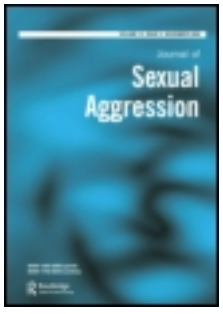


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# The assessment and treatment of deviant sexual arousal with adolescents who have offended sexually

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# The assessment and treatment of deviant sexual arousal with adolescents who have offended sexually

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**Abstract** *The available data suggest that only a minority of adolescents who commit sexual crimes demonstrate deviant sexual arousal to younger children and/or sexual violence. However, deviant sexual arousal is a risk factor for repeated sexual offending, and it is frequently an important target in specialised treatment programmes. This paper provides a review of the various techniques that have been used to measure deviant sexual arousal with adolescents who have offended sexually, including the penile plethysmograph, unobtrusively measured viewing time, and self-report. Common treatment approaches used to address deviant sexual arousal such as behavioural techniques, thought-stopping, and mindfulness are also discussed. Suggestions for building the capacity for future sexual health are offered, given the lack of empirical support for most of the commonly used treatment approaches used to modify or control deviant sexual arousal with adolescents.*

**Keywords** *Adolescents who offend sexually; assessment; deviant sexual arousal; sexual interests; treatment*

## Deviant sexual arousal

When discussing sexual arousal, the term "deviant" could certainly refer to a number of uncommon or unusual sexual practices. In reference to individuals who commit sexual crimes, however, the term deviant is most typically applied to sexual arousal to prepubescent children and/or sexual violence [e.g., Akerman & Beech, 2011; Association for the Treatment of Sexual Abusers (ATSA), 2005; Barbaree & Marshall, 1988; Hunter & Becker, 1994; McKibben, Proulx, & Lusignan, 1994]. [For the purposes of this paper, when deviant sexual interest in *children* are discussed, this is generally intended to reflect sexual interest in prepubescent children who are younger than 12 years of age and at least 4 years younger than the adolescent. The term *adolescent* is intended to describe individuals aged 12–18 years.] This is, perhaps, a result of the fact that sexual interests in prepubescent children and/or forced sexual interactions are the sexual interests linked most closely to criminal sexual behaviours.

The results of meta-analyses focused on research with primarily adult male samples indicate that deviant sexual interests are significantly related to the risk of sexual reoffending (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004). Turning to research with

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adolescents, the results of both a narrative review (Worling & Långström, 2006) and a meta-analysis (McCann & Lussier, 2008) suggest that sexual deviance is also related to sexual recidivism for adolescents. It should not be surprising, therefore, that best-practice guidelines contain recommendations regarding the assessment and treatment of deviant sexual interests for adolescents who have offended sexually (e.g., ATSA, 2001; Shaw, 1999), and most specialised treatment programmes for adolescents in the United Kingdom and the Republic of Ireland (Hackett, Masson, & Phillips, 2006) and in Canada and the United States (McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2010) address deviant sexual interests in some fashion.

## Adolescence and sexual arousal

There was relatively little academic attention paid to adolescents who offended sexually until the early 1980s, when it was recognised that a significant number of adults who offended sexually actually began offending sexually as teenagers (e.g. Abel, Mittelman, & Becker, 1985; Longo & Groth, 1983). Given that specialised programmes and procedures were already well established for adults, many early treatment programmes for adolescents mimicked adult programmes—with a particular focus on the assessment and reduction of deviant sexual arousal (Knopp, 1982). As such, there has been a somewhat blind application of adult-based assessment and treatment approaches with adolescents regarding a number of treatment goals, including deviant sexual arousal.

There are a number of parallels between adolescent and adult sexual offending behaviour, so it is easy to see why some practitioners may have assumed that adult-based approaches would be applicable with adolescents. For example, many of the criminal sexual behaviours that adolescents engage in appear similar to those performed by adults, and the harm caused by adolescents and adults who offend sexually is not dissimilar (e.g., Cyr, Wright, McDuff, & Perron, 2002). A number of factors that increase the risk of repeated sexual offending in adult males, such as past sexual crimes against strangers, past sexual crimes against males, and a history of prior sexual offences (Hanson & Bussière, 1998) are also known to be related to the risk of sexual recidivism for adolescent males (McCann & Lussier, 2008). Also, the cognitive distortions and thinking errors that adults make both during and following their sexual crimes in an effort to rationalise their offending behaviours (Marshall, Anderson, & Fernandez, 1999) are often strikingly similar to the thinking errors made by adolescents who offend sexually (Rich, 2003).

Despite similarities such as these, however, it is essential to be mindful of the fact that adolescents are experiencing significant physiological, cognitive, and social changes that impact considerably on all aspects of sexuality. For example, although preadolescent children may have sporadic romantic thoughts, sexual fantasies begin to occur regularly during adolescence, with a dramatic rise in the frequency of sexual fantasies for both males and females during mid- to late adolescence (Leitenberg & Henning, 1995). In their review of the literature regarding adolescent sexual development, Bukowski, Sippola, and Brender (1993) remarked that "the establishment of a satisfying and coherent sexuality during adolescence and young adulthood is one of the most important and challenging tasks of the life cycle" (p. 84). These authors explained that sexual development involves a synthesis of self, other, and society, whereby the individual develops sexual desires and must somehow integrate them into their relationships with others—all within a particular social context. Bukowski et al. (1993) noted that some of the challenges that adolescents face as they develop their sexual identities include learning about interpersonal intimacy and social roles, revising their identity

in step with marked changes in body shape, size and function, becoming aware of social conventions and rules regarding sexual relationships, and integrating erotic feelings. Bancroft (2006) explained that sexual attraction typically begins to develop at around age 10 years for both males and females, but that subsequent sexual arousal patterns gradually become more defined throughout adolescence and into early adulthood—a process that is impacted by hormonal factors, changes in cognitive development, past interpersonal relationships, and sociocultural factors. As a result, there is significant plasticity with regard to adolescent sexual arousal. Of course, the fact that adolescent sexual arousal is more fluid and malleable provides a challenge to those interested in the measurement of deviant sexual arousal with this population.

Perhaps one of the most striking differences between adults and adolescents beyond the obvious differences in body shape and size is related to how adolescents interpret and process information. In a review of the recent research regarding adolescent brain development, Steinberg (2010) noted that "the brain changes characteristic of adolescence are among the most dramatic and important to occur during the human lifespan" (p. 160). Steinberg (2010) stressed that middle adolescence (ages 14–17) is a time when individuals are particularly prone to engage in risky behaviours as a result of increases in dopaminergic, sensation-seeking activities and a slowly developing prefrontal cortex and related brain regions responsible for judgement and self-regulation. In fact, it has been demonstrated that brain processes related to planning, judgement, and impulse control continue to develop well past adolescence and into the mid-20s (e.g. Casey, Getz, & Galvan, 2008; Steinberg, 2005; Yurgelen-Todd, 2007). Steinberg (2010) also pointed out that there are significant changes during adolescence regarding the manner in which social and emotional information is processed. This would suggest that, for many adolescents, sexual offending behaviours are probably initially linked to immature cognitive processes rather than to an established pattern of deviant sexual arousal.



## Origins of deviant sexual arousal

There are a number of theoretical positions regarding the origins of deviant sexual interests. Although it is beyond the scope of this paper to review each of these theories in detail, it may be instructive to highlight briefly some of the theories that have been posited. It is critical to note that much of this work is highly speculative, however, as most of the research that has been used to support these theories is correlational. As such, there is currently no clear empirical support for any one theoretical position regarding the development of deviant sexual arousal during adolescence.

A number of early theories regarding the development of deviant sexual arousal were based on psychoanalytical concepts. For example, Cook and Howells (1981) viewed deviant sexual arousal as a result of unresolved libidinal conflict and the subsequent "fixation" in psychosexual development. Little research has been conducted to support psychodynamic theories such as this, however; perhaps as a result of the fact that it is very difficult to produce data which support or refute the hypotheses that have been forwarded.

Some theorists (e.g. Blanchard, Cantor, & Robichaud, 2006; Langevin, 1983) have suggested that deviant sexual arousal—particularly male sexual arousal to prepubescent children—may be the result of neurodevelopmental anomalies. In their review of the relevant research, Blanchard et al. (2006) explained that variations in hormonal and brain functioning could be responsible for sexual arousal to prepubescent children. The authors aptly noted, however, that much more research is necessary before drawing firmer conclusions about causation.

