Assessing Risk for Sexual Recidivism: Some Proposals on the Nature of Psychologically Meaningful Risk Factors

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Abstract

Risk assessment and treatment for sexual offenders should focus on individual characteristics associated with recidivism risk. Although it is possible to conduct risk assessments based purely on empirical correlates, the most useful evaluations also *explain* the source of the risk. In this review, the authors propose that the basic requirements for a psychologically meaningful risk factor are (a) a plausible rationale that the factor is a cause of sexual offending and (b) strong evidence that it predicts sexual recidivism. Based on the second of these criteria, the authors categorize potential risk factors according to the strength of the evidence for their relationship with offending. The most strongly supported variables should be emphasized in both assessment and treatment of sexual offenders. Further research is required, however, to establish causal connections between these variables and recidivism and to examine the extent to which changes in these factors leads to reductions in recidivism potential.

Keywords

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Sexual crimes are among those that invoke the most public concern. These concerns are heightened when it appears that the offense should have been predicted and could have been prevented, as when new offenses are committed by known offenders. The observed sexual recidivism rate of sexual offenders is less than commonly believed (10% to 15% after 5 years; Hanson & Bussière, 1998; A. Harris & Hanson, 2004), and the overall recidivism rate of sexual offenders is lower than the recidivism rate of other offender groups (Beck & Shipley, 1989; Cunliffe & Shepherd, 2007; Hanson & Thornton, 2000; G. T. Harris et al., 2003). Nevertheless, not all sexual offenders are equally likely to reoffend. It is the task of those who assess and treat sexual offenders to determine who the highest risk offenders are and provide interventions that are (a) proportional to the level of risk and (b) tailored to the causes of the offending.

There is considerable disagreement among researchers and practitioners about the best way to assess sexual offenders' recidivism risk; nevertheless, most experts agree on some principles. First, for a characteristic to be considered a risk factor, meaningful definitions of lower and higher risk must be established in advance, and these must predict (with some probability) an outcome (Kraemer et al., 1997). A second agreed principle is that sexual offender risk is multiply determined: There is no one risk factor that is strongly related to recidivism. Evaluators must consider a range of risk factors. A third point of agreement is that structured approaches to assessing risk are more accurate than unstructured clinical opinion (Hanson & Morton-Bourgon, 2009; Monahan, 2007). A number of structured tools or frameworks for measuring sexual recidivism risk are available and widely used (Archer, Buffington-Vollum, Stredny, & Handel, 2006; Interstate Commission for Adult Offender Supervision, 2007; McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2009); in many contexts, they are expected (Doren, 2002; Jackson & Hess, 2007).

Conceptualizing Causal Risk Factors

It is possible to conduct a risk assessment based purely on atheoretical actuarial predictors. However, given equivalent accuracy, assessments respond better to the needs of decision makers and those being assessed (and to science) when the evaluation also *explains* the source of the risk. The distinction between simple correlates and clinically useful risk factors has been discussed by Andrews and Bonta (2006; Bonta, 1996), using the terms *static* and *dynamic* risk factors. According to these authors, *static risk factors* are relatively fixed aspects of offenders' histories, such as age and the extent of previous offending, that raise the risk of reoffending but cannot be changed for the better through deliberate intervention. Although static risk factors can change (criminal history can get worse; offenders gets older), they are not suitable as targets for an intervention. In contrast, Andrews and Bonta (2006) use the term *dynamic risk factors* to describe psychological or behavioral features of the offender that raise the risk of reoffending and that are potentially changeable, such as (distorted) attitudes or (deviant) sexual interests. Because Andrews and Bonta considered that dynamic risk factors should be the focus of correctional programming, these factors

are also called "criminogenic needs." Hanson and Harris (2000) further divided dynamic risk factors into *stable* risk factors (relatively enduring problems, such as alcoholism and personality disorders) and *acute* risk factors (rapidly changing features that signal the timing of reoffending, such as intoxication or emotional collapse).

Using the static/dynamic distinction, Bonta (1996) identified three generations of risk assessment procedures. The first generation was unstructured professional opinion, in which neither the risk factors nor the method of forming the overall evaluation were specified in advance. The second generation of risk assessments involved explicit, structured approaches to combining static, historical factors into an overall risk score. The items for second-generation instruments were selected based solely on empirical relationships with recidivism. The most commonly used risk tools for sexual offenders, such as Static-99 (Hanson & Thornton, 2000) or Risk Matrix-2000 (Thornton et al., 2003), are classic examples of second-generation risk tools. Although the second-generation instruments are more accurate than unstructured clinical opinion (Hanson & Morton-Bourgon, 2009), they do little to inform those who treat or monitor sexual offenders about the areas on which their interventions should focus.

Third-generation tools, in contrast, are designed to assist intervention efforts. According to Bonta (1996), third-generation scales are empirically validated actuarial measures that contain substantial amounts of dynamic items (criminogenic needs). Several third-generation risk tools have been developed for general offenders (e.g., Level of Service/Case Management Inventory, Andrews, Bonta, & Wormith, 2008; OAsys, Howard, 2009); only recently, however, has research focused on third-generation instruments for sexual offenders. Examples of structured risk tools for sexual offenders that meaningfully sample criminogenic needs include STABLE-2007/ ACUTE-2007 (Hanson, Harris, Scott, & Helmus, 2007); Structured Risk Assessment (Thornton, 2002a) and its variant, the Structured Assessment of Risk and Need (Webster et al., 2006); the Violence Risk Scale–Sex Offender Version (Olver, Wong, Nicholaichuk, & Gordon, 2007); the Sexual-Violence-Risk Management 20 (Boer, Hart, Kropp, & Webster, 1997); and the Sex Offender Treatment Needs and Progress Scale (McGrath & Cumming, 2003). On average, these frameworks show similar levels of predictive accuracy to static risk factor scales and, in most cases, add incremental predictive validity beyond Static-99 (Beech, Friendship, Erikson, & Hanson, 2002; Knight & Thornton, 2007; Olver et al., 2007; Thornton, 2002a). The research on these measures is still sufficiently underdeveloped that important questions remain concerning the conceptual foundations of these scales, whether they target the most relevant factors and the extent to which it is possible to associate recidivism rates with specific scores.

Even though the static/dynamic language has been widely adopted, these terms may not be sufficient to address current developments in research and applied risk assessment. Beech and Ward (2004; Ward & Beech, 2004) have argued that dynamic risk factors should be understood as psychological traits, which they variously call "vulnerabilities," "psychological mechanisms," "causal factors," and "psychological predispositions." The factors that Hanson and Harris (2000) consider acute dynamic risk factors, such as negative affective states or current interpersonal conflict, Beech

and Ward (2004) describe as "states" (vs. "traits") or as triggering events/contextual risk factors. Beech and Ward's state/trait conception differs significantly from the stable/acute distinction because states and traits are both aspects of the same underlying construct—for any state, there should be a corresponding trait. In contrast, the concept of "acute" risk factors can subsume factors that have no parallel among stable risk factors.

