Attitudes Supportive of Sexual Offending Predict Recidivism: A Meta-Analysis

Leslie Helmus[1], R. Karl Hanson[2], Kelly M. Babchishin[1,2], and Ruth E. Mann[3]

Abstract

Attitudes supportive of sexual offending figure prominently in theories of sexual offending, as well as in contemporary assessment and treatment practices with sex offenders. Based on 46 samples ($n = 13,782$), this meta-analysis found that attitudes supportive of sexual offending had a small, yet reasonably consistent, relationship with sexual recidivism (Cohen's $d = .22$). To the extent that differences were observed, attitudes predicted recidivism better for child molesters than for rapists. There was no difference in the predictive accuracy of attitudes assessed at pretreatment or at posttreatment. The current study indicates that attitudes supportive of sexual offending is a psychologically meaningful risk factor for sex offenders. However, given that many different constructs have been designated as sex offender attitudes, further research and theory is needed to understand how these various constructs contribute to recidivism.

Although sexual recidivism rates are lower than the public generally believes (Harris & Hanson, 2004; Helmus, Hanson, Thornton, Babchishin, & Harris, 2012; Levenson, Brannon, Fortney, & Baker, 2007), the profound negative consequences of these offenses (e.g., Paolucci, Genuis, & Violato, 2001; Resick, 1993) motivate exceptional and unique efforts to manage sex offenders. To be effective, such efforts generally require an understanding of what motivates sexual offending (theory), how to identify offenders likely to reoffend (risk assessment), and how to intervene to reduce reoffending (treatment).

Mann, Hanson, and Thornton (2010) recently identified the psychologically meaningful risk factors that had the strongest predictive validity for sexual reoffending. They argued that for each of these risk factors, further work is needed to develop an understanding (both theoretical and empirical) of the nature of their relationship with sexual offending. Currently, there is still some inconsistency between what are known to be risk factors for recidivism and the most common goals of treatment programs (McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2010). The current study aims to enhance consistency of practice in relation to one often-misunderstood and poorly defined concept: offense-supportive attitudes.

In the general psychology literature, attitudes are usually defined as enduring evaluations of an object, person, or topic, and there is widespread acceptance that attitudes and behavior are related. The relationship, however, is not as simple or direct as is often assumed. Maio and Haddock (2010) noted that attitudes predict behavior better under some circumstances,

namely: (1) when the attitude measure and the behavior correspond closely; (2) when the behavior is straightforward; (3) when the attitude is self-serving or value-expressive; (4) when the attitude is strongly held; (5) for people who enjoy and value effortful cognitive activity, and who tend to constantly monitor the fit between their attitudes and their behavior; and (6) where the behavior is private. It is probable that some of these principles favor an attitude-offending link, but others would weaken such a link.

Defining Attitudes Supportive of Sexual Offending

The construct of "cognitive distortions" (Murphy, 1990) has been an integral part of the sexual offending literature. Indeed, cognitive distortions are key features in many theories on the causes of child molestation or rape (e.g., Finkelhor, 1984; Hall & Hirschman, 1991; Malamuth, Sockloskie, Koss, & Tanaka, 1991; Stinson, Sales, & Becker, 2008; Ward & Siegert, 2002). The term cognitive distortion originates from the cognitive

[1] Psychology Department, Carleton University, Ottawa, Ontario, Canada
[2] Public Safety Canada, Ottawa, Ontario, Canada
[3] National Offender Management Service, England and Wales, London, UK

Corresponding Author:
Leslie Helmus, Psychology Department, Carleton University, B550 Loeb building, 1125 Colonel By Drive, Ottawa, ON, Canada K1S 5B6
Email: lesliehelmus@yahoo.ca

therapy literature on depression where it was defined as "idiosyncratic thought content indicative of distorted or unrealistic conceptualizations" (Beck, 1963, p. 324). When adapted to sexual offending, the definition underwent a considerable shift to "an individual's internal processes, including the justifications, perceptions and judgments used by the sex offender to rationalize his child molestation behavior . . . [without] anxiety, guilt and loss of self-esteem . . ." (Abel et al., 1989, p. 137). Murphy shortened this definition to: "Self-statements made by offenders that allow them to deny, minimize, rationalize or justify their behavior" (Murphy, 1990, p. 332).

Cognitive distortions are common treatment targets (Marshall, Fernandez, Marshall, & Serran, 2006; Ó Ciardha & Gannon, 2011). The goal of changing thinking patterns is by definition a key component of cognitive-behavioral treatment programs, which is the dominant approach in the sex offender treatment field (McGrath et al., 2010) and the most effective (Hanson, Bourgon, Helmus, & Hodgson, 2009; Lösel & Schmucker, 2005). In a recent survey of North American treatment programs (McGrath et al., 2010), slightly over half of Canadian and U.S. programs reported targeting "irrational or rationalizing thought processes [used] to support or justify their sexually abusive behaviors" (p. 65).

Despite its pervasiveness in the sex offender literature, the concept of cognitive distortions is unacceptably fuzzy (e.g., Gannon, Ward, & Collie, 2007; Maruna & Mann, 2006; Ó Ciardha & Gannon, 2011). The term has been widely but inconsistently used to encompass a range of cognitive phenomena, including attitudes, beliefs, specific thoughts in specific situations (such as offending situations), and post hoc justifications for crimes. Some of these cognitive phenomena may have meaningfully different relationships with sexual offending. For example, to some extent, post hoc justification (e.g., excuse-making) is both normal and healthy (e.g., Marshall, Marshall, & Kingston, 2011). Crediting ourselves for our successes and blaming external forces for our failures is common (Zuckerman, 1979), and is generally referred to as the fundamental attribution error. It can also be healthy (Seligman, 1991); in particular, the belief that we are not fully to blame for our behavior can increase our sense of self-control (Wortman, 1976). It is, therefore, possible that among sex offenders, having pro-offense attitudes (i.e., believing sexual offenses are acceptable) is different from offering excuses, which may represent an attempt to distance oneself from the offending, thereby implicitly acknowledging the wrongfulness of the act (Hanson & Morton-Bourgon, 2005; Maruna & Mann, 2006). Relatedly, Blumenthal, Gudjonsson, and Burns (1999) distinguished between "enduring and situationally nonspecific cognitions" and "offense-specific cognitions." Whereas offense-specific cognitions focus on specific circumstances of the offense, enduring and situationally nonspecific cognitions focus on the general acceptability of the behavior.

Maruna and Mann (2006; see also Dean, Mann, Milner, & Maruna, 2007) concluded that some of these different phenomena, particularly post hoc justifications (or offense-specific cognitions), likely had little or no place in a causal theory of offending. In Maruna and Mann's (2006) view, the appropriate target for treatment programs should be more specifically defined as "offense-supportive attitudes and beliefs," which focus on the enduring, nonsituation-specific attitudes (Blumenthal, Gudjonsson, & Burns, 1999). However, it may also be the case that some apparent post hoc justifications or minimizations may be manifestations of deeper underlying offense-tolerant attitudes. For instance, Mann, Webster, Wakeling, and Marshall (2007) reported strong correlations between beliefs tolerant of child sexual abuse (beliefs that sexual contact between adults and children is harmless and that children provoke such contact) and situation-specific statements that denied harm to the offender's specific victim/victims and implied that the responsibility for the offense should be shared. Mann et al. concluded that beliefs that support offending will produce "surface cognitions" at the time of offending so that the offender believes his victim is consenting to, and is unharmed by, his sexual acts.

Offense-supportive attitudes appear to be an empirically supported risk factor for sexual recidivism. In a meta-analysis of nine studies (Hanson & Morton-Bourgon, 2004), the overall relationship with recidivism was defined as small but significant ($d = .22$, 95% confidence interval [CI] [.05, .38], $N = 1,617$). There was, however, significant variability between studies ($Q = 14.53$, $df = 8$, $p < .05$). The definitional complexities discussed above (and the aggregation of findings from rapists and child molesters) may account for the variation in findings about the relationship between offense-supportive attitudes and sexual recidivism.

Furthermore, as argued by Hermann and Nunes (2011), the definition of offense-supportive attitudes proposed by Maruna and Mann (2006) and adopted by Mann et al. (2010) departs in some, likely important, ways from the way in which attitudes are defined in the social psychology literature (e.g., Fazio, 2007). That is, Maruna and Mann's (2006) definition adopts some arguably value-laden terms such as "excuse and justify" rather than the more neutral "evaluation of" common in social psychology.

It is also important to remember that the attitudes of individuals are influenced and reinforced by the social groups to which they belong. Although sexual offending is generally considered repugnant, the attitudes contributing to this behavior are not uncommon. Studies of the general population of males find some endorsement of rape attitudes or interest in sexual aggression (Abbey, Wegner, Pierce, & Jacques-Tiura, 2012; Calhoun, Bernat, Clum, & Frame, 1997), as well as at least some interest in sex with children (Gannon & O'Connor, 2011). A recent American Psychological Association (APA) Task Force report cites numerous examples of the sexualization of children in the United States: sexualized toys, child beauty pageants, provocative clothing marketed to children, and the fashion industry more generally (APA Task Force on the Sexualization of Girls, 2007; for a similar discussion of child sexualization in Asian countries, see Kim, 2011). These examples highlight how

offense-supportive attitudes need to be considered within larger social contexts.

The Content of Offense-Supportive Attitudes in Sex Offenders

With general offenders, procriminal attitudes (i.e., enduring positive evaluations of criminal behavior) are one of the primary risk factors for offending and reoffending (Andrews & Bonta, 2010). With sex offenders, studies of offense-related cognitions have often been compromised by overly broad definitions, as discussed above, but have nonetheless offered some important insights into the content of offense-supportive attitudes.

For child molesters, Mann and colleagues (2007) identified two distinct factors underlying their offense-supportive beliefs: the belief that sex with children is harmless and the belief that some children are sexually provocative. These factors overlap with the implicit theories that Ward and Keenan (1999) labeled "nature of harm" and "children as sexual objects." In a meta-analysis, Whitaker et al. (2008) found that child molesters endorsed more of these offense-supportive attitudes than did nonsex offenders or nonoffenders (moderate effect sizes for both comparisons). There has been little research synthesis on whether these child molester attitudes distinguish between sexual recidivists and nonrecidivists. Hanson and Morton-Bourgon (2004) found that the specific category of child molester attitudes did not predict recidivism ($d = .09$, 95% CI [$-.16$, .33]), though this was based on only four studies ($n = 832$).

Offense-supportive beliefs among rapists are sometimes called rape myths. Although there is considerable variability in how rape myths are defined in the literature (Lonsway & Fitzgerald, 1994), these attitudes may include statements that women who get raped probably deserved it, that they may have asked for it by the way they dressed, or that it is a wife's duty to have sex whenever her husband wants it (Bumby, 1996). Similar to child molester attitudes, rape attitudes distinguish between rapists and nonsex offenders (e.g., Bumby, 1996; Marolla & Scully, 1986). There is less research, however, on the extent to which rape attitudes distinguish between recidivists and nonrecidivists (e.g., Hanson & Morton-Bourgon's [2004] meta-analysis did not have sufficient findings in this category).

Although there are obvious differences in the content of offense-supportive attitudes among rapists and child molesters, there is likely overlap as well. For example, both types of offenders may believe their offenses are not harmful as long as they are not overly violent (Bumby, 1996; Ward & Keenan, 1999). Similarly, Pemberton and Wakeling (2009) found evidence of sexual entitlement attitudes (e.g., sexual needs must be fulfilled, regardless of whether a willing partner is available) in both rapists and child molesters. Child molester attitudes can distinguish between rapists and child molesters, but rape attitudes sometimes do not (e.g., Blumenthal et al., 1999; Pithers, 1994), suggesting that rape attitudes may be applicable to child molesters, but not necessarily the reverse.

