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PREDICTING HANDS-ON CHILD SEXUAL OFFENSES AMONG POSSESSORS OF INTERNET CHILD PORNOGRAPHY

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The recent Supreme Court ruling in *U.S. v. Comstock* (2010) upheld the constitutionality of The Adam Walsh Act, which provides for civil commitment of child pornography (CP) offenders certified as *sexually dangerous*, thereby approving litigation of all such prisoners in the federal system. The two studies reported here sought to address the question: *What is the likelihood that an individual convicted of child pornography offenses has a prior history of a hands-on sexual offense involving a child or has a high probability of committing such an offense?* Our sample consisted of 349 participants: 113 who committed an Internet sexual offense only and no other known or self-reported hands-on sexual offense, 176 child molesters who reported *no* Internet sexual offense, and 60 child molesters that reported committing an Internet sexual offense. Study 1 yielded two scales, one reflecting Antisocial Behavior (AB) and one reflecting Internet Preoccupation (IP). Those two scales predicted membership in the combined sample of child molesters with a high degree of accuracy (c = 0.75). Study two revealed that all three groups were discrete with respect to AB and IP. By increasing the IP scale by 1 point, the odds of being an IO rather than a CM increased by 86%. The plotted conditional probabilities increased linearly as values on the AB scale increase, from 0.27 when AB = 0 to 0.84 when AB = 13. Our results are discussed in terms of risk discrimination among possessors of child pornography, relevance of risk to the statutory third prong element of serious difficulty, and the policy implications of the findings reported here.

Keywords: child pornography, child molesters, Internet offenders, risk

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The advent of the Internet ushered in a new era in the production and transmission of pornography, including child pornography. The counterresponse from law enforcement and from politicians has been swift, with ever-evolving investigative techniques and new statutory management schemes. The most significant of these new statutes at the federal level, The Adam Walsh Child Protection and Safety Act of 2006, signed into law by President G. W. Bush on July 27, 2006, was described by Senator Orrin Hatch as "the most comprehensive child crimes and protection bill in our Nation's history" United States v. Comstock, 551 F.3d 274, 276 (4th Cir. 2009) (quoting 152 CONG. REC. S8012 (daily ed. July 20, 2006) (statement of Sen. Hatch)), cert. granted, 129 S. Ct. 2828 (2009). The Adam Walsh Act (AWA) was enacted for the purpose of protecting children from perpetrators of violent crime and sexual exploitation, including kidnapping, child abuse and child pornography. Under AWA, "sexually dangerous" perpetrators are those that have engaged in or attempted to engage in sexually violent conduct or child molestation and suffer from a serious mental illness, abnormality, or disorder resulting in serious difficulty refraining from sexually violent conduct or child molestation if released," (AWA, 18 U.S.C. §4248 (a)). The one portion of AWA, referred to as The Jimmy Ryce Civil Commitment Program, that has been particularly controversial, includes a post-conviction civil commitment provision, authorizing the federal government to civilly commit prisoners in the custody of the Bureau of Prisons that the Attorney General has certified to be *sexually dangerous* (codified at 18 U.S.C. §4248). The net result is that confinement in a federal prison is extended well beyond the expiration of the original sentence. Although §4248 has generated considerable controversy, spawning multiple challenges and divided findings, the May 17, 2010 opinion of The Supreme Court in *U.S. v. Comstock* (2010) upheld the constitutionality of section 4248, holding that it fell within congressional power under the Necessary and Proper Clause of Article I, Section 8 (cf. Concurring Opinions, 2010 for analysis). The effect of *Comstock* has been to open the gates to litigation of all certified prisoners confined in the federal system, as well as to continue the process of screening for certification other sex offenders in the federal system who are completing their sentences.

A ripple effect of the implementation of section 4248 has been a challenge to the mental health community to assess these certified respondents and opine as to their appropriateness for civil commitment under AWA. Mental health examiners have been hampered by the paucity of empirical research on this presumptively distinct subgroup of child pornography (CP) Internet offenders, many of whom have no known hands-on sexual offenses. Seto (2009a, 2009b) has pointed out that existing risk assessment scales routinely used for hands-on sex offenders may not be appropriate this class of CP offenders. Although Wakeling, Howard, and Barnett (2011) have recently reported promising results using a modified version of the Risk Matrix 2000 scales to predict sexual reoffense in a sample of Internet sex offenders, the overarching question of how best to assess the risk posed by online sexual offenders remains unanswered (Seto & Hanson, 2011). Seto (2009a) noted a "seeming paradox" that there is a "group of men who are likely to be pedophiles yet are nonetheless relatively unlikely to go on to have sexual contact with a child, especially if they have no such history in their past" (pp. 7–8). What proportion of men who seek out child pornography are contact child sex offenders

or are at high risk to be contact offenders is estimated by many studies to be relatively small. Wolak, Finkelhor, and Mitchell (2005) estimated that 10% of CP offenders had a prior contact sexual offense. Frei, Erenay, Dittman, and Graf (2005) reported that no one in their Swiss sample of 33 CP offenders had a criminal history. Elliott, Beech, Mandeville-Norden, and Hayes (2008) reported the proportion to be 11% of their sample of 494 probationers in England. Seto and Eke (2008) reported that 15% of their sample of 301 convicted offenders in Canada had a known history of contact offenses. In an earlier study, Seto and Eke (2005) reported that 24% of 201 offenders in a provincial sex offender registry had a history of contact offenses. Eke, Seto, and Williams (2011) reported on an average 4.1 year follow-up of 541 registered CP offenders, 201 of which were part of the earlier Seto & Eke (2008) study. Eke et al. (2011) found that 4% were charged with a new contact sex offense, 2% were charged with a historical contact sex offense and 7% were charge with a new CP-related offense. Predictors of new contact offenses included prior offense history and younger age. Webb, Craissati, and Keen (2007) reported that 16% of their CP Internet offenders had prior convictions or unconvicted allegations. Sullivan (2007) reported that 13% of convicted CP offenders in a New Zealand sample had a history of contact sex offenses.

In a recent meta-analysis of 21 samples, Seto, Hanson, and Babchishin (2011) found that 12% of CP offenders had an "official" history that included a contact sexual offense. Seto et al. (2011) also found that *re*-offense for a contact sexual offense among CP offenders, based on nine follow-up studies, was very low. When Seto et al. (2011) examined six samples with *self-reported* offenses, the estimate of CP offenders with a prior contact sexual offense jumped to roughly 50%. A recent study by Neutze, Seto, Scharfer, Mundt, and Beier (2011) assigned self-referred offenders to one of three groups: CP only offenders, Contact-only offenders, and Dual (both). The size of the "dual" group was 54% (50 out of 92). That is, 54% of those with a CP offense also had a contact sexual offense. In the Neutze et al. (2011) study, however, the inclusion criterion was a DSM diagnosis of pedophilia; hence, it is unclear how many Internet-Only (IO) offenders may have been dropped, thereby increasing the proportion of Dual offenders. In the present study, the proportion of "dual" offenders (CM + IO) was somewhat smaller (60 out of 173, 34.7%), though still considerable. Seto (2009b) stated that approximately half of CP offenders self-report contact offenses. Whatever the actual proportion, and clearly it is sample-dependent, it is evident that a notable proportion of CP offenders disclose prior contact sexual offenses.

Identifying who, among all known CP offenders, are most likely to be "dual" offenders (i.e., either have a history of child sexual assault or be at high risk for committing such an assault) has obvious legal, as well as clinical import. The etiologic role of CP in precipitating child sexual abuse is complex, and, when raised in a forensic context, often polemical. Webb et al. (2007) concluded that, "as yet, there is no empirical support for a direct causal link between Internet sexual offending and the commission of contact offenses" (p. 451). In an excellent article addressing this question, Seto, Maric, and Barbaree (2001) concluded that "predisposition" is the critical link. When predisposition is present, pornography may increase risk. Absent predisposition, exposure to pornography alone is not likely to instigate an offense. This is what we reported 25 years ago when we

noted that, "if an individual is prone to act on his fantasies, it is likely that he will do so irrespective of the availability of or exposure to pornography" (Carter, Prentky, Knight, Vanderveer, & Boucher, 1987, p. 207).

Given the rigorous enforcement of state and federal laws prohibiting possession, distribution, and production of child pornography, an increasing number of possessors are being caught and prosecuted, underscoring the need for further empirical research on factors that are associated with an increased likelihood of a possessor of child pornography also being a hands-on sexual offender (i.e., having a history of prior sexual battery offenses) or being at high risk of committing a hands-on child sexual offense. The following studies derive from a much larger project targeting Internet child safety (Prentky et al., 2010). The studies reported here sought to differentiate among (a) child molesters with no known or reported CP offense, (b) Internet CP offenders with no known or reported hands-on sexual offenses, and (c) "dual" offenders (child molesters who reported a CP offense). Based on the extant empirical literature, we hypothesized that offenders who had committed a hands-on child sexual offense would be higher in antisociality than Internet-only offenders, while Internet offenders with no known contact offenses would be higher in Internet use history, a possible proxy for sexual preoccupation.

