, group 4 showed a preference for physical rape but it was too small and so it was excluded from further analysis.

Therefore, in addition to exhibiting a variety of deviant sexual preferences, rapists also show a high prevalence and diversity of personality disorders, which are related to their sexual preferences. However, the question about pedophiles' relation between their personality disorders, as measured by the MCMI, and sexual preferences has not been addressed so far.

AIMS OF THE STUDY

The literature review has shown that child molesters could be better discriminated from nonoffenders than rapists from nonoffenders. However, there is still no consensus about the sexual preferences of child molesters and rapists. The studies are fraught with contradictions. Nevertheless, in general, extrafamilial child molesters seem more sexually deviant than intrafamilial child molesters, that is, usually they show a sexual preference for children whereas intrafamilial child molesters show a normal sexual preference for adult women. However, few studies have evaluated child molesters with audio stimuli, and from those that have, it is difficult to draw a conclusion as to their preferred sexual activity. Although rapists have been evaluated more often with audiotapes, their preferences have not been established unambiguously. There are some who show a preference for rape with humiliation, others for rape with physical violence and still others for consenting sex.

Some of these ambiguities are partially due to methodological problems with the studies. Few studies have used the semantic tracking task, which has been shown to be effective in decreasing men's voluntary erectile control and this might have affected their findings. In addition, few studies have used audiotaped stimuli in order to assess child molesters and this stimulus modality gives more information about their sexual preferences than slides because in addition to age and gender preference it also gives information about the behavior preference of a sex offender.

As far as the personality disorders of sex offenders are concerned they show a high diversity. The most common ones are antisocial, dependant, avoidant and schizoid. Some of

these have been related to sex offenders' sexual preferences, however few studies have used the MCMI, which is better suited to measure personality disorders than the MMPI.

Thus, the aim of the present study is to examine the relationship between the sexual preferences and personality disorders of rapists and child molesters, while using audiotaped stimuli, the semantic tracking task and the MCMI.

METHODS

SUBJECTS

Subjects were 174 rapists and 263 pedophiles, who were referred for evaluation or treatment from 1984 to 2004, to the Philippe Pinel Institute of Montreal, a maximum security psychiatric hospital. They were drawn from an initial sample of 745 subjects. However, 264 (34.5%) were dropped because they showed an invalid phallometric profile (i.e., less than 3 mm penile response), 15 were excluded because they were less than 18 years old at the time of assessment and 29 because they have both raped adult women and molested children. The only descriptive information available for the remaining subjects was their age and their place of assessment. The mean age of the sample was 34.6 years (SD = 10.03). There was no significant difference between the age of the rapists ($M = 32.5$, $SD = 9.82$) and that of the pedophiles ($M = 35.90$, $SD = 9.95$).

Most of the subjects were evaluated at the Philippe Pinel Institute (82.4%) where they were receiving treatment. The remaining subjects (17.6%) were evaluated in the outpatient clinic.

SEXUAL AROUSAL ASSESSMENT

PHALLOMETRY

Penile circumference was measured with a mercury-in-rubber strain gauge (Bancroft, Jones & Pullan, 1966). The subject places the gauge in the middle of the shaft of his penis during the evaluation. When a subject has an erection, while viewing the sexual stimuli, the ring around the penis stretches and the volume of mercury decreases. This reduction causes a decrease in the electrical conductance, which is transformed into voltage

changes, which in turn are directly transmitted to a computer. Before each assessment, the gauge is calibrated with an aluminium cone to permit a precise measurement (in millimeters) of penile circumference changes (Earls & Jackson, 1981).

LABORATORY

The laboratory where the assessment takes place consists of two adjacent rooms (Proulx, 1993). The first room (the experimenter room) contains all material necessary for the recording of the data and the presentation of the stimuli (the data-recording device, the computer, a tape recorder and a video recorder). In the adjacent room (the subject room) the subject sits in an armchair in front of a black and white television set. This room also contains the speakers through which the audiotaped stimuli are presented. In addition, two buttons connected to the polygraph are used by the subject to accomplish the semantic tracking task (as described previously).

STIMULI

NONEXPERIMENTAL STIMULI

A nonexperimental audiovisual stimulus was shown to all subjects. Depending on the probable or actual sexual orientation of the subject it showed an excerpt from a pornographic film, depicting a heterosexual couple involved in mutually consenting sexual activities or two adult males involved in mutually consenting sexual activities. The excerpt lasted about two minutes. This stimulus served as a warm-up and allowed the subject to familiarize himself with the setting.

PEDOPHILE STIMULI

For the pedophiles eleven audiotapes were used. These stimuli were validated French translations (Proulx, Côté, & Achille, 1993) of those used by Quinsey and Chaplin (1988b). The scenarios were read by a woman and had a mean duration of 123 seconds. There are five categories, each containing two stimuli, one involving a prepubescent boy and another involving a prepubescent girl. The categories were: 1) passively consenting sex with a prepubescent girl and with a prepubescent boy (i.e., the child was not resisting); 2) coercive sex with a prepubescent girl and with a prepubescent boy; 3) violent sex (penetration of a resisting child) with a prepubescent girl and with a prepubescent boy; 4) nonsexual violence (physical aggression without sex) against a prepubescent girl and against a prepubescent boy. In addition, two consenting scenarios (one heterosexual and one homosexual) and one neutral scenario (e.g., describing the advantages of wearing a seatbelt) were presented.

RAPE STIMULI

For the rapists ten audiotapes, two per category were used. Eight of these are validated French translations (Earls & Proulx, 1986; Proulx, Aubut, McKibben, & Côté, 1994) of stimuli used by Abel, Barlow, Blanchard, and Guild (1977) and two humiliation stimuli were developed by Proulx et al. (1994). The humiliation stimuli differ from the physical rape stimuli in three aspects: in the absence of physical violence, the presence of verbal humiliation and the presence of nonverbal humiliation. All scenarios were read by a woman and had a mean duration of 208 seconds. The five categories are: 1) physical rape (sexual activities and physical violence); 2) humiliation rape; 3) physical aggression

without sex; 4) mutually consenting sex; and 5) neutral (e.g., the advantages of wearing a seatbelt).

The stimuli were ordered randomly, however it was made sure that no two stimuli of the same category were presented one after the other. The plethysmographic assessment lasted about one hour and a half.

TREATMENT OF DATA

For a penile reaction to be considered significant and interpretable a subject must attain at least 3 mm increase in penile circumference, which represents approximately 10% to 15% of a full erection (Quinsey & Laws, 1990). Only one significant penile response is necessary to consider the phallometric profile of the subject valid. The peak response to each stimulus is entered in the database. Then these peak responses of each subject are transformed into z-scores and averaged within each stimulus category. This is necessary in order to reduce the between-subjects variability due to differences in overall responsiveness (Quinsey & Laws, 1990).

For each subject the raw scores are used to calculate a pedophilic or a rape index (for the pedophiles and the rapists, respectively). This index provides a measure of arousal to pedophilic/ rape stimuli relative to consenting stimuli. It is calculated by dividing the maximal penile response obtained during the presentation of the deviant stimulus (pedophilic or rape) by the maximal penile responses to the mutually consenting adult stimulus. An index greater than 1.00 indicates greater responding to the deviant stimulus. These indices, the same as the z-scores transformation, permit the reduction of the between-subjects variability due to differences in overall responsiveness (Proulx, Côté & Achille,

1993). In addition, they give a single index for the sexual preferences of a subject (Abel et al., 1977).