Measurement

Offense-supportive attitudes have generally been measured through self-report instruments, such as the Abel-Becker Cognitions scale (Abel et al., 1989), Bumby RAPE and MOLEST scales (Bumby, 1996), Burt's Rape Myths Acceptance scale (Burt, 1980), Hanson's Sex with Children scale (Hanson, Gizzarelli, & Scott, 1994), and the Sex with Children is Justifiable scale (Mann, Webster, Wakeling, & Marshall, 2007). Limitations of self-report instruments include their susceptibility to impression management due to their transparency (e.g., Gannon, Keown, & Polaschek, 2007), and the inclusion of items expressing post hoc justifications rather than being strictly limited to attitude statements. For example, a factor analysis of the Bumby Rape scale (Bumby, 1996) found evidence of two factors: Excusing Rape and Justifying Rape, with the Justifying Rape factor displaying a stronger relationship to risk of sexual recidivism than the Excusing Rape factor (Hermann, Babchishin, Nunes, Leth-Steensen, & Cortoni, 2012).

In addition to self-report questionnaires, items assessing attitudes supportive of sexual offending appear in several well-known risk assessment instruments, including the Violence Risk Scale–Sex Offender Version (Olver, Wong, Nicholaichuk, & Gordon, 2007) for adults, and the ERASOR for juveniles (Worling & Curwen, 2001). Such instruments assess attitudes through clinical ratings, generally informed by a multitude of sources (e.g., self-report, interviews, file review, behavioral observation). This reduces the problem of impression management but raises a new problem of reliance on and interpretation of observable behaviors (i.e., *expressions* of attitudes) as obviously the raters do not have access to the offender's internal belief system. Another limitation is that the ratings may also be influenced by other factors (e.g., sexual deviance).

Aims of the Current Study

The purpose of the current study is to update Hanson and Morton-Bourgon's (2004) meta-analysis and enhance our understanding of offense-supportive attitudes as a risk factor. An update of the previous meta-analysis is important because many more studies have been published since then, and more importantly, no moderator analyses were examined by Hanson and Morton-Bourgon (2004). Our first aim was to gain a better understanding of the conditions under which attitudes best predict recidivism (e.g., which measures have better predictive accuracy, in which settings, and for which groups of offenders?). Our second aim was to contribute to the theoretical understanding of the role of cognition in sexual offending by strengthening the evidence about the nature of the attitudes that have the strongest relationship with recidivism.

Throughout the article, we follow the work of Mann et al. (2010) and Blumenthal et al. (1999; both discussed earlier) by focusing on attitudes that support sexual offending in general as opposed to offense-specific excuse-making (e.g., post hoc justifications). We have chosen to adopt this definition for consistency with previous use in the sexual offending literature,

although we acknowledge the ways in which this definition departs from the conceptualization of attitudes in the social psychology literature.

Included in this definition (and the current meta-analysis) are child molester attitudes (e.g., children are not harmed by sex with adults), pro-rape attitudes (e.g., rape victims enjoy or deserve rape), sexual entitlement (e.g., sexual needs must be met), and general assessments of the immediate, emotional evaluation (valence) of sexual offending (e.g., sexual offending is fun). Although our intent was to restrict the review to non-situation-specific attitudes, it was often difficult to disentangle related cognitive constructs embedded in the various attitude measures. For example, we also included minimization of harm (e.g., the victim enjoyed the offense, or was not hurt by it) and victim-blaming (e.g., the victim initiated the contact). Although these are more situation-specific attributions, they were entrenched in many scales and, following Mann et al. (2007), may be manifestations of more general attitudes about the appropriateness of sexual offending (e.g., that children are sexually provocative and are not harmed by sexual offending). Note that measures assessing minimization of the act itself (e.g., absolute denial or denying penetration) were excluded, as were measures of general procriminal attitudes, grievance/ hostile thinking, hostility toward women, emotional identification with children, and sexual deviance.

Method

Sample

To be included, studies had to have a sample of sex offenders, a measure of attitudes (matching the definition described above and assessed before recidivism), and a follow-up period assessing either sexual, violent (including sexual), or any recidivism. We also required sufficient information to calculate the number of recidivists, nonrecidivists, and the effect size (Cohen's *d*). All studies required a total sample size of at least 10; additionally, continuous attitudes measures required at least one recidivist, and dichotomous predictors required at least five cases for all marginal totals.

Computer searches of PsychINFO, Criminal Justice Abstracts, Violence and Abuse Abstracts, Web of Science, National Criminal Justice Reference Service, Digital Dissertations, and UK Dissertations were conducted with the following key terms: child molest*, exhibitionis*, frotteur*, incest*, indecent exposure, paraphili*, pedophil*, paedophil*, rape*, rapist*, sex* offen*, sex* assault*, sex* devian*, recid*, reoffen*, failure, predict*, risk assess*, relaps*, risk factor*, attitude*, value*, belief*, cognit*, justif*, minimiz*, pro-rape*, prorape*, pro-crim*, procrim*, distort*, entitle*, attribut*, rape myth*, victim blam*, pro-paed*, propaed*, pro-ped*, proped*, neutral*. In the PsychINFO searches, the following methodology types were excluded: clinical case study, nonclinical case study, and qualitative. After most studies were identified, a list of the attitudes measures was compiled and the electronic databases were searched again to identify studies using those measures.

Additional search methods included reviewing conference programs, journals not included in the major electronic databases (e.g., *Sexual Offender Treatment*), Online First articles, and twice contacting the Listserv of the Association for the Treatment of Sexual Abusers (ATSA). Studies were screened in if we believed the relevant data were available, and we subsequently contacted the authors to obtain the necessary information to calculate the effect size. As of December 31, 2011, our search yielded 45 eligible studies. When the same data set was used in several articles, we combined them into one study. Additionally, one group of studies from the same setting (the Royal Ottawa Hospital) provided information on two distinct samples. This resulted in 46 eligible samples from 45 studies.

Table 1 provides basic descriptive information for each study. The total sample size was 13,782 and ranged from 46 to 2,769 ($M = 324.8$, $SD = 492.1$, $Mdn = 181$). Studies were produced between 1986 and 2011, with a median of 2007. One study was in French (Quesnel, 2007)[1] and one was in German (Dahle, Biederman, Gallasch-Nemitz, & Janka, 2010)[2]; all others were in English. In the majority of studies ($k = 34$; 76%), effect sizes were coded from additional information sent by researchers, or from raw data sets provided by the authors. Only seven studies (16%) were considered published[3]. Only three studies had an explicit purpose of identifying offense-supportive attitudes as a risk factor.

Seven studies included at least some offenders who were not formally involved in the criminal justice system. All samples had male offenders only with the exception of one study (Worling, Bookalam, & Litteljohn, 2012), where approximately 2.6% of the sample was female. Fifteen studies were samples of juveniles (M age $= 15.4$ years, $SD = 1.3$); 29 were either exclusively or primarily adults (M age $= 39.4$ years, $SD = 3.8$; $k = 2$ with missing information). Combined, the unweighted average age of offenders in the studies was 30.7 years old ($SD = 11.9$, $k = 43$). Offenders were primarily Caucasian in 35 studies of the 38 with ethnicity information; 3 studies from the United States had primarily non-Caucasian offenders (2 Hispanic and 1 Black).

Seven studies used a fixed follow-up period, and six studies used street time (i.e., time spent in custody for nonsexual offenses were deducted from the length of follow-up). The earliest year that offenders were released was 1977 (unknown in 8 studies) and the latest year of release was 2008 (unknown in 13 studies). Most studies (24 of 32) collected recidivism information in 2000 or later ($Mdn = 2004$; ranging from 1983 to 2010). In addition, most studies ($k = 24$) used arrests or charges as the recidivism outcome, followed by convictions ($k = 15$); four studies used other criteria, and two studies did not specify the recidivism criteria. The studies that used "other" criteria included self-report of a new offense (Gore, 1988), reimprisonment (Redondo, Luque, Navarro, & Martínez, 2007), documented allegations (Webb, Craissati, & Keen, 2007), and a combination of charges, self-report, and other reports of reoffense (Martinez, Flores, & Rosenfeld, 2007).

Of the 41 studies with available information, 15 used more than one source of recidivism information (up to a maximum of

Table 1. Descriptive Information for Included Studies

Study #	Study	N	Country	Mean Follow-Up (Years)	Age Group	Setting	Type of Sex Offenders
1	Quesnel, 2007	585	Canada	4.6	Adults	Routine prison	Mixed
2	Hudson, Wales, Bakker, & Ward, 2002	216	New Zealand	4.3	Adults	Prison treatment	Child molesters
3	Dempster & Hart, 2002	71	Canada	5.1	Adults	Routine prison	Mixed
4	Firestone et al., 1999	482	Canada	8.9	Adults	Psychiatric	Child molesters and noncontact
5	Morton, 2003	85	Canada	5.7	Juveniles	Community	Mixed
6	Proulx et al., 1997	46	Canada	5.4	Adults	Treatment prison/ community	Mixed
7	Hanson, 2002	202	Canada	2.3	Adults	Routine community	Mixed
8	Saum, 2007	175	U.S.	–	Adults	Community treatment	Mixed
9	Smith & Monastersky, 1986	119	U.S.	2.4	Juveniles	Community treatment	Mixed
10	Schram, Milloy, & Rowe, 1991	197	U.S.	6.2	Juveniles	Treatment prison/ community	Mixed
11	Gore, 1988	101	U.S.	1.0	Adults	Community treatment	Child molesters
12	Marques, Wiederanders, Day, Nelson, & van Ommeren, 2005	168	U.S.	4.2	Adults	Psychiatric treatment	Mixed
13	Santman, 1998	95	U.S.	5.0	Juveniles	Prison & Community	Mixed
14	Carpentier & Proulx, 2002	313	Canada	8.1	Juveniles	Community psychiatric treatment	Mixed
15	Hanson, Harris, Scott, & Helmus, 2007	617	Canada	3.4	Adults	Routine community	Mixed
16	McGrath, Lasher, & Cumming, 2011	601	U.S.	3.0	Adults	Community treatment	Mixed
17	Olver et al., 2007	321	Canada	10.0	Adults	High-intensity prison treatment	Mixed
18	Craig, Thornton, Beech, & Browne, 2007	76	U.K.	5.0	Mostly adults	Community treatment	Mixed
19	Lindsay, Elliot, & Astell, 2004	52	U.K.	–	Adults	Treatment	Mixed
20	Looman, 2010	218	Canada	5.4	Adults	High-intensity prison treatment	Mixed
21	Wakeling, Freemantle, Beech, & Elliott, 2011	2,769	U.K.	4.2	Mostly adults	Prison treatment	Mixed
22	Barnett, Wakeling, Mandeville-Norden, & Rakestrow, 2012	1,691	U.K.	3.0	Adults	Community treatment	Mixed
23	Willis & Grace, 2009	442	New Zealand	10.5	Adults	Prison treatment	Child molesters
24	Skowron, 2005	110	Canada	3.9	Juveniles	High-risk community	Mixed
25	Caldwell, Ziemke, & Vitacco, 2008	91	U.S.	5.9	Juveniles	Prison treatment	Mixed
26	Martinez, Flores, & Rosenfeld, 2007	60	U.S.	–	Juveniles	Community treatment	Mixed
27	Hendriks & Bijleveld, 2008	94	Netherlands	9.0	Juveniles	Prison treatment	Mixed
28	Edwards et al., 2005	47	U.K.	3.5	Juveniles	Prison treatment	Mixed
29	Lussier, Gress, Deslauriers-Varin, & Amirault, 2012	143	Canada	1.6	Adults	High-risk community	Mixed
30	Rettenberger, Boer, & Eher, 2011	319	Austria	4.4	Mostly adults	Prison treatment	Mixed
31	Worling et al., 2012	191	Canada	3.7	Juveniles	Community	Mixed
32	Barbaree, Langton, & Boer, 2008	468	Canada	5.6	Adults	Prison treatment	Mixed
33	Redondo et al., 2007	163	Switzerland	3.7	Adults	Routine prison	Mixed

Table 1. (continued)

Study #	Study	N	Country	Mean Follow-Up (Years)	Age Group	Setting	Type of Sex Offenders
34	de Vogel, de Rutier, van Beek, & Mead, 2004	121	Netherlands	11.7	–	High-risk psychiatric	Mixed
35	Viljoen, Elkovitch, Scalora, & Ullman, 2009	181	U.S.	7.2	Juveniles	Prison treatment	Mixed
36	Allam, 2000	135	U.K.	10.0	Adults	Community treatment	Mixed
37	Beckett, Beech, Fisher, & Fordham, 1994	49	U.K.	10.0	Adults	Community treatment	Child molesters
38	Beggs & Grace, 2010	218	New Zealand	12.2	Adults	Prison treatment	Child molesters
39	Smid & van Beek, 2010	139	Netherlands	–	Adults	Community	Child molesters
40	Dahle et al., 2010	612	Germany	5.0	Mostly adults	Routine prison/ community	Mixed
41	Rajlic & Gretton, 2010	250	Canada	6.6	Juveniles	Community treatment	Mixed
42	Webb et al., 2007	186	U.K.	1.5	Adults	Community treatment	Child molesters
43	Aebi, Plattner, Steinhauen, & Bessler, 2011	223	Switzerland	4.3	Juveniles	Routine community	Mixed
44	Gray, Abel, & Garby, 2011	284	U.S.	–	Adults	Treatment	Child molesters
45	Martinez, 2011	56	U.S.	5.0	Juveniles	Prison treatment	Mixed

Note. In Study 4 (Firestone et al., 1999), the child molesters and noncontact offenders were coded as two separate samples. In Study 42 (Webb et al., 2007), the sample was coded as child molesters, but roughly half the sample was child pornography offenders. In Study 19 (Lindsay et al., 2004), all offenders were developmentally delayed. The sample size is from the overall attitude analysis for sexual recidivism, (Total $N = 13,782$).