Method

Participants

This project gathered self-report data from (a) sexual offenders (both incarcerated and in the community) with an arrest history for Internet-related CP offenses, and (b) offenders with an arrest history for sexual battery involving children (i.e., child molesters). Members of this later group may, or may not, also have had Internet charges. The study included 466 male offenders, 265 of whom were in the community at time of testing and 201 were in prison at time of testing. A diverse cross-section of participants was recruited, with incarcerated offenders coming from 14 prisons in Pennsylvania, Massachusetts, and New Jersey, and community offenders coming from 11 different sites in seven states (TX, WA, NY, MI, MO, MA, NJ) and Canada (Ontario).

Participation was voluntary and no incentives were offered for participation. To encourage candor, no identifying information was requested from participants, completed surveys were deposited anonymously in a box, and identification numbers were assigned only at the time of data entry.

Although participants (inmates) with an Internet sexual offense (either governing offense or in conjunction with another offenses) were our top priority, we did not identify this priority in recruitment so as to not signal our intentions or to place participants at risk in population. Our only selection criterion was that the individual must have had experience with, and made use of, the Internet.

Of the 466 participants that completed the questionnaire, 349 had committed a child sexual offense, either Internet-based or hands-on, or both. These 349 participants fell into two groups: 113 who committed an Internet sexual offense only and no other known or self-reported hands-on sexual offense (referred to as Internet-only: IO), and 236 who committed a hands-on sexual assault of a child. We further split these 236 into those that reported *no* Internet sexual offense (n =

176, referred to as CM) and those that reported also committing an Internet sexual offense ($n = 60$). This dual group is referred to as IO + CM.

Descriptive Breakdown

Demographic characteristics of the three groups are presented in Table 1. The groups did not differ with respect to age (average 41). The groups did differ with respect to racial/ethnic make-up. The IO group was overwhelmingly Caucasian (93%), while the racial/ethnic make-up of the CM group was more diverse. The IO group reported a higher level of education (78% had some college) and a higher level of employment (21% were professionals).

Questionnaire

The questionnaire was organized around a number of core constructs, covering such hypothetically important domains as (a) relationship history, including social and interpersonal skills, level of social adaptation, and degree of social isolation and alienation {*Sections 2 & 4*}, (b) exposure to adverse childhood and adolescent experiences, including physical and sexual abuse {*Section 3*}, (c) history of reliance on the use of substances to self-medicate {*Section 5*}, (d) history of nonsexual and sexual antisocial behaviors {*Section 6*}, (e) distorted cognitions and attitudes that justify sexual offenses {*Section 11*}, (f) proxy (self-report) measures of sexual preferences for adolescents or preadolescents

Table 1
Demographic Characteristics of Three Sexual Offense Groups

Item	IO only	IO + CM	CM only	Overall	*p*-level
N	113	60	176	349	
Current Age					
mean	41.0	41.3	41.2	41.1	0.99
sd	12.7	11.6	12.5	12.4	
Sexual Orientation					
Heterosexual	84%	69%	87%	85%	0.0067
Race					
Caucasian	93%	86%	79%	85%	0.0042
African American	3%	5%	11%	7%	
Others	4%	8%	10%	8%	
Highest School Grade					
Some college or higher	78%	64%	54%	63%	0.0002
Highest Job Level					0.0959
Student	3%	0%	4%	3%	
Unskilled/Semi-Skilled	17%	20%	31%	25%	
Clerical/Skilled	29%	36%	27%	29%	
Managerial/Business	29%	36%	28%	30%	
Professional	21%	8%	10%	13%	
Professional	21%	8%	10%	13%	0.0088

Note. 1: *p*-value of 0.99 from ANOVA F-test- mean ages are not significantly different among the 3 groups. 2: For categorical variables, categories were regrouped as bold-faced vs. light-faced groups (or vs. others) due to small cell frequencies. The *p*-values were calculated from Chi-square tests.

{*Section 10A*}, and (g) embedded items assessing use of Internet sexual material used to "self-medicate" and the bridge between reliance on sexual material and the erosion of the "efficacy" of such an "intervention" (i.e., use of sexual material), leading, hypothetically, to hands-on sexual offenses {*Sections 7, 8, 10 & 10A}*. The full questionnaire had 129 items and took 45–60 minutes to complete.

The questionnaire included explicit instructions and was formatted for clarity and ease in responding. We were cognizant of the length and tried to economize on space by including table formatting. The questionnaire was printed in color, with color being used to set off and highlight instructions, captions, and headings. The questionnaire included no open-ended questions, since it becomes much more problematic for coding and reliability, as well as the increased likelihood of missing data. The questionnaire was designed overall to promote accurate and complete coverage.

Procedure for Administration of Questionnaire

The questionnaire was administered by two members of the research team to groups of 10–20 participants. The informed consent form (ICF) was distributed and read to the group, and questions solicited. Once all ICF's were returned, participants were handed a questionnaire, and a researcher read the instructions to the group. The confidentiality of participant's responses was emphasized. Participants were instructed *not* to put *any* identifying information on the booklet, including their name, initials, or any identification number. Even complete birth date was omitted to avoid any possible triangulation of variables that might identify a participant. Participants were told that once they finished they were to drop the completed questionnaire face down into a box as they exited the room. One of the two researchers proctoring the session emphasized that there was no way to connect their questionnaire to the signed ICF and that honest answers were very important, which is why we went to some length of assure confidentiality. One of the two researchers stayed outside the room to respond to any postadministration questions or concerns.

Paulhus Deception Scale

Given that some sections in the questionnaire elicit very sensitive information, we went to great length to insure the participants that their responses were anonymous and confidential. In order to further address the obvious concern about biased responding, we administered, in conjunction with our questionnaire, the Paulhus Deception Scale (PDS), a well-known validated instrument that measures impression management and self-deceptive enhancement (Paulhus, 1998). The PDS measures the participant's tendency to give socially desirable responses on self-report instruments. The PDS was attached to the questionnaire and randomly administered to 20% of our participants.

On the Impression Management Scale, the Self-Deceptive Enhancement Scale and the PDS Total Score, group mean differences were nonsignificant ($F = 0.574$, $F = 2.28$, $F = 1.68$, respectively; cf. Table 5). Based on prisoner norms, the equivalent T scores were: IM Scale: range 51–54; SDE Scale: range 49–55; Total Score: range 51–58. According to the PDS Manual, T scores above 70 or

below 30 on the IMS or SDE scales are flagged. The minimum cutoffs for invalidity using the IM scale are < 2 (faking bad) or > 8 (faking good). The three group means for the IM scale were all within this range of acceptable values.

Design

As noted, we had three mutually exclusive sexual offense groups: IO, CM, and the dual group referred to as IO + CM. In *Study 1*, we looked at the roles of conduct behavior problems and Internet preoccupation in differentiating between the IO group and all child molesters (CM and IO + CM). We hypothesized that the combined CM group, when compared to IO offenders, would be significantly higher on a scale reflecting conduct disorder in childhood, juvenile delinquency, and adult nonsexual criminal offenses, and significantly lower on a scale of preoccupation with Internet usage. In *Study 2*, we looked at the IO group versus the split CM group (CM and IO + CM). The overall goal was to predict the probability of committing a hands-on sexual offense, given that one is an Internet offender. To clarify at the outset, we did not examine follow-up data. Thus, although we use the word risk in its conventional sense (i.e., increased risk being equated with increased probability of committing an offense), we did not predict risk of outcome. Our primary goal was to predict who, among our Internet offenders, was also a child molester.

Study 1

Differentiation between CM from IO was carried out in six steps:

1. Derivation of Level I Scales: Factor analysis was performed on items that were selected from the following questionnaire sections: Childhood abuse history, Feelings/symptoms and clinical diagnosis, History of conduct problems, and Internet use and frequency.

2. Prediction of CM Probability: Use of logistic regression models to predict the probability of child molesting, rather than being an Internet-only offender, using Level 1 scales as predictors.

3. Derivation of Level II Summary Scales: Results from Step 2 necessitated further factor analytic reduction of Level I scales.

4. Repeat Step 2 but with Level II Summary Scales.

5. Final model: Establish a final model for predicting the probability of child molesting, rather than simply being an Internet offender.

6. Probability calculation and interpretation: Based on the proposed final model, we derived a table of probabilities for interpretation and practical use.

Study 2

For an IO, what is the probability of committing a hands-on sex offense? Based on the Level II summary scales that were derived in Study 1, we

developed a model for predicting such a probability. A table and graphs of probabilities based on this model are presented.

Results

Study 1

In the first study, we looked at the role of antisocial behavior in differentiating between Internet-only offenders and child molesters. The broad question was how to differentiate most effectively between Child Molesters and Internet-only offenders. In the initial data reduction stage, we hypothesized, based on the extant literature, that Child Molesters, when compared to Internet-only offenders (no known hands-on sexual offense against a child), would be higher on conduct disorder in childhood, juvenile delinquency, and adult nonsexual criminal offenses, higher on childhood experiences of abuse, and lower on items reflecting "preoccupation with Internet pornography" and adverse feelings that might be attenuated by Internet use.