It is argued by some authors (e.g., Marshall, 1989; Rich, 2006; Smallbone, 2006) that disruptions in parent–child attachments may increase the risk of developing deviant sexual interests and behaviours. Early parent–child attachments provide the adolescent with a working model of the self and one's relationships with others; thus, disrupted attachments can impact upon a number of factors that are necessary for healthy sexual relationships such as interpersonal intimacy, emotional regulation, self-esteem, and empathy, for example. Although there is research to suggest that some adolescents who offend sexually have experienced problematic parent–child relationships, it is impossible to conclude that disrupted attachment causes deviant sexual interests and behaviours (Rich, 2006).

Learning theories have also been forwarded frequently to account for the onset of deviant sexual arousal patterns. For example, Jaspers (1963) suggested that an accidental pairing of an unconditioned stimuli with orgasm could be responsible for subsequent deviant sexual interests; particularly if this pairing occurred during the first sexual experience. McGuire, Carlisle, and Young (1965) added later that subsequent masturbatory experiences regarding a salient, initial sexual experience probably reinforce deviant sexual arousal patterns. In addition to direct sexual experiences, some authors (e.g., Becker & Stein, 1991; Moultrie, 2006) have speculated that exposure to sexual media could also serve to shape sexual interests for some adolescents through masturbatory practices.

It has long been suggested that the development of deviant sexual arousal for adolescents may be the result of certain aspects of a sexual victimisation history. Evidence that is typically cited to support this notion is the fact that both male (Worling, 1995) and female (Giguere & Bumby, 2007) adolescents who have offended sexually are much more likely to have experienced a sexual victimisation history relative to the general population. Some authors (e.g., Burgess, Hartman, & McCormack, 1987) have forwarded psychodynamic explanations of how the subsequent reenactment of past traumatic events allows some adolescents to achieve a sense of mastery and control. Others (e.g., Barbaree, Marshall, & McCormick, 1998; Becker & Stein, 1991) have described how both respondent and operant conditioning mechanisms could operate both to develop and strengthen deviant sexual arousal for some adolescents who have been sexually abused.

Sociocultural influences also probably have a considerable impact on the development of deviant sexual arousal for adolescents. For example, feminist theorists (e.g. Brownmiller, 1975) have long pointed out that attitudes supportive of sexual violence against women are widely supported in many cultures, and male sexual arousal to violence is more likely to develop in cultures where rape-supportive attitudes are propagated. Similarly, prepubescent girls are often sexualised in current western culture (American Psychological Association, 2007), and this probably has an impact on the development of deviant sexual fantasies and interests for some adolescents.

It is possible that there are different pathways to the development of deviant sexual arousal patterns among adolescents. Genetic influences, brain injuries, or prenatal hormonal anomalies may predispose some adolescents to develop sexual arousal to prepubescent children and/or sexual violence, whereas respondent and operant conditioning mechanisms may be responsible in other instances. For some adolescents, early exposure to child abuse images and subsequent masturbatory behaviours may lead to the establishment of deviant arousal patterns; for other adolescents, elements of a particular form of sexual victimisation may somehow increase the likelihood of the establishment of deviant sexual arousal patterns. Of course, it may also be the case that two or more pathways may be operating for some adolescents whereas some other, as yet unknown, mechanism is responsible for the development of deviant sexual arousal for other adolescents. It is clear that there is a need for considerably more research if we are to understand how deviant sexual interests develop

for adolescents. Recent research with adults who have offended sexually is supportive of the notion that there are multiple pathways to the development of deviant sexual interests (Beauregard, Lussier, & Proulx, 2004; Lussier, Beuaregard, Proulx, & Nicole, 2005). Furthermore, it is critical to note that most of the research regarding deviant sexual arousal in those who offend sexually has been based on male samples. As such, very little is known about the development of deviant sexual arousal for females who have offended sexually. There are a number of significant differences between males and females regarding the nature of sexual arousal patterns (Chivers, 2005); therefore, it is likely that there are important sex differences regarding the aetiology of deviant sexual arousal.

## Measurement of deviant sexual arousal

Singer (1984) suggested that there are three different responses to sexual stimuli that can be experienced independently or in combination. One sexual response is the aesthetic response, whereby the individual increases their attention to objects that they find sexually attractive. Another sexual response is the approach response, whereby the individual demonstrates sexual interest by moving closer to a sexually arousing object. The last sexual response is the genital response, which involves physiological genital changes in response to the sexually arousing object. Efforts to measure sexual arousal in those who have offended sexually have been based primarily on the genital response (i.e. plethysmography) and the aesthetic response (i.e., cognitive-processing measures), and researchers have focused almost exclusively on males.



## Direct physiological measurement

### *Penile plethysmograph*

The penile plethysmograph (PPG) measures penile tumescence by detecting changes in penile circumference or volume. The PPG was developed to assess sexual interests of adult males, with a particular focus on the diagnosis of pedophilia (Freund, 1991). Proponents of this measure argue that the PPG can provide valuable information regarding the sexual interests of adult males who have offended sexually (e.g., Lalumière & Harris, 1998; Seto, 2001). Research support is not consistent, however, and some authors have expressed concerns regarding the reliability and validity of PPG data collected from adult males (e.g., Kalmus & Beech, 2005; Konopasky & Konopasky, 2000; Marshall & Fernandez, 2000; Marshall, 2006). The developer of the PPG has also pointed out that one of the most significant limitations is that some participants can readily suppress sexual arousal in the laboratory and, thus, falsify the results (Freund, 1991). In a recent study by Stinson and Becker (2008), for example, it was found that approximately one third of the men who had offended sexually failed to demonstrate any sexual arousal (normative or deviant) using the PPG. Finally, given the lack of a standardised approach to PPG assessment, and the tremendous variations in assessment procedures, test stimuli, measurement equipment, and data interpretation algorithms, it is difficult to generalise findings from one laboratory to the next (Howes, 1995).

When assessment and treatment programmes were initially developed for adolescents, some researchers and clinicians utilised the PPG with adolescent males. The available data reveal, however, that there are questions about the validity of the results based on adolescent respondents. For example, although PPG deviance indices are intended to be objective

measurements of sexual interest, it has been found that PPG data are significantly influenced by variables such as the adolescent's age (Kaemingk, Koselka, Becker, & Kaplan, 1995), racial background (Murphy, DiLillo, Haynes, & Steere, 2001) and history of physical and sexual abuse (Becker, Hunter, Stein, & Kaplan, 1989; Becker, Kaplan, & Tenke, 1992). Variables traditionally correlated with deviant sexual arousal in adults, such as the number of victims and degree of force, are not reliably correlated with deviant arousal in adolescent populations (Becker, Kaplan, & Kavoussi, 1988; Hunter, Goodwin, & Becker, 1994). Becker et al. (1992) also found that 58% of adolescents who denied their sexual offences provided invalid arousal data using the PPG. In a chart-review study by Seto, Lalumière, and Blanchard (2000), it was found that PPG data were only moderately discriminative for adolescent males who sexually assaulted male victims and that adolescents who offended against female children could not be differentiated from a non-offending population. Hunter et al. (1994) also found that those adolescents with male victims only displayed more deviant arousal using the PPG relative to adolescents who offended against females or against both females and males. Similarly, Clift, Rajlic, & Gretton (2009) reported that those adolescents with at least one male victim demonstrated the highest levels of deviant sexual arousal using the PPG. Finally, there is no significant relationship between phallometrically measured sexual deviance at intake and sexual assault recidivism (Gretton, McBride, Hare, O'Shaughnessy, & Kumka, 2001; Gretton et al., 2005). Conversely, it should be noted that Clift et al. (2009) demonstrated that the inability to suppress arousal to child stimuli at post-treatment was significantly predictive of sexual recidivism for a sample of adolescent males.

In addition to the questions regarding the validity of the PPG with adolescents who have offended sexually, there is very limited support regarding the test–retest reliability of the PPG with this age group. In the only published investigation focused on this issue, it was found that the temporal stability of the PPG ranged from excellent to poor across stimulus categories (Becker et al., 1992). It may be interesting to note that the test–retest reliability of the PPG with adult males is also not consistently strong (Kalmus & Beech, 2005; Marshall, 2006).

