

# INFERRING SEXUALLY DEVIANT BEHAVIOR FROM CORRESPONDING FANTASIES

## The Role of Personality and Pornography Consumption

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There is widespread concern that deviant sexual fantasies promote corresponding behaviors. The authors investigated whether that concern is valid in nonoffender samples. Self-reports of nine deviant sexual fantasies and behaviors were compared in two samples of male undergraduates. In Study 1, 95% of respondents reported experiencing at least one sexually deviant fantasy, and 74% reported engaging in at least one sexually deviant behavior. The correlations were all positive and averaged .44. However, only 38% of the high-fantasy group reported acting out fantasies. The effect of pornography use on deviant behaviors was partially mediated by increases in deviant fantasies. Study 2 investigated possible moderators, including eight personality variables. The fantasy-behavior association held only for those high in self-reported psychopathy. In addition, the association between pornography use and deviant sexual behavior held only for participants high in psychopathy. Overall, theoretically relevant individual difference variables moderated the relation between sexually deviant fantasies and behaviors and between pornography use and deviant behaviors.

**Keywords:** sexual deviance; sexual fantasies; paraphilias; pornography; psychopathy

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In the criminal trial of *Colorado v. Masters* (2001), a defendant with no history of violence was accused of the murder and sexual mutilation of a female victim. The prosecution's case rested substantially on the police's discovery of sexually graphic drawings by the accused. The drawings included detailed depictions of murder and sexual mutilation

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similar to the modus operandi of the crime. An expert witness for the prosecution pointed to research linking violent sexual fantasies to deviant sexual behavior among convicted offenders. Testifying for the defense, one of the present authors (J.C.Y.) cautioned that deviant sexual fantasies are also common in individuals who never offend. It was also noted at trial that no research has directly examined the fantasy-behavior relation in nonoffender samples. The defendant was nevertheless convicted, primarily on the basis of his deviant sexual fantasies.

In a landmark Canadian trial, the judge attempted to draw a clear line between sexually deviant fantasies and behavior (*R. v. Robin Sharpe*, 2001). The possession of pornographic photos of actual children was ruled to be criminal, whereas the writing of pedophilic stories and drawings of pedophilic acts was not. One overriding theme in the judge's ruling was that the contemplation and depiction of criminal behavior is not in itself a crime. The apparent contradiction in these two trial outcomes highlights the need for social scientists to provide a better understanding of the link between sexually deviant fantasies and sexually deviant behavior, particularly in individuals not convicted of sexual offenses. In this study, we hoped to contribute by evaluating the strength and moderators of a wide range of fantasy-behavior links in nonoffenders. We built on previous work showing that deviant fantasies are as common in nonoffenders as in offenders. In addition, we aimed to identify subgroups in which the fantasy-behavior link does and does not hold.

#### DEFINING SEXUAL DEVIANCE

Taxonomies of sexual deviance typically include the common paraphilias: transvestism, voyeurism, sadism, masochism, object fetishism, frotteurism, pedophilia, and bondage (e.g., American Psychiatric Association, 2000; Money, 1986). In the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000), paraphilias are defined as intense fantasies or behaviors that involve unusual objects, activities, or situations and cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (p. 566).

The term *sexual deviance* is often extended to include sexual assault, including rape. Formal definitions are far from consistent (for an overview, see Ward, Laws, & Hudson, 2003). Nonetheless, most definitions include consideration of such factors as infrequency in the population, social unacceptability, and the extent to which the fantasy acts are illegal, nonconsensual, or harmful (Gee, Devilly, & Ward, 2004; Leitenberg & Henning, 1995).

One common criterion for sexual deviance focuses on the unusual nature of the arousal source (Feierman & Feierman, 2000; Irons & Schneider, 1996; Leitenberg & Henning, 1995). For example, sexual assault would satisfy this criterion to the extent that the perpetrator's sexual arousal derives from the coercive aspect of the offense (Abel & Rouleau, 1990). The definition would exclude cases such as impulse-control disorder (Leue, Borchard, & Hoyer, 2004): In such individuals, sexual arousal is no less when the sex act is noncoercive. Also excluded are instances of nonparaphilic hypersexuality (Kafka, 2000); examples are compulsive masturbation and sexual addiction, behaviors that are often maladaptive. Understanding that any definition of sexual deviance can be criticized, we opted for the criterion of an unusual arousal source.

This definition encompasses behaviors that are nonaggressive (e.g., object fetishism) as well as others that are clearly aggressive (e.g., sexual assault). Using this broad definition,

in our research, we compared a wide variety of atypical sources of sexual arousal. Although we concede that our definition could easily include other candidates, this research was restricted to nine behaviors: object fetishism, transvestism, voyeurism, sadism, bondage, frotteurism, exhibitionism, pedophilia, and sexual assault.

For each type of sexual deviance, there is a distinct (and sometimes isolated) literature on its predictors and moderators. As a result, common themes may be overlooked. Among the predictors of recurring interest across these literatures are deviant fantasies, pornography use, and personality dispositions. Links between each of these predictors and actual sexual offenses have been explored empirically, particularly in offender samples (e.g., Brown & Forth, 1997; Curnoe & Langevin, 2002; Firestone, Bradford, Greenberg, Larose, & Curry, 1998). Less common is research on nonoffender samples, presumably because the actual offenses are rare, or at least difficult to confirm. In either case, the interplay among the predictors is often overlooked. Before we consider their interaction, key research on each factor is summarized below.

#### RESEARCH ON FANTASIES AND BEHAVIOR

We consider the term *sexual fantasy* to include all imagined forms of sexual activities, deviant or otherwise (Leitenberg & Henning, 1995). This definition subsumes both deliberate and unintentional cases (Jones & Barlow, 1990). Note that Little and Byers (2000) restricted the term to deliberate cases. Given that all fantasies ultimately have some triggering stimulus (internal or external), we see that distinction as less important than individual differences in reactions to the fantasy trigger. Nonetheless, we acknowledge that some fantasies are negative, unwanted, and intrusive (i.e., egodystonic), whereas others are positive and welcomed (egosyntonic; Renaud & Byers, 1999). Personality variables have been implicated in both.

By our definition, virtually everyone experiences sexual fantasies to some degree. In a community sample of 94 men, for example, all participants reported experiencing a sexual fantasy at least once per week and two thirds reported at least one per day (Crepault & Couture, 1980). Although sexual fantasies are also common in women, the self-report rates are typically lower than those for men (Leitenberg & Henning, 1995).

#### Deviant Sexual Fantasies

Prevalence rates of deviant sexual fantasies are more difficult to evaluate, in part because of the competing definitions of deviance.<sup>1</sup> For that reason, we restricted our research to nine deviant behaviors (object fetishism, transvestism, voyeurism, sadism, bondage, frotteurism, exhibitionism, pedophilia, and sexual assault) and corresponding fantasies about them.