For Beech and Ward (2004), the concept of triggering events is most similar to Hanson and Harris's (2000) concept of acute dynamic factors, and Ward and Beech (2004) explicitly group Hanson and Harris's (2001) acute risk factors as triggering/contextual events. Both the Hanson/Harris and Ward/Beech models lack precision, however, on the extent to which acute risk factors are required to be external to the individual. For example, research has established a relationship between victim access and sexual recidivism (Hanson et al., 2007; Hanson & Harris, 2000), but both theories (and the empirical findings) do not clearly distinguish between a potential victim moving next door and deliberate cruising.

Beech and Ward's (2004) work presents a significant conceptual challenge to the static/dynamic distinction. They argued that static risk factors have predictive significance because they act as markers of the past operation of dynamic risk factors. Consequently, a static factor (e.g., history of offending against boys) can be an indicator of a psychologically meaningful causal factor (e.g., deviant sexual interests). If this conceptualization of risk factors is adopted, the conceptual distinction between static and dynamic factors loses meaning.

To date, there is little empirical support for the distinction between stable and acute risk factors. In a recent prospective study, Hanson et al. (2007) found that monthly assessments of "acute" risk factors were surprisingly stable predictors of recidivism; the average of the ratings for the previous 6 months was a better predictor of recidivism than the most recent rating. Rather than functioning as signals of imminent reoffending, the "acute" factors seemed to be better understood as ongoing, current expressions of longer term problems, that is, as manifestations of underlying dispositions or traits.

We propose that another way to understand risk factors, instead of classifying them as static or dynamic, is by adopting the concept of *psychologically meaningful risk factors*. Such risk factors can be conceptualized as individual propensities, which may or may not manifest during any particular time period. Like the traditional concept of trait, propensities are enduring characteristics that leads to predictable expressions of thoughts, feelings, or behaviors. Although propensities are characteristics of individuals, these propensities can also be recognized by individuals' transactions with others and the environments in which they live. Through consistency in beliefs, actions, and appearance, offenders can contribute to consistencies of their environment in ways that are relevant to their recidivism risk (e.g., high-crime neighborhoods, criminal associates). The propensity to gravitate toward criminogenic environments would be expected to be a conceptually distinct (and potentially better) indicator of long-term recidivism risk than the criminogenic environments themselves. Although certain circumstances would be expected to contribute to sexual crime (e.g., drinking or using

drugs with delinquent youth; Ageton, 1983), offenders with the propensity to place themselves in such situations would be expected to be at increased long-term recidivism risk compared with offenders whose natural tendencies lead them to safer environments.

We use the term *propensities* to describe psychologically meaningful risk factors in order to emphasize that the problematic behavior of interest arises through interactions with the environment. Aggressive offenders are not aggressive all the time—they become aggressive given certain interpretations of their environment (in the classic cognitive-behavioral sense). Alternate terms that are compatible with our conceptualization are *long-term vulnerabilities* and *if . . . then . . . behavioral signatures* (Mischel & Shoda, 1995; Smith, Shoda, Cumming, & Smoll, 2009). We avoided the term *trait* because its classic connotations imply much greater cross-situational stability than is actually observed (Mischel, 1968, 2009).

In the context of sexual offender treatment, the most useful propensities are those that are amenable to change. It is not necessary, however, that propensities be amenable to change for them to be psychological meaningful risk factors or for them to be of interest to treatment providers. For example, the extent to which male sexual interests can be changed through deliberate intervention is debatable. Nevertheless, there is widespread agreement that having deviant sexual interests is a risk-relevant propensity. Even if some criminogenic propensities cannot be changed, it is possible that such propensities can be neutralized through compensatory strengths or prosthetics.

The criteria used to identify risk-relevant propensities include both theory and evidence. First, there must be a plausible justification that the factor could be a cause of sexual reoffending. By this we mean that most people would agree that the factor (a) is psychologically meaningful, (b) could plausibly be a cause of sexual offending, (c) might be worth targeting in treatment or is already usually targeted in treatment, or (d) is treated as plausible in criminological or social learning theories of offending. Additionally, there must be robust empirical evidence that the factor predicts recidivism. Further evidence is required to establish a characteristic as a cause of offending. Although there is no single method for identifying causal connections, one strong form of empirical justification involves observing changes in recidivism rates following experimental manipulation of the characteristic (e.g., Andrews, 1980).

The next section of the article identifies the psychological factors that have the strongest empirical evidence as risk factors for sexual offenders. The primary empirical consideration for inclusion was evidence that the factor predicts recidivism. It is not our intention in this article to provide fully integrated theoretical accounts of how each factor is a cause of sexual offending; this is an issue beyond the scope of the current article. Instead, we focus on the evidence of predictive validity, dividing the potential risk factors into five categories based on the strength of this evidence. First, *empirically supported risk factors* are those where at least three studies, when meta-analytically integrated, show the construct to have significant predictive value for sexual recidivism. Consequently, a risk factor may be categorized as empirically supported even if some

studies have not found it to predict reconviction, as long as the meta-analytic summary was significant.

Meta-analysis has become the accepted method of answering questions concerning the magnitude and direction of empirical relationships (Barbaree, 2005; Cooper, 2003; Hanson & Broom, 2005). Not only can it provide a succinct summary of the overall effect, but it can also determine whether the variation in findings across studies is more than would be expected by chance (e.g., Borenstein, Hedges, Higgins, & Rothstein, 2009). We selected three studies as the minimum for consideration because it is a commonly accepted number for meta-analyses (e.g., Hanson & Bussière, 1998) and a number that provides reasonably stable results while allowing a broad coverage of the risk factor research.

To be considered supported, the effect for the risk factor needed to be more than trivial (average $d > 0.15$). By convention, d values of 0.20 are considered "small," 0.50 are "moderate," and 0.80 are "large" (Cohen, 1998). Note, however, that any labels for the size of empirical relationships are fluid, given that an effect that is "small" in one context may be "large" in another. A d of 0.15 would correspond to a difference in recidivism rates of at least 5%, less than which is unlikely to be meaningful for applied decisions. A d of 0.20 would correspond to recidivism rate differences of 10% (i.e., 20% vs. 30%), which are "small" but still of interest to decision makers. We chose a threshold of 0.15 because factors with smaller relationships with recidivism would have limited practical value, and they are unlikely to add incrementally once other, stronger, risk factors are considered.

