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Running Head: EVALUATING THEORIES OF COGNITIVE DISTORTIONS

**Theories of Cognitive Distortions in Sexual Offending: What the Current Research
Tells Us**

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Abstract

Cognitive distortions in sex offenders are specific or general beliefs/attitudes that violate commonly accepted norms of rationality that have been shown to be associated with the onset and maintenance of sexual offending. In this paper we describe the major theories that have been formulated to explain the role of distorted cognition in initiating and maintaining sexual offending. We evaluate each theory in light of a set of theory appraisal criteria and the available empirical research. Finally, we conclude by drawing together the results of this theory evaluation process and highlight the major implications for treatment and future research.

Key words: sex offenders; cognitive distortions

Introduction

The concept of cognitive distortions as discussed within the sex offender literature is vague and so broad that it is at best unwieldy and at worst meaningless. In addition to the vagueness of the term's application it is also vague in its meaning, although in practice contexts it refers to lists of statements that reflect distorted views of the self, the world, and the victim. In an attempt to go beyond relying purely on verbal statements, Ward and Casey (2010) argue that to call a cognition distorted involves making a normative judgment concerning its rationality or acceptability. Constructs labeled as cognitive distortions by some authors, such as minimizations and excuse making, may be normal (i.e., most people would engage in them) but are ethically problematic since they may contribute to further offending. Looking beyond the surface features of cognition, it is apparent that underlying cognitive structures and processes play important roles in initiating offending and may also constitute distorted cognition. Ward and Casey (2010) suggest use of the term "incorrect or deviant cognitive practices" in order to capture the functional aspects of cognitive distortions and to shift the focus from lists of so-called distortions, while Ó Ciardha and Gannon (2011) prefer the use of the phrase "etiological cognitions" to denote facets of cognition that have a contributory role in offending.

However, given the ubiquity of the term cognitive distortion it may be difficult to persuade researchers and clinicians to remove it from the lexicon of sex offender research. Despite a lack of clarity concerning the concept's meaning and its application in clinical and research contexts, we believe it denotes a set of significant offense-related phenomena. In this paper we attempt to identify the variety of ideas that have been associated with the term by different authors. From this we establish a working definition of cognitive distortions. Next we evaluate the major theories that have been formulated to explain how distorted cognition may initiate and maintain sexual offending. In the service of this aim we examine the

empirical evidence and ascertain the level of support it offers to these theories. We conclude by drawing together the results of this theory evaluation and highlight the major implications for treatment and future research.

The Many Faces of Cognitive Distortions

The concept of cognitive distortions as evident in the early literature was based very much on what appeared during surface interactions with offenders. That is, the definition of cognitive distortions was founded on the way offenders described their offending actions and the contexts in which they occurred; impressions which provided a basis for inferences concerning their preoffending beliefs and attitudes. We refer to these later cognitive manifestations as cognitive products or surface cognitions throughout this review. We contrast these with deeper cognitive processes and structures. Cognitive structures refer to cognitive entities such as stable beliefs or associated concepts that are hypothesized to be present in an individual's mind. The notion of cognitive processes concerns how the mind manipulates or incorporates the information that is presented to it and how perceived information interacts with cognitive structures.

Ó Ciardha and Gannon summarize some of the problems of defining cognitive distortions, stating that the term “can now be said to include belief systems (Abel, et al., 1984), justifications, perceptions, judgments (Abel, et al., 1989), excuses (Pollock & Hashmall, 1991), defensiveness (Rogers & Dickey, 1991), rationalizations (Neidigh & Krop, 1992), and denials or minimizations (Bumby, 1996)” (2011, pp. 130-131). Taking into account the problems of scope and vagueness outlined above, a rough working definition of cognitive distortions is as follows: Cognitive distortions in sex offenders are specific or general beliefs/attitudes that violate commonly accepted norms of rationality, and which have been shown to be associated with the onset and maintenance of sexual offending. These beliefs may violate rationality norms in a number of ways – for example, they may be based

on sources of evidence that are not considered to be sufficient to ground particular beliefs/attitudes (e.g., the responses of an abused child; the response of fellow offenders; pornography use etc). This admittedly rough definition does not beg any significant questions concerning the methods relied on to provide support statements or beliefs (it allows for extended cognitive systems—see below) and it does not prescribe in advance what constitute cognitive distortions (i.e., it does not list specific cognitive distortions). It relies on the existence of norms of rationality that are endorsed by an authorized (implicit or explicit) entity of some kind. This could be a group of individuals or a community. It should be noted that those distortions that involve faulty methods of reasoning are captured by this definition and also, that the definition is a functional one because it ties distortions to their role in supporting or facilitating sexual offenses, whether in intention or act.