Research on deviant sexual fantasies in offender samples indicates substantial prevalence rates, for example, 82% (Langevin, Lang, & Curnoe, 1998), 86% (Prentky et al., 1989), and 92% (Gee et al., 2004). Understandably, these rates are higher among sexual offenders than nonsexual offenders (Curnoe & Langevin, 2002), and they are especially high among sexual-homicidal and serial sexual offenders as opposed to nonhomicidal or onetime offenders (Prentky et al., 1989). The content of sex offenders' fantasies tends to be specific to their offenses (Gee et al., 2004; Looman, 1995; Ryan, 2004). In many cases, offenders have claimed that their fantasies precipitated their criminal behavior (MacCulloch, Snowden, Wood, & Mills, 1983). Together, the trend of these findings has led

many observers to conclude that deviant sexual fantasies play an important causal role in sexual offending (Ryan, 2004).

A smaller body of research has examined the prevalence rates of deviant sexual fantasies in nonoffender samples. A number of studies have estimated pedophilic fantasy rates at about 10% (Briere & Runtz, 1989; Renaud & Byers, 1999). Best established is the rate of rape fantasies: a mean of 31% across six studies (Leitenberg & Henning, 1995). For the few categories studied, the rates of deviant sexual fantasies in nonoffender samples rival those of their offender counterparts. In fact, a direct comparison has led some to conclude that rates in nonoffender populations are equally high (e.g., Baumgartner, Scalora, & Huss, 2002; Looman, 1995). This startling conclusion highlights the need to study associations between fantasies and behaviors. What explains the failure of fantasies to translate into behavior for most nonoffenders?

The possible causal impact of deviant fantasies on deviant sexual behavior has been under scrutiny since Abel and Blanchard's (1974) review of clinical-offender studies. Outside of the offender literature, research on the fantasy-behavior association is limited to a handful of studies (Byrne & Osland, 2000; Knight & Sims-Knight, 2003; Ryan, 2004). For some deviance categories (e.g., sexual assault), this gap is not surprising, given that any confirmation of the behavior would immediately relegate individuals to the offender category. Other deviance categories (e.g., object fetishism) might continue for a lifetime without eventuating in a crime.

The few relevant studies suggest that there is indeed an association between deviant sexual fantasies and behavior. The link seems well established in studies in which the dependent variable involves composite reports of aggressive and coercive sex (e.g., Knight & Sims-Knight, 2003). Indirect evidence has established links of coercive sexual fantasies with rape myth acceptance (Zurbriggen & Yost, 2004) and willingness to commit rape in hypothetical future situations (Greendlinger & Byrne, 1987; Smeaton & Byrne, 1987).

Studies on specific paraphilias are fewer in number. In a study of 31 men, McCollaum and Lester (1994) found a substantial positive correlation between sadistic fantasies and coercive sexual behavior (both self-reported). This limited evidence suggests that the association between deviant sexual fantasies and behaviors may hold in nonoffender samples as well as offender samples. In the present research, we sought to confirm that proposition with improved methodology and a larger sample size than previous work. We also sought to evaluate the fantasy-behavior link across a wider range of forms of sexual deviance.

## PORNOGRAPHY CONSUMPTION

A common means of creating and amplifying sexual fantasies is exposure to pornography (e.g., Byrne & Osland, 2000). Presumably, such effects are stronger when the exposure is self-initiated (e.g., purchasing magazines and videos, actively searching the Internet) rather than involuntary (e.g., spam initiated, music videos). In both cases, the primary societal concern—the possibility that pornography promotes sexual misbehavior—has motivated substantial research (e.g., Check & Guloien, 1989; Donnerstein, 1984; Malamuth, Addison, & Koss, 2000; Murrin & Laws, 1990; Seto, Maric, & Barbaree, 2001; Zillman & Bryant, 1984). If pornography can amplify fantasies (and therefore arousal), it may encourage viewers to carry out the fantasized behavior. If the fantasy involved sexual deviance, then the corresponding deviant behavior would be encouraged.

Indeed, experimental studies have confirmed the notion that exposing male participants to pornography increases rape fantasies, willingness to rape, acceptance of rape myths, and aggression against female targets (see reviews by Allen, D'Alessio, & Brezgel, 1995; Malamuth et al., 2000). In other words, pornography affects both fantasies and behaviors.

In the present research, however, we were concerned with inferences drawn outside of the laboratory. In particular, we focused on college-age men. In such nonoffender groups, are sexual fantasies and behavior associated with pornography use? If so, is that association mediated by a corresponding increase in deviant fantasies?

### PERSONALITY MODERATORS

If not inevitable, the link between deviant fantasies and behaviors may hold for a subset of individuals. This moderator notion is explicit in Malamuth's (1986, 2003) hierarchical-mediational confluence (HMC) model, which distinguishes distal and proximate risk factors for sexual aggression. Distal factors (e.g., psychopathy) are dispositional and may predispose individuals to a variety of antisocial outcomes. Proximate factors are specifically associated with sexual aggression; examples are dominance-oriented sexual arousal and pornography use. According to the model, distal and proximate factors combine interactively to predict sexually aggressive behavior (Malamuth et al., 2000).

Serin, Mailloux, and Malcolm (2001) proposed a similar interactive model for sexual offending. The combination of psychopathy (i.e., a distal factor) and deviant sexual arousal (i.e., a proximate factor) is a particularly potent combination and may lead to malevolent outcomes (for related perspectives, see Abracen, Looman, & Langton, 2008; Marshall & Barbaree, 1990; and Rice, Quinsey, & Harris, 1991).

Although these research programs have focused on sexual aggression, their interaction models may well apply to a variety of forms of sexual deviance. It is possible, for example, that certain deviant sexual fantasies eventuate in deviant behavior only for psychopaths. Similarly, pornography consumption may lead to a variety of sexually deviant behaviors only for the psychopathic subgroup. Alternatively, it may be that the moderating effect of psychopathy holds only for outcomes that are violent in nature.

Two studies were conducted to determine the robustness of the association between deviant sexual fantasies and corresponding behaviors. In Study 1, we evaluated the relative frequencies and intercorrelations of fantasies and behaviors in nine deviance categories. We also examined whether the link between pornography use and deviant behaviors was mediated by deviant fantasies. Study 2 was designed to evaluate the role of personality traits both as predictors and moderators of the relation between deviant behaviors and deviant fantasies.

### STUDY 1: DEVIANT FANTASIES AND BEHAVIOR

In Study 1, the following two hypotheses were formulated:

*Hypothesis 1.1:* The fantasy-behavior association will be significant for all nine categories of sexual deviance.

*Hypothesis 1.2:* The effects of pornography on deviant behavior will be mediated by increased deviant fantasies.

## METHOD

### Participants and Procedure

A total of 103 undergraduate students (56% European, 34% East Asian, 10% other heritage; mean age = 19.7 years) at a large western university participated for course credit. Because sexual deviance is considerably more prevalent and troublesome in men than in women, we restricted the sample to men. Participants obtained and returned the confidential self-report questionnaire packages under anonymous conditions. The return rate was 80%.

A number of steps were taken to minimize socially desirable responding. Participants were directed to a private questionnaire pickup location. Instructions on the cover page of the questionnaire advised of the anonymous nature of the research. In particular, participants were warned not to put their names, student numbers, or any other identifying information anywhere on the package. Instructions made it clear that their participation credit would be obtained at another location, which was disconnected from the pickup and drop-off boxes. In short, the questionnaires could be picked up, completed, and dropped off without directly dealing with the researchers.