We also discuss individual findings in terms of their area under the receiver operating characteristics curve (*AUC*). Both d and *AUC* are based on similar statistical models (Swets, 1986), and the transformations between these metrics are well documented: for example, d of 0.20 = *AUC* of 0.556, d of 0.50 = *AUC* of 0.639, d of 0.80 = *AUC* of 0.714; Rice & Harris, 2005). By our definition, a trivial effect ($|d| < 0.15$) would correspond to an *AUC* value between 0.46 and 0.54.

Second, *promising risk factors* are those that at least one study has shown the construct to have significant predictive value for sexual recidivism and where there are other kinds of relevant supportive evidence. This additional evidence could include a correlation between the risk factor and an actuarial risk determination, a correlation between the risk factor and number of sexual convictions, a correlation between the risk factor and self-reported sexual aggression in an unconvicted sample, or evidence that the risk factor is more strongly present in a sexual offender sample than a nonsexual offender sample.

Third, we consider *risk factors that are unsupported overall, but with interesting exceptions.* These are risk factors where the overall effect from meta-analysis is small and the confidence interval (CI) included zero, but where at least one large, credible study has found a significant effect, or where a significant effect has been found for subgroups of sexual offenders.

Fourth, we suggest some potential risk factors that are *worth exploring*—there are no (or inconclusive) prediction studies, but there is some other supporting evidence,

such as comparisons between sex offenders and nonsex offenders or post hoc comparisons between recidivists and non-recidivists.

Finally, we provide a nonexhaustive list of variables that evidence suggests are *factors with little or no relationship to sexual recidivism*, including some that may be surprising to those familiar with typical clinical practice with sex offenders. To be included in the list of unrelated factors, the factor's relationship to sexual recidivism must have been investigated in at least five studies, and the upper end of the 95% CI for the *d* statistic should be less than 0.15. This, in effect, requires that the data are sufficient to determine that the factor's association with recidivism is both small in absolute terms and smaller than that of factors typically regarded as predictive (minimum mean $d > 0.15$).

To review the evidence of predictive validity, we started with the variables identified in the previous meta-analytic reviews conducted by Hanson and colleagues (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004, 2005). These studies created an evidence base that has been extremely influential both in directing the subsequent development of risk assessment tools and in informing the objectives of modern treatment programs. To these reviews, we added findings from two subsequent large-scale recidivism prediction studies: the Bridgewater recidivism study (Knight & Thornton, 2007) and the Dynamic Supervision Project (DSP; Hanson et al., 2007). The Bridgewater recidivism study examined approximately 600 men evaluated for civil commitment at the Massachusetts Treatment Center for Sexually Dangerous Persons at Bridgewater between 1959 and 1984. Follow-up time varied, although many were followed for extensive periods of time (300+ were followed for more than 10 years, and some were followed for 25 years). DSP was a prospective study of risk assessment procedures, involving an average 3.5-year follow-up of 997 sexual offenders on community supervision between 2001 and 2005 in Canada and two U.S. states (Iowa, Alaska). The findings from these two studies were integrated using the cumulative meta-analytic techniques described by Hanson and Broom (2005; see Table 1).

Empirically Supported Risk Factors

Table 2 displays the risk factors categorized as empirically supported. We believe that the evidence is sufficient for these characteristics to be considered risk factors. Readers should be cautious, however, about interpreting the relative importance of one factor compared with another. In most cases, the CIs overlap; when they do not, the findings are based on a limited number of studies (less than five).

The CIs represent the range of plausible values for the population parameters (where the true values lies). Substantive interpretations can be based on values anywhere in the interval (Cumming & Finch, 2005). When the observations are uncorrelated, two values can be considered to differ at the $p < .01$ level if their CIs do not overlap (Cumming & Finch, 2005). Given that the different risk factors would be expected to be substantially positively correlated, CIs provide a test of differences with extremely low statistical power. Consequently, it is difficult to use the data

Table 1. Updates to Hanson and Morton-Bourgon's (2004) Meta-Analytic Findings on Risk Factors With the Addition of Two New Data Sets (Bridgewater: Knight & Thornton, 2007; DSP: Hanson et al., 2007)

Variable	Study	Mean d	95% CI	Q/Q_Δ	N (k)
Sexualized violence	Hanson and Morton-Bourgon (2004)	0.12	−0.06, 0.29	3.46	1,140 (7)
	Bridgewater	0.28	0.04, 0.52	1.18	383 (1)
	New total	0.18	0.04, 0.32	5.14	1,523 (8)
Negative social influences	Hanson and Morton-Bourgon (2004)	0.22	−0.01, 0.45	2.36	938 (6)
	DSP	0.32	0.05, 0.59	0.30	798 (1)
	New total	0.26	0.08, 0.44	2.66	1736 (7)
Poor cognitive problem solving	Hanson and Morton-Bourgon 2004	0.14	−0.09, 0.37	3.53	475 (3)
	DSP	0.35	0.08, 0.63	1.37	799 (1)
	New total	0.22	0.05, 0.40	4.90	1,274 (4)
Loneliness	Hanson and Morton-Bourgon 2004	0.03	−0.10, 0.17	5.79	1,810 (6)
	DSP	0.35	0.08, 0.63	4.31*	799 (1)
	New total	0.09	−0.03, 0.21	10.10	2,609 (7)

Note: DSP = Dynamic Supervision Project.
*p < .05.

presented to make strong statements about the relative importance of the various risk factors, and given that they are univariate relationships, these data cannot be used to assess their unique or incremental contribution to recidivism prediction.

Sexual preoccupation refers to an abnormally intense interest in sex that dominates psychological functioning. Sex is engaged in for itself, as a way of defining the self, or as self-medication. The problematic type of sexual preoccupation is not that associated with romantic love or intense attraction to a specific person. The sexually preoccupied man usually feels sexually dissatisfied despite engaging in high levels of (mainly impersonal) sexual behavior (Långström & Hanson, 2006). Individuals demonstrating sexual preoccupations would substantially overlap with those described as having sexual compulsions, sexual addiction, and hypersexuality (Kafka, 2003; Marshall, Marshall, Moulden, & Serran, 2008). In Hanson and Morton-Bourgon's (2004) meta-analysis, sexual preoccupations significantly predicted sexual, violent, and general recidivism. It was also found to be a significant predictor of sexual recidivism in the subsequent studies by Knight and Thornton (2007; AUC = 0.65) and Hanson et al. (2007; AUC = 0.58).