Several authors have also raised ethical concerns regarding the use of the PPG with adolescents (e.g., Becker & Harris, 2004; Hunter & Lexier, 1998; Shaw, 1999; Worling, 1998). The potential for iatrogenic harm from exposing adolescents to visual and/or auditory images of deviant sexual activities is considerable, given that they are developing and refining their sexual scripts, identities and preferences (Bancroft, 2006); yet this has never been examined. Assessment using the PPG is also quite an intrusive procedure, and it is not clear how those adolescents who have a sexual victimisation history may be impacted. This is a concern given the prevalence of childhood sexual abuse for this population, particularly for those adolescent males who have assaulted male children (Worling, 1995). Given these significant scientific and ethical questions, it is not surprising that approximately 90% of treatment programmes in the United States do not use the PPG with adolescents (McGrath et al., 2010) and that the use of the PPG with adolescents has been halted in a number of treatment programmes in North America (e.g., Turpel-Lafond, 2011). In addition to the scientific and ethical concerns regarding the PPG, it should also be pointed out that measurement using the PPG is quite expensive and time-consuming relative to alternative approaches.

### *Cognitive-processing measures*

Cognitive-processing measures of sexual arousal are based on the premise that the cognitive processing of stimuli that an individual regards as sexually appealing will be impacted in some fashion relative to the cognitive processing of stimuli interpreted as sexually unappealing and/or nonsexual. Some of the cognitive processing approaches, such as unobtrusively measured

viewing time (VT) and the attentional blink, correspond with Singer's (1984) aesthetic sexual response; i.e. that an individual's attentional processes will be impacted by stimuli perceived as sexually attractive. Other cognitive-processing measures, such as the Emotional Stroop (Stroop, 1935) and the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), are based on the notion that processing speed will reflect the strength of learned associations between concepts.

*Viewing time (VT)*

The most widely used and studied of the cognitive-processing measures is VT. Indeed, 34% of treatment programmes for adolescent males and 25% of treatment programmes for adolescent females in the United States use VT to assess sexual arousal (McGrath et al., 2010). This approach requires clients to rate the sexual attractiveness of photographs of a variety of people in different age groups. In addition to the client's self-report ratings, the time that the client takes to provide the ratings is also recorded unobtrusively. The assumption underlying VT is that people will look longer at stimuli that they find sexually attractive relative to stimuli that they find sexually unattractive when they are asked to rate the sexual attractiveness of the images. Models depicted in the photographs in popular VT systems are clothed, and they are not displayed in sexualised poses. This use of VT, therefore, addresses a number of the ethical concerns raised by the use of the PPG with adolescents.

In studies employing nonoffending adults, VT measures of sexual interest have been shown to be significantly correlated with both self-report ratings (e.g. Harris, Rice, Quinsey, & Chaplin, 1996; Lang, Searles, Lauerman, & Adess, 1980; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996) and PPG data (Harris et al., 1996; Quinsey et al., 1996). In research with men who have offended sexually, Harris et al. (1996) reported that those who sexually assaulted children viewed slides of children longer than they viewed slides of adults. In a recent study of a multimethod approach to the assessment of deviant sexual arousal, Banse, Schmidt, and Clarbour (2010) found that a VT paradigm could discriminate control participants from men who had offended against children.

One of the more popular VT assessment systems is the Abel Assessment for Sexual Interest ™ (revised as the AASI-2; Abel 2007). The developers have reported supportive data with respect to the internal consistency and discriminant validity of the AASI with adult males who have acknowledged sexual offences against children (Abel, Huffman, Warberg, & Holland, 1998; Abel, Jordan, Hand, Holland, & Phipps, 2001; Abel, Lawry, Karlstrom, Osborn, & Gillespie, 1994). Letourneau (2002) found that PPG and AASI responses were significantly correlated across most stimulus categories for a sample of adult males who had offended sexually and that both VT and PPG could differentiate those participants with male child victims from those with victims from other groups. Gray and Plaud (2005) also reported that both AASI and the PPG identified sexual interest in children in a small sample of men who had offended sexually against children.

Turning to research with adolescents, Smith and Fischer (1999) used Abel's VT system (AASI) with 81 adolescent males who had offended sexually. They concluded that there were significant questions regarding the reliability and validity of this measure (but see Abel, 2000). In a more recent investigation of the properties of the AASI, Abel et al. (2004) collected data from 1704 males aged 11–17 years. It was noted that VT for images of children was correlated moderately with the number of child victims and the number of acts of child sexual offending. The authors also reported that VT for child stimuli could differentiate moderately those adolescents who offended sexually against children from those who offended against peers or adults.

Another VT assessment system is Affinity, developed in 2001 by Glasgow (revised as Affinity 2.5; Glasgow, 2007). In an investigation with 78 adolescent males who had offended sexually, it was found that VT was correlated significantly with self-report ratings of sexual attractiveness across most stimulus categories (Worling, 2006). Although Affinity VT could not differentiate those adolescents who offended sexually against a child from those who offended against a peer/adult, VT could significantly distinguish adolescents who had ever offended against one male child or against male children exclusively. Finally, it was also found that most adolescents did not experience the Affinity assessment as upsetting, and VT deviance indices were not related to participant age or a history of sexual or physical abuse.

It is obvious that VT is significantly less intrusive than measuring changes in blood flow to the genitals, and it is possible to assess sexual interests using VT without exposing adolescents to sexualised imagery of younger children. Additionally, VT does not require a laboratory, it takes only a few minutes, and it can be used with both males and females. Although some supportive research has been published regarding the reliability and validity of VT with adolescent males, there are a number of outstanding questions with this technology. For example, how useful is VT with adolescent females, adolescents who deny their sexual crimes, or adolescents with intellectual challenges? What is the temporal stability of VT? Is it possible to detect response biases with VT? Can VT be used to assess a wide range of possible sexual interests for adolescents, beyond gender and age preferences? More research is needed regarding the validity of VT as a measure of sexual arousal for adolescents.



### *Attentional blink*

Another cognitive-processing paradigm hypothesised to detect sexual arousal is the "attentional blink" phenomenon (Raymond, Shapiro, & Arnell, 1992), which occurs during a rapid serial visual presentation (RSVP) task. The attentional blink is a measure of the delay that occurs when a previously presented stimulus interferes in the ability to identify a specific stimulus within a group of distracters. For example, a person who is sexually attracted to children will presumably take longer to identify a specific stimulus if an image of a child immediately precedes the task. Like VT, the attentional blink phenomenon is related to Singer's (1984) aesthetic response to sexual stimuli—i.e., that an individual's attention is impacted when presented with stimuli that they perceive as sexually attractive. Beech et al. (2008) presented data that were supportive of this measurement technique with adults who had offended sexually against children. When the same apparatus was used in a study with adolescents, however, there was no evidence to support the RSVP paradigm with that age group (Crooks, Rostill-Brookes, Beech, & Bickley, 2009). There is an obvious need for additional study for this potential cognitive measure of sexual interest. It may be that cognitive maturational differences impact the application of this particular approach with adolescents.

### *Implicit Association Test (IAT)*

The IAT is another cognitive-processing measure that has been proposed as a gauge of sexual interest. Briefly, in an IAT paradigm, the individual categorises concepts (e.g. "child", "adult") and attributes ("sexy", not "sexy"), and the response latency for this task is assumed to reflect the strength of implicit associations in memory. In one investigation with adults, it was found that men who offended sexually against children responded significantly faster when "child" and "sex" were paired relative to when "adult" and "sex" were paired (Gray, Brown, MacCulloch, Smith, & Snowden, 2005). This suggests that these men typically associate children with sexual behaviours. Nunes, Firestone, and Baldwin (2007) also found

that the IAT could differentiate men who offended sexually against children from a control group, and Brown, Gray, and Snowden (2009) recently demonstrated that an IAT procedure could identify sexual interest in children for men who denied their sexual offences against children. In their study of both self-report and cognitive-processing measures, Banse et al. (2010) reported that an IAT procedure could differentiate control participants from men who had offended against children. It will be interesting to see if an IAT paradigm can be useful in the assessment of adolescent sexual arousal, particularly if it is designed to be sensitive to differences in adolescent cognitive processing.