1. Factor analyses (*PCA* with rotation to varimax) were performed using items from the questionnaire for the child/teen period: III. Childhood Abuse History (15 items); IV. Feelings/Symptoms and Clinical Diagnosis (16 items); and VI. Conduct Problems (7 items), and also from sections for the adult period: IV. Feelings/Symptoms (18 items); VI. Conduct Problems (6 items); and VIII. Internet Use (14 items). This initial *PCA* using a total of 76 items yielded 16 factors. These 16 factors (Child Physical Abuse, Child Sexual Abuse 1, Child Sexual Abuse 2, Child Sexual Abuse 3, Child ADD, Child Sad, Child Inept, Child Conduct Problems 1, Child Conduct Problems 2, Adult ADD, Adult Rejected, Adult Acting Out, Adult Conduct Problems 1, Adult Conduct Problems 2, Internet 1, Internet 2). For convenience, we refer to these as *Level I factors.*

2. Based on these 16 Level I factors, a total of 17 logistic models were performed. In all of these models, the dependent variable was the aforementioned, dichotomized group variable: Internet-only (IO-only) and CM offenders. The numerical value for IO-only offenders was set as 0, while the numerical value of CM offenders was set at 1.

The first 16 models, were *simple* logistic regression using each of the 16 Level I factors as the independent variable, while the last model is a *multiple* logistic regression using all 16 factors as independent variables.

Among 16 simple logistic models, except for a few cases, most of the models resulted in an $OR > 1$, indicating that each factor is a good predictor of CM over IO-only offenders. The *c*-statistics, however, were all below 0.6, except for two models in which the c-statistics were still below 0.7. These results indicate that each factor is a good predictor but the model was not adequate for predicting CM over IO. To achieve stronger predictive power, more variables were needed on the right side of the model.

An attempt was made to put all 16 factors on the right hand side. This multiple logistic regression model for predicting the likelihood of being a CM versus IO-only offender yielded a c-statistic of 0.79, demonstrating excellent predictive power. All of the individual regression parameters, however, were not significantly different from 0, except for the factor Internet I, indicating overredundancy

of the number of independent variables, and a presence of colinearity. Thus, condensing the information presented in 16 factors was necessary.

3. Factor analysis of the Level I factors, omitting items with loadings < 0.40, yielded five new factors that explained almost 68% of the variability in the Level 1 factors. These five factors, with items loadings in parenthesis, are:

1. ***Child Abuse*** (Physical Abuse (0.46), Child Sexual Abuse 1 (0.89), Child Sexual Abuse 2 (0.85), Child Sexual Abuse (0.77); [Variance Explained: 15.9%]

2. ***Child Emotional Problems*** (ADD (0.68), Sad (0.78), Inept (0.78); [Variance Explained: 14.2%]

3. ***Child and Adult Conduct Problems*** (Child Conduct Problems 1 (0.77) & 2 (0.69)), Adult Conduct Problems (Conduct Problems 1 (0.69) & 2 (0.56));

[Variance explained: 13.6%]

4. ***Adult Emotional Problems*** (ADD (0.81), Rejected (0.75), Acting out (0.82);

[Variance explained: 12.6%]

5. ***Internet*** (1 (0.91) & 2 (0.93)) [Variance explained: 11.5%]

Total variance explained: 67.8%

These new *Level 2* "summary-scales" were used in the next round of logistic regression analyses.

4. Table 2 presents a series of regression models based on these Level II factors: models c1-c5 are simple regression with one factor at a time as the independent variable; model c6 is a multiple regression taking all factors together on the right hand side of the model. Compared with the simple regression models (c1−c5), the multiple regression model (c6) achieved the largest *AUC* value (*c*-statistic = 0.78). However, there were only two significant factors in c6 (the ac_scale and the i_scale). The regression model (c7) using only these two variables yielded almost the same c-statistic (0.76), and both parameters were highly statistically significant ($p < .0001$).

Inspection of the c7 model reveals that the parameter value for i-scale (ranging from 0 to 40) is −0.0769. Translating it to an odds ratio, the *OR* is 0.93 with a 95% confidence interval of (0.90, 0.95). That is, the odds of being a CM, compared to an IO offender, is reduced by 0.07 when the i_scale increases by one point. This is not a large reduction in any practical sense. So we rescaled i-scale, collapsing the 0–40 range to 0–8. The new values for the rescaled i-scale (old values in parenthesis) are: 0 (0), 1 (1–5), 2 (6–10), 3 (11–15), 4 (16–20), 5 (21–25), 6 (26–30), 7 (31–35), 8 (36–40).

The results from the logistic regression using this rescaled i-scale are reported in model c8 (see Table 2). Model c8 yielded a *c*-statistic of 0.75, with both parameters significantly different from 0 (i.e., the ORs are both significantly

Table 2
Logistic Regression Using Level 2 Factors

	Regression estimate				Odds ratio estimates (CM vs. IO)			
Model	Parameter	Estimate	*SE*	Pr > ChiSq	Estimate	95% CI	c-statistic	
c1	c_scale1	0.19	0.06	0.001	1.22	1.08	1.37	0.61
c2	c_scale2	0.04	0.03	0.11	1.04	0.99	1.10	0.56
c3	a_scale1	0.01	0.03	0.65	1.01	0.96	1.07	0.52
c4	ac_scale	0.26	0.07	<.0001	1.30	1.14	1.48	0.66
c5	i_scale	−0.07	0.01	<.0001	0.93	0.91	0.95	0.73
c6	c_scale1	0.13	0.07	0.06	1.14	0.99	1.31	0.78
	c_scale2	0.04	0.04	0.28	1.04	0.97	1.12	
	a_scale1	0.03	0.04	0.41	1.03	0.96	1.11	
	ac_scale	0.22	0.08	0.0045	1.24	1.07	1.44	
	i_scale	−0.09	0.01	<.0001	0.91	0.89	0.94	
	intercept	1.05	0.28	0.0002				
c7	ac_scale (13 items)*	0.2871	0.0688	<.0001	1.33	1.16	1.53	0.76
	i_scale (13 items)**	−0.0769	0.0131	<.0001	0.93	0.90	0.95	
	intercept	1.2614	0.2443	<.0001				
c8	ac_scale*	0.2852	0.0685	<.0001	1.33	1.16	1.52	0.75
	i_scale rescaled**	−0.3772	0.0649	<.0001	0.69	0.60	0.78	
	Intercept	1.3919	0.2627	<.0001				

Note. c1−c7 = * range 0–13; ** range 0–40; c8 = * range 0–13; ** range 0–8.

different from 1). The values of the *OR*s, 1.33 for ac_scale and 0.69 for rescaled i_scale, both deviate from 1 sufficiently enough to assure the practical importance of the *OR* values.

Thus, we focused on two critical scales: *Child-Adult Antisocial Behavior* (ac_scale, predicted to be more characteristic of hands-on child molesters) and *Preoccupation with the Internet* (i-scale, predicted to be more characteristic of the Internet-only offenders). We refer to these two scales simply as AB (Antisocial Behavior) and IP (Internet Preoccupation) in this paper. The items comprising these two scales are presented in the Appendix.

Study 1 Summary

The Antisocial Behavior scale includes the 13 items. Each of the 13 items was scored as *no* = 0 and *yes* = 1. So the sum of the 13 items ranges from 0 to 13. For example, a score of 5 reflects 5 yes's and 8 no's. A score of 13 represents the highest antisocial behavior. A one point increase in the Antisocial Behavior scale means one additional item is present (yes).

The Internet Preoccupation scale also included 13 items (see the Appendix). All items, except for item no. 9, are scored as *never* = 0, *rarely* = 1, *occasionally* = 2, and *frequently* = 3. For item no. 9, *never* = 0, *1 day* = 1, *2–3 days* = 2, *4–5 days* = 3, and *6 or more days* = 4. So the sum of these 13 items ranges from 0 to 40 (very high preoccupation), but rescaled to 0 to 8, as laid out in Table 7. Since the items are not dichotomous, it is more difficult to interpret what it means when the scale is increased by one unit (in the range of 0 to 8). If two items

changed from "never" to "frequent," it would add six points to the unrescaled IP, which would be at least a one unit increment in the rescaled IP. It takes three items increasing from 1 to 3 to achieve the same result.

Our final analysis in Study 1 (Table 2, c8) had a high level of predictive accuracy ($c = 0.75$), with a *one-unit increase* in the Antisocial Behavior (AB) scale leading to a *33% increase in the odds of being a CM* (see Table 3). By contrast, a one-unit increase in the Internet Preoccupation (IP) scale increased the odds of being an IO by 45% (1/0.69 = 0.45).