4 sources). National criminal records was the most common recidivism source ($k = 27$), followed by local criminal records ($k = 16$), institutional records ($k = 5$), collateral informants ($k = 5$), and self-report ($k = 2$; note that the total k exceeds 41 because studies could use multiple types of information).

Coding Procedure

Each study was coded with a standard list of variables and explicit coding rules (available upon request). The first and third author coded all studies separately and generated consensus ratings. Ratings had two components: information describing the study (one form per study) and effect size information (one form per effect size). In addition to coding a separate effect size for each attitudes measure, we created categories for child molester attitudes, rape attitudes, and generic sexual offending attitudes. Child molester attitudes included scales or measures designed to assess attitudes specific to sexual activity with children (e.g., Bumby's [1996] Molest Scale, or Abel et al.'s [1989] scale assessing cognitive distortions of child molesters). Rape attitudes were assessments of attitudes specific to sexual assault against adults (e.g., Burt's [1980] Rape Myths Acceptance Scale). Measures of generic sexual offending attitudes included assessments that were not specific to any sex offender type (e.g., offense-supportive attitudes items on risk scales such as the SVR-20 [Boer, Hart, Kropp, & Webster, 1997] or JSOAP-II [Prentky & Righthand, 2003]) or attitudes about sexual entitlement. Finally, we coded an effect size for an overall

category of attitudes. Consequently, a single finding was coded in three categories: as the specific variable (e.g., Burt's Rape Myths), as a general category (e.g., rape attitude), and, most broadly, as an overall attitude.

If a study had multiple attitudes measures, the higher-order categories were coded as the average of all measures in that category, weighted by sample size and using the average recidivism rate. This yielded a total of 765 effect sizes: 338 for sexual recidivism, 236 for violent recidivism, and 191 for any recidivism. If both pre- and posttreatment information were available, effect sizes were computed for both. In addition to calculating the effect sizes for the overall sample, we coded effect sizes for each offender type subgroup (e.g., child molesters, rapists, noncontact offenders). In any given analysis, all samples were unique.

Interrater reliability. Interrater reliability analyses were based on 12 studies. The raters coded 264 common effect sizes, with high levels of agreement (absolute intraclass correlation [ICC] based on single rater = .98). Fifteen effect sizes were identified by one rater but not the other. For the other variables coded, ICC values for the continuous variables ($n = 14$) ranged from $-.12$ to 1.0 (median ICC = .99). Interrater reliability was unreasonably low for minimum follow-up time and, hence, this variable was not analyzed. Excluding this variable, ICC values ranged from .92 to 1.0. For categorical variables ($n = 41$), percentage agreement ranged from 46.2% to 100% (median = 91.7%). For the subset of categorical variables where it was possible to compute Cohen's κ ($n = 25$), reliability ranged from .03 to 1.00 (median

κ = .96). Two categorical variables had unsatisfactory interrater reliability and were not used in any analyses: whether the attitudes measure was standardized (κ = .03, agreement = 48.5%) and the victim age criterion of child molesters (κ = .03, agreement = 46.2%). Excluding these variables, κ values ranged from .60 to 1.00 and percentage agreement ranged from 66.7% to 100% (median = 91.7%).

Overview of Analyses

Index of predictive accuracy. The effect size indicator used to summarize the relationship between attitudes and recidivism was the standardized mean difference (Cohen's d; Cohen, 1988). In the current meta-analysis, Cohen's d measured the difference in attitude scores between recidivists and nonrecidivists, relative to how much recidivists differ from each other, and how much nonrecidivists differ from each other. As a heuristic for interpretation, Cohen (1988) suggested that a d of .2 is small, .5 is moderate, and .8 is large. These are rough guidelines, however, and in some contexts it is possible that a "small" effect may be meaningful. Mann et al. (2010) stated that a d of .15 is sufficient to be considered a meaningful risk factor for sexual recidivism (i.e., large enough to be relevant to policy makers and treatment providers). The strongest single risk factors for sexual recidivism typically have ds between .15 and .35 (Hanson & Morton-Bourgon, 2005).

Aggregation of findings. Findings across studies were aggregated using fixed-effect and random-effects meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2009). Whereas the results of fixed-effect meta-analysis are conceptually restricted to the particular set of studies included in the meta-analysis, random-effects meta-analysis estimates effects for the population of which the current sample of studies is a part. More specifically, random-effects meta-analysis incorporates variability across samples into the error term, whereas fixed-effect meta-analysis does not. When variability across studies is low (Q < degrees of freedom), random-effects and fixed-effect meta-analysis produce identical results. As the variability across studies increases, the confidence intervals for random-effects meta-analysis exceed the fixed-effect estimates, and the random-effects method gives more weight to smaller studies. Conceptually, as variability across studies approaches infinity, the random-effects mean approaches the unweighted average.

In both methods, studies are weighted by the inverse of the variance of the effect size. The variance of individual d values takes into account both the sample size and the split in sample size between the two groups (i.e., the recidivism rate). Given identical recidivism rates, larger studies are given more weight than smaller studies. It is, however, possible for a study with a large total sample to be given less weight than a smaller study with a higher recidivism rate.

To test the variability of findings across studies, we used Cochran's Q statistic and the I^2 statistic (Borenstein et al., 2009). The Q statistic provides a significance test for variability, whereas the I^2 is a measure of effect size for variability and

can, therefore, be compared across analyses. The I^2 statistic describes the proportion of the overall variability (the Q) that is beyond what you would expect by chance from sampling error (i.e., the proportion of variability that can be considered "true" differences; Borenstein et al., 2009). Specifically, I^2 is $(Q - df)/Q$. For easier interpretation, I^2 was reported as a percentage. As a rough heuristic, I^2 values of 25%, 50%, and 75% can be considered low, moderate, and high variability, respectively (Higgins, Thompson, Deeks, & Altman, 2003).

Following Hanson and Morton-Bourgon (2009), a finding was considered an outlier if it was the single extreme value and accounted for more than 50% of the total variance (Q). When outliers were identified, results are presented both with and without the outlier, with the main interpretation focusing on the findings with the outlier removed. The exception is that if an analysis of three or fewer studies identified one study as an outlier, it was not removed (with so few studies, identifying outliers becomes unstable).

Meta-analyses can be strongly influenced not only by outliers but also by unusually large sample sizes. Particularly in moderator analyses (when k decreases), the effects of other studies can largely disappear in the presence of a particularly large sample. In the overall analysis ($k = 46$), the fixed-effect weights of the individual studies (the inverse of the variance) varied between 3.65 and 167.41, with a median value of 17.3. The largest weight (167.41) came from an effect with a sample size of 3,273 (and a recidivism rate of 5.4%) and had more than twice the weight of the next largest study (and 46 times the weight of the study with the smallest weight). To reduce the influence of this study, we artificially decreased the overall sample size to 1,691 (retaining the same recidivism rate), so that this study was given only 10% more weight than the next largest study.

Moderator analyses. Given that the overall variability in effect sizes was fairly low, examination of moderators had low statistical power. As such, moderator analyses used fixed-effect tests of the Q_{between}, which measures variability that can be explained by levels of that moderator. Linear moderators (e.g., year of study) were tested using meta-regression (Borenstein et al., 2009). Preliminary analyses of offender type differences were conducted using Q_{between}, although this method does not take into account that offender type is a within-study moderator. To acknowledge the matched samples, we calculated a new effect size (difference in d) by subtracting the effect size of rapists from the effect size of child molesters in the four studies with data on both subgroups. The variance of this effect size was the sum of the variance of each d, plus their covariance, which was defined as $2 \times r \times SD_{\text{rapists}} \times SD_{\text{child molesters}}$, where r is the correlation between the two effect sizes. If the 95% confidence interval for the difference between the ds does not include zero, then the difference is statistically significant.

Results

The unweighted sexual recidivism rate was 9.2% (1,271/13,782), with an average follow-up of 5.6 years ($SD = 2.84$,
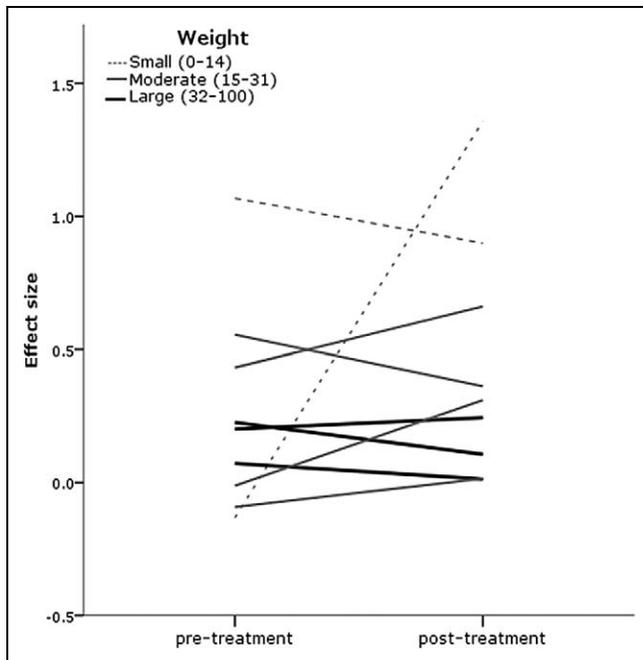
Figure 1. The relationship between sexual recidivism and attitudes measured at pretreatment and at posttreatment (weight = 1/variance).

ranging between 1 year and 12.2 years; follow-up information unavailable for five studies). The unweighted rate of violent recidivism (including sexual) was 13.5% (1,323/9,778) and the rate of any recidivism (including violent) was 34.9% (2,054/5,888).

In the nine studies with both pre- and posttreatment information, effect sizes were extremely similar and showed similar variability across studies (for pretreatment, fixed-effect d = .192, 95% CI [.086, .298], random-effects d = .213, 95% CI [.055, .371], Q = 14.64, I^2 = 45.4, n = 6,270; for posttreatment, fixed-effect d = .187, 95% CI [.076, .298], random-effects d = .241, 95% CI [.076, .406], Q = 13.74, I^2 = 41.8, n = 6,026). There also appeared to be no within-study patterns of change from pre- to posttreatment; in four studies, effect sizes decreased in the posttreatment analyses, whereas they increased in five studies (see Figure 1). In the remainder of the analyses, pretreatment effect sizes were used when both were available because pretreatment data were more commonly reported (in 29 studies compared to 10 for posttreatment) and had slightly larger sample sizes.

Attitudes supportive of sexual offending showed a small and statistically significant relationship with sexual recidivism (k = 46; n = 13,782; fixed-effect d of .225, 95% CI [.164, .286]; random-effects d = .217, 95% CI of [.141, .293]; see Table 2). The variability across studies approached significance (Q = 61.58, df = 45, p = .051) and was small (I^2 = 26.9), indicating that about 27% of the observed variability was beyond what would be expected by chance. Table 2 presents effect sizes for the prediction of sexual, violent, and any recidivism for all attitudes, as well as broken down by the categories of rape attitudes, child molester attitudes, and generic sexual offending attitudes.