### *Emotional Stroop*

The Emotional Stroop task is related to the IAT, and it has been proposed as another potential cognitive-processing measure of sexual interest. In this task, the individual is presented with a list of words that are displayed in different colours. As each word is presented, the task is to name the colour in which each word is presented, but not to read the word. The latency period between the presentation of the word and the correct naming of the colour of the text is presumed to be a measure of the strength of the association in memory. Smith and Waterman (2004) used this approach with a small sample of adults and undergraduate students. They found that, relative to the students, men who had offended sexually and nonsexually had longer latency times when naming the colours of sexually themed words. They also found that men who committed violent nonsexual crimes demonstrated longer latencies for aggression-themed words relative to the students; however, there were no significant differences between those men who committed sexual versus nonsexual crimes. Price and Hanson (2007) replicated and extended Smith and Waterman's (2004) research with the Stroop task, and they also found small, nonsignificant differences in latency periods between men who committed sexual versus nonsexual crimes. As in the case of the IAT, there are many questions regarding the validity of this approach, and it is not known whether this approach would be useful in the assessment of adolescent clients. Given that adolescents and adults process emotional information very differently (Steinberg, 2005; Yurgelun-Todd, 2007), it is likely that IAT procedures will have to be developed specifically for adolescents.

### *Self-report*

It is often assumed that adolescents who commit sexual crimes are likely to distort their responses when asked for information regarding their sexual arousal patterns (e.g., Clift, Gretton, & Rajlic, 2007; Hunter & Becker, 1994). There are few published data to support this assumption, however, and there is emerging evidence that self-reported sexual interests are valid, even when the information is collected from individuals who have committed sexual crimes. In research with adults, for example, Day, Miner, Sturgeon, and Murphy (1989) compared PPG data to those collected from a self-report questionnaire regarding sexual thoughts, feelings and behaviours. These authors found that, although PPG and self-report data were significantly correlated, self-report data could better differentiate adult male participants according to both the gender of their victims and the level of violence used in past sexual offending. In a similar investigation, Laws, Hanson, Osborn, and Greenbaum (2000) found that self-reported sexual interests were superior to PPG data with respect the ability to differentiate men according to the gender of their child victims. Laws et al. (2000) also found that the self-report methodology used in this study (card sort) demonstrated excellent internal consistency. More recently, Banse et al. (2010) found that a 10-item questionnaire focused on

sexual fantasy and behaviour could significantly differentiate men who offended against children from a control group.

Research with adolescents who have offended sexually is also supportive of the use of self-reported information regarding deviant sexual interests and behaviours. For example, using a survey developed specifically for adolescents, Daleiden, Kaufman, Hilliker, and O'Neil (1998) found that adolescent males who offended sexually disclosed significantly more deviant sexual behaviours relative to both nonsexual offenders and a nonoffending group. It has also been demonstrated that responses to a structured self-report scale regarding past sexual behaviours with younger children and current sexual interests is predictive of subsequent sexual offending (Worling & Curwen, 2000). In their investigation, Kenny, Keogh, and Seidler (2001) similarly found that self-reported deviant sexual fantasies were more prevalent for those adolescent males with multiple contacts with the legal system for sexual crimes.

Looking specifically at the measurement of deviant sexual arousal with adolescents who offended sexually, Seto et al. (2000) reported that most adolescent males who acknowledged sexual arousal to children during interviews also demonstrated sexual arousal to children using the PPG. In a more recent study, two different self-report methodologies were compared to Affinity VT with adolescent males (Worling, 2006). One of the self-report procedures was the sexual attractiveness ratings provided for each of the photographs in the Affinity system. The other self-report methodology involved asking the participants to fill out two graphs (one for each gender) on which they indicated their level of sexual interest on a scale from 0 to 10 for several different age categories. Deviance indices for the two self-report procedures were significantly correlated across all age groups and for both genders. Affinity VT was also correlated with both self-report methodologies for all but one category (adult females). It was found that both the Affinity self-report and the self-report graphing procedure could significantly differentiate those adolescents who had a least one child victim from adolescents who sexually assaulted peers or adults. Deviance indices from both self-report procedures could also differentiate adolescents who had offended against at least one male child victim. Furthermore, unlike deviance indices from the PPG, deviance indices from both of these self-report techniques were not correlated with age or history of sexual or physical abuse.

Becker and Kaplan (1988) adapted a card-sort procedure that was developed initially for adults. Using this protocol, adolescent males are presented with 64 written vignettes of a variety of primarily abusive sexual behaviours, and they are asked to rate their level of sexual arousal. Although test–retest reliability and internal consistency were significant across most categories (Hunter, Becker, & Kaplan, 1995), the authors found that there was little relation between card sort and PPG data. This particular self-report procedure also presents the ethical dilemma of exposing adolescents to a significant amount of deviant sexual material. Example items include "I'm forcing my brother to bend over, I'm going to put my penis in his butt" and "My penis is moving in and out of a five year old girl's mouth. It feels really good". How might these items impact upon an adolescent who has never thought of these particular behaviours? How might these items impact upon an adolescent who was sexually victimised? Is there a possibility that an adolescent will incorporate some of these deviant sexual behaviours into their masturbatory fantasies? Of course, like the PPG, this particular assessment tool can only be used with adolescent males, given the manner in which items have been worded.

At the present time, it does not appear that there is one particular assessment methodology that is clearly superior when it comes to measuring deviant sexual arousal in adolescents who have offended sexually. There are significant questions regarding the

reliability and validity of the PPG, and there are concerns regarding the intrusiveness of this approach and the potential for iatrogenic harm with adolescents. Furthermore, unlike self-report and cognitive-processing measures, the PPG is an expensive and time-consuming approach that requires a specialised laboratory. Cognitive-processing measures of sexual interests are less intrusive than the PPG, and there is significantly less risk of iatrogenic harm with these techniques. There are several different approaches to measuring how cognitive processes can be impacted when sexual arousal occurs; however, other than a handful of studies regarding VT, there is currently very little research with adolescents who have offended sexually. Given the significant cognitive changes that occur during adolescence, it will be critical to determine whether these cognitive measures can be useful in the assessment of adolescent sexual arousal.

The results of research focused on self-report indicate that adolescents who have committed sexual crimes can provide valuable information regarding their sexual interests when they are asked. Asking adolescents to rate photographs, to complete sexual arousal graphs or simply to tell us about their sexual arousal can provide valid information. Of course, like many other measurement techniques, self-report is susceptible to distortion and faking, and it is not yet clear how these self-report approaches perform with adolescents who are denying their sexual crimes. There is also a need for additional research regarding the reliability and validity of self-report techniques with adolescents who have offended sexually.

Given the limited empirical evidence to date, the optimal approach to assessing sexual arousal would probably be to combine information from multiple methods and multiple sources. In other words, it would be prudent to combine self-reported information regarding sexual arousal with data from VT and observations from parents and/or adult caregivers. In their recent study with adults, Banse et al. (2010) found that a combination of self-report, IAT, and VT measures resulted in excellent discrimination between controls and men who offended sexually against children. Furthermore, the authors found that each method contributed unique variance regarding sexual arousal and that the combination of measures provided better discrimination than any one technique on its own. If an adolescent informs us of a sexual interest in younger children, and there is also evidence of this from VT and/or from observations from caregivers, then judgements about the presence of deviant sexual arousal can be made with relatively greater certainty.



## Prevalence of deviant arousal in adolescents who offend sexually

In the past, it was often assumed that most adolescents who offend sexually have deviant sexual interests, and treatment efforts were based on the need to reduce these presumed interests. For example, many treatment programmes used to require adolescents to record deviant sexual fantasies over lengthy time periods and to engage in punishment-based treatment exercises to extinguish or suppress their presumed sexual deviance. This was particularly true in programmes where relapse prevention was the dominant philosophical model. The available data suggest, however, that only a minority of adolescents who offend sexually have deviant sexual interests. For example, Seto et al. (2000) examined PPG data and reported that 25% of the adolescent males in their investigation demonstrated maximal sexual interest in prepubescent children. With an overlapping and augmented sample, Seto, Murphy, Page, and Ennis (2003) reported that only 30% of adolescent males who had offended sexually responded equally or more to child stimuli during PPG assessments.