### Measures

*Deviant sexual fantasies and behaviors.* At the heart of the questionnaire package was the Multidimensional Assessment of Sex and Aggression (MASA; Knight, Prentky, & Cerce, 1994), an established measure of sexual fantasies and behaviors. All items were administered in 5-point, Likert-type format (0 = *never*, 4 = *very often*).

On a rational basis, we organized 74 of the 116 MASA items into nine categories on the basis of the source of sexual stimulation: frotteurism, voyeurism, exhibitionism, transvestism, pedophilia, bondage, sadism, object fetishism, and sexual assault.<sup>2</sup> The number of items in each fantasy and behavior index were as follows: bondage (2, 3), exhibitionism (3, 2), frotteurism (1, 1), object fetishism (2, 1), pedophilia (2, 2), sexual assault (6, 12), sadism (13, 15), transvestism (1, 2), and voyeurism (4, 2). The precise item categories are available on request.

In the original scoring of that MASA version (Knight et al., 1994), fantasy and behavior items were not specifically separated. We calculated a mean fantasy score and a behavior score for each category. Each participant also received an overall fantasy score and an overall behavior score, calculated by summing the nine category rates. Hence, the overall means could range from 0 to 36.

*Demographics.* The questionnaire ended with a standard demographics form. Because of concern about possible demographic moderators (Meston, Trapnell, & Gorzalka, 1996), we included questions about age and ethnicity. Also included was a question about current pornography use (yes or no).

## RESULTS

Preliminary analyses revealed minimal differences across ethnicity; therefore, all analyses were conducted on the pooled sample. We scored the nine sexual deviance categories using both continuous scales (on the basis of the 0 to 4 scoring of the individual items) and prevalence rates (percentage of the sample scoring above 0). We also calculated the overall



means by averaging over the nine categories for both the continuous scoring (maximum = 36) and the prevalence rates (maximum = 100%). In general, we used (more reliable) continuous scoring to conduct statistical tests and prevalence rates to represent the category comparisons.

Using the continuous scoring procedure, we found substantially higher means for fantasy reports (9.3) than for behavior reports (5.5),  $t(101) = 12.1, p < .01, d = 2.4$ . The  $\alpha$  reliability coefficients were .86 and .94 for the overall fantasies and behavior scores, respectively. These values are very close to the  $\alpha$  value of .91 reported for overall MASA sexual deviance by Knight et al. (1994). Reliabilities for multi-item categories ranged from .45 to .77. Alpha reliabilities could not be calculated for fetishism behaviors or frotteurism (fantasies or behaviors) because they comprised only one item each.

### Prevalence Rates of Fantasies and Behaviors

To calculate prevalence rates, we counted any response other than 0 ("never"). For categories assessed with multiple items, the highest value was used.<sup>3</sup> The prevalence rates of deviant fantasies and behaviors are listed by category in Table 1. Note that with one exception, the fantasy rates were higher than the corresponding behavior rates. The mean rate for fantasies (52%) was significantly higher than the overall behavior rate (21%) (McNemar  $\chi^2 = 38.0, p < .001$ ).

Note from the last row of Table 1 that 95% of our sample reported at least one deviant fantasy. The category rates were over 50% for frotteurism, object fetishes, and voyeurism. Least common were fantasies involving pedophilia and transvestism.

Sixty-three percent of the participants reported at least one deviant sexual behavior. Among the deviant behaviors, frotteurism was again the most common, being reported by 44% of the sample. Transvestism and pedophilic behaviors were least common.

A follow-up analysis showed that a minority of fantasizers were also behavers ( $M = 38%$ ). By contrast, virtually all of the behavers were also fantasizers ( $M = 96%$ ).

### Correlations Between Deviant Fantasies and Behaviors

Correlations were calculated between the continuous fantasy and behavior scores. The values are displayed in the final column of Table 1. Consistent with Hypothesis 1.1, all were positive and (with the exception of pedophilia) statistically significant at the  $p < .01$  level. The mean correlation across the nine categories<sup>4</sup> was  $r = .44$ , and the correlation between overall deviant sexual fantasies and behaviors was  $r = .70 (p < .001)$ .

In sum, participants who reported engaging in deviant behaviors also reported having fantasies about those behaviors. Note that in every case, the deviant behavior was more highly correlated with its corresponding fantasy than with any other fantasy category. Together, these results support the notion of specificity in sexual deviance.

### Pornography Use, Fantasies, and Behaviors

On our yes-no question, 63% of participants reported current pornography use. The mean fantasy score for users (9.9) was significantly higher than the mean of 6.1 for the nonusers,  $t(101) = 3.41, p < .01, d = .68$ . Similarly, the mean behavior score for users (7.9)

**TABLE 1: Prevalence Rates and Intercorrelations Between Deviant Fantasies and Behaviors**

Deviance Category	Prevalence (% of Sample)					
	Fantasies		Behaviors		Fantasy-Behavior Intercorrelation	
	Study 1	Study 2	Study 1	Study 2	Study 1	Study 2
Object fetishism	58	55	23	27	.43**	.39**
Transvestism	10	4	10	10	.41**	.45**
Sadism	62	65	22	39	.79**	.78**
Bondage	62	52	14	23	.45**	.53**
Voyeurism	83	71	18	22	.38**	.55**
Exhibitionism	39	36	25	19	.51**	.54**
Frotteurism	72	76	44	42	.26*	.35*
Pedophilia	13	11	5	5	.13	.28
Sexual assault	68	65	25	20	.34**	.38**
Mean of 9 categories	52	48	21	23	.44**	.47**
Any of above	95	93	74	75	.71**	.72**

Note. Study 1  $N = 103$ , Study 2  $N = 88$ . Prevalence percentages are the percentages of individuals reporting endorsement greater than zero.

\* $p < .05$ ; \*\* $p < .01$  (both two tailed).

was significantly higher than the mean of 3.1 for the nonusers,  $t(101) = 4.11$ ,  $p < .01$ ,  $d = .82$ . In sum, pornography users reported substantially more deviant fantasies and behaviors than nonusers.

To evaluate Hypothesis 1.2, we converted the above effect sizes to correlations. The significant relation between pornography use and behavior,  $r(100) = .32$ ,  $p < .01$  (one tailed), was reduced but remained significant after overall fantasies was partialled out,  $r(100) = .21$ ,  $p < .05$  (one-tailed). The mediating effect of overall fantasies was determined to be significant using the standard Sobel formulas ( $Z = 2.3$ ,  $p < .05$ ). This result provided partial support for Hypothesis 1.2.

## DISCUSSION

Study 1 provided nonoffender prevalence rates for a wider range of deviant sexual fantasies than previous studies. For categories previously studied, our data yielded comparable prevalence rates of deviant sexual fantasies. Interestingly, our overall rate of 95% approaches the overall rates of incurring any sexual fantasy (see Leitenberg & Henning, 1995). Thus, the results suggest that if one has had a sexual fantasy, one has probably had a deviant sexual fantasy. As in earlier studies, rates of transvestism and pedophilic fantasies were infrequent, but the rates in other categories were substantial, ranging from 39% to 83%.