Child molester attitudes and generic sexual offending attitudes both significantly predicted sexual recidivism in both fixed-effect and random-effects analyses, whereas rape attitudes were significant in fixed-effect analyses only. Attitudes supportive of sexual offending were also found to significantly predict violent and any recidivism, although with somewhat lower effect sizes than the sexual recidivism analyses. For both violent and any recidivism, the effect sizes for child molester attitudes hovered around null, whereas both generic sexual offending attitudes and rape attitudes were significant predictors (with the exception that rape attitudes were not a significant predictor of violent recidivism in the random-effects analyses).

Offender Type

Table 3 examines the association between sexual recidivism and attitudes among different offender types (rapists, child molesters, mixed). All types of attitudes examined in this study (i.e., all attitudes supportive of sex offending, rape attitudes, child molester attitudes, and generic sexual offending attitudes) significantly predicted recidivism for child molesters (effect sizes ranged between .173 and .374), with the exception that rape attitudes were not significant in the random-effect analyses. For rapists, there were only four studies available (ns range between 458 and 578). All effect sizes were nonsignificant and appeared notably lower than for child molesters (ranging between .007 and .145), with the exception that they were only slightly lower for rape attitudes. For samples where we could not separate rapists and child molesters, overall and generic attitudes were significant predictors, and there were too few studies in the other categories to draw meaningful conclusions. From the $Q_{Between}$ analyses, offender type was a significant moderator for child molester attitudes; specifically, these attitudes predicted well for child molesters, not at all for the three samples of mixed offenders, and appeared protective for rapists (though nonsignificant).

When examining overall attitudes for the four studies with both rapist and child molester subsamples (N = 1,065), there was a consistent within-study decrease in predictive accuracy for rapists compared to child molesters. The average weighted effect size for the difference between the ds was .234, meaning that on average, the Cohen's d for child molesters was .234 higher than for rapists (95% CI [.142, .325]). Additionally, the variability was less than what would be expected by chance (Q = 1.42, I^2 = 0.0%), indicating that the reduced predictive accuracy for rapists was stable across the four samples (506 rapists; 559 child molesters).

Individual Attitudes Measures

Table 4 presents effect sizes for individual attitudes measures with at least three studies. All attitude measures were designed for sex offenders, with the exception of Burt's Rape Myths Acceptance scale, which was designed for college males (Burt, 1980). For measures designed for specific types

Table 2. Effect Sizes Based on Attitude Type and Recidivism Type

	Fixed-Effect		Random-Effects					
	d	95% CI	d	95% CI	Q	I^2 (%)	k	n
Sexual recidivism								
All attitudes	.225	[.164, .286]	.217	[.141, .293]	61.58[a]	26.9	46	13,782
Rape attitudes	.195	[.066, .324]	.162	[−.050, .374]	24.26**	58.8	11	2,908
Child molester attitudes	.168	[.077, .258]	.179	[.046, .312]	33.66**	46.5	19	8,192
Generic sexual offending attitudes	.250	[.182, .317]	.232	[.146, .319]	49.92*	29.9	36	10,678
Violent recidivism								
All attitudes	.111	[.050, .172]	.112	[.044, .181]	26.87	14.4	24	9,778
Rape attitudes	.179	[.055, .303]	.116	[−.079, .311]	12.34	51.4	7	1,987
Child molester attitudes	−.027	[−.108, .053]	−.009	[−.156, .138]	32.68**	63.3	13	6,810
Generic sexual offending attitudes	.193	[.128, .258]	.175	[.087, .263]	27.10	33.6	19	7,827
Any recidivism								
All attitudes	.167	[.110, .224]	.174	[.100, .247]	36.56*	34.4	25	5,888
Rape attitudes	.163	[.054, .272]	.158	[.041, .275]	5.45	8.3	6	1,821
Child molester attitudes	−.046	[−.141, .048]	.003	[−.181, .188]	23.10**	69.7	8	2,371
Generic sexual offending attitudes	.199	[.137, .262]	.200	[.114, .287]	34.53*	42.1	21	4,798

[a]$p = .051$.
*$p < .05$. **$p < .01$.

of sex offenders (e.g., child molesters), effect sizes were also presented for that subgroup, provided that there were at least three samples available. The only measures with significant predictive accuracy in both fixed-effect and random-effects analyses were the Abel-Becker Cognitions Scale (restricted to child molester samples; Abel et al., 1989), the STABLE-2000 child molester attitudes item (restricted to child molesters; Hanson, Harris, Scott, & Helmus, 2007) and the SVR-20 item #18 ("attitudes that support or condone sex offenses," Boer et al., 1997). The STABLE-2000 rape attitudes item and child molester attitudes item were also significant predictors in the fixed-effect analyses of all offender types. The remaining attitudes measures had nonsignificant effect sizes ranging between −.014 and .460, with most effect sizes less than .20.

Moderator Analyses

Table 5 summarizes fixed-effect analyses of categorical moderator variables, examining the overall attitudes category for the prediction of sexual recidivism. No significant differences were found for the following moderator variables: published versus unpublished, location (institution vs. community), setting (corrections vs. correctional treatment setting vs. psychiatric setting), whether the sample was preselected as needing treatment or being high risk/need, treatment status, age (adults vs. juveniles), recidivism criteria (arrests/charges vs. convictions), number of recidivism sources used, whether the authors were validating their own scale, and the adversarial nature of the setting where attitudes were measured. For the continuous moderator variables tested using fixed-effect meta-regression, there were no significant effects based on the year in which the study was produced ($b_1 = .00379$, $SE = .00596$, $Z = 0.636$, $p =$

.525, $k = 46$), sample size ($b_1 = −.0000213$, $SE = .0000415$, $Z = −0.513$, $p < .608$, $k = 46$), or the average length of follow-up ($b_1 = .00123$, $SE = .000949$, $Z = 1.296$, $p = .195$, $k = 41$).

Prospective studies had significantly smaller effects ($d = .139$) than retrospective follow-up studies ($d = .308$). The type of attitudes measure approached significance ($Q_{between} = 5.78$, $df = 2$, $p = .056$), with the highest effect sizes found for items from risk scales ($d = .290$), the lowest effect sizes for self-report questionnaires ($d = .129$), and intermediate effect sizes found for clinical/treatment ratings of offense-supportive attitudes ($d = .213$). Excluding the clinical/treatment ratings, there was a significant difference between risk assessment items and self-report questionnaires ($Q_{between} = 5.77$, $df = 1$, $p = .016$), though admittedly this was a post hoc analysis. There was also a significant difference for a variable we called "mismatch." Specifically, effect sizes were higher for studies where the measure of attitudes matched the sample to which it was being applied (e.g., child molester attitudes measured in a sample of child molesters; $d = .281$) compared to studies where there was a mismatch ($d = .147$; $Q_{between} = 4.53$, $df = 1$, $p = .033$).

Discussion

Consistent with most major theories and with previous meta-analyses (e.g., Hanson & Morton-Bourgon, 2004), we found that attitudes supportive of sexual offending predicted sexual recidivism (key findings summarized in Table 6). The effect was not large (average Cohen's d of .22), but it was sufficiently consistent to be considered reliable, demonstrating relatively little variability across samples and settings ($I^2 = 27\%$). To the extent that differences were observed, attitudes measures worked better for child molesters than for rapists. Both rape

Table 3. Effect Sizes for Sexual Recidivism Based on Type of Offender

	Fixed-Effect		Random-Effects						Studies
	d	95% CI	d	95% CI	Q	I^2 (%)	k	n	
All attitudes	.229	[.165, .293]	.221	[.145, .297]	61.16	21.5	49	12,058	
Rapists	.007	[−.297, .311]	.007	[−.297, .311]	0.64	0.0	4	506	15,20,29,30
Child molesters	.238	[.132, .345]	.263	[.129, .396]	20.51	26.8	16	5,819	2,4.14,8,11,15,20,21,22,23,29,30,37,38,39,42,44
Combined/Mixed	.240	[.158, .323]	.214	[.112, .316]	37.87	26.1	29	5,733	1,3,5,6,7,9,10,12,13,14,16,17,18,19,24, 25,26,27,28,31,32,33,34,35,36,40,41,43,45
$Q_{between}$					2.14				
Rape attitudes	.166	[.022, .310]	.151	[−.059, .360]	24.00*	45.8	14	2,542	
Rapists	.145	[−.173, .464]	.145	[−.173, .464]	1.47	0.0	4	460	15,20,29,30
Child molesters	.198	[.017, .378]	.173	[−.171, .517]	22.08**	68.3	8	1,471	2,8,15,20,23,29,30,42
Combined/Mixed	.068	[−.291, .427]	.068	[−.291, .427]	0.02	0.0	2	611	1,6
$Q_{between}$					0.43				
CM attitudes	.167	[.069, .265]	.177	[.044, .311]	33.32*	37.0	22	6,820	
Rapists	−.230	[−.549, .088]	−.230	[−.549, .088]	0.54	0.0	4	458	15,20,29,30
Child molesters	.252	[.141, .364]	.291	[.141, .442]	21.56	35.1	15	5,576	2,4.14,8,11,15,20,21,22,23,29,30,37,39,42,44
Combined/Mixed	−.058	[−.332, .216]	−.058	[−.332, .216]	0.37	0.0	3	786	1,6,36
$Q_{between}$					10.85**				
Generic attitudes	.260	[.191, .328]	.246	[.163, .328]	48.90	20.2	40	10,369	
Rapists	.071	[−.210, .353]	.071	[−.210, .353]	0.88	0.0	4	578	15,20,29,30
Child molesters	.374	[.190, .558]	.372	[.157, .586]	8.84	20.8	8	1,181	8,15,20,29,30,37,38,42
Combined/Mixed	.254	[.177, .330]	.233	[.137, .330]	35.96	24.9	28	8,610	3,5,7,9,10,12,13,14,16,17,18,19,21,24,25, 26,27,28,31,32,33,34,35,36, 40,41,43,45
$Q_{between}$					3.22				

Note. CM = Child molester. k is larger than previous analyses because data were separated by offender type if the data were nonoverlapping.
*p < .05. **p < .01.

Table 4. Effect Sizes for Sexual Recidivism Based on Attitudes Measure

	Fixed-Effect		Random-Effects			I^2			
	d	95% CI	d	95% CI	Q	(%)	k	n	Studies
Rape									
Burt Rape Myths scale	.193	[−.050, .437]	.252	[−.266, .770]	11.73**	74.4	4	763	2,4.5,6,23
STABLE-2000 rape attitudes	.219	[.043, .395]	.105	[−.226, .436]	11.94*	66.5	5	1,385	8,15,29,30,42
Rapists only	.169	[−.195, .533]	.169	[−.195, .533]	1.40	0.0	3	365	15,29,30
Child molester attitudes									
Abel-Becker scale	.145	[−.032, .321]	.145	[−.032, .321]	2.64	0.0	7	1,637	2,4.14,4.5,6,11,23,44
Child molesters only	.197	[.002, .393]	.197	[.002, .393]	0.83	0.0	5	1,417	2,4.14,11,23,44
Beckett scale	.154	[−.017, .326]	.328	[−.125, .782]	13.83**	78.3	4	3,180	21,22,36,37
Without outlier	.078	[−.098, .255]	.078	[−.098, .255]	0.94	0.0	3	3,131	21,22,36
Child molesters only	.167	[−.028, .363]	.460	[−.261, 1.180]	12.86**	84.4	3	2,497	21,22,37
STABLE-2000 CM attitudes	.255	[.078, .431]	.259	[−.114, .631]	15.03**	73.4	5	1,383	8,15,29,30,42
Child molesters only	.456	[.219, .693]	.451	[.202, .700]	4.29	6.7	5	781	8,15,29,30,42
Generic Attitudes									
Multiphasic Sex Inventory Justifications Scale	.028	[−.181, .237]	.033	[−.206, .273]	4.89	18.1	5	724	12,18,20,36,37
ERASOR item	−.014	[−.234, .206]	−.014	[−.234, .206]	1.27	0.0	6	880	5,24,28,31,35,41
STABLE-2000 entitlement item	.125	[−.050, .300]	.089	[−.172, .350]	7.62	47.5	5	1,378	8,15,29,30,42
SVR-20 item	.391	[.262, .520]	.364	[.180, .548]	11.08	45.8	7	2,013	3,18,30,32,33,34,40
JSOAP-II item	.152	[−.092, .395]	.174	[−.120, .468]	7.03	28.8	6	846	25,26,35,41,43,45

Note. CM = child molester.
*$p < .05$. **$p < .01$.

attitudes and child molester attitudes predicted recidivism for child molesters; for rapists, however, child molester attitudes appeared unrelated to recidivism (the effect size was nonsignificant and negative). There has been, however, considerably more recidivism research focusing on child molesters than rapists. Given that we found only four studies (biggest $n = 578$) focusing specifically on rapists, it was impossible to make any strong conclusions for this subpopulation.