In two investigations using clinician ratings, it was also found that only a minority of adolescent males who offended sexually could be described as evidencing deviant sexual interests. In the first study (Worling, 2004), structured ratings were made by a number of clinicians regarding the adolescent's sexual interests, and only 36% of participants were rated as having sexual interests in prepubescent children and/or sexual violence. In a more recent investigation, (Worling, Bookalam, & Litteljohn, in press), it was found that only 39% of adolescent males who had offended sexually were rated by a number of different clinicians as demonstrating sexual interest in prepubescent children or sexual violence. There was one investigation in which the authors concluded that 60% of the adolescents studied had deviant sexual fantasies at the outset of the study and that this had somehow increased to 90% after 3 months in treatment (Aylwin, Reddon, & Burke, 2005). It is critical to point out, however, that the authors considered it deviant if adolescents were fantasising about the staff in the residence, so it is unclear what proportion of self-reported fantasies actually involved prepubescent children or sexual violence.

Overall, therefore, the limited research that is available indicates that approximately 60–75% of adolescent males who offend sexually are, in fact, maximally sexually interested in consensual activities with age-appropriate partners. Although deviant sexual arousal probably plays a role in the aetiology and/or maintenance of adolescent sexual offending for some adolescents, and this risk factor should be addressed in treatment for those youth, there are obviously other factors to consider such as intimacy deficits, cognitive distortions, antisociality, and opportunity, for example. As such, sexual arousal should be addressed in treatment with only a minority of adolescents who have offended sexually. Indeed, there could certainly be iatrogenic harm if presumed deviant sexual interests are targeted in treatment with an adolescent who has only nondeviant sexual interests. Imagine, for example, the impact of requiring an adolescent to keep track of presumed deviant sexual fantasies—and to journal them graphically—for lengthy time periods. Is it not possible that this exercise could actually lead an adolescent to create new deviant sexual scripts? What might happen if the adolescent began using the journal's contents for masturbatory behaviours? Treatment designed to address deviant sexual arousal should, therefore, be targeted carefully only for those few adolescents who require this risk factor to be addressed. It is also essential to keep in mind that sexual arousal patterns are being shaped and refined during adolescence (Bancroft, 2006). Therefore, even if one observes deviant sexual arousal for an adolescent at one point in time, there is no certainty that this will be present once the individual reaches adulthood—regardless of the nature of a treatment intervention that might be used.



## Treatment of deviant sexual arousal

There are generally five approaches to treating deviant sexual arousal for individuals who have offended sexually: behavioural procedures designed to extinguish deviant sexual arousal, behavioural procedures intended to increase nondeviant sexual arousal, thought suppression, mindfulness-based cognitive therapy, and pharmacological interventions. Given the prominence of behavioural theories to explain the onset of deviant sexual arousal (e.g., Becker & Stein, 1991; Jaspers, 1963; McGuire et al., 1964), it is not surprising that most of the research that has been conducted in this area with both adults and adolescents has been focused on behavioural interventions. Furthermore, as was true in the case of the assessment of sexual arousal, most of the treatment approaches designed to target deviant sexual arousal were developed for adult males.

*Behavioural procedures designed to extinguish deviant sexual arousal*

Covert sensitisation (Cautela, 1967) is currently the most popular behavioural procedure in the United States designed to extinguish deviant sexual arousal with adolescent males and females (McGrath et al., 2010). In this covert punishment procedure, designed originally for adults, the client is required to pair their deviant sexual thoughts and interests with imagery of aversive consequences of reoffending sexually. This may be followed by a "reward" sequence, whereby the individual then pairs relaxation with imagery of escaping a sexual reoffence (Hunter, 2011). Some authors also suggest that clients should make audio recordings of the various scenes that they are imagining so that therapists can assess treatment compliance (Maletzky, 1991). It is critical to point out, however, that there is no published research regarding the effectiveness of covert sensitisation for adolescents who have offended sexually.

A variant of covert sensitisation is minimal arousal conditioning (Jensen, 1994), and this technique is also popular in the United States in treatment with adolescent males and females who have offended sexually (McGrath et al., 2010). The central difference between covert sensitisation and minimal arousal conditioning is that, with minimal arousal conditioning, the client is instructed to switch to imagery of aversive consequences prior to any imagery of sexual offending. This is to avoid having the client repeatedly engage in imagery involving deviant sexual activities. As in the case of covert sensitisation, however, there has been no research regarding the effectiveness of this treatment approach with adolescents.

Another punishment technique developed to punish deviant sexual arousal for adults is olfactory aversion (Colson, 1972). With this technique, clients are instructed to inhale a noxious odour when they experience a deviant sexual urge or thought. According to the survey of US programmes by McGrath et al. (2010), odour aversion is used by approximately 10% programmes for adolescent males and 6% of programmes for adolescent females. It is important to point out, however, that there are no published findings regarding the impact of this technique with adolescents who have offended sexually.

McGrath et al. (2010) reported that about 15% of US treatment programmes for adolescents use aversive behavioural rehearsal (Wickramasekera, 1976), also known as shame aversion therapy (Serber, 1970). In this approach, clients pair intense shame and/or anxiety with their deviant sexual thoughts and/or a recreation of their past sexual offending. As is the case for most behavioural strategies designed to alter deviant sexual arousal, there is no research to support the use of shame or anxiety in the treatment of adolescents who offend sexually. Furthermore, there is a general consensus in the literature that shame actually inhibits treatment for adults and adolescents who have offended sexually (ATSA, 2001; Bumby, 2000; Jenkins, 2005; Marshall et al., 1999; Proeve & Howells, 2002; Ward, Day, Howells, & Birgden, 2004). Indeed, shame following sexual offending is often associated with victim blaming, retaliatory anger, decreased self-esteem, reduced victim empathy, and social withdrawal (Bumby, Marshall, & Langton, 1999).

An alternative punishment procedure for deviant sexual fantasies is masturbatory satiation (Marshall, 1979). In this approach, developed originally for adult males, the individual is typically instructed first to masturbate to a nondeviant sexual fantasy and then immediately masturbate to a deviant sexual fantasy for several minutes. The rationale behind this technique is that the client will eventually associate their deviant fantasy with a decreased sexual drive state (Maletzky, 1991). In a study by Hunter and Santos (1990), approximately six adolescent males (the exact number was not specified) participated in a masturbatory satiation paradigm. It is impossible to isolate the effectiveness, if any, of this procedure, however, as the adolescents were simultaneously involved in group, family, and individual treatment within a specialised residential treatment programme. More recently, Hunter, Ram,

and Ryback (2008) employed an A–B–A–B design to investigate the effectiveness of a modified masturbatory satiation protocol with a 19-year-old male with a sexual interest in prepubescent children. The young man was required to think about—and not masturbate to—a specific sexual fantasy regarding a child for 50 minutes, after first masturbating to a fantasy involving an age-appropriate partner. The authors found that this procedure resulted in decreased self-reported sexual interest in prepubescent children and, concomitantly, increased sexual interest in peers. Although this suggests that a modified masturbatory satiation might be helpful to reduce deviant sexual interests, it is important to stress that the results were based on one 19-year-old participant. Given that the refractory period can be very brief for adolescent males (Bancroft, 2009), there are significant concerns regarding the use of masturbatory satiation procedures with this group. In other words, it is quite possible that instructing an adolescent male to masturbate to (or simply think about) a deviant sexual fantasy immediately after masturbating to a nondeviant sexual fantasy may only serve to strengthen (or establish) deviant sexual arousal.

Becker et al. (1988) modified Marshall's (1979) masturbatory satiation protocol for use with adolescent males. They called this approach "verbal satiation", and they required adolescents to repeat a phrase related to their deviant fantasy—or their past sexual offending—repeatedly for several minutes. Becker et al. (1988) also required the adolescents to view a photograph of a young child while engaged in this procedure. Although the authors reported a decrease in deviant arousal for those participants who had assaulted male victims, it is impossible to isolate the impact, if any, of this behavioural approach, given that the adolescents were also simultaneously involved in many different treatment components related to sexual offending. Kaplan, Morales, and Becker (1993) later examined the effectiveness of the same verbal satiation protocol approach, in isolation, with 15 adolescent males. Although there was an average overall decrease in deviant sexual arousal, only five of the 15 adolescents reduced deviant arousal to the established criteria (i.e. less than 20% of an erection response using the PPG). Finally, Hunter and Goodwin (1992) reported pre–post-treatment data focused on the effectiveness of verbal satiation with adolescents who had offended. However, as in the study by Becker et al. (1988), it is impossible to comment on the impact of the behavioural intervention given that participants were involved in concomitant group, individual, and family therapy within a specialised residential treatment programme.