However, our self-reported behavior rates differed from those collected in offender samples. Even for nonaggressive categories (e.g., fetishism, voyeurism), our values appear to be lower than those from prison samples. For example, Prentky et al. (1989) reported a 43% rate of voyeuristic behavior in offenders compared with the 22% reported in our college sample.

The fantasy-behavior correlations were substantial, averaging .44 across the nine categories. But only a subset ( $M = 38\%$ ) of those reporting fantasies also carried out the



behavior. These results are congruent with the few previous nonoffender studies, regardless of whether sexually deviant behavior is measured via self-reports of actual behavior (e.g., McCollaum & Lester, 1994) or willingness to commit such acts (e.g., Greendlinger & Byrne, 1987; Smeaton & Byrne, 1987). Our findings confirm but go well beyond those of the most comparable study (McCollaum & Lester, 1994), in which only 31 male participants reported on one category of sexual deviance.

Previous evidence from offender samples was more abundant and cogent. For example, sexually deviant fantasies are highly related to actual commission of sexual offenses (e.g., Ryan, 2004). However, as with most previous research findings, the causal nature of this relationship cannot be determined by our data. That is, it is unclear if (a) fantasies encourage the acting out of behaviors, (b) fantasies represent active reliving of previous acts, or (c) some third variable (e.g., sex drive) independently generates both fantasies and behavior. Combinations of these three are also possible.

We also replicated previous research showing that pornography use is associated with reports of more frequent deviant behaviors. This association was partially mediated by the association between pornography use and deviant fantasies. Our result is consistent with the claim that pornography encourages the translation of fantasy into behavior. However, the pattern is also consistent with the possibility that (a) pornography causes deviant behavior, which then promotes deviant fantasies, or (b) deviant fantasies promote pornography use, which then promotes deviant behavior. A longitudinal study would be required to distinguish among these three causal models.

To summarize, Study 1 showed that individuals who reported carrying out sexually deviant behaviors were a subset of those who had fantasies about the behaviors. So what determines whether a fantasizer also carries out a behavior? As noted in the introduction, personality variables have been implicated. Accordingly, in Study 2, we collected a wide range of potentially relevant personality variables.

## STUDY 2: THE ROLE OF PERSONALITY

The literature suggests that personality may play a role in deviant sexuality both as a predictor and as a moderator. Its role as a predictor has already generated substantial research. For example, higher levels of sexual activity, including both fantasies and behavior, have been linked to fundamental personality variables including extraversion (Eysenck, 1943), neuroticism (Wilson, 1997), and disagreeableness (Schmitt, 2004).

Sexual aggression, however, is better predicted by psychopathy. The cardinal features of psychopathy include a deceptive and manipulative interpersonal style, shallow affect (e.g., lack of guilt and empathy), and an impulsive, irresponsible, and antisocial lifestyle (Cleckley, 1941; Hare, 2003). These features make psychopathy an obvious candidate for predicting deviant sexuality. Indeed, the relation between psychopathy and deviant sexual behavior has been established both in offender and nonoffender samples.

### PSYCHOPATHY IN OFFENDER SAMPLES

Although psychopathy is associated with virtually all types of criminal behavior, its relation to sexual offending is complex. Some studies have found weak correlations between

psychopathy and overall sexual offending (e.g., Quinsey, Rice, & Harris, 1995). More certain is that psychopathy is associated with violent sexual behavior (Hare, Clark, Grann, & Thornton, 2000; Knight & Guay, 2007; Porter et al., 2000). For example, rates of psychopathy tend to be high in rapists (Porter et al., 2000; see also Brown & Forth, 1997), especially in sadistic rapists (Barbaree, Seto, Serin, Amos, & Preston, 1994; Hare, Cooke, & Hart, 1999) and sexual homicide offenders (Firestone et al., 1998). Physiological studies have demonstrated that compared with nonpsychopaths, psychopaths experience higher sexual arousal while viewing depictions of rape (Quinsey et al., 1995; Serin, Malcolm, Khanna, & Barbaree, 1994). In general, the trend of these findings has led researchers to conclude that psychopaths show a preference for sexual behavior that is violent in nature (e.g., Woodworth & Porter, 2002).

Note that the association of psychopathy with nonviolent sexual offenses has yet to be established. In this study, therefore, we anticipated associations of psychopathy with deviant behaviors only to the extent that they involved aggression.

#### NONOFFENDER SAMPLES

In nonoffender samples, possible links between personality and sexual fantasies have proved inconsistent (Leitenberg & Henning, 1995). Clearer is the link between personality traits and sexually deviant behavior, particularly sexual aggression. For example, Kosson, Kelly, and White (1997) found that psychopathy, as measured by the Psychopathy Checklist–Revised (PCL-R; Hare, 2003), predicted coercive sexual behaviors in college men. More recently, Jonason, Li, Webster, and Schmitt (in press) found that sexual exploitiveness was higher in those men scoring high on a self-report measure of psychopathy (i.e., subclinical psychopathy).

Other studies have demonstrated associations with personality traits related to psychopathy, for example, impulsivity (Hersh & Gray-Little, 1998; Petty & Dawson, 1989; Spence, Losoff, & Robbins, 1991), aggressiveness (Hersh & Gray-Little, 1998; Malamuth, 1988; Petty & Dawson, 1989), and manipulativeness (Christopher, Owens, & Stecker, 1993; Hersh & Gray-Little, 1998; see also Leitenberg & Henning, 1995). Other personality predictors of self-reported sexual aggression include hypermasculinity (Ryan, 2004), hostile masculinity (Malamuth, 2003), narcissism (Kosson et al., 1997), and Machiavellianism (McHoskey, 2001). High scores on Eysenck's psychoticism are positively related to deviant sexual arousal, attitudes, and behaviors (e.g., Barnes, Malamuth, & Check, 1984). Rapaport and Burkhart (1984) reported that responsibility and socialization were negatively associated with sexual coercion, and empathy has been demonstrated to be a protective factor against sexual aggression (Dean & Malamuth, 1997).

All these personality concepts are incorporated in one or more elements of the so-called Dark Triad of personality (Paulhus & Williams, 2002). Machiavellianism, narcissism, and subclinical psychopathy have been identified as among the most aversive personality traits outside of offender and clinical settings (Williams & Paulhus, 2004). Because of their conceptual and psychometric overlap, it is recommended that all three be administered together. We did so in Study 2.

We sought to examine the association of deviant fantasies and behaviors with a wide range of key personality variables in a nonoffender sample. Psychopathy was the most obvious candidate. Considering the subclinical nature of our sample and the absence of

collateral criminal file information, we used a self-report measure (as opposed to a clinical rating scale such as the PCL-R). We also included overlapping variables (narcissism and Machiavellianism) and a measure of the Big Five traits to investigate the fundamental dimensions of personality.

Research has suggested that individual difference variables also moderate the effects of pornography use on sexual aggression (e.g., Anderson et al., 2003; Malamuth et al., 2000; Ryan, 2004; Seto et al., 2001; Vega & Malamuth, 2007). That is, it is likely that certain individuals are most likely to seek out violent or sexually deviant pornography and that the effects of such pornography on deviant sexual behavior will be more pronounced for these individuals. Again, psychopathy has been implicated as the most relevant personality variable (Daverson & Knight, 2007; Malamuth, 2003).