PROCEDURE

The procedure for the rapists and the pedophiles was the same. Only the stimuli used differed. When a subject arrived at the laboratory, he read and signed a consent form. He also completed a questionnaire concerning possible medical or psychological problems that might affect his penile responses during the experiment. The questionnaire also allowed the subject to describe any sexual activity over the preceding 12 hours and his sexual orientation.

After the subject signed the consent form, the experimenter explained the procedure and showed the strain gauge to the subject and explained him how it functions and how to place it around his penis. The subject was instructed to relax and to imagine himself as the male protagonist in the stories he would hear on the audiotapes. In addition, the subject was instructed to accomplish a semantic tracking task forcing him to pay attention to the content of the stimuli. Once the subject was ready, a sexually explicit videotape depicting a consenting interaction between two adults was presented. Following the warm-up stimulus the experimental audiotaped stimuli were presented in random order. An interval of at least 30 seconds separated the presentations. However, if necessary, the interval was prolonged until the subject's erection has returned to baseline.

PERSONALITY DISORDER ASSESSMENT

MCFI

The MCFI-I was given to the sex offenders in the first month of their treatment. It was specifically devised to measure personality disorders (Millon, 1981). It derives from

Millon's biopsychosocial theory, thus it is grounded in an elaborate personality theory. In addition, it is in accord with the diagnostic categories of the DSM-III. Its psychometric properties have been thoroughly reviewed by Wetzler (1990). The test-retest reliability of the inventory is acceptable. For the personality disorders scales it varies between 0.81 and 0.90 (Wetzler, 1990). The French translation of the MCMI has been validated with a sample of French Canadians (D'Elia, 1988; Landry et al., 1996).

This instrument is a self-report personality inventory, which can be used to assess clinical populations only. It consists of 175 true or false questions. It has 20 scales, 11 of which correspond to 11 personality disorders (schizoid-asocial, avoidant, dependent-submissive, histrionic-gregarious, narcissistic, antisocial-aggressive, compulsive-conforming, passive-aggressive, schizotypal, borderline-cycloid, and paranoid) and the other nine correspond to some acute clinical syndromes (anxiety, somatoform, hypomania, dysthymic, alcohol abuse, drug abuse, psychotic thinking, psychotic depression, and psychotic delusion). In addition, it has two validity scales.

TREATMENT OF DATA

The raw scores of the MCMI are transformed into base rate scores in accord with clinical prevalence rates. Then the base rate scores are interpreted according to two thresholds. A base rate score between 74 and 85 indicates that the typical characteristics of the disorder are present and a base rate score greater than 85 indicates the significant presence of such characteristics.

RESULTS

The data were analyzed in two steps. In step one we tested if we can discern different subgroups in the rapist and child molester groups, respectively, in terms of their personality disorders. Then, we looked if these subgroups were differentially aroused by the deviant stimuli. In step two we proceeded backwards. First, we looked if we can discern different subgroups in the rapist and child molester groups, respectively, in terms of their sexual arousal, and then we looked if these groups differed in terms of their personality disorders. The examination entailed inferential statistical analysis, including t-tests and analyses of variance (ANOVA). SPSS, version 12 was used for all analyses.

Only valid protocols for both the MCMI and the plethysmographic evaluation, determined by the tests' validity index for the MCMI and 3 mm minimal erectile response amplitude for the phallometric evaluation, were used in the analyses. The alpha levels used were .05 for the t-tests and ANOVA, and .10 for Levene's tests.

STEP 1

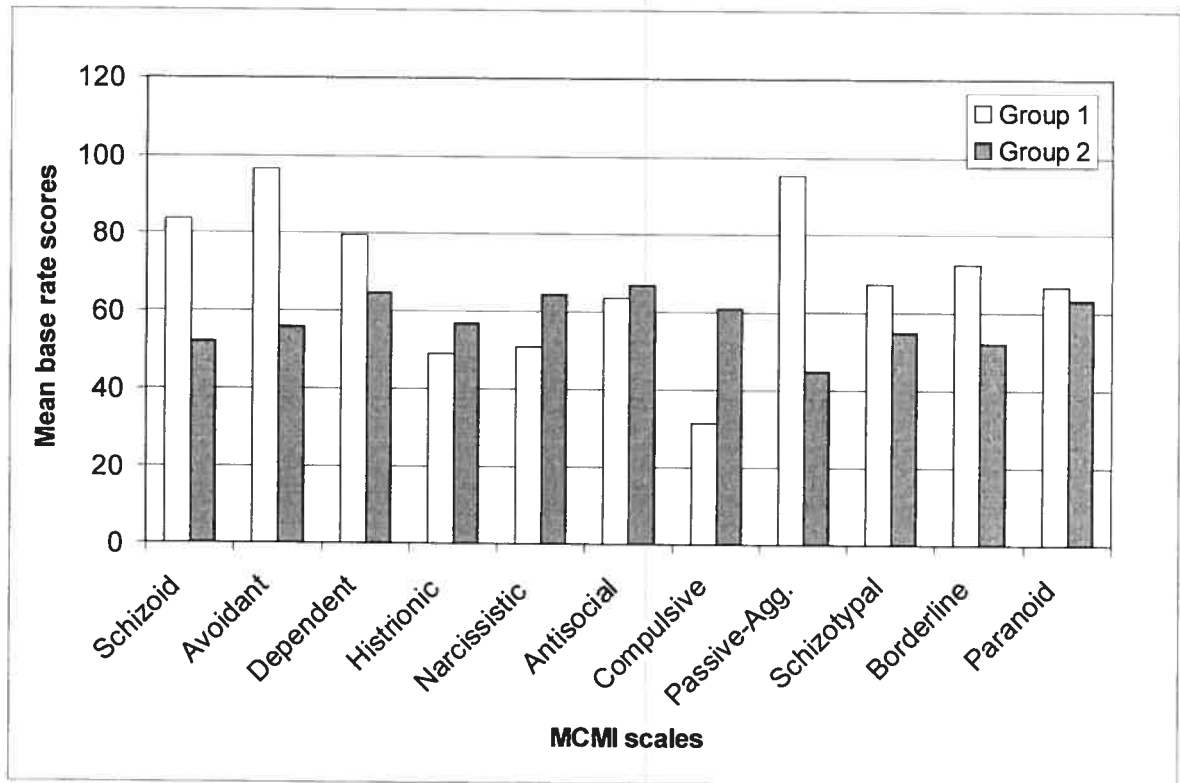
We used a two-step cluster analysis with the log-likelihood distance measure and Schwarz's Bayesian Criterion to test if there are different subgroups of rapists and different subgroups of child molesters according to their personality disorders as measured by the eleven scales of the MCMI. Although a brand new type of cluster analysis with little literature available on it, it is the most suitable method for our analyses because it yields the optimal number of clusters. The two-step cluster analysis was conducted separately on each offender group. It indicated that the optimal number of clusters is two for the rapist group and two for the pedophile group (Table III).