Weinrott, Riggan, and Frothingham (1997) outlined a behavioural approach specifically for adolescents called "vicarious sensitization". In this treatment approach, adolescents first listened to a short audio recording describing their sexual offending. They then viewed a video vignette depicting an aversive consequence of a reoffence (e.g., an actor portraying an adolescent who was caught by his mother while offending sexually). In a randomised, wait-list control study, Weinrott et al. (1997) subjected adolescent males to 11–15 such pairings for up to 300 trials. Although the authors reported an average reduction in sexual arousal to prepubescent girls (but not to prepubescent boys), it is difficult to conclude that vicarious sensitisation was responsible for the observed change. It is equally plausible that the reduction was attributable to satiation effects, as the adolescents had to listen to details of their past sexual offences up to 300 times. It was also noted in the study that participants were instructed not to masturbate to child-orientated sexual fantasies over the course of treatment. Furthermore, youth were also provided with wallet cards with a brief description of several aversive vignettes. Therefore, it is impossible to determine which aspect, if any, of this treatment technique led to the reduction in sexual arousal to prepubescent girls.

Overall, there is very little research support for the use of behavioural techniques to reduce deviant sexual interests for adolescents who have offended sexually. Indeed, with the exception of a single-case study with a 19-year-old male, there are no published data that

clearly demonstrate that any specific behavioural technique can effectively reduce deviant sexual arousal for an adolescent. Despite their widespread use in clinical practice with adolescents, very few behavioural procedures have been studied with this age group. Furthermore, when behavioural approaches have been studied, they have most often been embedded among a variety of other treatment components. For example, Shenk and Brown (2007) recently reported that a 14-year-old male with a mild intellectual disability was able to reduce the frequency of self-reported erections and masturbation to deviant fantasies. However, treatment involved a combination of self-monitoring, orgasmic conditioning (see below) and exposure and response prevention. This makes it impossible to determine which, if any, aspect of the treatment had an influence on sexual arousal.

In addition to the lack of empirical support, there are a number of ethical issues regarding the use of behavioural procedures intended to reduce deviant sexual arousal with adolescents. For example, at what age is it reasonable to expect that one can obtain informed consent to use one of these procedures? Are there additional safeguards when one is considering the use of punishment procedures with adolescents? Are there additional safeguards when one is considering the use of masturbatory procedures with youth as young as 13? Under what conditions should masturbation ever be used as a treatment for individuals who have offended sexually (see also Le Bodic, 2009)? How should therapists ensure that adolescents are actually complying with the behavioural procedures? If therapists require adolescents to make audio recordings of deviant sexual fantasies, how can they be sure that the adolescents will not misuse these recordings? There is also the question of the potential for iatrogenic harm when employing these behavioural approaches intended to extinguish deviant sexual interests. In other words, given the relative plasticity of adolescent sexual development (Bancroft, 2006), there is a possibility that a classical or operant conditioning procedure could inadvertently strengthen (or establish) deviant sexual interests for an adolescent. In the single-case study by Hunter et al. (2008), for example, it was noted by the authors that, during the initial masturbatory satiation sessions, the young man had been inadvertently masturbating to fantasies of young children during treatment.



### *Behavioural procedures designed to enhance non-deviant sexual arousal*

In addition to procedures developed to extinguish deviant sexual arousal, behavioural procedures have also been suggested as a means of enhancing nondeviant sexual arousal. One approach is called orgasmic conditioning, or directed masturbation (Maletzky, 1991). Like the punishment procedures described above, this approach was also developed for adult males. Quite simply, this procedure involves instructing the client to masturbate only to non-deviant sexual fantasies. In some instances, adolescent and adult clients are also provided with stimuli to assist them to focus their masturbatory fantasies on non-deviant themes (Fisher & McGregor, 1997). Fewer than 10% of treatment programmes in the United States use orgasmic conditioning with adolescent males and females who have offended sexually (McGrath et al, 2010). A closely related behavioural technique designed to enhance non-deviant sexual interests is orgasmic reconditioning (Marquis, 1970), also referred to as thematic shift (Fisher & McGregor, 1997). Unlike many of the other behavioural techniques, this approach was actually outlined with both adolescents and adults in mind. With this procedure, the client is instructed to masturbate to a deviant fantasy but, immediately prior to reaching climax, they are then to switch immediately to a non-deviant fantasy. After several trials, the client is then instructed to move the non-deviant fantasy to an earlier and earlier point in the masturbatory process.

Despite the fact that orgasmic conditioning and reconditioning procedures do not entail the use of punishment procedures, and they are focused on nondeviant versus deviant sexual fantasies and arousal, there are obvious questions about these behavioural strategies as well. For example, what would qualify as a non-deviant sexual fantasy? How is this decided, and by whom? Is it ever appropriate to provide sexualised media to adolescents for the purpose of masturbatory interventions? What materials are appropriate, and how is this decided? As in the case of the behavioural strategies designed to extinguish deviant sexual arousal described above, there are also the same issues of obtaining informed consent with young adolescents, using masturbation with adolescents as a treatment technique, and ensuring treatment compliance. Furthermore, as in the case of most procedures designed to impact deviant sexual arousal, there are no published data regarding the effectiveness of these techniques with adolescents.

An alternative procedure described by Maletzky (1991) intended to enhance non-deviant sexual arousal is systematic desensitisation. Using this procedure, clients first construct a hierarchy of fears and worries that are interfering in the establishment of non-deviant sexual relationships. For example, an adolescent who is sexually interested in both children and peers, but who has significant fears of rejection by peers, could construct a list of increasingly more anxiety-provoking scenarios that involved interacting with peers. Then, with the use of relaxation and guided imagery, an adolescent could gradually reduce the fears and anxieties that are getting in the way of successful interactions with peers. This would hopefully allow for the later enhancement of non-deviant sexual fantasy and arousal. Although there is no research specifically with adolescents who have offended sexually, systematic desensitisation is an empirically supported treatment to reduce anxiety for youth (Ollendick & King, 2004). It would be interesting to determine whether or not this approach would lead to enhanced non-deviant sexual arousal for adolescents.



*Thought-stopping*

The behavioural strategies discussed above are designed to alter directly an individual's sexual arousal patterns. A popular alternative is to teach the adolescent thought-stopping techniques simply to suppress deviant thoughts and urges when they occur (e.g., Hunter, 2011; Richardson, Bhate, & Graham, 1997; Ryan, Leversee, & Lane, 2010; Steen, 2005). Of course, the suppression of deviant sexual thoughts and urges has been a central component of relapse prevention for individuals who have offended sexually (Laws, 1989).

Johnston, Ward, and Hudson (1997) and Shingler (2009) have outlined the limitations of thought-stopping strategies for individuals who have sexually offended. It is pointed out in both reviews that, despite the appeal of this form of intervention, the available research indicates that simple thought-suppression procedures often result in an ironic rebound effect. In other words, researchers have found that consciously suppressed thoughts subsequently intrude more frequently—and with a greater intensity—than had the suppression intervention not been used in the first place.

Rather than teaching clients simply to suppress deviant sexual thoughts and urges, Johnston et al. (1997) suggested that it would be important first to help clients understand why their deviant thoughts are problematic. Shingler (2009) agreed that cognitive restructuring of this nature would be an important alternative to simply telling individuals to use thought-stopping procedures. Despite the fact that cognitive restructuring is a common treatment approach with adolescents who have offended sexually (Hackett et al., 2006; McGrath et al., 2010), there are few published descriptions of how this goal might be achieved. Richardson et al. (1997) succinctly outlined a four-step process for helping

adolescents to alter their abuse-supportive thoughts and attitudes. The first step involves identifying the adolescent's abuse-related self statements (e.g. "I was only trying to teach my little brother about sex"). Next, the therapist then assists the adolescent to understand the beliefs that might underlie the abuse-related statements (e.g. "Young children are interested in learning about sex; You can only learn about sex by engaging in sexual behaviours with others; Younger children should learn about sex from their older siblings", "Younger children are not harmed when they are touched sexually by teens", "If a young child doesn't say 'No' to an older person, that means that they are willing to go along", etc.). The third step is helping the adolescent to understand how holding these beliefs can support sexually abusive behaviours (e.g. "I can see how I would be more likely to touch a child sexually if I believe that they are interested in sex"). The final step is helping the adolescent to challenge the belief and develop alternative self-statements that refute the belief (e.g. "Young children have no interest in sex, and it would be very harmful for them").