Finally, there is reason to believe that the fantasy-behavior link will be higher in those participants scoring higher on psychopathy. That prediction rests on the callous and impulsive nature of psychopaths, including those diagnosed with self-report scales (Nathanson, Paulhus, & Williams, 2006; Paulhus, Hemphill, & Hare, in press). Impulsive and callous individuals should be more likely to act out their fantasies, thereby increasing their intercorrelation.

*Hypothesis 2.1:* Psychopathy will be associated with deviant fantasies and aggressive forms of sexual deviance.

*Hypothesis 2.2:* The fantasy-behavior link will be stronger in those high in psychopathy.

## METHOD

### Participants and Procedure

Eighty-eight male undergraduate students (58% European, 27% East Asian, 15% other heritage; mean age = 20.4 years,  $SD = 2.97$  years) at a large western university participated for course credit. Advertising, questionnaire, and credit distribution procedures were similar to those used in Study 1. Of questionnaires picked up, the return rate was 84%.

### Measures

The package included the same 74 MASA items designed to measure deviant sexual fantasies and behaviors. In addition, four personality measures were added. Their selection was based on their theoretical relevance and reputable psychometric properties. Unless otherwise stated, the response format for the questionnaires was a 5-point, Likert-type scale (0 = *disagree strongly*, 4 = *agree strongly*).

*Personality.* The Big Five Inventory (John & Srivastava, 1999) was used to assess the fundamental Big Five factors of personality: Extraversion, Agreeableness, Conscientiousness, Stability, and Openness to Experience. Respondents are asked to rate the degree to which each of 44 phrases applies to them. Example items (and the corresponding Big Five trait) include “is talkative” (Extraversion), “is considerate and kind to almost everyone” (Agreeableness), “is a reliable worker” (Conscientiousness), “remains calm in tense situations” (Stability), and “has an active imagination” (Openness). Substantial evidence has accumulated for the validity of all five factors (John & Srivastava, 1999).

As noted above, the Dark Triad comprises narcissism, psychopathy, and Machiavellianism. Narcissism was assessed with the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), a 40-item forced-choice questionnaire. Primary features of narcissism include grandiosity, a sense of entitlement, and excessive attention seeking. An example NPI item requires a choice between “I prefer to blend in with the crowd” and “I like to be the center of attention.” Overall NPI scores range from 0 to 40.

The primary features of Machiavellianism are manipulateness and cynicism. We used the 20-item Mach-IV (Christie & Geis, 1970), an instrument with 40 years of construct validation (Jones & Paulhus, 2008). Items include “Anyone who completely trusts anyone else is asking for trouble” and “Never tell anyone the real reason you did something unless it is useful to do so.” Overall Mach-IV scores range from 20 to 100.

A 40-item version of the Self Report Psychopathy Scale (SRP-III; Paulhus et al., in press) was used to measure psychopathy. This instrument is considered the closest conceptual and theoretical analogue to the PCL-R (Hare, 2003). Examples of items include “Rules are made to be broken” and “It’s sometimes fun to see how far you can push someone.” Among the seven reverse-keyed items is “People can usually tell when I am lying.” Overall SRP-III scores range from 40 to 200.

The structural and convergent validity of the SRP-III has been demonstrated in several studies. It correlates strongly with other self-report psychopathy measures and basic personality traits (Mahmut, Homewood, & Stevenson, 2008; Williams, Paulhus, & Hare, 2007). Substantial evidence has accumulated for its association with self-report and behavioral measures of antisocial behavior (Nathanson et al., 2006; Williams et al., 2007) including domestic and relationship violence (Williams, Spidel, & Paulhus, 2005) and sexual exploitiveness (Jonason et al., in press).

## RESULTS

Preliminary analyses revealed similar results across ethnic background; hence, the results are displayed for the entire pooled sample below. The  $\alpha$  reliability coefficients for the MASA were .92 and .94 for the overall fantasies and overall behavior scores, respectively.

### Prevalence Rates and Intercorrelations

As in Study 1, we calculated the continuous scores and prevalence rates in each category of sexual deviance as well as overall values across the nine categories. Note from Table 1 that the prevalence rates in Study 2 closely resembled those in Study 1. The fantasy-behavior correlations were also strikingly similar to those found in Study 1. The mean correlation between fantasies and behaviors across the nine categories was  $r = .47$ , and the correlation between overall deviant sexual fantasies and behaviors was  $r = .72$  ( $p < .001$ ).

### Personality Correlates of Deviant Sexual Fantasies and Behaviors

Table 2 displays the correlations between the personality variables and the various deviant sexual fantasies. Alpha values along the diagonal indicate that the reliabilities for the personality measures were generally sound, ranging from .64 (Mach-IV) to .85 (NPI).

Only two personality variables were correlated significantly with overall deviant sexual fantasies: neuroticism ( $r = .23$ ,  $p < .05$ ) and psychopathy ( $r = .23$ ,  $p < .05$ ) (both two-tailed

TABLE 2: Personality Correlates of the Deviant Fantasy Subscales in Study 2 (N = 88)

	MASA Subscale										Overall	
	Frotteurism	Voyeurism	Exhibitionism	Pedophilia	Bondage	Sadism	Sexual Assault	Transvestitism	Fetish			
Big Five												
Extraversion	.01	-.08	.05	.13	-.04	.09	-.05	.23*	-.17	.01		
Agreeableness	-.01	.01	-.05	-.01	-.17	-.03	-.07	-.03	-.01	-.06		
Conscientiousness	-.08	-.12	-.16	-.15	.03	-.08	-.19	.05	-.21	-.15		
Neuroticism	.22*	.18	.07	.07	.21*	.20	.15	.04	.17	.23*		
Openness to Experience	.33**	.20	-.06	.27*	.07	.14	.04	.01	-.04	.14		
Dark triad												
Narcissism	-.04	-.07	.06	.15	.16	.31**	.17	.14	.00	.18		
Machiavellianism	-.04	.00	.07	.02	.13	.12	.13	-.03	.08	.11		
Self-report psychopathy	.13	.06	.15	.16	.24*	.28**	.09	.18	.12	.23*		

Note. MASA = Multidimensional Assessment of Sex and Aggression.  
\* $p < .05$ ; \*\* $p < .01$  (both two tailed).

**TABLE 3: Personality Correlates of the Deviant Behavior Subscales in Study 2 (N = 88)**

	<i>MASA Subscale</i>									
	<i>Frotteurism</i>	<i>Voyeurism</i>	<i>Exhibitionism</i>	<i>Pedophilia</i>	<i>Bondage</i>	<i>Sadism</i>	<i>Sexual Assault</i>	<i>Transvestitism</i>	<i>Fetish</i>	<i>Overall</i>
Big Five										
Extraversion	-.05	.10	.11	.01	.13	.12	.05	.21*	-.06	.13
Agreeableness	.03	-.12	-.07	-.03	.00	-.01	.07	.10	.20	.01
Conscientiousness	.15	.01	-.01	-.03	.04	-.04	.04	-.10	.08	.00
Neuroticism	.07	.07	-.02	.01	.08	.02	.12	.04	.05	.06
Openness to Experience	.09	.00	-.09	-.04	.03	-.09	.06	-.01	.01	-.03
Dark Triad										
Narcissism	-.02	.17	.02	.20	.20	.23*	.27**	.15	-.07	.20*
Machiavellianism	.10	.09	-.05	.04	-.04	.01	.17	-.15	.11	.03
Self-report psychopathy	.04	.17	.10	.14	.24*	.24*	.21*	.15	.03	.26*

*Note.* MASA = Multidimensional Assessment of Sex and Aggression.