Evaluating Theories of Cognitive Distortions

It is widely accepted that a comprehensive theory of sexual offending is likely to be multifactorial in nature and provide a broad, systematic account of how developmental experiences, social and cultural learning, and evolved mechanisms combine to create offense related vulnerabilities (Ward et al., 2006). According to such an account, causal factors such as deviant sexual preferences, empathy deficits, intimacy problems, emotional dysregulation, problems with action control, and distorted beliefs or values collectively result in an individual committing a sexual offense. While a single factor such as cognitive distortion is unlikely to explain on its own why a person commits an offense it still remains a crucial piece of the etiological puzzle. A specific theory of cognitive distortions aims to describe the mechanisms that generate cognitive products, and in addition, specifies the content and form of these products.

Thus, theories of cognitive distortions are single-factor theories (Ward et al., 2006) that can be seen as fitting into multi-factorial explanations of offending. In appraising these

different theories, we evaluate each theory conceptually and empirically using established epistemological criteria (Hooker, 1987; Newton-Smith, 2002; Ward, Polaschek, et al., 2006). Summarized briefly, these criteria or principals include: “(a) empirical adequacy (i.e., is the theory supported empirically?); (b) internal coherence (i.e., does the theory integrate key constructs in a logical and consistent manner, or does it contain inconsistencies? If logically inconsistent this may result in a theory that is unfalsifiable); (c) explanatory depth (i.e., does the theory outline and explain deep underlying mechanisms?); (d) heuristic value (i.e., does the theory generate new predictions, research and knowledge? In the forensic setting this may also refer to the theory's ability to generate new and empirically supported treatment interventions); and (e) unifying power (i.e., does the theory combine previously separated theories to create new insight into the field of inquiry in question?)” (Gannon, Ward, & Collie, 2007, p. 404). We also consider whether the theories exhibit simplicity and whether they are externally consistent with other accepted background theories. These criteria are intended to function as regulatory ideals or proxies for truth, and do not guarantee a theory's truth. Rather, they support the judgment that it is more likely to be true than competing theories which perform more poorly when assessed against the criteria.

Abel's Theory of Cognitive Distortion

Gene Abel and colleagues are widely accepted as the first researchers to use the term cognitive distortions in the context of sexual offending (Gannon & Polaschek, 2006; Ward, Polaschek, & Beech, 2006). The term was already popular in the clinical psychological literature where it referred to dysfunctional thinking styles and beliefs associated with psychological problems such as depression and anxiety (e.g., Beck, 1976). Abel and his colleagues appear to have linked the term with Bandura's construct of faulty thinking (Bandura, 1986) and applied it to the domain of antisocial behavior (Ward, Polaschek, et al., 2006). In essence, according to Abel, Becker, and Cunningham-Rathner (1984), cognitive

distortions are beliefs which individuals have developed as a result of a mismatch between their (deviant) sexual interests and their perception of societal norms. In a later work Abel, Gore, Holland, and Camp (1989) added that post-offense elements such as justifications can be also considered cognitive distortions. Since these seminal works, a number of other authors have adopted and expanded the scope of the term considerably.

Despite pioneering the application of the concept of cognitive distortions with sex offenders Abel and colleagues never formally outlined their theory of cognitive distortions. Rather, to formulate their explanation of cognitive distortions, it is necessary to piece it together from several of their publications. As a result, this impacts on our ability to extensively evaluate their explanation. As already mentioned Abel et al (1984) view cognitive distortions as beliefs arising from the individual's realization that their sexual interests are at odds with social mores. These beliefs may be reinforced by masturbation (Abel et al., 1984) or by offending behavior (Abel et al., 1989). In a later paper they explicitly incorporated justifications, perceptions and judgments used to rationalize offending behavior into their definition. They also state that cognitive distortions "are the products of conflict between external reinforcements and internal self-condemnation" (Abel et al., 1989, p. 138). Additionally, Abel and colleagues note that cognitive distortions may become entrenched over time (Abel, Rouleau, & Cunningham-Rathner, 1986).