TABLE III
MCMI TYPOLOGY FOR RAPISTS AND CHILD MOLESTERS

	RAPISTS				CHILD MOLESTERS			
	CLUSTER 1		CLUSTER 2		CLUSTER 1		CLUSTER 2	
	M	SD	M	SD	M	SD	M	SD
SCHIZOID	83,59	15,06	51,81	23,99	50,63	25,39	85,29	12,90
AVOIDANT	96,25	12,75	55,79	22,05	62,04	22,40	97,47	13,00
DEPENDENT	79,32	23,74	64,63	22,91	63,30	26,27	89,18	15,18
HISTRIONIC	48,93	18,79	56,56	20,20	59,02	18,01	40,09	19,82
NARCISSISTIC	50,73	21,63	64,14	15,85	67,22	16,17	36,35	15,43
ANTISOCIAL	63,23	24,30	66,67	15,84	67,48	18,99	40,60	21,43
COMPULSIVE	31,09	10,62	60,67	9,15	53,52	19,55	45,49	17,37
PASSIVE-AGG.	94,98	12,24	44,74	20,26	53,48	26,50	85,55	20,20
SCHIZOTYPAL	67,00	10,42	54,95	11,72	53,85	10,12	71,00	8,29
BORDERLINE	71,98	10,16	51,91	15,49	56,87	12,74	73,60	12,84
PARANOID	66,54	12,97	63,12	9,21	62,30	15,92	59,64	17,63

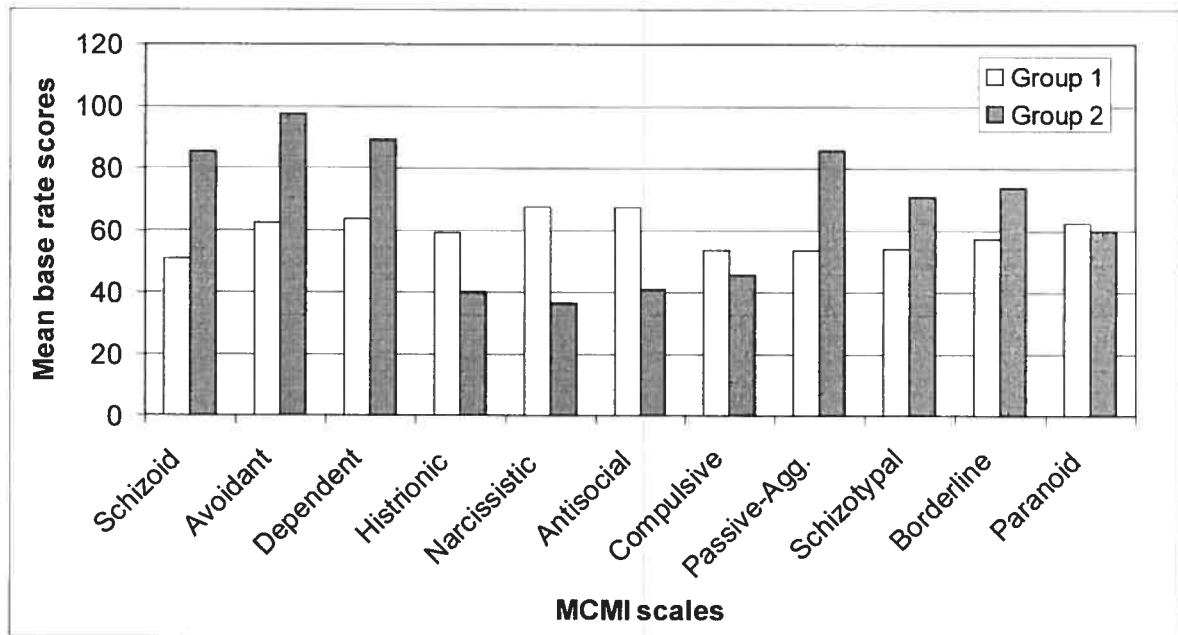
The first cluster of the rapist group contained 44 subjects similarly to the second cluster, which contained 43 subjects. There was no significant difference between the age of the first group of rapists ($M = 33.7$, $SD = 8.62$) and the second group of rapists ($M = 34.8$, $SD = 9.08$). The first cluster was characterized by clinically significant elevations (above 74) on the avoidant, passive-aggressive, schizoid, and dependent scales. The second cluster had no clinically significant elevations on any of the scales (Figure 1) however, it had elevated scores on the antisocial, dependent, and narcissistic scales.

FIGURE 1
MCCI PROFILES FOR THE TWO RAPIST GROUPS



The first cluster of the pedophile group contained 54 subjects and the second cluster contained 45 subjects. There was no significant difference between the age of the first group of pedophiles ($M = 36.3$, $SD = 10.53$) and the second group of pedophiles ($M = 37.5$, $SD = 8.34$). The first cluster did not have any clinically significant elevations (above 74) on the MCCI scales. However, it had elevated scores on the antisocial and narcissistic scales. The second cluster showed clinically significant elevations on the avoidant, dependent, passive-aggressive, and schizoid scales (Figure 2).

FIGURE 2
 MCMI PROFILES FOR THE TWO PEDOPHILE GROUPS



The rapist and pedophile groups were similar in that both had one subgroup with high scores on the avoidant, dependent, passive-aggressive, and schizoid scales and a second subgroup with no clinically significant scores (but with elevations on the antisocial and narcissistic scales). Pedophiles in the last group have given up on adult relationships similarly to the rapists in that group, who have given up on human relationships (Proulx, Perreault, Ouimet, & Guay, 1999; Proulx, St-Yves, Guay, & Ouimet, 1999).

Once the clusters for the two sex offender groups were established, we compared the two rapist groups and the two pedophile groups, respectively, in terms of their deviance indices. Rape indices were calculated for each subject as ratios. For the rapists, the two physical rape stimuli, the two humiliation rape, the two aggression, and the two consenting stimuli were first averaged. Then, four deviance indices were calculated using the averaged

raw scores because the literature suggests that it is better to use raw rather than standardized scores when calculating rape indices (Earls et al., 1987). Thus, the physical rape index is the ratio of the averaged penile responses to the physical rape stimuli as the numerator, and the averaged penile responses to the consenting sex stimuli as the denominator. Similarly, the humiliation rape and the physical aggression indices are the ratios of the averaged penile responses to the humiliation rape and the physical aggression stimuli, respectively, divided by the averaged penile responses to the consenting sex stimuli. In addition, a fourth deviance index was calculated by dividing the maximum penile response to any of the deviant stimuli by the maximum penile response to any of the two consenting sex stimuli. Once, the four indices were calculated independent sample t-tests were carried out. In each test the independent variable was group membership and the dependent variables were the four rape indices. Results were not statistically significant (Table IV). Levene's test indicated that the variances were approximately equal for the two groups, $p \geq .10$.