\* $p < .05$ ; \*\* $p < .01$  (both two tailed).



tests). Further inspection suggests that the neuroticism correlation was strongest with the frotteurism and bondage subscales of the MASA, whereas the psychopathy correlation was highest with the bondage and sadism subscales. Although no other personality variables were correlated significantly with overall deviant fantasies, there was a scattering of other unpredicted correlations with the MASA subscales.

Table 3 displays the correlations between the personality variables and deviant sexual behaviors. The only personality variables that were correlated significantly with total deviant sexual behaviors were subclinical psychopathy ( $r = .26, p < .05$ ) and narcissism ( $r = .20, p < .05$ ) (both two-tailed tests). Note from the table that the strength of these overall correlations can be traced to the more aggression-related subtypes of sexual deviance, namely, bondage, sadism, and sexual assault.

To control for overlap among the dark triad of personality measures, all three were entered simultaneously as predictors of overall deviant fantasies. Subclinical psychopathy yielded the largest  $\beta$  value ( $\beta = .19$ ) compared with narcissism and Machiavellianism (each  $\beta = .05$ ). When this analysis was repeated with overall deviant behaviors as the outcome variable, subclinical psychopathy was again the strongest predictor (psychopathy  $\beta = .18$ , narcissism  $\beta = .13$ , Machiavellianism  $\beta = -.05$ ).

### Psychopathy as a Moderator of the Fantasy-Behavior Association

We conducted a  $2 \times 2$  analysis of variance (ANOVA) to determine whether psychopathy moderated the relation between deviant sexual fantasies and behaviors. A median split was used to categorize participants into low- and high-psychopathy groups. The results showed a significant interaction,  $F(1, 84) = 8.462, p < .01$ . The pattern is clear in Figure 1. The influence of deviant fantasies on behavior was stronger for individuals high in psychopathy<sup>5</sup> (although Figure 1 suggests some effect for fantasies in the low-psychopathy group, that simple main effect was not significant). This overall result was followed up with separate ANOVAs for the nine deviance categories. The only significant interaction was found with the sexual assault category.

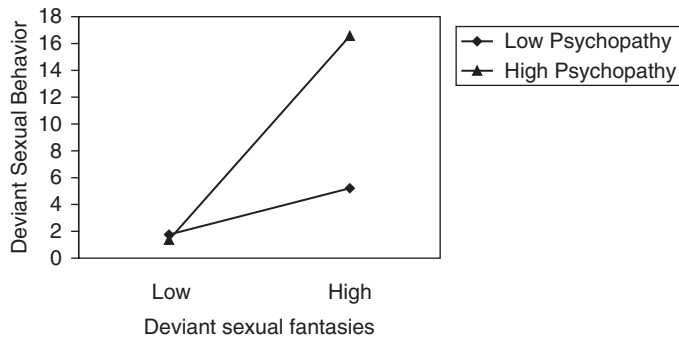
### Psychopathy as a Moderator of Pornography Effects on Behavior

We next explored the possibility that psychopathy moderates the relation between pornography use and deviant sexual behaviors. To this end, we conducted a  $2$  (high psychopathy vs. low psychopathy)  $\times 2$  (high pornography vs. low pornography) ANOVA, using overall deviant sexual behavior as the outcome.

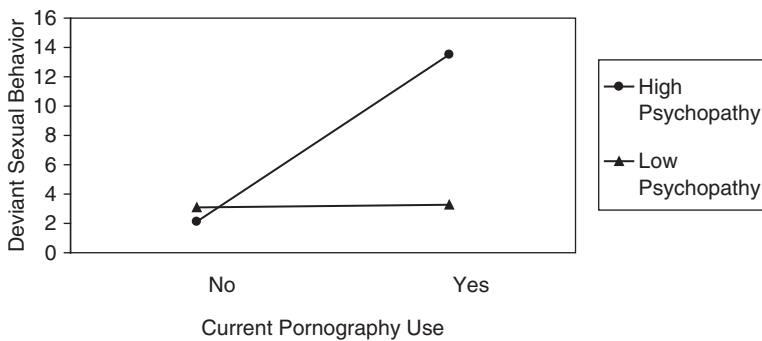
As displayed in Figure 2, the interaction was significant,  $F(1, 84) = 6.10, p < .05$ . A follow-up analysis using moderated regression showed a similar, albeit weaker effect. In short, pornography use was associated with deviant sexual behavior scores only for individuals scoring high in psychopathy.

## GENERAL DISCUSSION

Our two studies of college students indicated substantial prevalence rates of deviant sexual fantasies and behaviors. These rates are consistent with the results of previous studies using



**Figure 1: Effects of Self-Reported Psychopathy and Deviant Sexual Fantasies on Deviant Sexual Behavior ( $n = 88$ )**



**Figure 2: Effects of Self-Reported Psychopathy and Pornography Use on Deviant Sexual Behavior ( $N = 88$ )**

anonymous self-reports (see Koss & Dinero, 1988; Leitenberg & Henning, 1995). The vast majority of participants reported at least one deviant sexual fantasy, though rates varied widely across categories. Within categories, we found substantial correlations between fantasy and behavior tendencies. Behavior rates were much lower, consistent with the notion that only a subset of individuals act on their deviant sexual fantasies. This discrepancy motivated our search in Study 2 for variables that might moderate the link between fantasy and behavior.

#### PERSONALITY CORRELATES

Of the variety of personality variables included in the present research, only psychopathy uniquely predicted overall deviant sexual behavior. This result extends previous reports of links between psychopathy and self-reported sexual aggression (Kosson et al., 1997). In our data, the association was in the positive direction for every single deviance category but reached conventional levels of significance only for bondage, sadism, and sexual assault. Arguably, these are the most aggression related forms of sexual deviance.

Along with other research (e.g., Williams & Paulhus, 2004), this finding supports the assertion that sexual aggression and general delinquency have a common link with psychopathy in both offender and nonoffender samples. In other words, these findings reinforce the overall image of psychopathy as the most malevolent personality construct. The heightened link with the more aggression related categories supports findings in the clinical-forensic literature that psychopathic traits may be differentially associated with particularly violent types of sexual offending (e.g., Hare, 2003).

The present study is the first to report a link between subclinical psychopathy and such a wide range of sexual fantasies. The only other significant personality correlate was neuroticism. That link has been reported previously, although replication is sometimes elusive (see review by Leitenberg & Henning, 1995). Fantasies associated with neuroticism are likely to be experienced quite differently from those associated with psychopathy. For neurotic individuals, sexually deviant fantasies may be intrusive and unwanted (i.e., ego-dystonic). In contrast, these fantasies may be appealing and welcomed by those scoring high in psychopathy (i.e., ego-syntonic). With respect to bondage, for example, neurotics may envision themselves as the hapless victims of bondage, whereas psychopaths may picture themselves in control.