Sexual preference for prepubescent or pubescent children, however measured, significantly predicted sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis. For the purpose of defining this construct, children would include

Table 2. Psychologically Meaningful Risk Factors According to Their Strength of Evidence for Predicting Sexual Recidivism

Variable	Mean d	95% CI	Q	N (k)	Source
Supported					
Sexual preoccupation	0.39	0.23, 0.56	8.31	1,119 (6)	A
Any deviant sexual interest	0.31	0.21, 0.42	21.91	2,769 (16)	A
Sexual preference for children (PPG)	0.32	0.16, 0.47	11.52	1,278 (10)	B
Sexualized violence	0.18	0.04, 0.32	5.14	1,523 (8)	B, C
Multiple paraphilias	0.21	0.01, 0.41	6.71	477 (4)	B
Offense-supportive attitudes	0.22	0.05, 0.38	14.53*	1,617 (9)	B
Emotional congruence with children	0.42	0.16, 0.69	4.32	419 (3)	B
Lack of emotionally intimate relationships with adults					
Never married	0.32	0.21, 0.45	9.62	2,850 (8)	D
Conflicts in intimate relationships	0.36	0.05, 0.66	2.08	298 (4)	B
Lifestyle impulsivity					
General self-regulation problems	0.37	0.26, 0.48	22.85	2,411 (15)	A
Impulsivity, recklessness	0.25	0.06, 0.43	5.35	775 (6)	B
Employment instability	0.22	0.13, 0.30	20.88	5,357 (15)	A
Poor cognitive problem solving	0.22	0.05, 0.40	4.90	1,274 (4)	B, E
Resistance to rules and supervision					
Childhood behavior problems	0.30	0.16, 0.43	7.11	1,996 (8)	B
Noncompliance with supervision	0.62	0.45, 0.79	5.86	2,159 (3)	B
Violation of conditional release	0.50	0.34, 0.65	16.55**	2,151 (4)	B
Grievance/hostility	0.20	0.09, 0.31	13.58	3,139 (11)	B, C, E
Negative social influences	0.26	0.08, 0.44	2.66	1,736 (7)	B, E
Promising					
Hostility toward women	0.29	0.00, 0.58		799 (1)	E
Machiavellianism	1.40	0.48, 2.33		99 (1)	F
Callousness/lack of concern for others	0.29	0.11, 0.47	0.001	1,173 (2)	C, E
Dysfunctional coping					
Sexualized coping	0.43	0.14, 0.74		798 (1)	E
Externalizing	0.27	0.03, 0.51		380 (1)	C

Note: A: Hanson and Morton-Bourgon (2005); B: Hanson and Morton-Bourgon (2004); C: Knight and Thornton (2007); D: Hanson and Bussière (1998) transformed from r to d assuming 13.4% base rate; E: Hanson et al. (2007); F: Thornton (2003).
*$p < .05$ **$p < .01$.

females aged 0 to 12 years and males aged 0 to 13 years. The age difference is because of the later age of puberty for boys than for girls (Parent et al., 2003). Children are marked by the relative absence of physical cues typically indicative of the biological ability to mate and reproduce. These include immaturity in skin texture, degree of body and pubic hair, smell, body shape, musculature, and breast and genital development. Pedophilic interests can be identified by self-report, offense history (e.g., Seto & Lalumière, 2001), and specialized testing (e.g., phallometry).

Sexualized violence describes an interest in sadism or a preference for coercive sex over consenting sex (Lalumière & Quinsey, 1994). Phallometric interest in rape did not significantly predict sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis. Sexual interest in violence did predict sexual recidivism in Knight and Thornton's (2007) Bridgewater study, however, and when the Bridgewater results are added to Hanson and Morton-Bourgon's data set (see Table 1), the effect becomes statistically significant ($d = 0.18$, 95% CI [0.05, 0.32], $k = 8$) with no significant variability across studies ($Q = 5.1$, $p > .50$). Although the available data support sexualized violence as a risk factor, the evidence supporting sexualized violence is not as strong as the evidence supporting sexual interest in children.

Multiple paraphilias are two or more rare, unusual, or socially deviant sexual interests in persons, objects, or activities (see Laws & O'Donohue, 2008). Among sexual offenders, the most common paraphilias involve sexual interest in children (pedophilia), exhibitionism, voyeurism, and paraphilic rape (sexualized violence). Paraphilias were significantly associated with sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis. In the Bridgewater (Knight & Thornton, 2007) study, multiple paraphilias was one of five variables that predicted sexual recidivism for child molesters. The extent to which the paraphilias need to be illegal is unknown. It is possible that a paraphilia may be legal but, nonetheless, offense related; for example, an offender may coerce someone into sexual activities for which it is difficult to find a consenting partner (e.g., certain forms of coprophilia). We were unable to locate studies that specifically examined the recidivism rates of sexual offenders with only noncriminal paraphilias (e.g., transvestism, shoe fetishism).

Offense-supportive attitudes, for which various definitions have been proposed, are defined as beliefs that justify or excuse sexual offending in general. The risk-relevant attitudes are those that condone sexual offenses in others or in general, rather than the accounts offenders provide to excuse or justify their own specific offenses (Maruna & Mann, 2006). Examples of offense-supportive attitudes for child molesters include beliefs that children can enjoy sex, that adult–child sex is harmless, or that children can be sexually provocative (Abel, Becker, & Cunningham-Rather, 1984; Hanson, Gizzarelli, & Scott, 1994; Mann, Webster, Wakeling, & Marshall, 2007). Rapists may state that rape is justified, harmless, or even enjoyable for the woman (Bumby, 1996; Scully & Marolla, 1984).

As with all attitudes, there can be problems identifying and measuring the extent to which these beliefs are present. For sexual offenders, the presence of offense-supportive beliefs is often inferred from the statements offenders make about their offending—hence the difficulty distinguishing between criminogenic and noncriminogenic attitudes. Although the cognitive-behavioral worldview implies that all behavior follows from cognitions, a single act of sexual offending does not entail the existence of offense-supportive attitudes. Like the rest of us, sexual offenders are able to do things that are contrary to their values and moral beliefs, acts for which they feel ashamed and deeply regret. There is no evidence, however, that evaluators are able to distinguish between feigned and sincere remorse, particularly in adversarial settings.