This meta-analysis was the first to consider the extent to which attitudes are best measured before or after treatment. Posttreatment assessments have a certain intuitive appeal because they are the most recent, and should reflect the situation nearest to the point of potential recidivism. On the other hand, the pretreatment assessments may be more honest, with less contamination by the demand characteristics inherent in cognitive–behavioral programming, which might lead offenders to report change after treatment because they are seeking positive posttreatment recommendations or because they have learned what attitudes are seen favorably by the authorities. We did not find support for either of these positions. Both pretreatment and posttreatment measures predict recidivism, with neither demonstrating any superiority to the other.

These findings have important implications for how we interpret multiple assessments (e.g., pre- and postmeasures). Some previous studies that have collected both pre- and post-assessments have focused on the analysis of change (e.g., Beggs & Grace, 2011; Olver et al., 2007). With only two assessments, however, it is difficult to discern the relative contributions of treatment change versus measurement error (Singer & Willett, 2003). Furthermore, even with perfect reliability, large changes in the most extreme scores would be expected based on statistical regression effects. Given that the predictive value of pretreatment and posttreatment scores were equal, another plausible approach to risk assessment would be to average these scores (ignoring the direction of any presumed change). In such a model, each assessment would be considered a fallible indicator, such that aggregation of these indicators would increase the reliability of measurement of the latent trait.

In the studies reviewed, attitudes were assessed either by self-report questionnaires or by professional ratings, typically as part of a structured risk assessment protocol. The trend was for effects to be larger among the structured ratings than the questionnaires; however, the difference was only at the $p = .056$ level and was not anticipated by any strong theory (i.e., valid hypotheses could be made for findings in either direction). Professional ratings may have an advantage in that evaluators could tailor their assessment to the attitudes relevant to the offender being assessed, thereby increasing the match between the constructs assessed and the constructs most relevant for a particular offender. This flexibility, however, also increases the chances that the ratings are contaminated by factors other than offense-supportive attitudes (e.g., past behavior, attitudes not specific to sexual offending such as procriminal attitudes). If the aim is to predict reoffending, cautious evaluators have reason to privilege professional ratings over the offender's questionnaire responses, as the cumulative evidence is stronger for ratings than questionnaires.

Table 5. Moderator Analyses (Fixed-Effect) for Sexual Recidivism

	d	95% CI	Q	I²	k	n	Studies Included
Publication Bias	.225	[.164, .286]	61.58	26.9	46	13,782	
Unpublished	.240	[.175, .305]	58.00*	36.2	38	12,367	1,2,5,6,7,8,10,11,12,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,29,32,33,34,36,37,38,39,40,41,42,43,44,45
Published	.128	[−.040, .297]	2.12	0.0	8	1,415	3,4,14,4,5,9,19,30,31,35
Q$_{between}$			1.46				
Prospective?	.225	[.164, .286]	61.58	26.9	46	13,782	
No	.308	[.223, .393]	33.73	25.9	26	4,989	1,3,5,8,10,13,14,17,18,19,24,25,26,27,28,32,33,34,35,38,39,40,41,42,43,45
Yes	.139	[.052, .226]	20.43	7.0	20	8,793	2,4,14,4,5,6,7,9,11,12,15,16,20,21,22,23,29,30,31,36,37,44
Q$_{between}$			7.42**				
Location	.193	[.128, .258]	45.96	15.1	40	12,496	
Institution	.219	[.130, .309]	28.15	36.1	19	6,691	1,2,3,12,17,20,21,23,25,27,28,29,30,32,33,34,35,38,45
Community	.165	[.070, .259]	17.14	0.0	21	5,805	4,14,4,5,5,7,8,9,11,14,15,16,18,22,24,26,31,36,37,39,41,42,43
Q$_{between}$			0.67				
Setting	.227	[.165, .289]	61.08*	32.9	42	13,247	
Corrections	.249	[.136, .361]	21.35	34.4	15	3,678	1,3,5,7,13,15,18,24,29,30,31,33,40,42,43
Corrections Tx	.212	[.131, .292]	35.18*	40.3	22	8,552	2,6,8,9,10,12,16,17,20,21,22,23,25,27,28,32,35,36,37,38,41,45
Psychiatric Tx	.251	[.056, .446]	4.22	5.2	5	1,017	4,14,4,5,11,14,34
Q$_{between}$			0.33				
Preselection	.231	[.169, .293]	59.94**	29.9	43	13,463	
Routine	.351	[.213, .488]	11.88	49.5	7	2,473	1,3,7,15,33,40,43
Treatment need	.188	[.104, .272]	34.80	31.0	25	8,815	2,6,9,10,12,16,18,19,21,22,23,25,26,27,28,30,32,35,36,37,38,41,42,44,45
High risk/need	.231	[.061, .401]	6.74	40.6	5	913	17,20,24,29,34
Other	.227	[.055, .400]	2.59	0.0	6	1,262	4,14,4,5,8,11,14,31
Q$_{between}$			3.93				
Treatment	.216	[.146, .287]	43.62	24.3	34	10,591	
Mixed	.255	[.091, .419]	5.19	0.0	9	1,680	1,3,8,9,13,24,33,39,43
Most treated	.208	[.129, .286]	38.17*	37.1	25	8,911	2,6,10,11,12,16,17,19,20,21,22,23,25,26,27,28,30,32,34,35,36,37, 38,41,45
Q$_{between}$			0.26				
Age	.216	[.154, .277]	58.00	24.1	45	13,661	
Mostly adults	.230	[.162, .298]	46.16*	37.2	30	11,549	1,2,3,4,14,4,5,6,7,8,11,12,15,16,17,18,19,20,21,22,23,29,30,32,33,36,37,38,39,40,42,44
Juveniles	.146	[−.004, .295]	10.81	0.0	15	2,112	5,9,10,13,14,24,25,26,27,28,31,35,41,43,45
Q$_{between}$			1.03				
Recid criteria	.221	[.158, .284]	59.81*	34.8	40	12,936	
Arrest/charges	.262	[.177, .346]	32.23	25.5	25	5,562	2,3,4,14,4,5,5,7,8,9,10,12,13,14,15,16,17,24,25,28,31,35,39,40,41, 43,45
Convictions	.170	[.075, .265]	25.59*	45.3	15	7,374	1,6,18,20,21,22,23,27,29,30,32,34,36,37,38
Q$_{between}$			1.99				
Recid sources	.196	[.132, .260]	48.59	15.6	42	12,695	
One	.188	[.113, .263]	30.78	15.5	27	9,704	1,2,4,14,4,5,5,6,7,8,11,13,17,18,20,21,22,23,24,25,27,29,30,32,33,34,38,41,43
More than one	.219	[.095, .343]	17.64	20.6	15	2,991	3,9,10,12,14,15,16,17,19,21,27,30,31,32,37,39,44
Q$_{between}$			0.17				
Own scale?	.225	[.164, .286]	61.58	26.9	46	13,782	
No	.241	[.158, .324]	48.58**	48.5	26	6,195	2,4,14,4,5,5,6,8,12,18,20,22,23,24,25,26,28,29,33,34,35,36,38,40,41, 42,43,45
Yes	.207	[.118, .296]	12.70	0.0	20	7,587	1,3,7,9,10,11,13,14,15,16,17,19,21,27,30,31,32,37,39,44
Q$_{between}$			0.30				

(continued)

Table 5. (continued)

	d	95% CI	Q	I^2	k	n	Studies Included
Adversarialness	.225	[.164, .286]	61.58	26.9	46	13,782	
Low	.541	[.083, .999]	3.74	73.2	2	150	11,37
Moderate	.193	[.121, .265]	34.38	9.8	32	10,209	2,3,5,6,7,8,9,10,12,13,16,17,19,20,21,22,23,24,25,27,28,30,32,33, 35,36,38,39,41,42,44,45
High	.290	[.172, .407]	19.71*	44.2	12	3,423	1,4,14.5,14,15,18,26,29,31,34,40,43
$Q_{between}$			3.75				
Measure type	.228	[.166, .289]	61.07	28.0	45	13,706	
Questionnaire	.129	[.025, .232]	14.95	19.7	13	6,601	2,4,14.5,6,11,12,20,21,22,23,36,37,44
Risk scale item	.290	[.209, .371]	37.92*	36.7	25	6,096	1,3,5,7,8,15,16,17,24,25,26,28,29,30,31,32,33,34,35,38,40,41,42,43,45
Clinical/Tx rating	.213	[−.006, .433]	2.42	0.0	7	1,009	9,10,13,14,19,27,39
$Q_{between}$			5.78[a]				
Mismatch	.225	[.164, .286]	61.58	26.9	46	13,782	
No	.281	[.201, .360]	44.08	29.7	32	6,116	3,4,14.5,7,9,10,11,12,13,14,16,17,18,19,24,25,26,27,28,31,32,33,34,35,37,38,39,40,41,43,44,45
Yes	.147	[.052, .241]	12.97	0.0	14	7,666	1,2,4,5,6,8,15,20,21,22,23,29,30,36,42
$Q_{between}$			4.53*				

Note. TX = Treatment. Recid = Recidivism. For adversarialness, low adversarial settings were those in which attitudes measures were collected anonymously and there was no possibility of negative consequences to the offender based on reporting these attitudes. Moderate adversarial settings were generally treatment programs, where there was a possibility of negative consequences for reporting offense-supportive attitudes, but it was indirect and the environment encouraged honest responding. High adversarial settings included probation/parole and presentence assessments, where the possibility of negative consequences was high.
[a]$p = .056$.
*$p < .05$. **$p < .01$.

13

Table 6. Critical Findings

1. Attitudes supportive of sexual offending predict sexual recidivism.
2. Pretreatment and posttreatment assessments show similar levels of predictive accuracy.
3. Attitudes predict best when they are matched to the type of offender.
4. Attitudes predict better for child molesters, and there is more evidence available for child molesters.
5. There are three empirically validated measures of offense-supportive attitudes: The Abel-Becker cognitions scale (when used with child molesters), the STABLE-2000 child molester attitudes item (when used with child molesters), and the SVR-20 item for attitudes that support or condone sexual offending.

Of the specific measures that could be considered empirically validated (3+ studies with average $d > .15$ and 95% CI > 0), one was a questionnaire (the Abel-Becker Cognitions Scale—used with child molesters; Abel et al., 1989), and two were structured ratings as part of risk scales: (a) the STABLE-2000 child molester attitudes item—used with child molesters (Hanson et al., 2007) and (b) the SVR-20 item #18 (attitudes that support or condone sex offenses; Boer et al., 1997). For certain measures, their average effect sizes were near zero, but none met Mann and colleagues' (2010) criteria as being unrelated to sexual recidivism (upper end of 95% CI $< .15$). The number of validations for each individual scale, however, was not large (ranging between 3 and 7). It is possible that the addition of more studies may identify other measures as significant or as nonsignificant predictors.