TABLE IV
T-TESTS FOR THE TWO GROUPS OF RAPISTS AND THE FOUR DEVIANCE INDICES

Index	df	t	p	Cluster 1		Cluster 2	
				M	SD	M	SD
Physical rape index	85	-0.91	0.36	0.88	0.86	1.43	3.92
Humiliation rape index	79	-0.91	0.36	1.22	1.07	1.84	4.20
Physical aggression index	85	-0.67	0.50	0.52	0.78	0.71	1.79
Deviance index	85	-0.80	0.43	1.27	1.22	1.87	4.79

The same steps were taken to calculate the indices for the child molesters. For that group nine indices were calculated. Passively consenting sex (girl), coercive sex (girl), violent sex (girl), and nonsexual violence (girl) indices were calculated by dividing the penile response to the respective deviant stimulus with a young girl by the penile response to the adult heterosexual consenting sex stimulus. Similarly the passively consenting sex (boy), the coercive sex (boy), the violent sex (boy), and the nonsexual violence (boy) indices were calculated by dividing the penile response to the respective deviant stimulus with a young boy by the penile response to the adult homosexual consenting sex stimulus. In addition, as for the rapist group, a deviance index was calculated by dividing the maximum penile response to any of the eight deviant stimuli by the maximum penile response to any of the two adult consenting stimuli. After the indices were calculated t-tests were carried out. Again in each test the independent variable was group membership and the dependent variables were the nine pedophile indices. The results were not statistically significant (Table V). Levene's test indicated that the variances were approximately equal for the two groups, $p \geq .10$ except for the nonsexual violence of a girl index ($p = .03$) and the nonsexual violence of a boy index ($p = .05$). Because these indices indicated an unequal variance, the Kolmogorov-Smirnov test was carried out in addition to the t-tests. It was also nonsignificant.

TABLE V
T-TESTS FOR THE TWO GROUPS OF PEDOPHILES AND THE NINE DEVIANCE INDICES

Index	df	t	p	Cluster 1		Cluster 2	
				M	SD	M	SD
Passively consenting sex (girl)	95	0.28	.78	2.34	3.74	2.16	2.30
Coercive sex (girl)	95	0.18	.86	1.19	2.46	1.12	1.14
Violent sex (girl)	95	0.66	.51	1.08	1.70	0.89	0.88
Nonsexual violence (girl)	95	1.63	.11	0.51	0.70	0.32	0.37
Passively consenting sex (boy)	90	0.86	.39	1.61	2.75	1.22	1.31
Coercive sex (boy)	90	0.79	.43	1.71	2.59	1.37	1.25
Violent sex (boy)	90	0.69	.49	1.60	2.09	1.32	1.62
Nonsexual violence (boy)	90	-1.55	.12	0.52	0.48	0.74	0.84
Deviance index	97	-0.49	.63	1.84	2.45	2.06	1.93

STEP 2

We also performed a two-step cluster analysis on the sexual arousal scores for each of the two sex offender groups, with the log-likelihood distance measure and Schwarz's Bayesian Criterion. However, for this analysis, standardized scores were used because they significantly reduce error variance (Earls, Quinsey, Chaplin, & Upfold, 1984; Quinsey, & Castonguay, 1987). The scores were standardized for each subject instead of across subjects in order to eliminate between-subject differences in overall response magnitude and penis size (Lalumière et al., 2003). Standardized scores allow for comparison between and within individuals while reducing within-subject variance (Earls, Quinsey, & Castonguay, 1987).

The cluster analysis yielded two clusters for the rapist group and four clusters for the child molester group (Tables VI and VII).

TABLE VI
SEXUAL PREFERENCE TYPOLOGY FOR RAPISTS

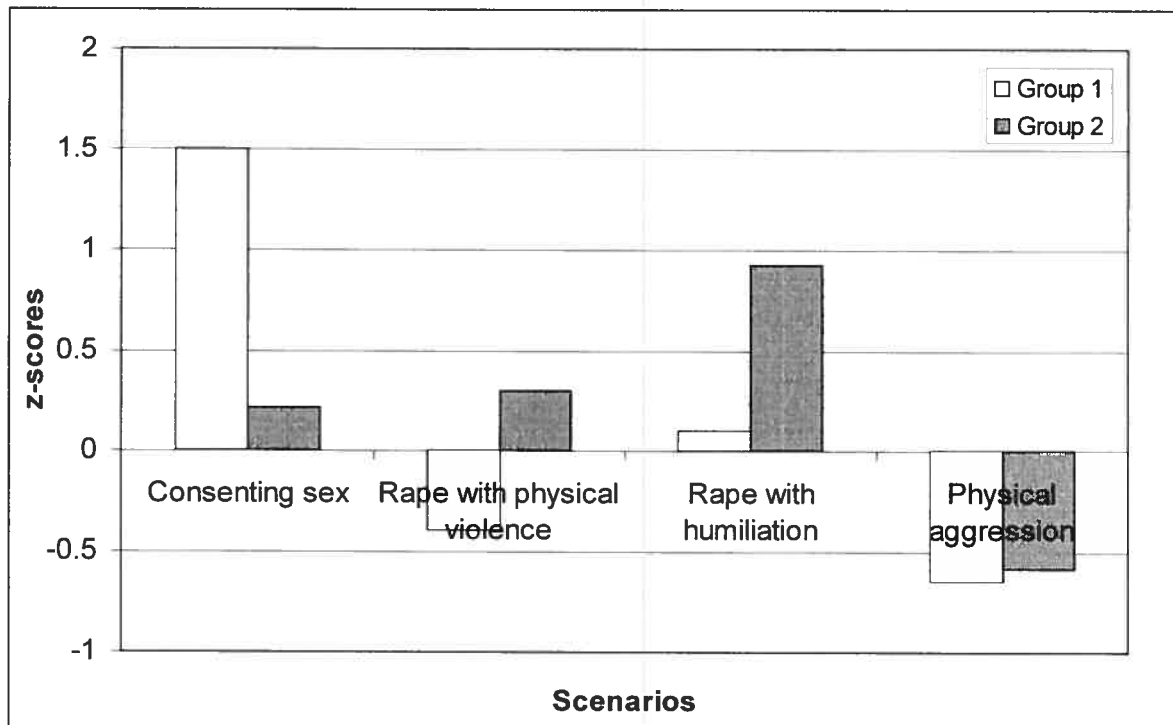
	CLUSTER 1		CLUSTER 2	
	M	SD	M	SD
Consenting Sex	1.50	0.29	0.21	0.51
Physical Rape	-0.39	0.31	0.30	0.63
Humiliation Rape	0.10	0.50	0.92	0.56
Physical Aggression	-0.64	0.25	-0.59	0.61

TABLE VII
SEXUAL PREFERENCE TYPOLOGY FOR CHILD MOLESTERS

	CLUSTER 1		CLUSTER 2		CLUSTER 3		CLUSTER 4	
	M	SD	M	SD	M	SD	M	SD
Passively consenting sex (girl)	0.67	0.87	2.09	0.60	0.57	0.88	-0.02	1.09
Coercive sex (girl)	0.29	0.75	0.51	0.78	-0.28	0.60	-0.19	0.31
Violent sex (girl)	0.37	0.72	0.11	0.71	-0.65	0.33	-0.23	0.36
Nonsexual violence (girl)	-0.73	0.62	-0.59	0.36	-0.69	0.29	-0.40	0.30
Consenting heterosexual sex	-0.02	0.81	0.44	0.85	0.44	0.92	2.78	0.24
Passively consenting sex (boy)	0.04	0.78	-0.19	0.70	0.88	1.18	-0.28	0.36
Coercive sex (boy)	0.55	0.94	-0.22	0.49	0.05	0.68	-0.17	0.46
Penetration Rape (boy)	0.59	0.66	-0.39	0.37	-0.13	0.60	-0.29	0.29
Nonsexual violence (boy)	-0.49	0.81	-0.64	0.28	-0.60	0.25	-0.48	0.26
Consenting homosexual sex	-0.02	0.76	-0.32	0.45	1.25	0.97	-0.16	0.35

The first cluster of the rapist group contained 53 subjects and the second contained 85 subjects. There was no significant difference between the age of the first group ($M = 33.2$, $SD = 8.86$) and that of the second group ($M = 33.1$, $SD = 10.88$). The first cluster was characterized by arousal to the consenting sex and the humiliating rape scenarios, whereas the rapists in the second cluster were aroused by humiliating rape, physical rape, and consenting sex (Figure 3).