Offense-supportive attitudes showed a small but statistically significant relationship with sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis. There was, however, significant variability across the nine recidivism studies summarized in that review. Furthermore, none of the specific types of offense-supportive attitudes (e.g., rape attitudes, child molester attitudes) showed a relationship with recidivism. There appeared to be different effects, however, based on the context of the assessment. In the six studies in which offenders were assessed as part of intake assessment for treatment, offense-supportive attitudes were significantly related to sexual recidivism (average $d = 0.36$, 95% CI [0.14, 0.59], $Q = 8.13$, $p = .14$, $n = 875$, $k = 6$). In contrast, offense-supportive attitudes assessed in other, more adversarial contexts (e.g., community supervision, precourt) showed no relationship to recidivism (average $d = 0.04$, 95% CI [−0.20, 0.29], $Q = 2.78$, $p = .25$, $n = 742$, $k = 3$; both estimates computed for this article using fixed-effect meta-analysis; Borenstein et al., 2009). Subsequent research has revealed a similar pattern. Attitudes significantly predicted recidivism in treatment samples (Craig, Thornton, Beech, & Browne, 2007; Olver et al., 2007) but not in the community supervision sample examined by Hanson et al. (2007). Further work is needed to determine if there are ways of conceptualizing and measuring offense-supportive beliefs that would permit more consistent assessments of risk-relevant attitudes across diverse settings.

Emotional congruence with children refers to feeling that relationships with children are more emotionally satisfying than relationships with adults. The offender who is emotionally congruent with children may find children easier to relate to than adults, may feel he is still like a child himself, and may believe that children understand him better than adults do. He often feels himself to be "in love" with his child victims, as if the relationship was reciprocal (Wilson, 1999). In Wilson's study, this risk factor was found mainly among extrafamilial child molesters who molested boys; in contrast, incest offenders tended to elevate their victims to adult status, and those who offended against unrelated girls seemed motivated by a desire for sexual gratification rather than a need for emotional intimacy. Hanson and Morton-Bourgon (2004) found emotional congruence with children (which they named "emotional identification with children") to be significantly associated with sexual recidivism. It was also related to sexual recidivism among child molesters (but not rapists) in both the Bridgewater (Knight & Thornton, 2007) and DSP studies (Hanson et al., 2007).

Lack of emotionally intimate relationships with adults had a significant relationship with recidivism in the two major meta-analytic studies (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004). This applies both to offenders who have no intimate relationships and to those whose intimate relationships involved repeated conflict and/or infidelity. Offenders who desire intimacy but have been unable to achieve it are at increased risk, as are those who do not desire intimacy. Note that these varying facets of dysfunctional intimacy may have different underlying pathologies and so may lead to different treatment targets. For example, the lack of *any* history of intimate relationships may indicate atypical sexual interests (Blanchard & Bogaert, 1997), whereas a history of conflictual relationships may reflect problems with attachment

and emotional management. In the DSP, relationship instability was significantly and linearly related to all types of recidivism.

Lifestyle impulsiveness refers to low self-control, chronic instability in employment and housing, lack of meaningful daily routines, irresponsible decisions, and limited or unrealistic long-term goals. This factor is a major determinant of criminal behavior (Gottfredson & Hirschi, 1990), and it predicted all types of recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis. A corresponding factor, impulsive acts, predicted sexual charges in the DSP ($AUC = 0.64$). Lifestyle impulsiveness can also be seen as corresponding to Facet 3 of the PCL-R (Hare, 2003), which predicted serious sexual recidivism in the Bridgewater data set ($AUC = 0.63$ for 10-year follow-up). Employment instability and substance abuse history—both of which showed small, significant relationships with sexual recidivism in Hanson and Morton-Bourgon's (2004) study—are, in our view, appropriately viewed as indicators of lifestyle impulsiveness.

Poor problem solving involves cognitive difficulties in generating and identifying effective solutions to the problems of daily living. Offenders may avoid addressing obvious problems and deploy ineffective problem-solving skills when problems are attended to. For example, they may ruminate about negative aspects of the situation or select a course of action with a high probability of failure. Problem-solving deficits commonly involve (a) deficits in problem recognition/conceptualization, (b) lack of consequential thinking, and (c) difficulties generating a suitably wide range of options.

Poor cognitive problem solving showed a significant linear relationship to all recidivism outcomes in the DSP (Hanson et al., 2007). Adding these data to Hanson and Morton-Bourgon's (2004) earlier meta-analysis produced an overall significant predictive effect (see Table 1).

Resistance to rules and supervision, including rule breaking and opposition to external control, predicted serious sexual recidivism in the Bridgewater data set ($AUC = 0.63$ for 10-year follow-up). It corresponds to Facet 4 in the PCL-R (Hare, 2003). Items related to this construct, such as rule violations, noncompliance with supervision, and violation of conditional release, were consistently large predictors of sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis, although the number of studies that measured this construct was limited. As expected, this finding was replicated in the DSP where the variable "lack of cooperation with supervision" showed a significant linear relationship with all types of recidivism.

There appear to be two facets of resistance to rules: a defiant attitude to authority and a history of oppositional behavior (e.g., failing to follow direction, missing or arriving late for appointments, deceiving the supervisor). The underlying propensity here is conceptualized as the defiant attitude to authority, with oppositional behavior being a manifestation of this underlying propensity.

Grievance/hostility involves the perception of having been done wrong by the world, feeling that others are responsible for their problems, and wanting to punish others as a consequence. Offenders with this schema are preoccupied with obtaining the respect they desire from others and frequently ruminate on vengeance themes

(Mann, 2005). They have difficulty seeing other people's point of view and anticipate further wrongs will be perpetrated against them. Hanson and Morton-Bourgon (2004) found hostility predicted sexual recidivism. In the DSP, this variable (labeled "negative emotion/hostility") was significantly related to violent and general recidivism but not to sexual recidivism. In the Bridgewater data set, the *AUC* for this variable was 0.58 ($p = .017$) for predicting sexual recidivism during a 10-year follow-up period.

Negative social influences refer to having a social network dominated by individuals who are involved in crime, promote criminal behavior, or weaken the behavioral controls of the offender. Although social networks can be considered "external" to the offenders, individuals tend to choose and recreate consistent environments. Social influences are emphasized in many of the major theories of crime (Andrews & Bonta, 2006; Sutherland & Cressey, 1970) as well as by major theories of human behavior (Azjen, 2005; Bandura, 1986). The presence of negative social influences is also one of the strongest predictors of general criminal recidivism (Gendreau, Little, & Goggin, 1996).

The presence of negative social influences was not a significant predictor of sexual recidivism in Hanson and Morton-Bourgon's (2004) review, but it did predict sexual recidivism in the subsequent DSP (Hanson et al., 2007). When the DSP study is added to the earlier meta-analysis, the overall effect becomes significant and nontrivial (see Table 1).

Promising Risk Factors

Table 2 also lists the risk factors categorized as promising. These risk factors have the support of one or two prediction studies plus some supporting evidence of other kinds.