Based on the final model, we calculated the predicted probability of being a CM, rather than IO offender. These probabilities are presented in Table 4. If we pose the simple question of the likelihood that someone charged with an Internet-related sex offense is also a hands-on child molester, the key factor of the presence of a history of nonsexual antisocial behavior, from childhood into adulthood, and the relative *un*importance of a history of preoccupation with the Internet is compelling. The probability that an individual with a score of 13 on the Antisocial Behavior Scale—the highest possible score—is a child molester is .99 when the IP scale is 0 and .89 when the IP scale is 8. In other words, the IP scale made *no* difference in determining the probability that someone is a child molester when the level of general antisocial behavior is very high. In fact, the probability actually decreased slightly from .99 to .89 when the IP scale went from 0 to 8.

Figures 1 and 2 were prepared to depict visually how the probability of being a CM changes according to the Antisocial Behavior and Internet Preoccupation Scales. Figure 1 shows the probability as a function of Antisocial Scale, when the Internet Preoccupation scale is fixed at 2 (*low IP*), 5 (*medium IP*), and 8 (*high IP*). Figure 2 plots IP values ranging from 0 to 7. It is evident that when the Antisocial Behavior Scale score is 13, the CM probabilities at various levels of Internet Preoccupation, as represented by various curves in Figure 1, are much tighter together than when the Antisocial Behavior Scale score is 0.

Study 2 Summary for Consistency

In Study 2, we examined our Study 1 findings on the role of antisocial behavior in differentiating between IO and CM in our CM sample, differentiated by the presence of an Internet sex offense. We hypothesized that CMs who also had an Internet sex offense (CM + IO) would fall midway between IO offenders and CM offenders on our two scales. The means for the three groups on both

Table 3
Odds Ratio (OR) of Being A CM vs. IO

Results from Logistic Regression						
Scale	Estimate	*SE*	*p*-value	OR (CM vs. IO)	95% Confidence Limits	
Antisocial*	0.2852	0.0685	<.0001	1.33	1.16	1.52
Internet Preoccupation**	−0.3772	0.0649	<.0001	0.69	0.60	0.78
Intercept	1.3919	0.2627	<.0001			

* range 0–13. ** range 0–8.

Table 4
Predicted Probability of Being A Child Molester as Compared to an Internet-only Offender

Rescaled internet preoccupation scale	Antisocial scale						
	0	1	2	3	4	5	6
8	0.16	0.21	0.26	0.32	0.38	0.45	0.52
7	0.22	0.28	0.34	0.40	0.47	0.54	0.61
6	0.29	0.36	0.43	0.50	0.57	0.64	0.70
5	0.38	0.45	0.52	0.59	0.66	0.72	0.77
4	0.47	0.54	0.61	0.68	0.74	0.79	0.83
3	0.56	0.63	0.70	0.75	0.80	0.84	0.88
2	0.65	0.72	0.77	0.82	0.86	0.89	0.91
1	0.73	0.79	0.83	0.87	0.90	0.92	0.94
0	0.80	0.84	0.88	0.90	0.93	0.94	0.96
	7	8	9	10	11	12	13
8	0.59	0.66	0.72	0.77	0.82	0.86	0.89
7	0.68	0.74	0.79	0.83	0.87	0.90	0.92
6	0.75	0.80	0.84	0.88	0.91	0.93	0.94
5	0.82	0.86	0.89	0.91	0.93	0.95	0.96
4	0.87	0.90	0.92	0.94	0.95	0.96	0.97
3	0.91	0.93	0.94	0.96	0.97	0.98	0.98
2	0.93	0.95	0.96	0.97	0.98	0.98	0.99
1	0.95	0.96	0.97	0.98	0.98	0.99	0.99
0	0.97	0.98	0.98	0.99	0.99	0.99	0.99

scales are provided in Table 5. As expected, both groups of child molesters, CM and CM + IO, had significantly higher scores on the Antisocial Behavior scale (2.65 and 2.33 vs.1.47, respectively). CM was *not*, as predicted, significantly higher than the CM + IO group on the AB scale. On the Internet Preoccupation Scale however, the IO and the CM + IO had significantly higher scores than the CM group (3.92 and 4.07 vs. 2.04, respectively). As is evident, IO and CM + IO were *not* different from each other.

These results suggest 3 discrete groups defined by the two scales:

- IO-only: Low on Antisocial Behavior and High on Internet Preoccupation.
- CM + IO: High on Antisocial Behavior and High on Internet Preoccupation.
- CM-only: High on Antisocial Behavior and Lower on Internet Preoccupation.

Multivariate Logistic Regression Model to Predict Type of Offender

Based on these results, the two scales together were used to predict who falls into each of these three groups. We employed a Multivariate Logistic Regression Model (Generalized Logit Model, GLM). The usual (bivariate) Logistic Regression Model predicts the odds of an event for a study group, compared with that of a reference group. In the present case, we were examining three groups (IO, CM + IO, and CM), hence the use of GLM. If we take the CM + IO group as the reference, we can calculate the Odds Ratio of being an IO versus CM + IO; and the Odds Ratio of being a CM versus CM + IO. From here, we can also obtain other *OR*s, for example, CM versus IO. Before the ORs can be calculated,

Table 5
Means of Antisocial Behavior and Internet Preoccupation Scales by Offender Type

Type of offender	N	Antisocial behavior scale (range 0–13)		Internet preoccupation scale (range 0–8)		PDS: I.M. scale	PDS: S-D E scale	PDS: Total scale
		Mean	σ	Mean	σ	M/σ	M/σ	M/σ
IO-Only	113	1.47	1.96	3.92	1.71	6.40/3.54	2.68/2.64	9.08/4.92
Dual	60	2.33	2.55	4.07	2.03	5.70/3.31	2.20/2.04	7.90/3.99
CM-Only	176	2.65	2.34	2.04	1.70	6.87/4.49	3.66/2.90	10.47/5.92
Total	349							

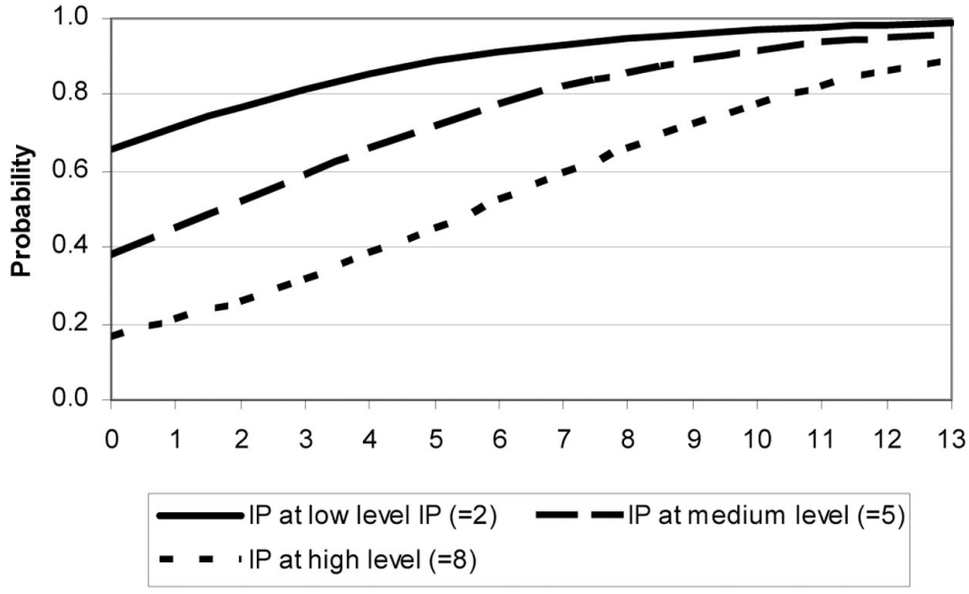

Figure 1. Antisocial Scale.

the regression parameter estimates must be derived from the model. By exponentiating a specific parameter estimate, we obtained the corresponding *OR*.

Table 6 provides multivariate regression parameter estimates, their corresponding standard errors (*SE*) and *p* values. These *p* values indicate whether the parameter estimates are significantly different from 0, or, equivalently, whether the *OR*s are different from 1 (i.e., exponentiating a parameter estimate = 0 yields *OR* = 1). Table 6 is divided in two parts. The upper table gives the estimates with IO as the reference group, while the lower table gives the estimates with CM + IO as the reference group. With the parameter estimates in Table 6, it is easy to calculate various *OR*s (cf. Table 7).