Although we found that attitudes supportive of sexual offending predict recidivism, we still need greater clarity about precisely what is meant by attitudes supportive of sexual offending. Research and theory on attitudes in the sex offender field has been plagued by ambiguities and overly broad and shifting definitions (e.g., Gannon et al., 2007; Maruna & Mann, 2006; Ó Ciardha & Gannon, 2011). We attempted to focus on more enduring pro-offending attitudes (rather than denial/minimization and offense-specific attributions), but the distinctions were not always clear and many of the attitudes measures we included were either poorly defined or included some components that were not part of our definition. Among the risk assessment scale items, for example, the attitudes item in the SVR-20 (Boer et al., 1997), which had one of the highest effect sizes, explicitly states that attitudes can be inferred from behavior. However, it is clear from the broader psychological research into the attitude–behavior link that such inferences are not justifiable. The attitudes item in the JSOAP-II scale (Prentky & Righthand, 2003) includes attitudes supportive of sexual offending as well as some general procriminal attitudes. More generally, in any of the measures rated by third parties, it is difficult to discern how the construct was rated and whether external constructs affected the assessment.

A benefit of the self-report questionnaires is that it is possible to identify the items that were included. Nonetheless, examination of the item content of these scales suggested that many scales included overly broad statements not directly linked to our definition of offense-supportive attitudes (e.g., from Bumby's [1996] Molest scale: "*Some men who molest children really don't like molesting children*"; from Burt's [1980] Rape Myths Acceptance Scale: "*Any female can get raped*").

Even when the attitudes measures are described as assessing general attitudes about sexual offending, we expect that the assessments would be influenced to some extent by how the offender understands and describes his own transgressions. In a small number of cases ($k = 4$), we even included ratings of attitudes about specific victims when we believed that the ratings were indicative of general attitudes about the wrongfulness of sexual offending. Consequently, the distinction between general sexual offending attitudes and victim-specific attitudes was not pure (i.e., the two constructs cannot be fully disentangled).

Although the attitudes measures included in our analyses can be criticized for being broad, they can simultaneously be criticized for being too narrow: important aspects of attitudes were not assessed by any of the measures examined. Most measures focused on overt statements involving more effortful cognitive processing and reflection (e.g., "some children initiate sexual activity with adults"). Little attention was paid to more immediate evaluations of an object/concept (e.g., Fazio, 2007; Maruna & Mann, 2006), which would be expected to include an affective component (e.g., Maruna & Mann, 2006). The Theory of Reasoned Action (Fishbein & Ajzen, 2010) may be useful in reframing the conceptualization of attitudes to examine components that are more about the valence of offending (e.g., "sexual offending is positive," "I would enjoy having sex with a child") than a deliberation on ethics and morality. We were unable to find any measures of attitudes incorporating this conceptualization. Accessing the more immediate evaluations (before the interference of controlled and deliberative processing) could involve alternate methods of measurement beyond self-report questionnaires, such as Implicit Association Tests (Greenwald, McGhee, & Schwartz, 1998).

Another complication is that attitudes supportive of sexual offending exist within an associative network that includes other offense-related constructs, such as deviant sexual interests (e.g., Ó Ciardha, 2011), general procriminal attitudes (Andrews & Bonta, 2010), and hostility toward women (e.g., Mann et al., 2010). The confusion among these constructs is exemplified by the debates concerning whether implicit measures such as the Implicit Association Test are measuring sexual attitudes or sexual interests (Babchishin, Nunes, & Hermann, in press; Ó Ciardha, 2011; Snowden, Craig, & Gray, 2011). Similar to Ó Ciardha (2011) and Babchishin, Nunes, and Hermann (in press), we believe these constructs inherently overlap and can be mutually reinforcing;

Table 7. Implications for Practice, Policy, and Research

Practice
1.   Attitudes supportive of sexual offending are a psychologically meaningful risk factor for sexual recidivism and should be targeted in the assessment and treatment of sexual offenders
2.   Practitioners should focus on the types of attitudes linked to the offender's pattern of offending
3.   Practitioners can have increased confidence when assessing the attitudes of child molesters compared to those of rapists
4.   The relationship between attitudes and sexual recidivism is small. Comprehensive assessment and treatment must consider other factors as well
5.   The amount of change from pretreatment to posttreatment may be less important for risk assessment than the average of consecutive assessments. Observed variability in scores across time must be considered in conjunction with the reliability of the assessments

Policy
1.   Given that the attitudes of individual offenders are supported by the social groups to which they are a part, then there are opportunities for prevention in public health interventions targeting attitudes supportive of sexual offending (e.g., social marketing tailored toward high risk groups).

Research
1.   The definition and construct validity of offense-supportive attitudes needs further development, both in research and in theory. One promising direction would be to apply traditional conceptions of attitudes as immediate object-evaluations
2.   More research is needed on attitudes as a recidivism risk factor for rapists. We need more follow-up studies examining existing measures, as well as new and better attitude measures
3.   Follow-up studies are needed in which attitudes are assessed using techniques other than self-report or clinical ratings. In particular, we encourage recidivism research based on modern attitude assessment techniques, such as the Implicit Association Test

consequently, attempts to delineate firm distinctions between them are unlikely to be realistic, or useful in applied assessment.

Implications

Practice. Table 7 summarizes the implications of our findings for practice, policy, and research. Consistent with Mann et al. (2010), we believe that attitudes supportive of sexual offending are a psychologically meaningful risk factor (criminogenic need) for sexual recidivism. Offense-supportive attitudes should, therefore, be included in both the assessment and the treatment of sex offenders, in accordance with the principles of effective correctional interventions (risk/need/responsivity; Andrews & Bonta, 2010). Assessments and interventions should also focus on the types of attitudes most relevant to the offender. Based on the current evidence, practitioners can have increased confidence in assessing and targeting offense-supportive attitudes among child molesters compared to rapists.

The relationship between offense-supportive attitudes and recidivism exceeds Mann and colleague's (2010) criteria to be a meaningful risk factor ($d > .15$) and is comparable to other empirically supported risk factors for sexual recidivism (Hanson & Morton-Bourgon, 2004, 2005; Mann et al., 2010). It is important to note, however, that the effect size is still small ($d = .22$) and would explain a trivial proportion of the overall variability in recidivism (<2%). When multiple risk factors are combined together, the average effect size increases substantially (average $d \approx .70$; Hanson & Morton-Bourgon, 2009), which demonstrates that no single risk factor is a determinant of recidivism. Consequently, defensible assessment and treatment practices must consider a range of psychologically

meaningful risk factors for recidivism (e.g., see Mann et al., 2010). Offense-supportive attitudes are not the "key" to offending and the evidence does not suggest that they should receive disproportionate attention in treatment compared to other empirically supported risk factors.

Considering the small relationship with recidivism, and the inherent error involved in any assessment of attitudes, changes on attitude measures from pre- to posttreatment are unlikely to make much difference in the offender's overall risk of recidivism. Until there is more research available on measuring treatment change with adequate levels of reliability, it may make sense to average pre- and posttreatment assessments of attitudes when considering recidivism risk.

Policy. Attitudes do not exist in isolation, and are supported by the social networks within which individuals are embedded. Consequently, it may be possible to reduce the public health burden of sexual victimization by changing public attitudes toward sexual offending. Although the public has consistently negative attitudes toward sex offenders (e.g., Levenson et al., 2007), it is not uncommon for the general population to simultaneously endorse the same problematic attitudes that are endorsed by convicted sex offenders (e.g., for a review, see Lonsway & Fitzgerald, 1994). Consequently, the current findings provide conceptual support for social marketing campaigns tailored to high-risk populations (e.g., young males at bars; volunteers working with disadvantaged youth).

Research. Further clarification and understanding of offense-supportive attitudes is necessary, including its relationship to other constructs, such as denial/minimization, general procriminal attitudes, sexual deviance, and other offense-related

attitudes (e.g., hostility toward women). In particular, we recommend that researchers consider traditional psychological definitions of attitudes, such as object evaluations (e.g., Fazio, 2007), and the definition used in the Theory of Reasoned Action (Fishbein & Ajzen, 2010). Although attitudes play a key role in many theories of sexual offending (e.g., Finkelhor, 1984; Hall & Hirschman, 1991; Malamuth et al., 1991; Ward & Siegert, 2002), few of the attitudes measures explicitly drew upon these theories. A clearer link between theory and assessment is needed.

The finding of lower predictive accuracy for rapists (compared to child molesters) has several important research implications. Minimally, the quantity of research on offense-supportive attitudes among rapists needs to increase. With only four studies, however, no firm conclusions are possible. It may be that rapists are less predictable than child molesters (Eher, Rettenberger, Schilling, & Pfäfflin, 2008). We may also not be asking the right questions. Namely, many of the theories of sexual offending assume psychological deficits on the part of the offenders. The psychology of rape, however, may be different. Compared to child molesters, rapists are less likely to have deviant sexual preferences and more likely to have unstable, antisocial lifestyles (e.g., Firestone, Bradford, Greenberg, & Serran, 2000; Harris, Smallbone, Dennison, & Knight, 2009). Furthermore, evolutionary theory is able to explain rape without recourse to individual pathology (Lalumière, Harris, Quinsey, & Rice, 2005). Given the high prevalence of general antisociality among rapists, we suspect that the way forward will involve better integration of the most well-grounded theories of rape (e.g., Malamuth et al., 1991), with models of general offending (e.g., Andrews & Bonta, 2010; Gottfredson & Hirschi, 1990), and evolutionary psychology (e.g., Lalumière et al., 2005).

Author's Note

The views expressed are those of the authors and not necessarily those of Public Safety Canada or the National Offender Management Service.

Acknowledgment

We would like to thank the following individuals for providing us with additional information for this meta-analysis: Marcel Aebi, Jayne Allam, Howard Barbaree, Georgia Barnett, CatrienBijleveld, Sarah Beggs, Doug Boer, Michael Caldwell, Julie Carpentier, Leam Craig, Jackie Craissati, Klaus-Peter Dahle, Vivienne de Vogel, Rachel Edwards, Natasha Elkovitch, ReinhardEher, Randolph Grace, Steven Gray, Leigh Harkins, Stephen Hart, Jan Hendriks, Calvin Langton, Jan Looman, Patrick Lussier, Ricardo Martinez, Robert McGrath, Mark Olver, Jean Proulx, Meritxell Perez Ramirez, GordanaRajlic, Martin Rettenberger, Santiago Ramirez, Barry Rosenfeld, Steven Saum, WinekeSmid, Jodi Viljoen, Helen Wakeling, Gwenda Willis, and James Worling.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Notes

1. Some of the authors have sufficient fluency in French to code scientific studies.
2. This study was translated using Google Translator and additional information was provided by Klaus-Peter Dahle (the lead author).
3. A published effect size was defined as an effect size that is reported in a published source. If we identified a published document that had attitudes and recidivism information but we had to contact the authors for additional information in order to code the effect size, the effect size was considered unpublished.

References

Abbey, A., Wegner, R., Pierce, J., & Jacques-Tiura, A. J. (2012). Patterns of sexual aggression in a community sample of young men: Risk factors associated with persistence, desistance, and initiation over a 1-year interval. *Psychology of Violence*, *2*, 1-15. doi:10.1037/a0026346

Abel, G. G., Gore, D. K., Holland, C. L., Camp, N., Becker, J. V., & Rathner, J. (1989). The measurement of the cognitive distortions of child molesters. *Annals of Sex Research*, *2*, 135-153. doi:10.1001/archpsyc.1963.01720160014002

*Aebi, M., Plattner, B., Steinhauen, H., & Bessler, C. (2011). Predicting sexual and nonsexual recidivism in a consecutive sample of juveniles convicted of sexual offenses. *Sexual Abuse: A Journal of Research and Treatment*, *23*, 456-473. doi:10.1177/1079063210384634

*Allam, J., (2000). Community-based treatment for child sex offenders: An evaluation (UMI: AAIU142907). *ProQuest Dissertations and Theses*, Social Sciences, UK & Ireland.

American Psychological Association, Task Force on the Sexualization of Girls. (2007). *Report of the APA Task Force on the Sexualization of Girls*. Washington, DC: American Psychological Association. Retrieved from http://www.apa.org/pi/women/programs/girls/report.aspx

Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). Newark, NJ: LexisNexus/Anderson.

Babchishin, K. M., Nunes, K. L., & Hermann, C. A. (in press). Implicit Association Tests adapted to assess sexual interest can distinguish between child molesters and non-molesters: A meta-analysis. *Archives of Sexual Behavior*.