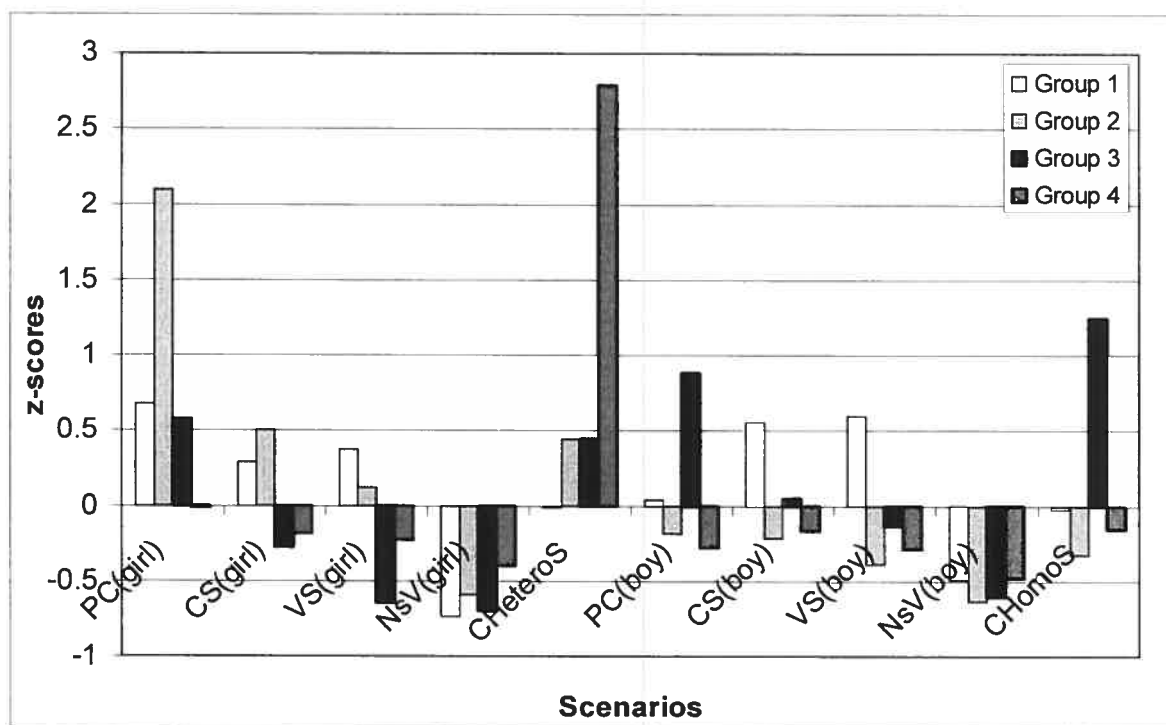
FIGURE 3
PHALLOMETRIC PROFILES FOR THE TWO RAPIST GROUPS



The first cluster of the pedophile group contained 78 subjects and had an average age of 34.9 years ($SD = 11.45$). It was characterized by arousal to passively consenting sex with a girl, and coercive and violent sex with a boy. It was also characterized by significant arousal to coercive and violent sex with a girl. The second cluster contained 85 subjects and

had an average age of 35.8 years (SD = 9.50). It was characterized by significant arousal to passively consenting sex with a girl. It was also characterized by significant arousal to coercive sex with a girl and by consenting heterosexual sex. The third cluster contained 47 pedophiles and had an average age of 36.1 years (SD = 9.42). It was characterized by arousal to the consenting homosexual sex, passively consenting sex with a boy and passively consenting sex with a girl. The fourth cluster contained 43 subjects and had an average age of 35.7 years (SD = 9.99). It was characterized only by significant arousal to consenting heterosexual sex (Figure 4). There were no significant differences in age among the four groups.

FIGURE 4
PHALLOMETRIC PROFILES FOR THE FOUR PEDOPHILE GROUPS



PC: passively consenting sex; CS: coercive sex; VS: violent sex; NsV: nonsexual violence; CHeteroS: heterosexual consenting sex; CHomoS: homosexual consenting sex

Once the clusters were established, the groups were compared in terms of their personality disorders as measured by the eleven scales of the MCMI. T-tests were carried out for the two rapist groups. The independent variable was group membership and the dependent variables were the eleven personality scales. Results were not statistically significant (Table VIII). Levene's test indicated that the variances were approximately equal for the two groups, $p > .10$ except for the histrionic scale ($p = .02$). Therefore, the Kolmogorov-Smirnov test was carried out in addition to the t-tests. It was also nonsignificant.

TABLE VIII
T-TESTS FOR THE TWO GROUPS OF RAPISTS AND THE 11 MCMI SCALES

Scale	df	t	p	Cluster 1		Cluster 2	
				M	SD	M	SD
Schizoid	79	0.22	0.82	68.24	23.10	66.21	28.10
Avoidant	79	-0.31	0.76	75.00	26.22	75.83	28.89
Dependent	79	0.24	0.81	71.42	26.47	70.98	23.91
Histrionic	79	0.52	0.60	53.30	16.04	51.25	22.47
Narcissistic	79	-0.60	0.55	56.12	19.23	57.81	19.80
Antisocial	79	-0.95	0.35	63.03	22.29	66.50	19.70
Compulsive	79	0.48	0.64	47.00	17.66	45.58	18.12
Passive-Agg.	79	0.34	0.73	71.12	30.43	68.27	30.88
Schizotypal	79	0.73	0.47	62.51	11.10	59.92	14.05
Borderline	79	1.08	0.28	64.06	14.47	60.00	18.18
Paranoid	79	-0.88	0.38	63.42	10.51	64.71	10.58

One-way ANOVA was carried out for the four child molester groups. Significant results were obtained for the histrionic [$F(3, 94) = 2.89, p < .04$] and compulsive scales [$F(3, 94) = 3.45, p < .02$] (Table IX). Tukey's multiple comparisons test was carried out for

the two significant scales. On the histrionic scale it indicated that group 3 scored higher than group 1 ($p < .04$). On the compulsive scale group 4 scored higher than group 2 ($p < .02$). Levene's test indicated that the variances were approximately equal for the four groups, $p > .10$.