Conceptual evaluation

When drawn together, Abel and colleagues' theory does not form an internally coherent account of cognitive distortion. For example it is not clear whether they viewed cognitive distortions as playing an etiological or maintaining role in offending. Ward et al. (2006) conclude that Abel et al. likely saw cognitive distortions as having more of a maintaining role. Even, where Abel et al. talk of cognitive distortions existing prior to offending (1984) it is as a consequence of established deviant arousal. This view is externally

inconsistent with multifactorial theories of offending that see offense-supportive beliefs as having a clear etiological role (e.g., Ward & Beech, 2006). Abel's theory has limited scope in that it draws heavily on one type of pathway to offending: adolescent-onset offenders with a history of deviant arousal. As a result, the theory does not adequately address how cognitive distortions develop in offenders with a later onset or where deviant sexual interest is not a trait factor in their offending. The mechanism through which cognitive distortions are created is also vague in the theory, pointing to a lack of explanatory depth (Gannon, Ward, & Collie, 2007).

In applying the concept of cognitive distortions to sex offender cognition Abel and colleagues established a fertile new dialogue within the field of offender research and treatment. Indeed the questionnaire developed by Abel et al. (1989) and other similar questionnaires (e.g., Bumby, 1996; Hanson, Gizzarelli, & Scott, 1994) have been widely used in the offender treatment community attesting to the theory's heuristic value. However, when evaluated overall, studies examining the utility of cognitive distortion questionnaires do not consistently find them able to discriminate sexual offenders from other groups (Gannon, Keown, & Rose, 2009). Given these mixed results and given the lack of conceptual clarity in Abel's theory it is difficult to evaluate empirical evidence that would support or reject the theory (weak empirical adequacy). Despite this, we see the contribution of Abel and colleagues to the issue of offender cognition as invaluable as a starting point for a fertile area of research.

Implicit Theories Theory

In two papers, Ward and Keenan (1999) and Ward (2000) presented the idea that child molesters hold a set of beliefs which they referred to as implicit theories (ITs). Drawing from the personality, developmental, and cognitive literature, Ward saw these ITs as particular types of schema, which offenders used to "explain, predict, and interpret

interpersonal phenomena” (2000, p. 494) relevant to sexual offending. Ward argues that these ITs share a number of features with scientific theories. First, they may contain ontological assumptions in that the nature of human beings is understood in terms of core psychological structures and processes. Second, ITs are used by the individual to explain and understand the behavior of people in different contexts, and to infer their underlying psychological states or mechanisms. Third, they are comprised of coherent, interconnected beliefs and concepts. Finally, ITs are employed by individuals to interpret evidence. The major point of difference between scientific theories and ITs as postulated by Ward (2000) is that ITs do not involve the rigorous, explicit testing of hypotheses against evidence that scientific theory does (Ward, Polaschek, et al., 2006). Rather, individuals are likely to engage in confirmation bias whereby only evidence that supports their theory is given weight. These ITs are not necessarily available to introspection and individuals holding them are, therefore, unlikely to be aware of any bias in their information processing. While accepting that not all sexual offenders have the same problematic ITs, and that some may have victim-specific theories, Ward and Keenan (1999) hypothesize five ITs to be prevalent among sexual offenders against children: Children as sexual objects (children are capable of desiring and enjoying sex and have adult sexual motivations), nature of harm (sexual molesting is not harmful or is beneficial), uncontrollability (offending behavior is outside the offender’s control), entitlement (the offender’s needs or wants supersede those of others), and dangerous world (the world is a hostile and dangerous place where no one or only children can be trusted). Later, Polaschek and Ward (2002) similarly propose five ITs held by rapists: women are unknowable (women are inherently different to men and should be treated with suspicion; later revised as women are dangerous by Polaschek & Gannon, 2004), women are sex objects (created to service the sexual needs of men), along with male sex drive is uncontrollable, entitlement, and dangerous world.