*Barbaree, H., Langton, C. M., & Boer, D. (2008). Prediction recidivism in sex offenders using the SVR-20: Contribution of age-at-release. *International Journal of Forensic Mental Health*, *7*, 47-64. doi: 10.1080/14999013.2008.9914403

*Barnett, G. D., Wakeling, H. C., Mandeville-Norden, R., & Rakestrow, J. (2012). How useful are psychometric scores in predicting recidivism for treated sex offenders. *International Journal of Offender Therapy and Comparative Criminology*, *56*, 420-446. doi:10.1177/0306624x11403125

Beck, A. T. (1963). Thinking and depression: 1. Idiosyncratic content and cognitive distortions. *Archives of General Psychiatry*, *9*, 324-333.

*Beckett, R., Beech, A., Fisher, D., & Fordham, A. S. (1994). *Community-based treatment of sex offenders: An evaluation of seven treatment programmes*. London, England: Home Office.

*Beggs, S. M., & Grace, R. C. (2010). Assessment of dynamic risk factors: An independent validation study of the violence risk scale: Sexual offender version. *Sexual Abuse: A Journal of Research and Treatment*, *22*, 234-251. doi: 10.1177/1079063210369014

Beggs, S. M., & Grace, R. C. (2011). Treatment gain for sexual offenders against children predicts reduced recidivism: A comparative validity study. *Journal of Consulting and Clinical Psychology*, *79*, 182-192. doi:10.1037/a0022900

Blumenthal, S., Gudjonsson, G., & Burns, J. (1999). Cognitive distortions and blame attribution in sex offenders against adults and children. *Child Abuse and Neglect*, *23*, 129-143. doi:10.1016/S0145-2134(98)00117-3

Boer, D. R., Hart, S. D., Kropp, R., & Webster, C. (1997). *Manual for the SVR-20: Professional guidelines for assessing risk of sexual violence*. BC, Canada: The Institute against Family Violence, Simon Fraser University.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, West Sussex, England: Wiley.

Bumby, K. M. (1996). Assessing the cognitive distortions of child molesters and rapists: Development and validation of the MOLEST and RAPE scales. *Sexual Abuse: A Journal of Research and Treatment*, *8*, 37-54. doi:10.1177/107906329600800105

Burt, M. R. (1980). Cultural myths and support for rape. *Journal of Personality and Social Psychology*, *38*, 217-230. doi:10.1037/0022-3514.38.2.217

*Caldwell, M. F., Ziemke, M. H., & Vitacco, M. J. (2008). An examination of the sex offender regristration and notification act as applied to juveniles. *Psychology, Public Policy, and Law*, *14*, 89-114. doi:10.1037/a0013241

Calhoun, K. S., Bernat, J. A., Clum, G. A., & Frame, C. L. (1997). Sexual coercion and attraction to sexual aggression in a community sample of young men. *Journal of Interpersonal Violence*, *12*, 392-406. doi:10.1177/088626097012003005

*Carpentier, J., & Proulx, J. (2002, October). *Predictors of criminal career intensity in a sample of juvenile sexual aggressors of children*. Paper presented at the 21rst Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, Montréal, ON, Canada.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

*Craig, L. A., Thornton, D., Beech, A., & Browne, K. D. (2007). The relationship of statistical and psychological risk markers to sexual reconviction in child molesters. *Criminal Justice and Behavior*, *34*, 314-329. doi: 10.1177/0093854806291416

*Dahle, K.-P., Biederman, J., Gallasch-Nemitz, F., & Janka, C. (2010). Predictive power of behavioral characteristics among recidivistic sexual offenders. *Forensische Psychiatrie, Psychologie, Kriminologie*, *4*, 126-135. doi:10.1007/s11757-010-0041-z

*de Vogel, V., de Rutier, C., van Beek, D., & Mead, G. (2004). Predictive validity of the SVR-20 and Static-99 in a Dutch sample of treated sex offenders. *Law and Human Behavior*, *28*, 235-251. doi:10.1023/B: LAHU.0000029137.41974.eb

Dean, C., Mann, R. E., Milner, R., & Maruna, S. (2007). Changing child sexual abusers' cognitions. In T. Gannon, T. Ward, A. R. Beech, & D. Fisher (Eds.), *Aggressive Offenders' Cognition: Theory, Research and Practice* (pp. 117-134). Chichester, UK: John Wiley.

*Dempster, R., & Hart, S. D. (2002). The relative utility of fixed and variable risk factors in discriminating sexual recidivists and nonrecidivists. *Sexual Abuse: A Journal of Research and Treatment*, *14*, 121-138. doi: 10.1177/107906320201400204

*Edwards, R., Beech, A., Bishopp, D., Erikson, M., Friendship, C., & Charlesworth, L. (2005). Predicting dropout from a residential programme for adolescent sexual abusers using pre-treatment variables and implications for recidivism. *Journal of Sexual Aggression*, *11*, 139-155. doi: 10.1080/13552600500063641

Eher, R., Rettenberger, M., Schilling, F., & Pfäfflin, P. (2008). Failure of Static-99 and SORAG to predict relevant reoffense categories in relevant sexual offender subtypes: A prospective study. *Sexual Offender Treatment*, *3*, 1-14.

Fazio, R. H. (2007). Attitudes as object-evaluation associations of varying strength. *Social Cognition*, *25*, 603-637. doi: 10.1521/soco.2007.25.5.603

Finkelhor, D. (1984). *Child sexual abuse: New theory and research*. New York, NY: Free Press.

Firestone, P., Bradford, J. M., Greenberg, D. M., & Serran, G. A. (2000). The relationship of deviant sexual arousal and psychopathy in incest offenders, extrafamilial child molesters, and rapists. *Journal of the American Academy of Psychiatry and the Law*, *28*, 303-308.

*Firestone, P., Bradford, J. M., McCoy, M., Greenberg, D. M., Larose, M. R., & Curry, S. (1999). Prediction of recidivism in incest offenders. *Journal of Interpersonal Violence*, *14*, 511-531. doi: 10.1177/088626099014005004

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York, NY: Psychology Press (Taylor & Francis).

Gannon, T. A., Keown, K., & Polaschek, D. L. L. (2007). Increasing honest responding on cognitive distortions in child molesters: The bogus pipeline revisited. *Sexual Abuse: A Journal of Research and Treatment*, *19*, 5-22. doi:10.1177/107906320701900103

Gannon, T. A., & O'Connor, A. (2011). The development of the Interest in Child Molestation Scale. *Sexual Abuse: A Journal of Research and Treatment*, *23*, 474-493. doi:10.1177/1079063211412390

Gannon, T. A., Ward, T., & Collie, R. (2007). Cognitive distortions in child molesters: Theoretical and research developments over the past two decades. *Aggression and Violent Behavior*, *12*, 402-416. doi:10.1016/j.avb.2006.09.005

*Gore, D. K. (1988). *Measuring the cognitive distortions of child molesters: Psychometric properties of the cognition scale* (Unpublished doctoral dissertation). Georgia State University, Atlanta, GA.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Standford University Press.

*Gray, S. R., Abel, G. G., & Garby, T. (2011, November). *Predicting sexual recidivism using visual reaction time, sexual behaviors and

cognitive distortions. Poster presented at the 30th Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, Toronto , ON.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*, 1464-1480.

Hall, G. C. N., & Hirschman, R. (1991). Toward a theory of sexual aggression: A quadripartite model. *Journal of Consulting and Clinical Psychology*, *59*, 662-669. doi:10.1037//0022-006X.59. 5.662

*Hanson, R. K. (2002). *Evaluation of Manitoba's Secondary Risk Assessment*. Unpublished manuscript. Ottawa, ON: Department of the Solicitor General of Canada.

Hanson, R. K., Bourgon, G., Helmus, L., & Hodgson, S. (2009). The principles of effective correctional treatment also apply to sexual offenders: A meta-analysis. *Criminal Justice & Behavior*, *36*, 865-891.

Hanson, R. K., Gizzarelli, R., & Scott, H. (1994). The attitudes of incest offenders: Sexual entitlement and acceptance of sex with children. *Criminal Justice and Behavior*, *27*, 6-35.

*Hanson, R. K., Harris, A. J. R., Scott, T.-L., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The Dynamic Supervision Project* (Corrections Research User Report No. 2007-05). Ottawa, ON: Public Safety Canada.

Hanson, R. K., & Morton-Bourgon, K. E. (2004). *Predictors of sexual recidivism: An updated meta-analysis* (Corrections Research User Report No. 2004-02). Ottawa, ON: Public Safety and Emergency Preparedness Canada.

Hanson, R. K., & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology*, *73*, 1154-1163. doi:10.1037/0022-006X.73.6.1154

Hanson, R. K., & Morton-Bourgon, K. E. (2009). The accuracy of recidivism risk assessments for sexual offenders: A meta-analysis of 118 prediction studies. *Psychological Assessment*, *21*, 1-21.

Harris, A. J. R., & Hanson, R. K. (2004). *Sex offender recidivism: A simple question* (User Report 2004-03). Ottawa, ON: Public Safety and Emergency Preparedness Canada.

Harris, D. A., Smallbone, S., Dennison, S., & Knight, R. A. (2009). Specialization and versatility in sexual offenders referred for civil commitment. *Journal of Criminal Justice*, *37*, 37-44. doi:10.1016/j.jcrimjus.2008.12.002

Helmus, L., Hanson, R. K., Thornton, D., Babchishin, K. M., & Harris, A. J. R. (2012). Absolute recidivism rates predicted by Static-99R and Static-2002R sex offender risk assessment tools vary across samples: A meta-analysis. *Criminal Justice & Behavior*, *39*, 1148-1171. doi: 10.1177/0093854812443648

*Hendriks, J., & Bijleveld, C. (2008). Recidivism among juvenile sex offenders after residential treatment. *Journal of Sexual Aggression*, *14*, 19-32. doi:10.1080/13552600802133852

Hermann, C. A., Babchishin, K. M., Nunes, K. L., Leth-Steensen, C, & Cortoni, F. (2012). Factor structure of the Bumby RAPE scale: A three-factor model. *Criminal Justice and Behavior*, *39*, 869-886. doi: 10.1177/0093854812436802

Hermann, C. A., & Nunes, K. L. (2011, June). Evaluating rape: Do self-report measures of rape-related cognition reflect evaluations of rape? In K. L. Nunes (Chair), *A closer look at criminal attitudes*. Symposium conducted at the 2nd North American Correctional and Criminal Justice Psychology Conference, Toronto, Ontario.

Higgins, J., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal*, *327*, 557-560.

*Hudson, S. M., Wales, D. S., Bakker, L., & Ward, T. (2002). Dynamic risk factors: The Kia Marama evaluation. *Sexual Abuse: A Journal of Research and Treatment*, *14*, 103-119. doi:10.1177/107906320201400203

Kim, Y. (2011). Idol republic: The global emergence of girl industries and the commercialization of girl bodies. *Journal of Gender Studies*, *20*, 333-345. doi:10.1080/09589236.2011.617604

Lalumière, M. L., Harri, s, G. T., Quinsey, V. L., & Rice, M. E. (2005). *The causes of rape*. Washington, DC: American Psychological Association.

Levenson, J. S., Brannon, Y. N., Fortney, T., & Baker, J. (2007). Public perceptions about sex offenders and community protection policies. *Analyses of Social Issues and Public Policy*, *7*, 137-161. doi:10.1177/107906320701900403

*Lindsay, W. L., Elliot, S. F., & Astell, A. (2004). Predictors of sexual offense recidivism in offenders with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, *17*, 299-305. doi:10.1111/j.1468-3148.2004.00217.x

Lonsway, K. A., & Fitzgerald, L. F. (1994). Rape myths: In review. *Psychology of Women Quarterly*, *18*, 133-164. doi: 10.1111/j. 1471-6402.1994.tb00448.x

*Looman, J. (2010). [Unpublished raw data from the Regional Treatment Centre].

Lösel, F., & Schmucker, M. (2005). The effectiveness of treatment for sexual offenders: A comprehensive meta-analysis. *Journal of Experimental Criminology*, *1*, 117-146.