TABLE IX
ONE-WAY ANOVA FOR THE FOUR GROUPS OF PEDOPHILES AND THE 11 MCMI
SCALES

Index	df	F	p	Cluster 1		Cluster 2		Cluster 3		Cluster 4	
				M	SD	M	SD	M	SD	M	SD
Schizoid	3	0.51	.68	72.04	22.10	69.00	24.96	59.12	32.84	60.61	29.98
Avoidant	3	2.12	.10	78.00	23.16	84.85	23.55	72.47	28.59	71.13	29.34
Dependent	3	2.18	.10	79.20	23.17	79.39	21.36	71.23	29.24	68.91	28.39
Histrionic	3	2.89	.04*	46.16	21.32	49.51	22.41	51.53	21.10	56.73	18.55
Narcissistic	3	1.28	.28	50.20	20.73	52.39	23.72	55.00	23.79	58.04	20.25
Antisocial	3	0.72	.54	52.08	25.56	53.27	23.03	59.65	26.39	59.56	22.46
Compulsive	3	3.45	.02*	49.68	16.72	44.45	19.42	54.70	15.42	53.78	22.09
Passive-Agg.	3	1.45	.23	69.52	27.93	69.18	29.38	64.25	30.47	67.43	29.79
Schizotypal	3	0.52	.67	63.40	10.38	62.06	14.02	61.18	16.83	59.52	9.51
Borderline	3	0.17	.91	65.28	12.26	63.70	16.60	60.88	16.40	67.09	15.73
Paranoid	3	0.10	.96	60.72	17.78	61.54	15.39	63.35	18.23	61.43	15.53

In summary, one cluster analysis yielded two subgroups of rapists and two subgroups of child molesters in terms of their personality disorders but these groups did not differ in their deviant arousal. The second cluster analysis yielded two subgroups of rapists and four subgroups of child molesters in terms of their deviant arousal. However, once again personality disorders did not differentiate the rapist groups, but two personality disorders differentiated the pedophile group. On the histrionic scale group 3 scored higher than group 1, and on the compulsive scale group 4 scored higher than group 2.

DISCUSSION

SEXUAL PREFERENCES

RAPISTS

Our study seems to be the first one to have attempted to generate sexual preference profiles of rapists and pedophiles using cluster analysis. First, we will look at the rapist profiles then we will turn to the pedophile profiles. The results of our analyses indicate that there are two sexual preference profiles evident in rapists. Rapists in the first group ($n = 53$) responded more to the consenting sex scenario than to any other scenario and minimally to the rape with humiliation scenario. Rapists in the second group ($n = 85$), however, were deviant. They responded more to rape with humiliation, little to rape with physical violence and even less to consenting sex. Both groups did not respond to the physical aggression scenario, which indicates that they are not aroused by physical violence alone.

The literature on rapists' sexual arousal shows that in some studies rapists respond more to rape stimuli (Harris et al., 1999; Proulx et al., 1994; Quinsey, Chaplin, & Upfold, 1984), in other they respond more to consenting stimuli (Baxter, Barbaree, & Marshall, 1986), and still in other studies, rapists show equal arousal to rape and consenting sex stimuli (Earls and Proulx, 1986; Lalumière et al., 2003). Our first group of rapists is in agreement with the second type of studies, where rapists appear to show a normal profile, (i.e., to respond more to consenting sex stimuli). However, rapists in our first group also responded minimally to the humiliation rape scenario. Our second group of rapists is more in agreement with the first type of studies because rapists showed higher sexual arousal to humiliating rape. However, like the rapists in the first group, they too responded to the consenting sex stimuli although minimally. Thus, the inhibition hypothesis, which states

that sex offenders are not inhibited by violence and coercion, may apply to rapists in the first group because although they were excited by consenting sex, they also showed arousal to the rape with humiliation scenario. The sexual preference hypothesis, which states that sex offenders prefer deviant sexual activities, may apply more to rapists in the second group because they responded more to rape with humiliation and rape with physical aggression than to consenting sex.

The differences between studies may be due to sampling differences. The studies which found differences could have been done with more violent rapists and those which did not find differences could have been done with less violent rapists (Proulx et al., 1994), depending on the setting from which the samples were drawn. Hence, the results obtained with a sample from one setting may not apply to rapists in another setting. Also, Marshall and Fernandez (2000) have suggested that some studies employ a small sample and so, the results of these studies may not be very representative because rapists are very heterogeneous. Proulx (1993) has noted as well that the inconsistency in the literature on rapists' responding may indicate that there are different types of rapists who differ in their sexual preferences. Therefore diverse deviant stimuli (e.g., humiliation rape, physical rape) should be employed in order to tap into these differences.

Other reasons for the lack of differences in sexual preferences between rapists and nonoffenders could be suggested. In a study, Murphy, Krisak, Stalgaitis, and Anderson (1984) have found that rapists who do not admit their crimes do not differ from nonrapists in their responses to sex stimuli. Thus, most studies which found no differences might have been carried out with nonadmitting rapists. In addition, many studies conducted by Malamuth (1981, 1986) with nondeviant men from the community have demonstrated that

some of these men display an interest in deviant sex, which makes it very difficult to differentiate them from rapists and to choose an appropriate control group.

Furthermore, the duration of the stimuli is an important factor as well. Avery-Clark and Laws (1984), for example, showed that arousal reached maximal levels of discrimination only when audio stimuli have been presented for 3 minutes. In addition, the duration and temporal location of the sexually significant events in the audiotaped stimuli are important. If the sexual element does not occur in the same temporal location in the normal and deviant stimuli and for the same duration, "then indices of sexual arousal may not be accurate measures of differential responding" (Marshall and Fernandez, 2000, p. 812).

PEDOPHILES

Turning to the pedophile group now, our cluster analysis indicated that there are four sexual preference profiles evident in child molesters. Child molesters in the first group (n = 78) responded the most to sex with a passive prepubescent girl, violent sex with a prepubescent boy and coercive sex with a prepubescent boy. They also responded to violent sex with a prepubescent girl and coercive sex with a prepubescent girl. Child molesters in the second group (n = 85) responded only to the female stimuli. They responded the most to sex with a passive prepubescent girl compared to their own responses to the other stimuli and compared to the responses of the other three groups to that stimulus. In addition, they responded minimally to coercive sex with a prepubescent girl and to consenting sex between an adult man and an adult woman and responded even less to violent sex with a prepubescent girl. Child molesters in the third group (n = 47) were more aroused by nonviolent stimuli. They responded the most to consenting sex between two adult males in

comparison to both their responses and to the responses of the other three groups to that scenario. They also responded to sex with a passive prepubescent boy, sex with a passive prepubescent girl, and to consenting sex between an adult man and an adult woman. Child molesters in the fourth group ($n = 43$) showed a nondeviant profile. They were significantly aroused by consenting sex between an adult male and an adult female and were not aroused by any other stimuli.

Freund et al. (1972) have proposed an explanation as to why some pedophiles do not show nondeviant sexual preferences. They suggested that some pedophiles may have a sexual preference for adult women but commit offences against children who act as a surrogate (i.e., under special circumstances when their most preferred object – an adult woman, is unavailable they will substitute it for a child). In their study of nondeviant males they demonstrated that normal men responded more to slides of girls ranging in age from 5 to 26 years, than to slides of boys of the same age range. In addition, the men responded differently to the four female age groups but not to the male ones. Nondeviant men did not respond to the male and neutral slides but they did respond more to the female slides, even to the 8 to 11 year old girls. In addition, all female body parts elicited greater reactions than neutral or male pictures. Pubic region, buttocks and chest elicited greater reactions than the neutral stimuli. The buttocks of the pubescent males also elicited greater responses than the neutral stimuli. Thus, for a nondeviant man the female child, at least from her sixth year onward – was a more appropriate surrogate sexual object than the male child.