Conceptual evaluation

Since first proposed this theory has shown strong fertility and heuristic value, resulting in attempts to measure ITs and in the spawning of other similar theories to account for cognition in other offender types (e.g., Beech, Fisher, & Ward, 2005; Beech, Parrett, Ward, & Fisher, 2009; Gannon, Hoare, Rose, & Parrett, 2010; Gilchrist, 2009; Ó Ciardha & Gannon, in press; Polaschek, Calvert, & Gannon, 2009;). Several of these authors and others have set out to test empirically the ITs of sexual offenders or individuals demonstrated to have a propensity to offend sexually (e.g., Beech, et al., 2005; Beech, Ward, & Fisher, 2006; Blake & Gannon, 2010; Dawson, Barnes-Holmes, Gresswell, Hart, & Gore, 2009; Beech, et al., 2009; Marziano, Ward, Beech, & Pattison, 2006; Mihailides, Devilly, & Ward, 2004; Polaschek & Gannon, 2004; Polaschek & Ward, 2002). Additionally, later theories such as the judgment model of cognitive distortions (Ward, Gannon, & Keown, 2006) have used the IT theory as a foundation.

The IT theory demonstrated strong unifying power by taking certain elements of the broad concept of cognitive distortions (i.e. problematic beliefs) and cementing them within the framework of cognition in general. In this way it unified many of the disparate ideas circulating in the sex offender literature up to that point. Ward et al. (2006) propose that the IT theory as formulated by Ward (2000) contains some aspects of internal incoherence. These revolve around the degree to which individuals go through a process of science-like hypothesis testing or whether they interpret information through the lens of an established problematic IT. Ward (2000) argues that while ITs are typically formed in childhood or adolescence, they may change in light of new evidence over the course of a lifetime. He also argues that individuals interpret evidence in a manner that is consistent with their ITs. There is incoherence here, at least on the surface. There is an implication, however, that while ITs are initially malleable, they become less and less so, with the type of evidence required to

alter an IT needing to be increasingly noteworthy and theory-inconsistent to require an adjustment of the theory. The lack of an explicit explanation of this process by Ward (2000) may point to a lack of explanatory depth rather than true internal incoherence.

Empirical evaluation

As mentioned earlier, empirical studies examining cognitive distortions may investigate the surface cognitive products that suggest deeper problematic beliefs or attitudes or they might attempt to access these cognitive structures or related cognitive processes through indirect means. To date the evidence from direct measures of cognitive products has provided support for the IT theory. This is perhaps unsurprising as Ward and Kennan (1999) drew on three widely used cognitive distortion questionnaires (Abel, et al., 1984; Bumby, 1996; Hanson, Gizzarelli, & Scott, 1994) and two interview studies (Neidigh & Krop, 1992; Ward, Fon, Hudson, & McCormack, 1998) in the development of their five ITs. Using qualitative analysis of interviews, Marziano, Ward, Beech, and Pattison (2006) found support for all five ITs and demonstrated that no other theories were required to account for their data. Keown, Gannon, and Ward (2010) found that, when considered separately, interview and questionnaire approaches yielded results consistent with the five IT model. We discuss the degree of agreement between the interview and questionnaire components of this study later. In testing for Polaschek and Gannon's (2002) five ITs of rape, supporting evidence was found using interview approaches looking at rapists (Beech, et al., 2006; Polaschek & Gannon, 2004) and sexual murderers (Beech, et al., 2005).

Inferring cognitive structure from cognitive products is fraught with difficulties, however. If one sets aside questions of presentation bias and whether certain products originate from cognitive structures or are more temporary conclusions based on the interpretation of fluid situational variables, there is still the problem of whether these apparent clusters of products genuinely represent clusters within cognition. In other words,

even if offenders tend to display surface products that indicate a belief in the world as a dangerous place, for example, we cannot tell from questionnaires and interviews alone that this is truly an interconnected network within cognition forming a coherent schema or IT. Instead, it may simply be a rationalization or an interpretation cued by the facts of imprisonment and its adverse social consequences. In order to warrant such a claim, empirical evidence is needed in the form of more indirect tasks or indeed neuroimaging demonstrating evidence for the IT as a coherent and predictable cognitive entity.