*Lussier, P., Gress, C., Deslauriers-Varin, N., & Amirault, J. (2012). Community risk management of high-risk sex offenders in Canada: Findings from a quasi-experimental study. *Justice Quarterly*. Advance online publication. doi:10.1080/07418825. 2011.649694

Maio, G. R., & Haddock, H. (2010). *The psychology of attitudes and attitude change*. London, England: Sage.

Malamuth, N., Sockloskie, R., Koss, M., & Tanaka, J. (1991). The characteristics of aggressors against women: Testing a model using a national sample of college students. *Journal of Consulting and Clinical Psychology*, *59*, 670-681. doi:10.1037//0022-006X.59.5. 670

Mann, R. E., Hanson, R. K., & Thornton, D. (2010). Assessing risk for sexual recidivism: Some proposals on the nature of psychologically meaningful risk factors. *Sexual Abuse: A Journal of Research and Treatment*, *22*, 191-217. doi:10.1177/1079063210366039

Mann, R. E., Webster, S., Wakeling, H., & Marshall, W. (2007). The measurement and influence of child sexual abuse supportive beliefs. *Psychology, Crime and Law*, *13*, 443-458. doi:10.1080/10683160601061141

Marolla, J. A., & Scully, D. (1986). Attitudes toward women, violence, and rape: A comparison of convicted rapists and other felons. *Deviant Behavior*, *7*, 337-355.

*Marques, J. K., Wiederanders, M., Day, D. M., Nelson, C., & van Ommeren, A. (2005). Effects of a relapse prevention program on sexual recidivism: Final results from California's Sex Offender Treatment and Evaluation Project (SOTEP). *Sexual Abuse: A Journal of Research and Treatment*, *17*, 79-107. doi:10.1177/107906320501700108

Marshall, W. L., Fernandez, Y. M., Marshall, L. E., & Serran, G. A. (2006). *Sexual offender treatment: Controversial issues*. New York, NY: John Wiley.

Marshall, W. L., Marshall, L. E., & Kingston, D. A. (2011). Are the cognitive distortions of child molesters in need of treatment? *Journal of Sexual Aggression*, *17*, 118-129. doi:10.1080/13552600.2011.580572

*Martinez, R. (2011). Validity of the Juvenile Sex Offender Assessment Protocol Revised (JSOAP-II) with a multiethnic sample of juvenile sex offenders released from juvenile justice commission placements. *Dissertation Abstracts International: Section B. Science and Engineering*, *72*, 0072.

*Martinez, R., Flores, J., & Rosenfeld, B. (2007). Validity of the Juvenile Sex Offender Assessment Protocal II (J-Soap-II) in a sample of urban minority youth. *Criminal Justice and Behavior*, *34*, 1284-1295. doi:10.1177/0093854807301791

Maruna, S., & Mann, R. E. (2006). A fundamental attribution error? Rethinking cognitive distortions. *Legal and Criminological Psychology*, *11*, 155-177. doi:10.1348/135532506X114608

McGrath, R. J., Cumming, G. F., Burchard, B. L., Zeoli, S., & Ellerby, L. (2010). *Current practices and emerging trends in sexual abuser management: The Safer Society 2009 North American survey*. Brandon, VT: Safer Society Foundation.

*McGrath, R. J., Lasher, M. P., & Cumming, G. F. (2011). *A model of static and dynamic sex offender risk assessment* (Award Number: 2008-DD-BX-0013). National Institute of Justice: Washington, DC.

*Morton, K. E. (2003). Psychometric properties of four risk assessment measures with male adolescent sexual offenders. *Dissertations Abstracts International: Section A, Humanities and Social Sciences*, *41*, 1833.

Murphy, W. D. (1990). Assessment and modification of cognitive distortions in sex offenders. In W. L. Marshall, D. R. Laws, & H. E. Barbaree (Eds.), *Handbook of sexual assault* (pp. 331-342). New York, NY: Plenum Press.

Ó Ciardha, C. (2011). A theoretical framework for understanding deviant sexual interest and cognitive distortions as overlapping constructs contributing to sexual offending against children. *Aggression and Violent Behavior*, *16*, 493-502.

Ó Ciardha, C., & Gannon, T. A. (2011). The cognitive distortions of child molesters are in need of treatment. *Journal of Sexual Aggression*, *17*, 131-142. doi:10.1016/j.avb.2011.05.001

*Olver, M. E., Wong, S. C. P., Nicholaichuk, T., & Gordon, A. (2007). The validity and reliability of the violence risk scale—Sexual offender version: Assessing sex offender risk and evaluating therapeutic change. *Psychological Assessment*, *19*, 318-329. doi:10.1037/1040-3590.19.3.318

Paolucci, E. O., Genuis, M. L., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *The Journal of Psychology*, *135*, 17-36. doi:10.1080/00223980109603677

Pemberton, A. E., & Wakeling, H. C. (2009). Entitled to sex: Attitudes of sexual offenders. *Journal of Sexual Aggression*, *15*, 289-303. doi:10.1080/13552600903097212

Pithers, W. D. (1994). Process evaluation of a group therapy component designed to enhance sex offenders' empathy for sexual abuse survivors. *Behaviour Research and Therapy*, *32*, 565-570. doi: 10.1016/0005-7967(94)90146-5

Prentky, R., & Righthand, S. (2003). *Juvenile Sex Offender Assessment Protocol-II* (JSOAP-II) manual. DC: Department of Justice.

*Proulx, J., Pellerin, B., Paradis, Y., McKibben, A., Aubut, J., & Ouimet, M. (1997). Static and dynamic predictors of recidivism in sexual aggressors. *Sexual Abuse: A Journal of Research and Treatment*, *9*, 7-27. doi:10.1177/107906329700900102

*Quesnel, M. (2007). Les predicteurs dynamiques stables associes a la recidive des delinquants sexuels sous jurisdiction federale [Stable dynamic predictors of recidivism for federally sentenced sexual offenders] (unpublished master's thesis). University of Montréal, QC, Canada.

*Rajlic, G., & Gretton, H. M. (2010). An examination of two sexual recidivism risk measures in adolescent offenders: The moderating effect of offender type. *Criminal Justice and Behavior*, *37*, 1066-1085. doi:10.1177/0093854810376354

*Redondo, S., Luque, E., Navarro, J. C., & Martínez, M. (2007). An empirical study of characteristics and reoffense-risk factors in a sample of imprisoned sex offenders. *Psychology in Spain*, *11*, 95-105.

Resick, P. A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence*, *8*, 223-255. doi:10.1177/088626093008002005

*Rettenberger, M., Boer, D. P., & Eher, R. (2011). The predictive accuracy of risk factors in the Sexual Violence Risk-20 (SVR-20). *Criminal Justice and Behavior*, *38*, 1009-1027. doi:10.1177/0093854811416908

*Santman, J. (1998). *A taxonomic model of juvenile sexual offender recidivism* (unpublished doctoral dissertation). California School of Professional Psychology, CA.

*Saum, S. (2007). A comparison of an actuarial risk prediction measure (Static-99) and a stable dynamic risk prediction measure (Stable-2000) in making risk predictions for a group of sexual offenders. *Dissertation Abstracts International: Section B. Science and Engineering*, *68*, 1503.

*Schram, D. D., Milloy, C. D., & Rowe, W. E. (1991). *Juvenile sex offenders: A follow-up study of reoffense behavior*. Olympia, WA: Washington State Institute for Public Policy.

Seligman, M. E. P. (1991). *Learned optimism*. New York, NY: Knopf.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis*. New York, NY: Oxford University Press.

*Skowron, C. (2005). Differentiation and predictive factors in adolescent sexual offending. *Dissertation Abstracts International: Section B. Science and Engineering*, *66*, 1788.

*Smid, W. J., & van Beek, D. (2010, October). *Cognitive distortions in child molesters: Scoring from file information and relationship to sexual recidivism*. Poster presented at the 29th Annual Research and Treatment Conference of the Association for the Treatment of Sexual Abusers, Phoenix , AZ.

*Smith, W. R., & Monastersky, C. (1986). Assessing juvenile sexual offenders' risk for reoffending. *Criminal Justice and Behavior*, *13*, 115-140. doi:10.1177/0093854886013002001

Snowden, R. J., Craig, R. L., & Gray, N. S. (2011). Indirect behavioral measures of cognition among sexual offenders. *Journal of Sex Research*, *48*, 192-217. doi:10.1080/00224499.2011.557750

Stinson, J. D., Sales, B. D., & Becker, J. V. (2008). *Sex offending: Causal theories to inform research, prevention, and treatment*. Washington, DC: American Psychological Association.

*Viljoen, J. L., Elkovitch, N., Scalora, M., & Ullman, D. (2009). Assessment of reoffense risk in adolescent who have committed sexual offenses: Predictive validity of the ERASOR, PCL: YV, YLS/CMI, and Static-99. *Criminal Justice and Behavior*, *36*, 981-1000. doi:10.1177/0093854809340991

*Wakeling, H. C., Freemantle, N., Beech, A. R., & Elliott, I. A. (2011). Identifying predictors of recidivism in a large sample of United Kingdom sexual offenders: A prognostic model. *Psychological Services*, *8*, 307-318. doi:10.1037/a0025516

Ward, T., & Keenan, T. (1999). Child molesters' implicit theories. *Journal of Interpersonal Violence*, *14*, 821-838. doi:10.1177/088626099014008003

Ward, T., & Siegert, R. (2002). Toward a comprehensive theory of child sexual abuse: A theory knitting perspective. *Psychology, Crime, and Law*, *8*, 319-351. doi:10.1080/10683160208401823

*Webb, L., Craissati, J., & Keen, S. (2007). Characteristics of Internet child pornography offenders: A comparison with child molesters. *Sexual Abuse: A Journal of Research and Treatment*, *19*, 449-465. doi:10.1177/107906320701900408

Whitaker, D. J., Le, B., Hanson, R. K., Baker, C. K., McMahon, P., Ryan, G., Klein, A., & Rice, D. D. (2008). Risk factors for the perpetration of child sexual abuse: A review and meta-analysis. *Child Abuse & Neglect*, *32*, 529-548. doi:10.1016/j.chiabu.2007.08.005

*Willis, G. M., & Grace, R. C. (2009). Assessment of community reintegration planning for sex offenders: Poor planning predicts recidivism. *Criminal Justice and Behavior*, *36*, 494-512. doi:10.1177/0093854809332874

Worling, J. R., & Curwen, T. (2001). Estimates of risk of adolescent sexual offense recidivism (ERASOR; Version 2). In M. C. Calder (Ed.), *Juvenile and children who sexually abuse: Framework for assessment* (pp. 372-397). Dorset, UK: Russell House.

*Worling, J. R., Bookalam, D., & Litteljohn, A. (2012). Prospective validity of the Estimate of Risk of Adolescent Sexual Offense Recidivism. *Sexual Abuse: A Journal of Research and Treatment*, *24*, 203-223. doi:10.1177/1079063211407080

Wortman, C. B. (1976). Causal attributions and personal control. In J. H. Harvey, W. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (*Vol. 1*, pp. 23-52). Hillsdale, NJ: Lawrence Erlbaum.

Zuckerman, M. (1979). Attribution of success and failure revisited, or: The motivation bias is alive and well in attribution theory. *Journal of Personality*, *47*, 245-287. doi:10.1111/j.1467-6494.1979.tb00202.x

Bios

Leslie Helmus, MA, is a PhD student at Carleton University in Ottawa. Her research has focused on sex offender risk assessment where she has been involved in developing and renorming several risk assessment tools.

R. Karl Hanson, PhD, is a senior research scientist with Public Safety Canada, and Adjunct Professor in the Psychology Department of Carleton University, Ottawa. He has been researching and developing assessment measures for sexual offenders for more than 20 years.

Kelly M. Babchishin, MA, is a graduate student in forensic psychology at Carleton University and a research assistant at Public Safety Canada. Her research interests include pedophilia, online sexual offending, and more applied areas, such as sex offender risk assessment and treatment.

Ruth E Mann, PhD, is Head of Evidence and Offence Specialism in the National Offender Management Service, England and Wales, responsible for ensuring correctional policy is evidence-informed. She has been involved in designing, managing, and researching treatment programs for sexual offenders for 20 years.