Hostile beliefs about women involve seeing women as malicious and deceptive in their interactions with men. Offenders holding this view believe that women like making fools of men, that women seldom express their true feelings directly, and that if a women appears sexually interested in a man, the expression is probably deceitful and manipulative (Malamuth & Brown, 1994). Women are therefore placed in a separate category not worthy of trust and respect. This construct showed a significant linear relationship to all recidivism outcomes in the DSP (Hanson et al., 2007; *AUC* of 0.58 for sexual recidivism). In a retrospective correlational study, Thornton (2002b) found it to be more common among sexual recidivists than among first-time offenders. Malamuth's research has found such beliefs to predict sexual aggression in community samples (Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Malamuth, Sockloskie, Koss, & Tanaka, 1991).

Machiavellianism combines the following components: (a) a view of others as weak, cowardly, selfish, and easily manipulated and (b) an interpersonal strategy in which it is viewed as sensible and appropriate to take advantage of others (Christie & Geis, 1970). Thornton (2003) demonstrated that this pattern was more marked in repeat child molesters than single-conviction child molesters and that it predicted sexual recidivism over and above its relationship to past sex offending.

Lack of concern for others (also termed *callousness*) is characterized by egocentricity, a tendency to engage in instrumental rather than affectively warm relationships; poor empathy; and a lack of sympathy for others. It corresponds to Facet 2 in the PCL-R (Hare, 2003). Men with this profile are described as selfish, cynical, and willing to be cruel to meet their own needs. They appear indifferent to other people's rights or welfare, except as it influences their own interests. Lack of concern for others showed a significant linear relationship to all recidivism outcomes in the DSP (Hanson et al., 2007). It also significantly predicted sexual recidivism in the Bridgewater study (*AUC* of 0.60 and 0.65 in the 10- and 15-year follow-up periods, respectively).

Dysfunctional coping is defined as the ways in which sexual offenders manage negative emotions such as anger, anxiety, rejection and humiliation, which are related to their risk of sexual recidivism. The two forms of dysfunctional coping most relevant to risk assessment involve responding to stress (a) through sexual responses or (b) through externalizing behaviors more generally.

Sexualized coping is defined as the use of sex to manage negative emotions and stressful life events (Cortoni & Marshall, 2001). The sexual behavior may be normal or deviant, although typically it involves impersonal sexual behavior, as this strategy involves the use of sex, not necessarily intimacy. Those who engage in sexualized coping show increased sexual activity during periods of stress or dysfunction. Sexualized coping significantly predicted sexual recidivism in the DSP (*AUC* of 0.62). Sexual offenders often report increased deviant sexual fantasies and masturbation during periods of stress (McKibben, Proulx, & Lusignan, 1994). A link between negative emotion and sex is common among those who engage in high-risk sexual behavior (Bancroft et al., 2003a, 2003b) as it is among child molesters (Whitaker et al., 2008).

Externalized coping involves the tendency to respond in a reckless, impulsive manner when faced with stress or problems. As defined in the Structured Risk Assessment system (where it is labeled "Dysfunctional Coping"), it overlaps poor problem solving and poor emotional control (Knight & Thornton, 2007). Impulsive behavior is common among sexual offenders, and they are more likely to reoffend with a nonsexual crime than a sexual crime (Hanson & Bussière, 1998). In the Bridgewater study, externalized coping significantly predicted serious sexual recidivism at both 5-year and 10-year follow-up periods (*AUC*s of 0.57 for both).

Unsupported but With Interesting Exceptions

In this category, we placed potential risk factors where the meta-analytic summary showed a small, nonsignificant effect, but a significant result was found in either (a) one large credible study or (b) a study examining subgroups of sexual offenders (see Table 3).

Denial refers to the tendency of sexual offenders to claim that they did not do the sexual criminal acts attributed to them by the courts. Hanson and Morton-Bourgon (2004, 2005) found no overall effect of denial on sexual recidivism, as have subsequent studies (Harkins, Beech, & Goodwill, 2007; Langton et al., 2008; Nunes et al., 2007;

Table 3. Factors That Are Unsupported Overall With Interesting Exceptions

Variable	Mean *d*	95% CI	Q	*N* (k)	Source
Denial	0.02	−0.15, 0.19	11.72	1,780 (9)	A
View of self as inadequate					
Overall	0.06	−.06, 0.22	10.64	1,477 (11)	A + G
U.K. studies	0.67	0.21, 1.13	0.01	225 (2)	G
Canadian, U.S., and New Zealand studies	−0.02	−.18, .15	2.93	1,252 (9)	A − G
Major mental illness					
Overall	0.24	0.11, 0.38	41.06**	2,783 (9)	B
Swedish record study	0.90	0.66, 1.14		1,125 (1)	H
Other studies	−0.03	−0.19, 0.12	0.73	1,268 (8)	B
Loneliness					
Overall	0.09	−.03, 0.21	10.10	2,609 (7)	B, E
Dynamic Supervision Project	0.35	0.08, 0.63		799 (1)	E
Other studies	0.03	−0.10, 0.17	5.79	1,810 (6)	B

Note: A: Hanson and Morton-Bourgon (2005); B: Hanson and Morton-Bourgon (2004); E: Hanson et al. (2007); G: Thornton et al. (2004); H: Långström et al. (2004).
**$p < .01$.

Thornton & Knight, 2007). The more recent studies, however, have found significant interactions across subgroups, such that denial increased the recidivism rate of certain sexual offenders and decreased the recidivism rate of others. The patterns of results, however, have differed across studies. At least some of these differences can be attributed to researchers addressing different questions.

Nunes et al. (2007) found that denial was only related to recidivism for offenders who scored low on the RRASOR (Hanson, 1997), a four-item actuarial risk assessment instrument for sexual offenders. Subsequent analyses found that denial increased the sexual recidivism risk for incest offenders (odds ratio of 2.74) but not for those with unrelated victims (odds ratio of 0.83). Similarly, Harkins et al. (2007) found that denial was a protective factor for high-risk offenders but not low-risk offenders. Langton et al. (2008) reported an opposite pattern. In their study, a linear measure of minimization (assessed after treatment) increased the risk for high-risk offenders and decreased the risk for low-risk offenders. Risk was determined using the RRASOR, the same risk scale used by Nunes et al. (2007).

Thornton and Knight (2007) found denial to be a protective factor for child molesters (most of who would have had extrafamilial victims). Overall, denial was associated with increased recidivism risk for rapists, but this effect largely disappeared after controlling for psychopathy and static risk factors (using the Static-99). The interaction between denial and risk was not specifically examined in their study because their sample had few low-risk offenders.