Two studies on female child molesters (Gannon, et al., 2010; Beech, et al., 2009) demonstrate the difficulty in determining underlying cognition from cognitive products. Using the same interview technique both studies were able to categorize the cognitions of female offenders into the ITs postulated by Ward and Keenan (1999) for child molesters (see Gannon & Alleyne, this volume). However, the second analysis (Gannon et al.) found that the content of the offenders' offense-supportive cognitions were very different to those of male offenders. The Beech et al. paper had noted differences between the content of the female cognitions and those of males, but Gannon et al. went further with their conclusions. Gannon et al. found that while there were cognitive products surrounding children and sex they were better expressed as victim as sexual being rather than children as sexual being. Additionally an IT of men as dangerous fitted their data better than dangerous world, in addition to male entitlement rather than entitlement, and finally females tended to make statements that suggested that female abuse is not harmful rather than Ward and Keenan's (1999) nature of harm IT. Therefore, while similar in theme to Ward and Keenan's ITs, the content of these female ITs seem to be considerably different. They seem to reflect the fact that female offenders will often co-offend with a male, in many cases being coerced by their co-offender (Gannon, Rose, & Ward, 2008), and thus females may talk of their role in the abuse as not being harmful, or of men being entitled or dangerous. Additionally female offenders may not

see all children as sexual beings, but rather have specific beliefs about the maturity and sexual nature of their own victims. The results of these studies illustrate that, given the impact of the IT model, there is a danger that data may be found to fit those theories even where that fit is not entirely adequate.

It should be clear that in order to demonstrate the empirical adequacy of the implicit theories theory there needs to be congruence between the measurement of surface cognitions and more indirect measures of deeper cognition. Unfortunately, research to date using indirect methods has been inconclusive. The first attempt to use indirect methods to explore Ward and Keenan's ITs was by Mihailides, Devilly, and Ward (2004). Using a version of the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), Mihailides et al. demonstrated that sexual offenders against children showed a greater difference in reaction times when asked to categorize words as belonging to IT-consistent or IT-inconsistent pairs relative to non-sexual offenders or non-offenders. In other words, sexual offenders seemed to demonstrate a cognitive association of certain offense-supportive concepts. They found significant group differences in IAT effect when investigating three of the ITs: children as sexual beings, uncontrollability of sexuality, and entitlement. Adopting a similar IAT approach Gray, Brown, MacCulloch, Smith, and Snowden (2005) were able to demonstrate associations between child and sex words among a sample of sex offenders against children. Several further studies have shown the IAT to be adept at tapping into associations of children and sex (Banse, Schmidt, & Clabour, 2010; Brown, Gray, & Snowden, 2009; Nunes, Firestone, & Baldwin, 2007). Dawson, Barnes-Holmes, Gresswell, Hart, and Gore (2009) used a version of the Implicit Relational Assessment Procedure (IRAP; Barnes-Holmes, Hayden, Barnes-Holmes, & Stewart, 2008) to also investigate the children as sexual beings IT. Though similar to the IAT, the IRAP allows researchers to tease out associations better than the IAT. Consistent with the IAT results, Dawson et al, found evidence for a

stronger association of children with sex among offenders relative to non-offenders.

Despite being broadly supportive of the hypothesis that some offenders have an IT of children as sexual beings, IAT and IRAP results require that investigators draw conclusions regarding the association of certain stimuli based on speed of responding. As a result it is unclear from these results whether offenders truly have an IT of children as sexual beings or whether the results are driven more by cognitions surrounding a deviant sexual interest or a combination of both (Ó Ciardha, 2011). Additionally, these findings do not establish a causal or etiological role for these beliefs in offending. Establishing a link between results in tasks such as these to re-offending or to the number of offenses committed by individuals would go some way towards this. An alternative non-causal explanation for the findings (or some of the findings) could revolve around an increased salience of concepts relating to sexual activity with children as a result of offending behavior and engagement with the legal system and treatment. This alternative seems to be countered to an extent by the finding that female sexual offenders were not found to show an association between children and sex using an IAT (Gannon, Rose, & Williams, 2009).