In addition to teaching clients about the rationale for altering abuse-supportive thoughts, Johnston et al. (1997) suggested that thought-stopping techniques are likely to be more effective if clients are taught to utilise specific and relevant distracters. Rather than teaching adolescents to distract themselves from deviant sexual thoughts by thinking of lyrics to a favourite song or picturing a stop sign, for example, thought suppression is likely to be more effective if they are instead taught to distract themselves with non-deviant sexual thoughts. If one is trying to suppress a thought that is sexually arousing, then suppression is likely to be more effective if the distractor thought is also sexually arousing—or at least emotionally salient enough to compete with the salience of the deviant sexual thought. Johnston et al. (1997) also pointed out that thought-stopping strategies are likely to be more impactful if clients are informed about the inevitability of the recurrence of suppressed thoughts. In this way, clients will not immediately judge themselves negatively when the suppressed thought recurs. It was suggested further by Johnston et al. (1997) that thought suppression should be more effective if clients can utilise well-rehearsed strategies quickly. This is a result of the fact that thought-stopping is more difficult in situations where there are high cognitive demands and/or negative emotional states—such as in a situation where an individual may be about to re-offend sexually. Therefore, the more automatic the thought-suppression strategy is, the more likely it is that it will be used effectively. Shingler (2009) suggested that, given the lack of empirical support for thought-suppression strategies in general, it might be best to tell clients who have offended sexually to use thought-stopping procedures only as a temporary emergency measure.



### *Mindfulness-based cognitive therapy*

An alternative approach to punishing deviant arousal, reinforcing non-deviant arousal, or suppressing deviant thoughts and urges is mindfulness-based cognitive therapy. The essence of this approach is that the individual learns to notice their deviant thoughts or urges and, without judgement, monitor their thoughts, feelings, and body responses without acting on them. In this way, the deviant sexual arousal is neither acted upon nor suppressed; rather, it is simply noticed by the client and experienced until it inevitably subsides. Although some describe this as a new treatment approach, it has actually long been part of treatment programmes for adolescents who offend sexually (e.g. Steen & Monnette, 1989). The concept of consciously simply letting an urge pass by was described as "urge surfing" by Marlatt and Gordon (1985); a technique for individuals to cope with urges and cravings for addictive substances. With this approach, individuals are asked to notice the urge build quickly and then gradually subside, much like a wave. Individuals can even imagine themselves surfing the

wave on a surfboard as it decreases in amplitude. Although there has been little research regarding the effectiveness of this technique with individuals who have offended sexually, there is recent evidence that mindfulness-based cognitive therapy leads to greater behavioural changes in comparison to urge-suppression instructions (e.g. Rogojanski, Vettese, & Antony, 2011). There is also emerging research supporting the utility of mindfulness-based cognitive therapy specifically with adolescents (e.g. Biegel, Brown, Shapiro & Schubert, 2009; Semple, Lee, Rosa, & Miller, 2010). Obviously, research is necessary to determine whether mindfulness-based cognitive therapy can assist those adolescents with deviant sexual arousal. Given that this treatment approach does not involve punishment procedures, sexual media, or masturbation, it should be embraced more readily by both clients and therapists relative to behavioural procedures aimed at directly altering deviant arousal.

### *Pharmacological interventions*

Another approach to reducing deviant sexual arousal, also developed initially for adult males, is the use of medication. Although a number of treatment programmes in the United States utilise medication to reduce deviant sexual arousal for adolescent males and females (McGrath et al., 2010), there is currently very little empirical basis to support the use of medication in this manner with adolescents who have offended sexually (Bradford & Federoff, 2006; Shaw, 1999). In one of the few published studies of the effectiveness of medication to reduce deviant sexual arousal in adolescents, Ryback (2004) examined the impact of naltrexone and found that 15 of 21 adolescent males who had offended sexually against younger children reported an overall decrease in sexual fantasies and masturbatory behaviours. This was not a double-blind trial, however, and the adolescents were also simultaneously involved in inpatient, sexual offence-specific treatment. Furthermore, many of the participants were receiving concomitant medications. As such, it is impossible to assess accurately the specific impact, if any, of naltrexone. In their review of the literature, Bradford and Federoff (2006) pointed out that there is a potential for undesirable side effects for adolescents with some medications that are used to control sexual behaviours. Furthermore, they noted that most governmental regulatory bodies do not recognise the use of medication to treat deviant sexual interests.



## Conclusions and future directions

Although the presence of deviant sexual arousal is a risk factor for continued sexual offending, and it may be an important factor regarding the onset of sexual offending behaviours for some adolescents, the available evidence suggests that only a minority of adolescents who have offended sexually demonstrate deviant sexual arousal. This is true whether data are based on the PPG, V, T or clinician ratings. Despite the prominence of arousal-control techniques in the treatment literature, there are very few investigations of the prevalence of deviant sexual interests for adolescents who have offended sexually. It appears as though it is typically assumed that an adolescent who commits a sexual crime must somehow possess deviant sexual interests. Further research regarding the prevalence of deviant sexual interests would be important. It would also be informative to learn about the prevalence of deviant sexual interests in adolescents who have not offended sexually, although this would probably prove ethically and procedurally challenging for researchers. Finally, given the relative plasticity of sexual arousal patterns during adolescence, it will be important to investigate the temporal

stability of deviant sexual arousal for adolescent clients, as it is possible that deviant sexual arousal may dissipate for some adolescents simply as a function of maturational changes.

At the present time, research is not clearly supportive of any one assessment methodology for the assessment of adolescents' sexual interests. With adolescent male clients, the PPG is an expensive, intrusive, and potentially harmful procedure that produces data of questionable validity and reliability. Some supportive research is emerging with respect to VT approaches to the assessment of sexual arousal with adolescent males; however, there are questions regarding the temporal stability of VT and the utility of VT with adolescents who deny, adolescent females, and adolescents with cognitive limitations. Other cognitive-processing measures have been suggested as ways to assess sexual arousal, but there is very little research published with adolescent participants. Finally, it has been demonstrated that self-reported information regarding sexual arousal can be useful, even when the information is collected from clients who have offended sexually; however, there are questions about the validity of self-report from adolescents who are denying their sexual crimes and/or denying deviant sexual interests. In light of the available research, it would be prudent to combine information from multiple methods and multiple sources to inform decision regarding an adolescent's sexual arousal patterns. It is clear that there is a need for more research regarding the reliability and validity of both self-report and cognitive-processing measures of sexual arousal for adolescent males and females.

For those adolescents who have offended sexually and who also demonstrate deviant sexual arousal, there is currently no research support for any particular treatment procedure designed to change sexual arousal patterns. Behavioural procedures designed to extinguish deviant sexual arousal in adult males continue to be used with adolescents in many treatment programmes in the US and in other jurisdictions; however, there is virtually no empirical evidence regarding their effectiveness. There are also a number of ethical concerns regarding the use of behavioural procedures aimed at punishing deviant sexual arousal, including the potential for creating or reinforcing deviant sexual interests. This is a significant concern, given that adolescents are at the stage where they are forming and refining their sexual interests and identities (Bancroft, 2006). Behavioural procedures designed to enhance non-deviant sexual arousal avoid the focus on deviant sexual themes and fantasies; however, there are still a number of ethical concerns regarding issues such as the use of sexual media and masturbatory procedures in treatment with adolescents. As in the case of behavioural punishment procedures, there is also no evidence to suggest that non-deviant arousal can be enhanced with adolescents using these treatment techniques.

Although many treatment manuals describe how to teach thought-stopping to adolescents as a way to cope with deviant urges, the extant research on thought-stopping would suggest that suppressed thoughts often rebound with increased frequency and potency—beyond that which would have occurred without the thought-stopping intervention (Johnston et al., 1997; Shingler, 2009). As such, adolescents should perhaps learn to utilise thought-stopping procedures only in exceptional circumstances, and thought-stopping should not be relied upon as a primary intervention. Furthermore, thought-stopping procedures are likely to be more effective if the distractor thoughts have a comparable salience to the thought to be stopped, if adolescents can appreciate why it is important to alter their deviant sexual thoughts, if adolescents are warned that suppressed thoughts are likely to rebound, and if thought-stopping procedures are well practised. As noted with respect to the behavioural procedures designed to alter sexual arousal, there is no research regarding the effectiveness of thought-stopping procedures with adolescents who have offended sexually.