The literature review showed that in some studies child molesters were more aroused by the child stimuli (Bélanger, 1991; Quinsey and Chaplin, 1988a; Seto, Lalumière, & Kuban, 1999) than by the adult stimuli, and in other studies child molesters

showed equal responses to the child and adult stimuli (Barsetti et al., 1998; Grossman et al., 1992). The sexual preference hypothesis applies mostly to the first group because it showed responding to passive, coercive and violent sex with children and no responding at all to either of the adult sex stimuli. Although the inhibition hypothesis was developed for rapists, it may also apply to child molesters. Therefore, it could be applied to the third group, which is characterized by more arousal to sex with a passive girl and with a passive boy, and by arousal to consenting heterosexual and homosexual stimuli. However, both hypotheses could be applied to the second pedophile group depending on which stimuli are presented. Thus, pedophiles in this group responded the most to passive sex with a girl but they also responded minimally to coercive sex and violent sex with a girl.

It is very difficult to compare our results to other studies because of differences in the procedure, the modality of stimuli employed, the content of the stimuli, and the characteristics of the groups studied. Moreover, most studies have separated child molesters into groups according to their relation to the victim(s) (intrafamilial or extrafamilial) or according to the gender of their victim(s) (homosexual, heterosexual or bisexual). However, we did not have enough information to be able to do so. This will be left to future studies.

We can, however, tentatively compare our findings with those of Barbaree and Marshall (1989). Similarly to them, we found a group (group 4) which showed an adult heterosexual profile, that is, a group that responded to the consenting heterosexual sex scenario exclusively. We also found a group (group 1) that responded to the child stimuli solely. In addition, this group did not show much discrimination between the child stimuli, like 40% of the incest child molesters in Barbaree and Marshall's study. Similarly, our group 3 also responded to stimuli depicting children of both genders. Child molesters in

these two groups may not discriminate between the child stimuli because they are aroused by any age and gender, or because their erectile responses are low (Barbaree, 1990). Marshall and Barbaree (1984) have suggested that some sex offenders show low arousal in the laboratory because there are inhibitory factors working in that setting, such as demand characteristic to show a nondeviant sexual preference, arousal inhibiting anxiety, and fear of the repercussions if the subject shows a deviant preference.

Due to the differences, in procedure and stimuli between the studies, enumerated above we cannot make more specific comparisons with other studies.

PERSONALITY DISORDERS

In the second part of our study we performed cluster analyses in order to generate personality disorder profiles for the rapist and pedophile offenders. We found two groups for the rapists and two groups for the pedophiles. First we will discuss the personality profiles of the rapists then in turn the personality profiles of the pedophiles. The first rapist group (n = 44) was characterized by clinically significant elevations on the avoidant, passive-aggressive, schizoid, and dependent scales. People with an avoidant personality disorder have a strong need to be cared for by someone but they believe they are not deserving and that they are a failure (Millon, 1981, 1996). They are afraid to be rejected or criticized. So, in order to avoid losing their relationship with someone, they will deny their desire for intimacy. On the other hand, a passive-aggressive person sees himself as independent and not needing anyone (Millon, 1981, 1996). Nevertheless, he seeks the approval of others and at the same time is afraid that others will control him. Openly this person is submissive and a conformist but deep down he is indirectly aggressive. Similarly to the passive-aggressive person, the schizoid person perceives himself as independent and

not needing anyone (Millon, 1981, 1996). However, he is detached and lacks emotions. In contrast, the dependent person lacks initiative and submits to others (Millon, 1981, 1996). He expects the other person to give him support, security and affection. Thus, rapists who are a blend of these disorders will feel rejected and humiliated, they will withdraw from the world and experience feelings on anxiety and depression. They would look for ways to release the tension created by these negative feelings by fantasizing about being powerful and getting their revenge and eventually may act on their fantasies and commit rapes (Proulx, St-Yves, Guay, & Ouimet, 1999).

The second cluster of rapists ($n = 43$) had no clinically significant elevations on any of the scales. At present we cannot explain why this is the case. However, it had elevated scores on the antisocial, dependent and narcissistic scales. The antisocial person has a need for revenge in order to repair a real or a perceived injustice that somebody has done to him (Millon, 1981, 1996). He is violent and suspicious. The narcissistic person, on the other hand, overestimates himself and expects recognition and admiration for his exceptional person by others (Millon, 1981, 1996). He is arrogant and inconsiderate. He feels superior to others and expects that others should cater to his needs. He constantly needs someone so as not to feel lonely. When others do not take care of his needs he may feel angry and feel it is his right to use force to obtain what he wants (Proulx, St-Yves, Guay, & Ouimet, 1999). Therefore, rapists who are antisocial, dependent and narcissistic may rape because they feel it is their right to take what they want, or they may rape as a retaliation against some real or perceived wrongdoing caused to them by a woman. They may also use rape to feel in control and to be “admired” for their sexual prowess.

Our findings are similar to those of Proulx, Aubut, McKibben, and Côté (1994) who compared a more physically violent and a less physically violent group of rapists. Their less physically violent rapists resemble our first group with high scores on the avoidant, dependent, passive-aggressive, and schizoid scales. Similarly, their more physically violent rapists resemble our second group which even though did not have significant elevations on the antisocial scale nevertheless showed a tendency in that direction.

We also found similarities with the profiles of Chantry and Craig (1994). These authors found three distinct profiles of rapists. Their first group had significant elevations on the compulsive scale. We did not find such a group. However, their second and third groups resemble our two groups. Their second group is similar to our second group with high elevations on the antisocial and narcissistic scales. Their third group was like our first group. It was characterized by significant scores on the avoidant, dependent, schizoid, and passive-aggressive scales. Ahlmeyer, Kleinsasser et al. (2003) also found that rapists had elevated scores on the schizoid, avoidant, dependant, and schizotypal scales.

As for our two pedophile groups, we found that they were very similar to our two rapist groups. The first pedophile group ($n = 54$) showed no clinically significant elevations on any of the eleven MCMI scales. However, it had elevated scores on the antisocial and narcissistic scales. Such pedophiles can be occasional situational molesters. They may prefer an adult female partner but when such partner is not available they may substitute her for a child. The second group ($n = 45$) showed clinically significant elevations on the avoidant, dependent, passive-aggressive, and schizoid scales. Pedophiles with such disorders see adults as rejecting and menacing and turn to children who are more accepting

and less judgmental. Furthermore, the child could be seen as a source of affection and as understanding.

Several studies (Armentrout & Hauer; 1978; Dorr, 1998; Porter, Fairweather, & Drugge, 2000; Quinsey & Lalumière, 1996) found a high prevalence of psychopathy among pedophiles, however we found only one cluster with moderate but not significant elevations on the antisocial and narcissistic scales. Again this is probably due to different samples or to the different tests used in the other studies (MMPI and PCL-R).

In their cluster analysis, Chantry and Craig (1994) came up with three groups of child molesters. Group one was similar to ours in that it did not have any significant elevations on any of the scales. Group two and three were similar to our second group. Child molesters in those groups showed elevations on the dependent, passive-aggressive, and avoidant scales and on the dependent, schizoid, and avoidant scales, respectively. Ahlmeyer, Kleinsasser et al. (2003) also found that child molesters are more avoidant and dependent.

Thus, our findings are consistent with the literature. The most commonly found disorders in both child molesters and rapists are the avoidant, dependent, schizoid and passive-aggressive. One reason why we did not find a significant prevalence of psychopathy among our sample is that most studies have used the PCL-R to assess psychopathy. The PCL-R was specifically designed to measure psychopathy. So, the MCMI antisocial scale may not be as sensitive as the PCL-R to the assessment of psychopathy. The later incorporates lifestyle and behavioral referents and personality characteristics.