Using a lexical decision task Kamphuis, De Ruiter, Janssen, and Spiering (2005) demonstrated an association between sex and power among child molesters. In the task participants were asked to identify target letter strings as words or non words. Prior to being presented with these targets they were subliminally primed with another word. Offenders were quicker than forensic and non-forensic controls in identifying sex words when they were primed with power words and in identifying power words when primed with sex words. Kamphuis et al. introduce their study in terms of Ward and Keenan's (1999) ITs and their results are consistent with a schema-based account of cognition in offending. They don't state, however, whether they think their paradigm relates specifically to any of the five ITs proposed by Ward and Keenan. Dawson et al. (2009) assert that Kamphuis et al.'s results are

consistent with the entitlement and dangerous world ITs. While it may be that individuals with a sense of sexual entitlement hold some association of power and sex, there is no clear link, in our opinion, between that association and holding a dangerous world IT. This further indicates the difficulty in determining which type of evidence is required to support the IT theory.

Gannon, Wright, Beech, and Williams (2006) used an information processing paradigm to investigate the cognitive distortions of child molesters. They presented sexual offenders and forensic controls with vignettes describing molestation. Within these vignettes, they placed ambiguous sentences relating to Ward and Keenan's (1999) five ITs. After a series of unrelated tasks, participants were asked to recall as much as they could about the vignette. It had been hypothesized that child molesters would recall the ambiguous elements of the vignettes in IT consistent ways. For example, where a young girl in a vignette is described as walking in on an adult male in the shower, an IT consistent recall of this event may involve the child being provocative or initiating some kind of sexual encounter. This interpretation would be in line with a children as sexual beings IT. When analyzed, participants demonstrated a number of memory distortions in their recall of the vignette. However, there was no clear indication in the results of systematic distortion among child molesters that would lend support to Ward and Keenan's five ITs.

In another study Keown, Gannon and Ward (2008a) investigated whether child molesters primed by viewing semi-clothed images of children would interpret ambiguous sentences regarding children's actions in a sexualized manner. Child molesters and forensic controls both viewed either semi-clothed children or clothed adults before reading the ambiguous sentences (e.g., "The coach told 10-year-old Jo to stop teasing him"). Participants were later asked whether they recognized similar sentences that were either consistent with an IT of children as sexual beings (e.g., "The coach told 10-year-old Jo to stop being flirty

with him”) or not (e.g., “The coach told 10-year-old Jo to stop being cheeky with him”). Keown et al. found that child sex offenders viewed images of children longer than forensic controls, suggesting a greater degree of sexual interest in children among that group (Harris, Rice, Quinsey, & Chaplin, 1996). However, sexual offenders in either the primed or unprimed condition did not differ from offending controls in their responses to the ambiguous sentences. In other words, this paradigm was unable to demonstrate that the child molesters held an implicit theory of children as sexual beings. A study by Gannon and Rose used a similar paradigm to look at possible schema among female sexual offenders (Gannon & Rose, 2009; see Gannon & Alleyne, this volume). Interestingly they were able to demonstrate an interpretive bias toward interpreting ambiguous information about males as threatening. This suggests that this paradigm does have utility in tapping into schema.

Keown, Gannon and Ward (2008b) used a version of the lexical decision task to once again test for the ITs of offenders. The lexical decision task differed from the one used by Kamphuis et al. (2005), outlined earlier, in that instead of using subliminal priming, participants had to state whether letter strings that came at the end of an incomplete sentence were words or non-words. Word targets completed the sentences either in an IT supportive manner or not. Sentences were created for all five ITs hypothesized by Ward and Keenan (1999) to be present among child molesters. It was hypothesized that offenders would respond faster to offense-supportive words relative to non offense-supportive words, and that offenders would differ from controls in their response patterns. This hypothesis was only supported in the case of the uncontrollability IT. Keown et al. interpret their findings as calling further into question the degree to which the different surface cognitive distortions observed among offenders truly indicate those offenders’ beliefs. Using a similar version of the lexical decision task, Blake and Gannon (2010) attempted to determine if rape-prone men would show the types of ITs proposed by Polaschek and colleagues (Polaschek & Gannon,

2004; Polaschek & Ward, 2002) to be held by rapists. The study found rape proclivity to be significantly related to scores on an explicit measure of rape-supportive cognition (RAPE; Bumby, 1996) but they were unable to find a relationship between proclivity and the indirect measure. Blake and Gannon consider whether convicted rapists would perform differently and whether their task was capable of tapping into ITs. However, they also ask whether it is possible that the ITs of rapists need to be rethought.