In summary, the conditions under which denial contributes to recidivism risk for sexual offenders have not been clearly identified. It is likely that some aspects of denial

are genuinely protective, for by denying their offenses, some offenders can be advancing a "redemption script" and distancing themselves from their prior misdeeds (Maruna & Mann, 2006). Denial also can be criminogenic when it is motivated by the crass desire to avoid punishment or by a failure to recognize their transgression as sexual crimes. One hypothesis that follows from this view is that denial would be protective for offenders demonstrating positive behavioral change in other areas (e.g., cooperative with supervision, avoidance of high-risk situations), but denial would increase the risk for sexual offenders who remain committed to deviant lifestyles or otherwise criminogenic influences.

Low self esteem was unrelated to sexual recidivism in Hanson and Morton-Bourgon (2004), but the two studies with British populations both found moderate to strong effects (Thornton, 2002b; Thornton, Beech, & Marshall, 2004). It is not clear whether the variation indicates true cultural differences (i.e., self-esteem is a risk factor for British but not North American offenders) or whether it is based on different approaches to measurement. Both British studies used one particular measure of self-esteem: the Short Self-Esteem Scale (SSES; Webster, Mann, Wakeling, & Thornton, 2007). The SSES involves eight items that essentially measure a dislike of the person one is. In addition to the recidivism studies, Thornton (2002a) found that men sentenced on one occasion only for a sexual offense had higher self-esteem than those sentenced more than once. The SSES also reliably distinguished between sex offenders in different risk bands (Webster et al., 2007).

Major mental illness is defined as severe disorders involving hallucinations, delusions, and other signs of gross impairment with psychological functioning (e.g., schizophrenia, manic depression). In general, major mental illness increases the risk of violence in the general population (Elbogen & Johnson, 2009) but is unrelated to recidivism among individuals already identified as offenders (Bonta, Law, & Hanson, 1998). Severe mental disorders predicted sexual recidivism in Hanson and Bussière's (1998) meta-analysis, but the effect was based on three small studies (combined sample of only 184). Major mental illness was not related to recidivism in most of the studies in Hanson and Morton-Bourgon's (2004) updated meta-analysis ($d = -0.03$, $n = 1,268$, $k = 7$), with one exception. Långström, Sjöstedt, and Grann (2004) found a large effect ($d = 0.90$) among Swedish sexual offenders. The Långström et al. (2004) study is noteworthy because of its large, relatively unselected sample and the combined use of records from the health and correctional systems. Consequently, it is possible that major mental illness plays a role in the recidivism process, but the conditions under which it is a relevant risk factor has yet to be clearly articulated.

Loneliness refers to having no friends, having weak connections to others, and feeling rejected by others. It is primarily based on the subjective sense that others do not care rather than the objective fact of having few or no friends (i.e., the loner). Loneliness did not predict recidivism in Hanson and Morton-Bourgon (2004), but subsequently it did predict recidivism in the DSP. The overall meta-analysis of the seven available studies still remains nonsignificant when the DSP findings were included (see Table 1). Given that the DSP findings were significantly different from

Table 4. Factors Unrelated to Sexual Recidivism

Variable	Mean *d*	95% CI	*Q*	*N* (k)	Source
Depression	−0.13	−0.34, 0.08	6.90	850 (7)	B
Poor social skills	−0.07	−0.27, 0.13	8.11	965 (6)	B
Poor victim empathy	−0.08	−0.21, 0.05	0.92	1,745 (5)	A
Lack of motivation for treatment at intake	−0.08	−0.21, 0.05	13.83	1,786 (12)	A

Note: A: Hanson & Morton-Bourgon (2005); B: Hanson & Morton-Bourgon (2004).

those of previous studies, further research is justified to identify conditions under which loneliness may be a relevant risk factor.

Worth Exploring

We do not believe that the factors mentioned so far are an exhaustive list of possibly relevant risk factors. Further research is likely to identify new risk factors and refine the definitions of the factors already shown to empirically predict recidivism. Ongoing developments in theory will suggest risk factors worth exploring, as will the results of case control studies. Examples of such factors include *adversarial sexual orientation*, which has been associated with sexual coercion in university samples (Malamuth et al., 1991); *fragile narcissism*, which has been associated with aggression in response to threats to a grandiose self-image (Bushman & Baumeister, 1998; Papps & O'Carroll, 1998; Stuker & Sporer, 2002); and *sexual entitlement* (Hanson et al., 1994; Hanson et al., 2007). These factors have some evidence supporting their role as risk factors, but the ability of these factors to predict recidivism has not been adequately tested.

Not Risk Factors

There are some plausible factors, however, that have been sufficiently studied to conclude that they have little or no relationship with recidivism. For a variable to be considered unrelated to recidivism, five or more prediction studies must have failed to find a significant relationship, and the estimated effect must be no more than trivial (upper end of confidence limit for *d* was less than 0.15). A further criterion is that the results had to be stable across studies (nonsignificant *Q* and no outliers). Table 4 shows four variables meeting these criteria.

Although *depression* is intrinsically worthy of intervention, it is not related to sexual recidivism. The direction of the relationship is, if anything, negative, such that the most depressed offenders are the least likely to reoffend. This finding is completely consistent with the general correctional literature in which internalizing psychological disorders are not considered criminogenic needs (Andrews & Bonta, 2006; Gendreau et al., 1996).

Social skills deficits have historically been considered one of the major causes of sexual offending and consequently, were important treatment targets in the 1970s and 1980s (Becker, Abel, Blanchard, Murphy, & Coleman, 1978; Crawford & Allen, 1979; McFall, 1990). None of the follow-up studies, however, have found that social skills deficits predicted sexual or violent recidivism. Although the social interactions of sexual offenders can be problematic, these deficits appear to be more specifically related to intimacy deficits and hostile attitudes toward women, rather than to poor dating skills or problems negotiating routine social situations.

Poor victim empathy is of interest because victim empathy is a standard component of most sexual offender treatment programs (McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2010). It was unrelated to sexual recidivism, however, in the five studies examined by Hanson and Morton-Bourgon (2004). In contrast, poor victim empathy had small relationship with nonsexual violent recidivism ($d = .19$; three studies) and general recidivism ($d = 0.12$, $k = 5$). It is possible that much of what passes as poor victim empathy could be better construed as justifications that offenders used to distance themselves from a deviant identity. It is also plausible that for some individuals poor victim empathy may be a symptom of the more general problem of lack of concern for others (see above).