Another possible intervention for coping with deviant sexual arousal is mindfulness-based cognitive therapy. Using a mindfulness approach, adolescents could be taught simply to

notice deviant sexual thoughts and urges and to let them pass without acting on them. This treatment approach is probably appealing to a number of clinicians, given that there is not a focus on the content of deviant sexual fantasies and there is no use of punishment procedures, masturbation, or sexualised media. Unfortunately, although there is emerging empirical support for mindfulness-based approaches with adolescents, there is currently no research regarding the effectiveness of this approach with adolescents who have offended sexually and who have deviant sexual arousal. This is unfortunate, as mindfulness-based approaches have been used in this context for more than two decades.

Although some authors (e.g., Hunter, 2011) argue that group-based interventions would be appropriate venues for adolescents to discuss their deviant sexual thoughts, some clinicians might be concerned about exposing adolescents to this type of content. As noted with respect to the PPG and the card-sort assessment, exposure to deviant sexual content of this nature is concerning in light of the fact that adolescents are at a stage where they are forming and revising their sexual identities. As such, it would be prudent to address deviant sexual arousal, if present, during individual treatment.

Given that there is no clear research support regarding treatment aimed at directly altering sexual arousal patterns for adolescents who have offended sexually, and no evidence regarding procedures for stopping or simply noticing deviant sexual thoughts and urges, an alternative approach is to focus on building the capacity for future sexual health. In other words, to work together with adolescents to build the skills that will lead to the development of healthy, consensual, sexual relationships in their future, rather than directly addressing deviant sexual arousal. Given the relative plasticity of sexual arousal patterns during adolescence, it is likely that non-deviant sexual arousal will be enhanced if adolescents can be assisted to believe in their capacity to form mutually rewarding, intimate relationships. Marshall (1989) suggested that enhanced self-efficacy would assist an individual to believe that they could enjoy sexual gratification in a consensual relationship without fear of humiliation or rejection. Marshall (1997) later demonstrated a significant decrease in deviant sexual arousal for a group of men who participated in treatment that was focused solely on enhancing their self-esteem. Although deviant sexual arousal was often a focus in treatment programmes developed in the 1980s for adolescents who offended sexually, it is important to stress that these same programmes were focused concomitantly on the development of future sexual health. For example, it was common for these early treatment programmes to target communication skills, decision-making, positive sexual knowledge and attitudes, affective regulation, self-esteem, and the impact of personal childhood trauma (e.g., Kahn & Lafond, 1988; Steen & Monnette, 1989). Given that the treatment goals related to future sexual health do not require that adolescents discuss details of deviant sexual thoughts and interests, group-based interventions could be particularly useful, in addition to concomitant individual and family-based counselling. There are some researchers (e.g., Dishion, McCord, & Poulin, 1999) who argue that youth in conflict with the law should never be placed in groups given the risk of a "delinquency contagion effect". Much of the research used by Dishion et al. (1999) to support this thesis was based on peer affiliations in the natural environment rather than peer interactions in supervised therapeutic settings, however. Furthermore, in a recent meta-analysis, Lipsey (2009) demonstrated that group-based interventions for adolescents in conflict with the legal system lead to significant reductions in recidivism.

In addition to building skills for future sexual health, it may also be necessary to identify and resolve any barriers to interpersonal intimacy for some adolescents. Potential barriers to interpersonal intimacy may include social anxiety and/or maladaptive belief systems regarding interpersonal relationships or the self. If social anxiety is problematic, for example, research is supportive of a cognitive–behavioural approach to treating anxiety in children and teens

(In-Albon & Schneider, 2007), and there are a number of excellent workbooks based on cognitive–behavioural principles that can be used (e.g., Schab, 2008). As noted earlier, Maletzky (1991) outlined how systematic desensitisation could be used to assist an individual to address fears and worries regarding the establishment of intimate relationships. To assist with entrenched, maladaptive beliefs regarding oneself and one's role in interpersonal relationships, schema therapy (Young, Klosko, & Weishaar, 2003) can be very helpful with adolescents who have offended sexually (Richardson, 2005).

It is also important to keep in mind that adolescents' sexual attitudes, norms, and expectations are influenced significantly by their peer networks (Tolman & McClelland, 2011). As such, if one wishes to influence an adolescent's sexual development, then it would be ideal to have some influence on the impact of the sexual values and beliefs espoused by his/her peers. This could potentially be accomplished by either directly addressing the sexual norms and beliefs of the peer group, such as within a residential or classroom setting, or by working with the adolescent to mitigate the power of any deviant or abuse-supportive peer attitudes.

Another environmental consideration regarding the development of healthy adolescent sexuality is sexualised media. In recent years, there has been a significant increase in exposure to online sexualised imagery for adolescents (Peter & Valkenburg, 2006), and sexualised internet material certainly has the potential to shape children's and adolescents' developing sexual knowledge, expectations, interests, and attitudes. With the advent of the internet, it is also now much easier for an adolescent to view sexualised imagery of young children, and frequent viewing of these materials can have a deleterious impact on sexual arousal (Moultrie, 2006). Furthermore, for some adolescents, the almost compulsive nature of viewing sexualised internet imagery can result in Internet use becoming the primary way to meet both social and sexual needs (Boies, Knudson, & Young, 2004). It is important, therefore, to work closely with parents and caregivers to find ways to help adolescents to limit their exposure to sexualised materials. Of course, given that adolescents are inevitably going to be exposed to sexualised media through the Internet, television, movies, advertisements, video games, etc., it is even more important to equip them with an understanding of how what they are viewing and/or listening to may not actually be representative of healthy sexual relationships. Indeed, it would be ideal if adolescents could learn to question whether or not sexualised media is the best way to learn about human sexuality, to form expectations regarding sexual relationships, to learn about gender roles, to assess their physical attributes or, potentially, to influence their sexual arousal patterns.

If the goal is to help adolescents develop healthy sexual interests and attitudes, then it would also be ideal to involve parents and caregivers in the treatment process. It is clear that parental involvement in treatment leads to significant reductions in recidivism for adolescents involved in the criminal justice system (Lipsey, 2009), and this is also true when looking specifically at research with adolescents who have offended sexually (e.g., Borduin, Schaeffer, & Heiblum, 2009; Worling, Litteljohn, & Bookalam, 2010). Parents may be particularly discouraged when deviant sexual arousal patterns have been noted for their son or daughter, however, as they may hold the belief that these sexual interests are fixed and that sexual re-offences are inevitable. Powell (2010) pointed out that a critical aspect of specialised treatment is to instill hope for a healthy sexual future, and it was suggested that the installation of hope could be bolstered by informing adolescents and their parents about the relevant research. For example, it would be important to share research regarding (i) adolescent brain development and the maturation of the prefrontal cortex and the concomitant reduction in risky and impulsive behaviours, (ii) the significant decline in rates of criminal behaviour after late adolescence, (iii) the plasticity and fluidity of adolescent sexual arousal patterns and (iv)

the relatively low base rates of sexual recidivism, particularly for those adolescents who have completed specialised treatment. If family members are hopeful about the development of healthy adolescent sexual interests, then this could enhance motivation to participate in treatment and increase the probability that prosocial sexual interests, attitudes, and behaviours will be modelled, encouraged, noticed, and reinforced by family members and other caregivers.

Although the focus of this paper has been on deviant sexual arousal, it is important to stress that there are many other potential goals that need to be considered within the context of treatment for an adolescent who has offended sexually. Treatment should be tailored specifically for each adolescent based on the findings of a comprehensive assessment. Other goals may include things such as the development of offence-prevention plans, enhancement of parent–child relationships, or the reduction of symptoms of posttraumatic distress, for example. When deviant sexual arousal is a treatment goal for an adolescent who has offended sexually, it is clear that there is a need for more research regarding both assessment and treatment procedures, particularly given the fact that some of the existing procedures could be deleterious for adolescents' emerging sexual development.



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