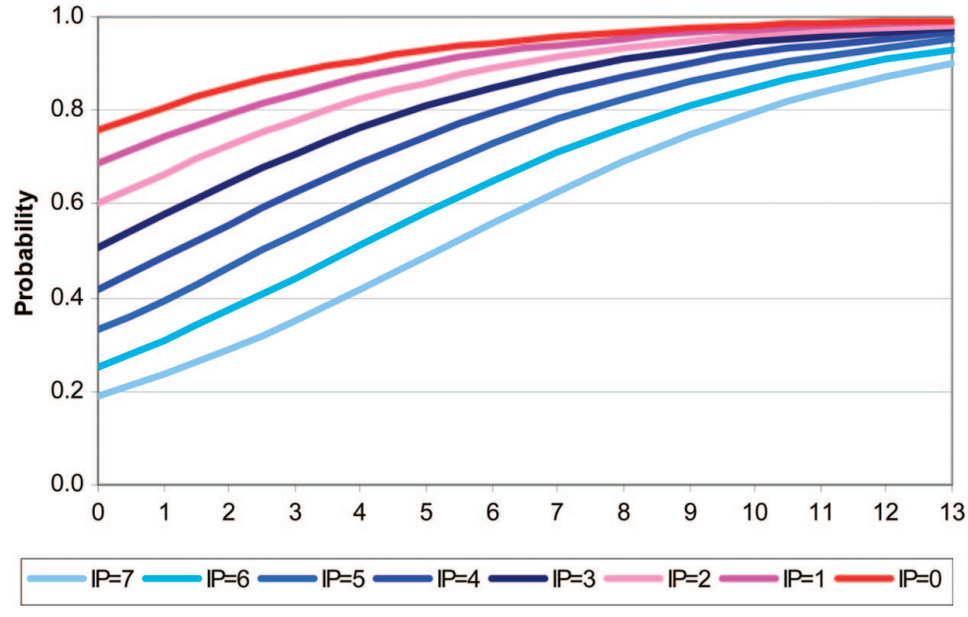

Figure 2. Conduct Problem Scale.

Table 6
Parameter Estimates of Generalized Logistic Regression Model

Parameter	Group	Estimate	se	*p*-value
(CM + IO and CM-Only vs. IO-Only)				
Antisocial Behavior Scale	CM + IO	0.206	0.080	0.0102
	CM-Only	0.321	0.074	<.0001
Internet Preoccupation Scale	CM + IO	0.006	0.083	0.95
	CM-Only	−0.620	0.083	<.0001
Intercept	CM + IO	−1.037	0.380	0.0063
	CM-Only	1.610	0.290	<.0001
(IO-Only and CM-Only vs. CM + IO)				
Antisocial Behavior Scale	IO-Only	−0.206	0.080	0.0102
	CM-Only	0.114	0.070	0.10
Internet Preoccupation Scale	IO-Only	−0.006	0.083	0.95
	CM-Only	−0.626	0.092	<.0001
Intercept	IO-Only	1.037	0.380	0.0063
	CM-Only	2.647	0.358	<.0001
	CM-Only	2.647	0.358	<.0001

Antisocial Behavior as a Risk Factor for Offender Type

OR (IO vs. CM + IO) = 0.81. By switching the order of the groups, OR (CM + IO vs. IO) = 1/0.81 = 1.23. *By increasing 1 point in the Antisocial Behavior Scale, the odds of being a CM + IO increases 23%, as compared with an IO. If the scale increases by 2 points, the odds of being a CM + IO increases by 46%. It is statistically significant (p = .01).* The 95% confidence interval in this case (OR = 1.23) is (1/0.95, 1/0.70) = (1.05, 1.43).

OR (CM vs. CM + IO) = 1.12. By increasing 1 point in the Antisocial Behavior Scale the odds of being a CM + IO increases by 12%. It is *not* statistically significant.

OR (CM vs. IO) = 1.38. By increasing 1 point in the Antisocial Behavior Scale, the odds of being a CM increases by 38% as compared to IO. If the scale increases by two points, the odds of being a CM increases by 76%. It is strongly significant ($p < .0001$), with a 95% confidence interval of (1.19, 1.59).

Internet Preoccupation Scale

OR (IO vs. CM + IO) = 0.99. It is *not* statistically significant ($p = .95$). The Internet Preoccupation scale is *not* a measure that differentiates IO from CM + IO.

OR (CM vs. CM + IO) = 0.535. By switching the order of the groups, OR (CM + IO vs. CM) = 1/0.535 = 1.87. *By increasing 1 point in the Internet Preoccupation Scale, the odds of being a CM + IO increases 87% over being CM ($p < .0001$).*

OR (CM vs. IO) = 0.538. By switching the order of the groups, OR (IO vs. CM) = 1/0.538 = 1.86. *By increasing 1 point in the Internet Preoccupation Scale, the odds of being an IO increases 86% over being CM-only ($p < .0001$).*

In summary, the Antisocial Behavior Scale measures how likely an offender

Table 7
Odds Ratios For Offense Type by Risk Factor

	Antisocial behavior scale			Internet preoccupation scale		
Group comparison	*OR*	*p*-value	95% confidence limits	*OR*	*p*-value	95% confidence limits
IO-Only vs CM + IO	0.81	0.0102	0.70–0.95	0.99	0.95	0.85–1.17
CM-Only vs CM + IO	1.12	0.10	0.98–1.29	0.54	<.0001	0.45–0.64
CM-Only vs IO-Only	1.38	<0.0001	1.19–1.59	0.54	<.0001	0.46–0.63

is a child molester. The scale separates CM + IO and CM from IO. The Internet Preoccupation Scale measures how likely an offender is an Internet only offender. The scale separates CM + IO and IO from CM. When these two scales are combined, we are able to distinguish the three groups: IO, CM + IO, and CM with a high degree of reliability.

To further explicate the nature of this model, we calculated the predicted probabilities of being an IO, CM + IO or CM, using the regression parameter estimates (from Table 6) for three points on the Internet Preoccupation Scale: 2 (*low*), 4 (*moderate*), and 8 (*high*). This leaves the probabilities as a function of Antisocial Behavior. These probabilities are plotted against Antisocial Behavior in Figures 3, 4, and 5.

- When *IP is quite low* (e.g., a score of 2 on the IP scale), it is more likely that the individual is a CM, and the likelihood increases as the amount of antisocial behavior increases.
- When *IP is in the moderate range* (e.g., a score of 4), the probability of being an IO *or* Dual increases at the lowest end of the AB scale; as the amount of antisocial behavior increases, the probability of being a Dual, as opposed to an IO-only, increases. The curves intersect at AB = 5. The IO curve continues to drop, while the Dual curve remains flat and begins to drop at AB = 8.
- When *IP in quite high* (e.g., score = 8), the probability of being an IO *or* Dual increases enormously at the lowest end of the AB scale; at the highest end (AB = 10.5), the curves intersect. The significant difference between the IO and Dual groups is, once again, antisocial behavior. As antisocial behavior increases, the probability of being a Dual offender increases, and, conversely, the probability of being an IO-only decreases.

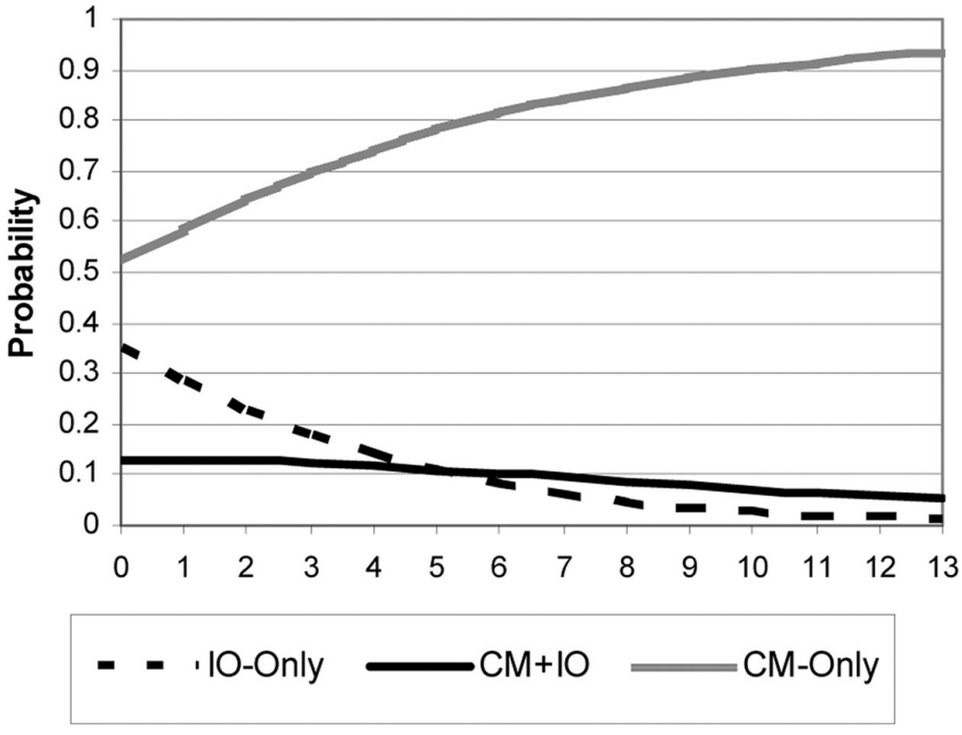

Figure 3. Antisocial Behavior Scale.