PERSONALITY DISORDERS AND SEXUAL PREFERENCES

When we examined the relationship between our two rapist personality profiles and the rape indices and between our two pedophile personality profiles and the pedophile indices we did not find any significant relationships. However, when we examined the relationship between our two rapist sexual preference profiles and the eleven MCMI scales and our four pedophile sexual preferences profiles and the eleven MCMI scales we found two significant relationships for the pedophile group but none for the rapist group. We found that on the histrionic scale, group three had significantly higher scores than group one, and on the compulsive scale group four had significantly higher scores than group two.

The only study that examined the relationship between sexual preferences and personality in rapists was conducted by Proulx et al. (1995). The authors classified the rapists into four categories according to their sexual preferences and the personality disorders of the offenders varied according to these preferences. Group 1 showed a preference for both physical and humiliation rape. This group was characterized mostly by the antisocial personality disorder (77.8%). Group 2 showed a humiliation rape preference and was characterized by the avoidant personality disorder (92.3%). In contrast, group 3 did not show a sexual preference for rape and the dependent personality disorder was more present in this group (64.7%). Finally, group 4 showed a preference for physical rape but it was too small and so it was excluded from further analysis. The lack of significant findings in our study might be due to the different ways the groups were created. In our study we used cluster analysis to generate the profiles, whereas Proulx and his colleagues (1995) used the rape indices to divide the rapists into four groups.

There have not been similar studies on child molesters. The few that have looked at the association between personality and sexual preferences have looked only at psychopathy. Thus, Serin, Malcolm, Khanna, and Barbaree (1994) found a significant relationship between psychopathy and deviant sexual arousal, most notably for extrafamilial child molesters. However, the only relationships we found were for group three, which was aroused by consent and passivity and inhibited by violence, and the histrionic scale, and for group four which showed a normal profile and was more compulsive.

Histrionic people feel a void which they constantly strive to fill (Millon, 1981, 1996). Consequently, they have an insatiable need for stimulation and affection and a need to be admired and recognized by others. This provides meaning to their life. In this case, children may be seen as these nurturers who fill in the void and provide affection. This personality is consistent with the sexual preference profile of group 3, which is aroused by consent and passivity but is inhibited by violence and coercion. On the other hand, compulsive people are very conforming, they fear disapproval, and are very concerned their actions will be judged harshly (Millon, 1981, 1996). In addition, they are characterized by an overtly controlled aggression. Group four which was characterized by that disorder showed a normal sexual preference profile, consistent with a compulsive personality. Compulsive pedophiles can be too conforming, overcontrolled and afraid to break the rules and thus show a normal phallometric profile.

Conclusion

It is difficult to explain the fact that we did not find any associations between sexual preferences and personality in rapists since there have been very few studies of this sort. More studies using cluster analysis should be conducted because profiles account better for the heterogeneity of sex offenders. In addition, in the future child molesters should be separated into groups according to the relation to their victim(s) and according to the gender of their victim(s) before using cluster analysis to create profiles. This is so, because studies have shown that incest and extrafamilial child molesters show different sexual preferences (Barbaree and Marshall, 1989) and that there are even subgroups of homosexual child molesters (Marshall, Barbaree, & Butt, 1988). So, looking at child molesters as a group may obscure these differences.

Furthermore, many theories have emphasized the multifactorial nature of sexual aggression. Marshall and Barbaree (1990) have advanced the view that rape results from the interactive and synergistic effect of a sexual preference for rape, antisocial personality, biological factors and transitory disinhibitors. Hall and Hirschman (1991) also included in their quadripartite model of sexual aggression physiological arousal and personality, but they also added cognitive factors, such as justifications and appraisals (e.g., rape myths) and affective dyscontrol (e.g., anger, hostility or depression). Hence, for a full and accurate understanding of sexual aggression, studies should examine different factors and the ways in which they interact to predispose someone to become a sex offender.

Another future avenue that would be worth researching is the relationship between personality disorders and attachment style. As Proulx, Perreault, Ouimet, and Guay (1999)

and Proulx, St-Yves, Guay, and Ouimet (1999) have stated, both concepts refer to ways of thinking, feeling, and behaving which characterize the way a person interacts with others and with himself. Ward, Hudson, and Siegert (1995) have developed a comprehensive attachment model of intimacy deficits in sexual offenders. It specifies three styles of insecure attachment, each of which leads to a failure to achieve intimacy in adult relationships. These styles involve different models of the self and others and are associated with different interpersonal styles and relationship problems. The authors suggest that intimacy deficits combined with disinhibiting factors (e.g., deviant sexual fantasies, alcohol, or cognitive distortions) may lead some men to a maladaptive way of solving their intimacy problems. Furthermore, as a result of their diverse interpersonal styles and intimacy deficits, such men will offend in different ways and choose different types of victims. Anxious/ambivalent persons, for example, desire intimacy but are anxious about adult relationships. They lack self-confidence, think themselves unworthy of love and seek approval from others. A partner who admires them and whom they can control (e.g., a child) will make them feel secure. Typically, they would initiate grooming behavior and try to establish a "love" relationship with the child. They may even believe that the relationship is mutual. Thus, they would not tend to be violent or use coercion. The fearful avoidant types desire intimacy but are too afraid of rejection and so they avoid establishing intimate adult relationships. They perceive other adults as rejecting and too critical. They engage in impersonal sex and so, do not care about their victims and may use instrumental force to achieve their goal. The second avoidant type wants to maintain a sense of autonomy and independence and so, will not seek close relationships. However, this type is hostile and thus, lacks all empathy. He aggresses expressively and may be sadistic.

From this model we can see that adding more factors, like attachment style, to the explanation of sexual aggression helps our understanding of it. Therefore, theories that include many factors from different domains – biological, psychological, social and cultural are the most complete. So far the most complete such theory is the bio-social learning theory of Marshall and Barbaree (1984, 1990). The authors argue that biological, cognitive and environmental factors should be taken into account and that they are dimensional, not categorical factors. Biology confers on men a ready capacity to sexually aggress. Thus, men must learn to acquire inhibitory constraints. Variations in hormonal functioning may make this more or less difficult. From that view it follows that rapists do not have a preference for rape but fail to become inhibited by force or violence. Moreover, disinhibitors may release the constraints of men that have developed them. Marshall and Barbaree name three environmental factors: childhood experiences, sociocultural context and transitory situational factors. Poor parenting, particularly inconsistent and harsh punishment, fails to inculcate these constraints and may even help fuse sex and aggression. Sociocultural attitudes, such as traditional views of men as dominating; and permissive attitudes toward pornography may interact with poor parenting to enhance the likelihood of sex offending. Disinhibitors such as alcohol, anger, and stress will also contribute to sexual offending. In addition, the social inadequacy of these men will increase stress and anxiety and thus, disinhibit sexual aggression and produce hostile attitudes which will also facilitate rape. The strength of the acquired constraints will determine the strength of the situational disinhibitors required to release the tendency to aggress.

In conclusion, multi-factorial theories are better fit to explain sexual aggression. However, it is not enough to include factors only. The way they interact should also be

specified. The reason why we did not find an association between personality disorders and sexual preferences in pedophiles may be because the reality is more complicated than a simple interaction between two variables. There may be other variables that mediate the relationship between these two factors which future research should identify.

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