The notion of dual paths to fantasy evokes the distinction offered by Byers and colleagues (e.g., Little & Byers, 2000; Renaud & Byers, 1999) with regard to the affective valence of sexual fantasies. Our results suggest that although the deviant sexual fantasies of subclinical psychopaths are associated with deviant sexual behaviors, the same cannot be said for the sexually deviant fantasies of neurotics. Finally, although narcissism was also a significant correlate of deviant sexual behaviors, multiple regression analyses revealed that this association vanished after its overlap with psychopathy was accounted for.

#### **PSYCHOPATHY MODERATES THE FANTASY-BEHAVIOR LINK**

Our interaction analyses were invaluable in answering the key question raised at the outset of this article: What determines whether sexually deviant behaviors are predictable from sexually deviant fantasies? To a large extent, the answer seems to be personality. We demonstrated that sexually deviant fantasies translated into sexually deviant behavior only for individuals scoring high in psychopathy.

Understandably, interaction results were weaker for the individual deviance categories. After all, most individual category variables were based on one or two items and therefore had low reliabilities. Even then, we can be confident about the results only for the more aggressive behaviors, especially sexual assault. Nonetheless, the message was that deviant sexual fantasies have little association with deviant sexual behavior for those with low psychopathy scores. In other words, both psychopathy and deviant sexual fantasies appear to be necessary but not sufficient conditions for a link between sexual fantasies and behaviors.

Our results suggest a mixed prognosis, at best, for the treatment of sex offenders. Specifically, sexually deviant fantasies and behaviors may be mitigated through some sort of cognitive-behavioral intervention (see Leitenberg & Henning, 1995). Unfortunately, the successful treatment of psychopaths remains questionable, particularly if they receive the same rehabilitation efforts as other offenders (but see Salekin, 2002).

#### **PSYCHOPATHY MODERATES THE PORNOGRAPHY-BEHAVIOR LINK**

Our analyses also shed some light on the effects of pornography use. As with the fantasy-behavior link, the association of pornography consumption with deviant sexual behavior

held only for individuals with high psychopathy scores. As with earlier findings (e.g., Check & Guloien, 1989; Malamuth et al., 2000; Seto et al., 2001), this result corresponds well with Malamuth's HMC theory. In HMC terms, our results demonstrate that the combination of psychopathy as a distal risk factor and pornography use as a proximate risk factor is especially predictive of sexually deviant behavior. These results build on previous HMC studies that involved risk factors related to psychopathy (see Malamuth, 2003). However, our results are novel in that they include subclinical psychopathy itself as a distal risk factor. It appears that rather than serving a cathartic function, pornography may activate or escalate the deviant sexual behavior of psychopaths.

This result is not the first indication of the moderating effects of psychopathy on the link between media exposure and misconduct. Similar to the results of our current study, Williams, McAndrew, Learn, Harms, and Paulhus (2001) reported that exposure to violent sports predicted delinquency only for those scoring high in psychopathy. In future research, psychopathy may prove to be a key moderator of the effects of various media on behavior. Indeed, given that psychopathy is associated with a penchant for a wide range of antisocial media (Shim, Lee, & Paul, 2007; Williams & Paulhus, 2004), it would be of great interest to examine whether similar effects could be found with respect to other types of media consumption.

A number of mechanisms are candidates for explaining the relation between psychopathy, pornography, and behavior. Murrin and Laws (1990), for example, concluded that "pornography reinforces the views that sexually aggressive men already hold" (p. 89). In other words, pornography (conveyed in any medium) may encourage and promote the pre-existing attitudes of psychopaths with respect to sexually deviant behavior. Bandura's (1977) reciprocal determinism theory highlights the reciprocal relation between environment and personality: To a large extent, adults in most societies choose their environments. Most relevant here, exposure to pornography is not a random event (see Anderson et al., 2003).

## LIMITATIONS AND FUTURE DIRECTIONS

Virtually identical results in two samples raised our confidence in the observed pattern of deviant sexual fantasy-behavior relations. However, both studies are subject to a number of potential methodological limitations.

### USE OF SELF-REPORT MEASURES

The validity of self-reports in the domain of sexual behavior continues to be debated (e.g., Ladd, 1996; Lewontin, 1995; Murray, 1996; Schroder, Carey, & Vanable, 2003). For the most part, those controversies also apply to our concern: the measurement of sexual deviance (Meston, Heiman, Trapnell, & Carlin, 1999). Nonetheless, for our purposes, self-report remains the method of choice. First, the fantasy side of deviant sexuality cannot be assessed any other way (Leitenberg & Henning, 1995). Second, it is unlikely that any other method would have permitted the measurement of such a wide range of deviance variables. Alternatives such as the use of criminal records are not helpful for assessing nonoffender samples. Even in offender samples, however, criminal records are limited in terms of their description of deviant sexual behavior. Laboratory methods such as penile plethysmography (Barbaree et al., 1994) might improve on self-report, but assessment of reactions to all

deviant categories presents a challenge. Furthermore, these methods are extremely intrusive, and their application in research would negate anonymity.

The most frequent condemnation of self-report methods cites contamination with socially desirable responding (see Paulhus, 1991). For that reason, we took great pains to minimize the demand for desirable responding. The second study, for example, was advertised as about personal relationships rather than sexual behavior per se. Furthermore, the process of data collection was advertised as anonymous, which it was.

To address the social desirability issue directly, we collected some follow-up data on the nine sexual deviance categories. Five graduate students were asked to rank the categories on a scale ranging from *least desirable* (1) to *most desirable* (9). Desirability was to be judged from the perspective of society in general.<sup>6</sup> None of the judges were familiar with the details of our study. Interrater reliabilities averaged .81, and ratings were therefore combined. Correlations between social desirability rankings and reported frequencies were minimal and nonsignificant for both fantasies ( $r = .14$  and  $r = -.03$  in Studies 1 and 2, respectively) and behaviors ( $r = .11$  and  $r = .17$  in Studies 1 and 2, respectively.). Therefore, the tendency to report a particular form of deviance must have been based on motivations other than the wish to appear to appear socially desirable. Indirectly, these results suggest that socially desirable responding did not play a major role in participants' responses (Meston et al., 1999).

The fact that our measure of psychopathy was also self-report may raise concerns about its association with self-reported sexual behavior. That concern may be allayed in part by noting the consistent finding that psychopaths score no higher on impression management scales than nonpsychopaths (Kitching & Paulhus, 2008). However, there is still the possibility that psychopathy, as measured by self-report (i.e., subclinical psychopathy), may be qualitatively different from psychopathy as assessed by a clinical rating scale such as the PCL-R (Hare, 2003). Therefore, we recommend that future research include both self-report and clinical rating measures to test this assumption. Such research could also examine any methodological and measurement differences with respect to the association between psychopathy and sexual behavior.

#### SELF-SELECTION

In soliciting participants from our subject pool, we sought to cast as wide a net as possible. For most students, the completion of a take-home questionnaire is preferable to alternative laboratory studies that require signing up and showing up at a specific time.