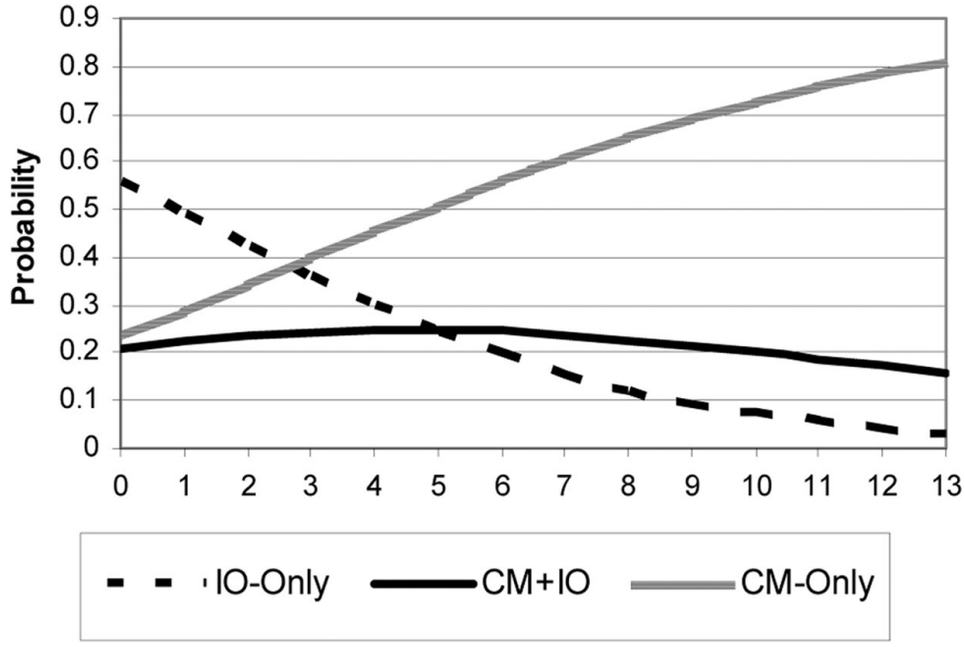

Figure 4. Antisocial Behavior Scale.

Conditional Probability

We addressed the following practical question: *If someone is already known to be an Internet sex offender, what is the likelihood that he also a child molester*? Table 8 provides these conditional probabilities for the full Antisocial Behavior Scale (AB), from 0 to 13. For example, if someone is an Internet offender, and his score on AB is 2, then the conditional probability is 0.36. If the score on AB is 10, then the conditional probability is 0.74. These probabilities are plotted in

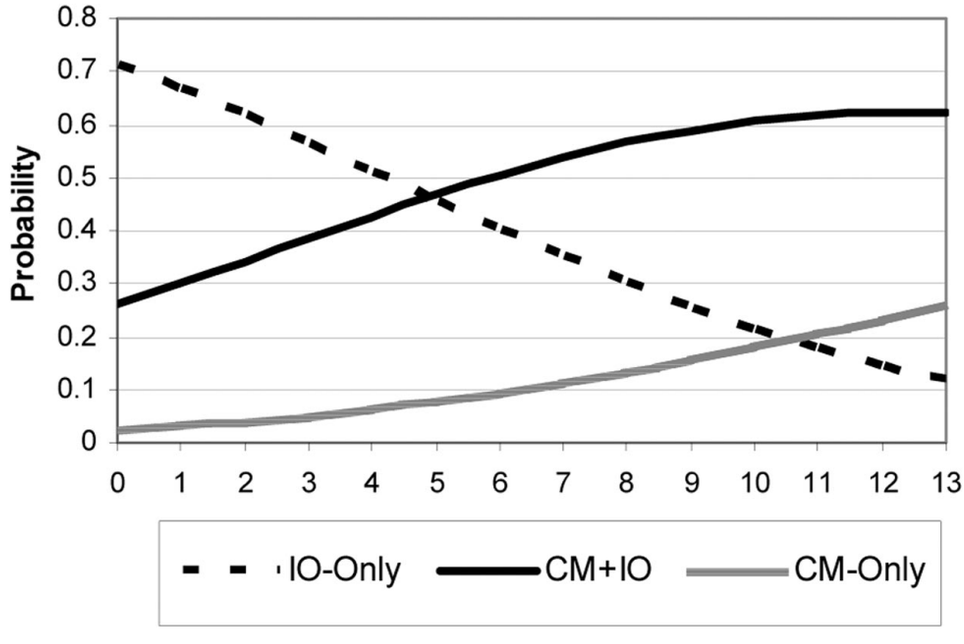

Figure 5. Antisocial Behavior Scale.

Table 8
Conditional Probability of Being a Child Molester Given That One is an Internet Offender

Antisocial behavior scale	Conditional probability
0	0.27
1	0.31
2	0.36
3	0.41
4	0.46
5	0.51
6	0.56
7	0.61
8	0.66
9	0.70
10	0.74
11	0.78
12	0.81
13	0.84

Figure 6. The probability increases from 0.27 to 0.84 almost linearly as AB scale score increases from 0 to 13.

Discussion

In the two studies reported here we sought to address a relatively simple question that has potential import for the adjudication of civil commitment of child pornography offenders under the Adam Walsh Act: *What is the likelihood that an individual convicted of child pornography offenses has a prior history of a hands-on sexual offense involving a child or poses a high probability to commit*

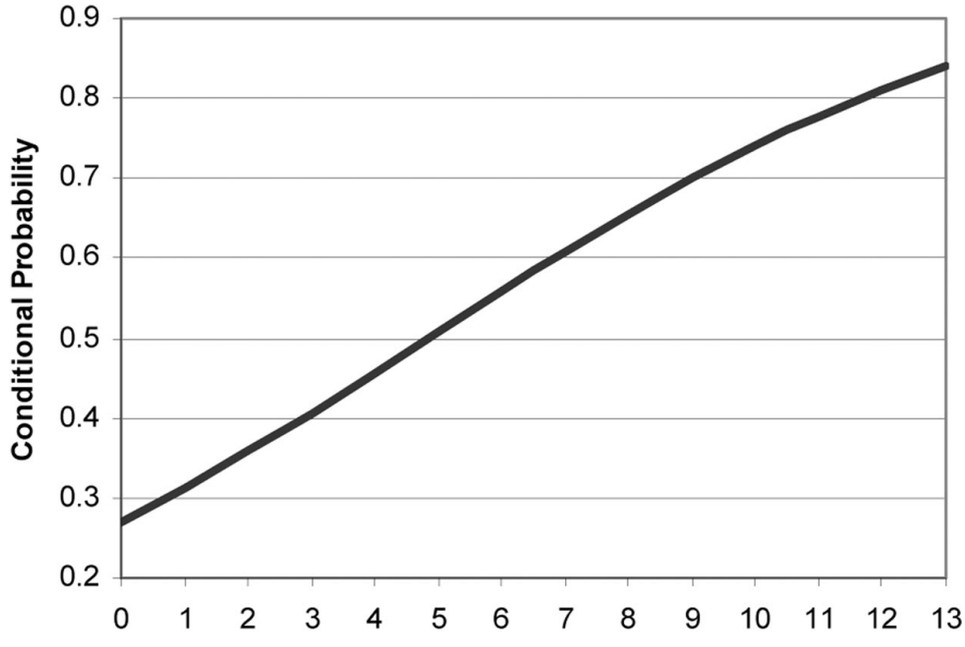

Figure 6. Antisocial Behavior Scale.

such an offense? This question, or a variation of it, lies at the heart of these civil commitment trials. Decisions are routinely made in cases involving extensive collections of child pornography, often with little or no known prior histories of sexual battery (i.e., hands-on offenses involving children). Determining who, among all those apprehended for possessing CP, are *sexually dangerous* and justify civil commitment has proven exceptionally difficult, principally because many of those apprehended present with no known history of sexual battery involving children. Providing clear, empirically supported guidance in these decisions is a matter of undisputed, if not urgent, importance.

The present studies, confirming and extending prior research, add to existing empirical support for developing a risk assessment procedure tailored to this putatively discrete subgroup of sex offenders. Study 1 yielded two scales, one reflecting Antisocial Behavior (AB) and one reflecting Internet Preoccupation (IP). Those two scales predicted membership in the combined sample of child molesters with a reasonably high degree of accuracy ($c = 0.75$). Study 2 revealed that all three groups were discrete with respect to AB and IP. The Internet CP offenders were low on AB and high on IP. The "dual" group of child molesters, those with both a battery offense and an Internet offense, were high on both AB and IP. The child molesters with no Internet offense were high on AB and lower on IP. AB did *not* differentiate between the two groups of child molesters (CM & CM + IO), and IP did *not* differentiate between the two groups of Internet CP offenders (IO & CM + IO). The odds of being a CM + IO compared with an IO increases by 46% when the score on the AB scale increases by two points. The IP scale was similarly effective at differentiating the child molesters (CM) from both the IO and the CM + IO offenders. By increasing the IP scale by only 1 point, the odds of being a CM + IO rather than a CM increases by 87%. Similarly, by increasing the IP scale by 1 point, the odds of being an IO rather than a CM increases by 86%. When we posed the question, if someone is known to be an Internet sex offender, what is the likelihood that he also a child molester, the plotted conditional probabilities increase linearly as values on the AB scale increase, from 0.27 when AB = 0 to 0.84 when AB = 13.