Lack of motivation for treatment, as assessed pretreatment, did not have any relationship with sexual recidivism in Hanson and Morton-Bourgon's (2004) meta-analysis ($d = -0.08$). This is a rather surprising finding given that offenders who complete treatment are lower risk than untreated offenders (Hanson, Bourgon, Helmus, & Hodgson, 2009; Hanson et al., 2002; Lösel & Schmucker, 2005), low motivation is related to dropping out of treatment (Beyko & Wong, 2005), and dropping out of treatment is associated with increased recidivism (Hanson et al., 2002). It may be that pressures on offenders to appear motivated may limit the ability of evaluators to identify true motivation at intake. It is also the case that motivation to attend treatment is not synonymous with motivation to stop offending.

Are Any of These Factors Causes of Sexual Recidivism?

Earlier, we proposed two criteria that should be met for a propensity to be considered a psychologically meaningful, causal, psychological risk factor: (a) a plausible rationale that the risk factor is psychological and could be a cause of sexual offending and (b) evidence of an empirical association with recidivism. Ideally, there would also be evidence supporting a causal connection with recidivism for this factor as distinct from the other constructs with which it could be confused and confounded. We believe that the "empirically supported" factors listed in Table 2 meet the second of these two criteria and, therefore, are worthy of being considered risk factors. We also believe that they are promising candidates for psychologically meaningful causal risk factors (the first criterion); considerable more work is required, however, to establish their causal connections with recidivism.

One approach to establishing causal connections is to examine the extent to which deliberate manipulation of the factors results in changes in recidivism potential. To quote Farrington (2007): "The concept of cause implies that within-individual change in a causal factor is followed by within-individual change in an outcome and ideas of prevention and treatment require within-individual change" (p. 126). Don Andrews (1980), for example, provided strong support for procriminal attitudes as a causal risk factor when he demonstrated that experimentally induced reductions in procriminal attitudes were associated with reduced recidivism rates of probationers.

Evidence supporting a causal role for the variables in Table 2 comes from a recent meta-analysis of treatment outcome by Hanson et al. (2009). This meta-analysis found that the treatments targeting criminogenic needs reduced sexual and general recidivism; in contrast, treatments targeting other needs did not. In the Hanson et al. (2009) study, criminogenic needs were defined as those with a significant relationship to recidivism in prior meta-analyses of recidivism predictors (Andrews & Bonta, 2006; Gendreau et al., 1996; Hanson & Morton-Bourgon, 2004, 2005). Even though the Hanson et al. (2009) study did not separate out individual risk factors, the findings suggest that contained within the factors in Table 2 are features and constructs meaningfully related to recidivism potential.

It is quite possible, however, to conceive of causal factors that do not change. Most obviously, many biologically or genetically determined propensities are considered to be lifelong enduring characteristics—present since birth. We expect that most, if not all, of the risk factors we propose here are underpinned by neuropsychological mechanisms (for further information, see Ward & Beech, 2006) as well as social and psychological mechanisms. It is not clear that all of the factors in our list would be expected to be changed by deliberate intervention. For instance, the scientific community has yet to establish consensus concerning the mutability of some deviant sexual preferences, such as pedophilia (Seto, 2008). Even if a factor is immutable with current technologies, treatment can still help offenders learn to manage or compensate for the propensity. Community risk management systems can monitor the degree to which the risk factor is currently manifested or seek to modify the offender's environment so that he is less severely exposed to the stimuli that trigger the operation of the propensity. Consequently, almost any psychologically meaningful factor can become a target for treatment or risk management.

We believe that the constructs proposed are plausible psychological risk factors, but further theoretical work is needed establish common definitions and a deeper understanding of these factors. In this article, we have assumed some constructs to be substantively similar that other researchers have labeled differently. For instance, we have presented negative social influences as a risk factor in its own right and not as an indicator of antisocial orientation. Similarly, adversarial sexual beliefs are considered to be equivalent to hypermasculinity. Deeper conceptualization of each risk factor would provide coherent and empirically justified accounts of how these risk factors develop and how they cause offending.

The ultimate step in establishing a causal risk factor is eliminating alternate hypotheses that could explain the relationship between the factor and recidivism. This final

step is never fully achieved; the best that can be hoped for is that the conjecture that the factor is a cause of reoffending is the most plausible of available alternatives.

Once risk factors have been identified, further research is needed concerning measurement of the risk factors. How can we tell if someone is hostile? How can we identify at what point hostility becomes problematic or clinically significant? And even if thresholds can be identified, how can we then reliably identify (particularly in adversarial contexts) when someone has changed to the extent that their risk is now reduced?

Many of the factors identified here as empirically supported are also to be found in the prediction literature for general criminal behavior (e.g., impulsivity, poor problem solving, hostility, unstable relationships). There are some factors, however, that are likely to be uniquely associated with sexual (not general) recidivism (e.g., sexual preferences for children or violence, multiple paraphilias, emotional congruence with children). Although antisocial attitudes are usually considered to be related to general offending, they take a specific form in relation to sexual offending that would not be replicated in non-sexual offenders. It is also possible that the relative weighting of risk factors differs for sexual offenders compared with non-sexual offenders.

Given that research has focused almost exclusively on identifying factors that raise the risk of recidivism, researchers and practitioners should also consider strengths and protective factors, that is, factors that reduce risk of recidivism (Maruna & LeBel, 2003). Although strengths can be simply the opposite of or absence of risk factors, strengths and risk factors can co-occur (e.g., both positive and negative social influences). Furthermore, there is some research indicating that considering strengths as well as deficits can independently contribute to risk prediction (Griffin, Beech, Print, Bradshaw, & Quayle, 2008).

Conclusions

Assessment and treatment for sexual offenders should focus on empirically established causal risk factors. In this review, we propose a definition of psychologically meaningful causal risk factors as propensities and outline the types of evidence required to identify them. Although the causal role of such factors has yet to be established, we believe that the causal factors for sexual recidivism will ultimately be drawn from variables similar to those included in our list. We believe that it is these variables that should be emphasized in treatment.

Our review has established that none of the so far identified psychological risk factors has a strong relationship to sexual offending. This has a number of implications. First, evaluators should avoid being overinfluenced by the presence of any single risk factor, however floridly manifested. Second, only relatively comprehensive assessment of a range of psychological risk factors will make it possible for this kind of assessment to have useful predictive power. Third, this is precisely the kind of situation (a relatively large number of risk factors, each making only a small contribution to prediction) in which mechanical integration of risk factors can be expected to outperform human judgment (Kahnemann & Klein, 2009).

Understanding the causal mechanism of sexual recidivism remains an important research goal. Treatment programs can contribute to the advancement of knowledge in this area by routinely examining the extent to which changes on factors targeted in their programs are associated with subsequent recidivism. Future developments of risk assessment tools should strive to measure risk and protective factors embedded within plausible (and testable) models of offender recidivism risk.

Authors' Note

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