Nonetheless, the return rate may have been affected by factors relevant to the topic of sexual deviance. Students repulsed by discussions of sex may have been less likely to return the questionnaire. Moreover, these same students would likely have participated less in such activities. If so, both the fantasy and behavior rates reported here might be systematically inflated.

Equally convincing, however, is the opposite argument: Students with fewer deviant fantasies and behaviors may be less reluctant to return the questionnaire. After all, those with lower rates of such activities should experience less shame about reporting the (socially desirable) truth. Either way, such potential biases thwart clear conclusions about the rates of deviant sexuality in nonoffender populations.

We are aware of no simple resolution to the potential self-selection problem. A follow-up analysis of our own data provided a partial solution to the concern that prevalence rates

were overestimated. In Study 1, we recalculated the prevalence rates under a conservative assumption, namely, that the nonrespondents (20%) had no deviant fantasies or behaviors to report. The revised estimate of overall fantasy and behavior prevalence rates then dropped to 74% and 44%, respectively. Note that these lower bound estimates still indicate a substantial rate of deviant fantasies and behaviors in nonoffender samples.

In any case, we reiterate that absolute frequencies of fantasy and behavior are not critical to the message of this article. Instead, we have focused on the moderators of the fantasy-behavior association.

### CAUSAL ORDERING

As noted earlier, the conclusion that fantasies directly cause behaviors cannot be inferred, even for the participants with high degrees of subclinical psychopathic characteristics in the second study. After all, our data are strictly correlational in nature. A causal modeling approach permitted Knight and Sims-Knight (2004), by contrast, to distinguish three distinct causal pathways. The experimental manipulations necessary to confirm causal models are, for ethical reasons, unlikely to ever be applied.

For example, our data are more consistent with the converse notion that deviant behaviors engender subsequent fantasies. Virtually all participants reporting deviant behavior also reported corresponding fantasies. This claim gains support from research showing that deviant fantasies can be predicted from prior sadistic behavior (Gray, Watt, Hassan, & MacCulloch, 2003). Offenders often report reliving previous deviant behavior via fantasies. Undoubtedly, reciprocal influences are at work. Otherwise, the substantial proportion of those who fantasize but do not act out requires another explanation.

We are equally hesitant to infer a causal effect of pornography use on deviant behavior. Our confidence is stronger regarding the temporal ordering of personality and sexual deviance: Fundamental personality traits precede sexually deviant fantasies and behavior. Indeed, research on our chief moderator, subclinical psychopathy, has shown substantial genetic determination (Taylor, Loney, Bobadilla, Iacono, & McGue, 2003; Viding, Blair, Moffitt, & Plomin, 2005). This finding applies to the self-report measure used here (Vernon, Villani, Vickers, & Harris, 2008). The opposite causal direction (wherein psychopathy is caused by sexual fantasies and behavior) seems less convincing to us (but see Daversa & Knight, 2007).

Differential self-exposure to pornography has already been linked to subclinical psychopathy. It has been shown that subclinical psychopaths generally prefer violent media (Williams et al., 2007) and voluntarily expose themselves to violent pornography (Shim et al., 2007). This potential causal path may increase the association of subclinical psychopathy with sexual aggression. The same argument could be made for other forms of sexual deviance.

### ASSESSING PORNOGRAPHY USE

Recall that our measure of pornography consumption was a single global item. More reliable measurement should magnify and sharpen the effects reported here. Future research should also evaluate the content of the pornography. Zillman and Bryant (1984), for example, showed that the content themes in the pornography determine their effects on the consumer. Certainly, the degree of violence is critical: Sexual aggression is particularly associated with violent pornography as opposed to other types of pornography (Allen et al.,



1995). In short, a number of effects obtained in our study may be even more pronounced when specific pornography themes are considered.

#### GENDER AND ETHNICITY

Our key measurement instrument, the MASA (Knight et al., 1994), was designed specifically for use with male respondents. The development of a parallel instrument is necessary before attempting similar research on women.

Among the known sex differences are significant differences in fantasy rates (Leitenberg & Henning, 1995) and themes (Byrne & Osland, 2000). Rates of pornography consumption are also much higher in men (e.g., Malamuth et al., 2000), and differences in thematic preferences are often observed (e.g., Gardos & Mosher, 1999). The association between pornography use and deviant sexual fantasies and behaviors in females remains, however, an empirical question.

The ethnic composition of our sample was unusual in that it included (a) a higher proportion of East Asians and South Asians than most other undergraduate samples, and (b) fewer African Americans and Latin Americans than found in most American samples. Although we found no ethnic differences in the patterns of results, larger samples are necessary before such differences can be tested with confidence.

#### CONCLUSIONS

Together, our studies make several contributions to the literature. They provide prevalence rates of nine sexually deviant fantasies and the corresponding behaviors in two college samples. Because of their education and socioeconomic status, college samples provide a conservative estimate of deviant behaviors, if not fantasies. Our results also confirm but qualify the link between sexually deviant fantasies and sexually deviant behaviors in nonoffenders. Only a subset of those with fantasies also report carrying out the behavior. Although the link is not inevitable, it is consistent and coherent across a wide range of sexual deviance categories.

Only one personality variable was consistently associated with both fantasies and behavior, namely, psychopathy, as measured with a self-report instrument. Psychopathy also proved to be the key moderator of behavioral consequences. First, it helped isolate the subset of individuals for whom sexually deviant fantasies do translate into behavior. Second, it helped isolate the subset of individuals for whom pornography consumption was related to deviant sexual behavior. In short, claims for these two controversial links were sustained only in this particularly susceptible subgroup.

Note again that psychopathy was measured with a self-report instrument, the SRP-III (Paulhus et al., in press). The fact that our pattern of findings was consistent with the forensic literature suggests that self-report measurement of psychopathy is a viable methodology.

One implication for the criminal justice system is straightforward. Deviant sexual fantasies are rampant among nonoffender samples and should not be solely used to infer corresponding deviant behavior. In conjunction with a high psychopathy score, however, the inference from fantasy to behavior is better justified.

## NOTES

1. Leitenberg and Henning (1995) suggested that fantasies should not be labeled “deviant” unless they result in deviant behavior (p. 488). Although we appreciate the spirit of that restriction, honoring it here would necessitate a more confusing wording of our central question, namely, “Are sexually deviant behaviors precipitated by corresponding fantasies?”
2. We used an earlier pencil-and-paper version of the MASA. Revised versions are more extensive and are computer administered (Daversa & Knight, 2007). Unfortunately, no masochism items appear on the instrument we used. Three other categories, bestiality, coprophilia, and necrophilia, did not have matching fantasy and behavior items.
3. The rationale was that the lower frequency items were subsets of the category and were therefore less representative.
4. Mean correlations were calculated by applying Fisher’s  $r$ -to- $z$  and  $z$ -to- $r$  transformations.
5. The same pattern of results was verified using moderated multiple regression. After accounting for the main effects of psychopathy and deviant sexual fantasy scores, the interaction term significantly increased the prediction of deviant sexual behavior,  $\Delta R^2 = .07$ ,  $F(1, 84) = 16.24$ ,  $p < .001$ .
6. Although the sample was entirely college-age men, they understood that the audience that would see their self-reports was psychology researchers. Therefore, any self-presentation strategies would be aimed at an older and likely mixed-gender audience.

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