As noted, our findings regarding antisociality support prior research. Webb, Craissati, and Keen (2007) compared Internet sex offenders to child molesters, similar to our Study 1. Their Internet group included 8% with a prior sexual conviction or sexual allegation (no conviction). The Webb et al. study intentionally excluded "dual" offenders (those with both offenses), indicating that only five fell into this group. Close to one third of the child molesters failed on follow-up (29%), compared with only 4% of the Internet offenders. Webb et al. (2007) concluded, "The overall findings of the follow up indicated that child molesters were more likely to fail in all areas compared to the Internet sex offenders" (p. 462). Interestingly, the authors further noted that, "Although the Internet offenders had significantly fewer previous sexual convictions and fewer unconvicted allegations than the child molesters, 14 (16%) did fall into this group, and they may represent an important subgroup of Internet offenders" (p. 461). Presumably, these higher risk Internet offenders could be defining a "dual" group similar to the one examined in Study 2.

Although the comparison to our study is imperfect, the findings of Seto and Eke (2005) are noteworthy. Seto and Eke examined the criminal histories of 201

child pornography offenders; offenders with a *prior criminal history were significantly more likely to recidivate.* To the point, Seto and Eke (2005) reported that "Child pornography offenders who had ever committed a contact sexual offense were the most likely to reoffend, either generally or sexually" (p. 207). This higher risk subgroup with a prior contact sexual offense would be roughly analogous to our CM + IO group, characterized by our data with a high level of antisociality. Seto and Eke (2005) comment that ". . . we did not have data on psychological variables that would be relevant to understanding child pornography offenders. Of particular interest are variables that reflect antisociality and atypical sexual interests" (pp. 208–209). Seto (2009b) clearly underscored the importance of criminal history as well, noting that predictors of contact sexual recidivism among CP offenders include, across several studies, prior contact sexual offenses, prior violent offenses, a Cormier-Lang violence score prior to the index offense, any juvenile criminal record, and drug use problems.

Elliott, Beech, Mandeville-Norden, and Hayes (2008) compared 505 Internet sex offenders with 526 contact sex offenders on a wide range of personality measures, including cognitive distortions, interpersonal functioning, and management of emotions. Although this study did not examine antisocial behavior, two findings may be germane. The Internet sex offenders were significantly higher on a scale measuring fantasy, while the contact sex offenders were significantly higher on a scale assessing cognitive impulsivity. Notably, the Elliott et al. study did not assess fantasy per se but rather identification with fictional characters.

In a study of college undergraduates, Williams, Cooper, Howell, Yuille, and Paulhus (2009) examined mediators of the association between sexual fantasy and behavior, all self-reported. The association between fantasy and behavior only held for those students who were high on a self-report measure of psychopathy. The association between pornography use and deviant sexual behavior, moreover, only held for the students who were high on the psychopathy measure. Although these findings are based on nonoffenders (college students), a key mediator linking sexual fantasy to sexual behavior (psychopathy) appears to be similar to what we have observed, and other studies have observed, with offenders.

The two key findings from our study regarding risk discrimination among CP offenders are at least partially supportive of similar findings regarding risk discrimination among extrafamilial child molesters and rapists—antisociality and sexual deviance (Hanson & Morton-Bourgnon, 2005). Our measure of antisociality in the present study was entirely in line with how it has been assessed in risk studies with rapists and child molesters. Our IP scale, however, was tailored to CP offenders, primarily reflecting the impact of Internet use on one's life, and content dissimilar from conceptualizations of sexual deviance found in the risk assessment literature for contact sex offenders (e.g., deviant sexual arousal as assessed by the PPG). Although the IP Scale employed here measures only Internet use history, it may tap an underlying dimension of sexual preoccupation (i.e., the greater the amount of time logged on the Internet and the greater the impact of the Internet one's life, the greater the degree of preoccupation) and thus, may be a proxy for sexual deviance. Seto, Cantor, and Blachard (2006) noted that CP has "diagnostic significance and may be particularly helpful in circumstances in which the person denies a sexual interest in prepubescent children, or has no documented history of sexual behavior involving children, or in which phallo-

metric test results are unavailable" (p. 614). As a general methodological matter, however, operationalization of sexual deviance (as well as sexual fantasy) clearly requires standardization. As may be noted in the meta-analysis of Babchishin, Hanson, & Hermann (2011), for example, three studies assessed sexual deviance using three different methods (PPG, a single item from the STABLE-2007, and multiple girl and boys items from Wilson's Sexual Fantasy Questionnaire).

As Seto (2009a, 2009b) cautioned, it would not be advisable to use actuarial risk assessment scales routinely employed with contact sex offenders. The primary reason is reoffense base rates, which appear to be much lower for CP offenders than for the contact sex offenders used to derive the estimates in the life tables for scales such as the Static-99 and the Sex Offender Risk Appraisal Guide (Seto, 2009a).

Policy Implications

Rough estimates of CP suggests a problem of considerable magnitude. Between 2000 and 2006, the number of arrests for online sex offenses increased threefold; within that same time period, the number of arrests specifically for CP possession or distribution more than doubled, from 1,713 to 3, 672 (Mitchell, Jones, Finkelhor, & Wolak, 2011). That same year (2006), the CyberTipline (a congressionally mandated system of reporting crimes involving children), received 62,365 reports of child pornography (National Center for Missing & Exploited Children, 2006). The FBI (2007) reported that between 1996 and 2007 there was a 2,062% increase in Internet-related sex crime cases opened (113 to 2,443), a 2,510% increase in arrests (68 to 1,769), and a 1,404% increase in convictions (68 to 1,023). Notably, this dramatic increase was prior to *Comstock*, which opened the gates to litigation at the federal level. Mitchell et al. (2011) pointed out that this "rapid growth in the number of cases" (p. 47) also reflects a growth in new tactics, as offenders become increasing sophisticated. As Adler (2008) observed, "Pornography has the force of technology on its side," (p. 696). The net result is that we can reasonably expect an ever-increasing number of CP possessors caught in the nets cast by ever-intensifying efforts to apprehend offenders. Without being overly hyperbolic, we appear to be facing a "perfect i-storm," characterized by a large but crudely estimated number of pedophiles involved in organized pornography rings, estimated between 50,000 and 100,000 worldwide, with roughly one third being in the United States (Wortley & Smallbone, 2006), a vastly larger number of "personal" users (not involved in rings), ever increasing law enforcement resources allocated to cope with this Hydra-like public health problem, and politicians that craft costly, resource-intensive policy that is largely uninformed by research.

The relationship between CP and sexually aggressive behavior against children clearly has importance for public policy. Policy drives legislation, which in turn sets the agenda for law enforcement, the DA/AG, the courts, the disposition of convicted defendants, and ultimately, the management of those offenders. Clearly, not all online offenders are also offline offenders. Online offenders, moreover, are taxonomically heterogeneous. Consequently, a more nuanced understanding of who, among all online offenders, pose a greater risk to harm children will inform policy, and, by extension, statutory management.

The present studies sought to improve accuracy of decisions regarding the "risk" posed by defendants convicted of possession of CP. Improved accuracy of decisions regarding likelihood of sexually assaulting children can reduce false positive petitions/certifications at initial screening by the district attorney or attorney general and false positive errors at time of litigation, thereby reducing litigation-related costs, as well as unnecessary, expensive incarceration when less costly management strategies might suffice. Providing empirically-based guidelines for assessment would foster procedural standardization, and improved accuracy and reliability among the experts that evaluate the defendants. Improving accuracy of decision-making may increase the homogeneity of defendants assigned to secure civil or prison treatment programs, thereby potentially improving treatment outcomes. For those defendants sentenced to less secure management, guidelines for probation officers that improve accuracy of assessing risk may enhance discretionary decisions and improve outcomes.

Primary prevention programs that target youth in middle school and high school must include frank information about how to recognize aggressive sexual solicitations (Wolak, Finkelhor, Mitchell, & Ybarra, 2008). Since antisociality appears to be a bright line for identifying online offenders that pose a greater likelihood of offline assault, school-based prevention programs should include a module on recognizing predatory cues characteristic of adults trolling for young, vulnerable victims. Traits reflecting the more predatory interpersonal style associated with APD can be distinguished and youngsters can be instructed as to how to recognize them.

Legal policy deserves a more fine-grained analysis of who, among all those possessing CP, warrant deprivation of liberty. Research to date suggests that such an analysis can refine policy, with the aim of reducing considerably our false positive commitments, resulting not only in considerable cost savings but a more productive redirection of resources focused on primary prevention and interdiction by law enforcement to apprehend the most dangerous offenders.

We are challenged by a public health problem similar in scope to illicit drug abuse, requiring a campaign with similar vigor, tenacity, and sound science. The overarching policy that defines this campaign must begin with a clear demarcation of the boundaries defining the larger population of CP offenders, with taxonomic differentiation revealing those subgroups of the population that pose the greatest likelihood of harming children.

Limitations and Caveat

The first methodological limitation is our reliance solely on self-report. We intentionally did not request permission from the participants to access their criminal records in order to increase their confidence in the confidentiality of their responses on our questionnaire. The only "official" documentation that we had was of their index offense. We administered the PDS to check for patterns of desirable responding and impression management. We found no evidence of between group differences in PDS scores, and, mostly importantly, all group averages on both PDS scales and the PDS total score fell within the "normal" (nonclinical) range. Never-the-less, we could *not* confirm that (a) no members of our IO-only group did not have a hands-on child sexual offense, and (b) no

members of our CM-only group did not access CP on the Internet. Only the "dual" group (CM + IO) can we be confident as to the veridicality of their report regarding history of accessing CP on the Internet and hence their classification as a "dual" offender. We should point out, moreover, that our nonsignificant finding regarding impression management (IM) is not consistent with the recent report of Babchishin, Hanson, and Hermann (2011). Babchishin et al. (2011) reported that online offenders were lower in IM than offline offenders. Our online (IO-only) group had essentially the same mean score as our offline (CM) group (6.40, 6.87, respectively). It was our online "dual" group (IO + CM) that distinguished itself by having the lowest average IM score (5.70). Since the Babchishin et al. (2011) meta-analysis included methodologically diverse studies, it is difficult to determine whether their online group had samples with hands-on offenders (e.g., the authors indicate that some of their samples had "child luring" offenders).

The second clear limitation is that we did not have follow-up data, hence our findings may not be extrapolated to predictions of outcome. Absent outcome data, we can only fairly conclude that there are highly reliable existing group differences with regard to antisocial behavior and Internet preoccupation. Whether those group differences will predict outcome awaits replication with follow-up data.

A third limitation is sample size, especially the IO + CM group. Although our groups of IO ($n = 113$) and CM-only ($n = 176$) offenders were adequate, our CM + IO group ($n = 60$) was relatively small. Finally, as a fourth limitation, our IP-only was mixed with regard to Internet-related convictions. Although most were convicted only of possession-related offenses, some of the offenders in this sample may have been convicted of production and distribution-related offenses. Arguably, there may well be differences in risk factors between possession-limited and production/distribution offenders.

There is one important caveat concerning the gist of our discussion on the potential risk-relevance of our findings, particularly with respect to the pivotal role of antisociality. As important as antisociality may be in discriminating among CP offenders with regard to *likelihood* of committing a contact sexual offense, the notion of *likelihood* or *probability* is not implied in the language that defines a *sexually dangerous person* in the federal statute. The key statutory language involves "*serious difficulty* refraining" from child sexual abuse and limited case law affirms the centrality of volitional impairment, not likelihood (or risk), in assessing *serious difficulty*. Judge Boyle's (2011) Order in *U.S. v. Hall* noted, "Regarding the third and final factor for commitment under the Walsh Act, the Court finds that the Government has not proven by clear and convincing evidence that Respondent suffers from a volitional impairment such that he would have serious difficulty refraining from sexually violent conduct or child molestation if released" (Footnote 1, p. 3). Similarly, Judge Saris' Order in *U.S. v. Carta* noted, ". . . the government need not establish that the person it seeks to commit will, or even is likely to, reoffend. The analysis must focus on Carta's volitional control understood in relation to his mental illness" (p. 55).

It is the second prong of *serious mental illness, abnormality, or disorder* that is distinguished by volitional impairment, rendering *serious difficulty*. Pedophilia as a stand alone diagnosis does *not* imply volitional dysfunction. We would suggest, based on present findings, that the comorbid combination of pedophilia

with a history of antisocial behavior might reflect the volitional dysfunction that is probative of *serious difficulty*. A simplistic analysis might suggest that the diagnosis of pedophilia, based on CP, is associated with *serious difficulty* in the presence of a temporally stable pattern of antisocial behavior. Clearly, these linkages are nuanced and case-specific. Given that these terms (volitional impairment and *serious difficulty*) are not operationalized or even defined, it must ultimately be left to the courts to determine the applicability of the aforementioned analysis in a given case.

From a practical standpoint, the same risk protocols employed in state-level civil commitment proceedings, wherein the statutory language of *likely* comports more with probability, are also used routinely in the federal section 4248 proceedings, and it appears that these risk protocols have been accepted in the federal cases, by-and-large without question. The principal concern, as articulated earlier, are life table estimates derived from sex offender samples with higher base rates than CP-only offenders. At the least, if these estimates are reported in court, a clear warning should accompany the report. A secondary concern is broader, the appropriateness of scales designed to capture risk among hands-on sex offenders being applied to CP offenders, a significant proportion of whom have no known or reported hands-on victims. Witt's (2010) conclusion is well taken: "So far, no risk assessment instruments have been developed or standardized specifically for Internet child pornography offenders" (p. 15). Witt goes on to say, however, "I see no reason to expect that risk assessment *methods* acceptable for contact sex offenders would not also be acceptable for Internet child pornography users" (p. 15). The methods Witt referred to are actuarial and structured professional judgment. Again we concur and recommend, in line with the work of Wakeling and her colleagues (Wakeling et al., 2011), that scales tailored to CP offenders be developed using those methods.

Conclusion

CP offenders appear to comprise a subgroup of sex offenders characterized by taxonomic heterogeneity. As Seto has pointed out on multiple occasions, those apprehended with CP have a sexual interest, if not a sexual preference, for children, and, given prevailing DSM criteria, are frequently diagnosable as pedophiles. Indeed, this same point was noted in *U.S. v. Swarm*—Dr. Mills and Dr. Saleh correctly agreed with the Bureau of Prisons' memorandum that states, quote: "Paraphilias, including pedophilia, range in severity from a condition in which the individual experiences deviant sexual fantasies and urges, but did not engage in any victim contact, to individuals who act on their urges and fantasies . . ." (p. 21). Paradoxically, this group of pedophiles, as noted, is at low risk to commit hands-on sexual assaults of children. Those CP offenders that *do* sexually assault children are distinguished by a much higher degree of antisociality compared to those that refrain from such crimes. Moreover, those CP offenders that sexually assault children typically present as lower in educational and vocational achievement than those for refrain from such crimes. We found in the present study, e.g., that 21% of the Internet-only offenders were professionals, compared with only 8% of the "dual" offenders. Witt (2010) commented that "Studies have found that child pornography offenders are generally more edu-

cated, more intelligent, and have more stable work and relationship histories than contact sex offenders" (p. 4). Generally, these findings are consistent with the hypothesis that increased social and vocational competence inhibit the expression of antisocial behavior in IO-only offenders. By contrast, one could readily hypothesize that traits associated with Antisocial Personality Disorder (APA, 2000), such as deceitfulness, manipulativeness, impulsivity, aggressiveness, disregard for others, and impaired social emotions (remorse, guilt, and empathy), more likely found among offline offenders, are disinhibitory to committing a battery offense. Babchishin et al. (2011) concluded similarly, noting the presumptive importance of inhibitors and self-control in differentiating between online and offline offenders.

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(*Appendix follows*)

Appendix

Items for Antisocial Behavior and Internet Preoccupation Scales

Item	Description
	Antisocial behavior
1	Were you ever labeled "delinquent" by a government agency or some other agency?
2	Did you ever engage in non-sexual violent behaviors such as assault or armed robbery?
3	Did you have a history of fighting or bullying other kids?
4	Were you ever suspended or expelled from school?
5	Did you ever engage in any vandalism or property damage?
6	Did you ever intentionally set any fires?
7	Were you ever cruel to animals (not including insects)?
8	Were you ever charged or arrested for any offense that was alcohol related, such as driving offenses (OUI or DWI), domestic violence, etc.?
9	Were you ever charged or arrested for any offense that was drug related?
10	Have you ever been charged or arrested for a hands-on non-sexual offense, such as assault or robbery?
11	Have you ever been charged or arrested for a hands-off non-sexual offense, such as vandalism, or destruction of property?
12	Do you have a history of domestic violence?
13	Have you ever had a restraining order taken out against you?
	Internet preoccupation
1	Did you prefer the excitement of the Internet to intimacy with a partner?
2	Did you develop new relationships with other on-line users?
3	Did people in your life complain about the amount of time you spent on the Internet?
4	Did you snap, yell, or get annoyed if someone bothered you while you were on-line?
5	How often did you lose sleep because of late-night log-ins?
6	Did you choose to spend time on-line over going out (socializing) with others?
7	How often did you feel depressed, moody, or anxious when you were not online?
8	How often did those feelings (depressed, anxious) go away once you were back on-line?
9	On average, how many days in a week did you use the Internet to view pornography?
10	Did your work or grades suffer because of the amount of time you spent on-line?
11	Did you check your email before doing something else that you needed to do?
12	Did you block out unpleasant thoughts about your life by going on-line?
13	Did you trade images or files (any type of pornography) with others?

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