In an attempt to resolve some of the contradictory findings between different measures of cognitive distortions, Keown, Gannon, and Ward (2010) sought to triangulate the results of three different approaches to measuring ITs. They conducted semi structured interviews, questionnaires (MOLEST; Bumby, 1996), along with an indirect measure (Rapid Serial Visual Presentation-Modified, or RSVP-M¹). The RSVP-M is a reaction time task based on findings indicating that individuals will read sentences faster if they are consistent with preceding sentences that are in line with the reader's mental model (Albrecht & O'Brien, 1993). All three methods were used to collect data from child molesters while questionnaire and RSVP-M data were collected for offending controls also. The results of the study presented a mixed picture. All but one child molesting offender was categorized as demonstrating at least one IT-consistent theme from their interview data. On the questionnaire, sexual offenders endorsed cognitive distortion items to a greater degree than non sexual offenders when comparing the three ITs expected to demonstrate differences between sexual offenders and general offenders: children as sexual beings, nature of harm, and uncontrollable. No group difference were found when the RSVP-M measure was used suggesting that the measure does not successfully tap into ITs or that this sample of participants did not hold ITs. When the relationship of all three measures to each other was examined, there was a significant lack of agreement between the measures. Taken as a whole,

¹ This paradigm should not be confused with the Rapid Serial Visual Presentation (RSVP) paradigm used to investigate sexual interest among child molesters (e.g., Beech, et al., 2008)

the results suggest that while both the interview and questionnaire seem to be picking up on cognitive products that differentiate between child molesters and offending controls, the two approaches do not elicit the same cognitive products in individuals. Additionally, despite the presence of these cognitive products, the RSVP-M task was unable to find evidence of a deeper cognitive structure generating them.

While much of the recent experimental cognitive literature has shown little support for the IT theory, methodological refinements or alternative paradigms may offer a clearer picture with which to definitively comment on the theory's utility. One study that presents a degree of support for premises underpinning the IT theory examines theory of mind in child molesters (Elsegood & Duff, 2010). Ward and colleagues (Ward, 2000; Ward, Keenan, & Hudson, 2000) relate cognitive distortions in offenders to the development of theory of mind in children. Ward (2000) suggests that the development of ITs may stem from delays in the development of theory of mind as a result of problematic attachment. Since many offenders have disturbed family backgrounds and have high rates of insecure attachment (Ward, Hudson, & Marshall, 1996), Ward suggests that they may experience a delay in acquiring a theory of mind impacting on the development of adaptive ITs (2000).

Elsegood and Duff (2010) examined the theory of mind of non-incarcerated child molesters along with well matched community controls using two tasks. The first task, the Reading the Mind in the Eyes test (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001) is designed to measure theory of mind by asking participants to infer the mental state of an adult using a photograph of that adult's eyes. The second task, the Mind in a Child's Eyes task (Duff & Schulte-Mecklenbeck, in press), is an almost identical task except that the images are of children's eyes. Interestingly, Elsegood and Duff found that child molesters fared significantly worse than non-offenders in inferring the mental states of adults but showed no difference in their ability to infer the mental states of children. The authors

suggest that this supports the idea that offenders have an emotional congruence with children. The result could be taken as support for one version of the dangerous world IT (Ward & Keenan, 1999), whereby adults are untrustworthy while children are more reliable and accepting. However, any such interpretation is tentative and must be seen in the context of the generally equivocal findings in the empirical literature relating to the IT theory.

Appraisal Summary

On a conceptual level, the IT theory of cognitive distortions has many strengths that recommend it as a way to understand the etiological role of cognitions in sex offending. However, the empirical findings that have emerged in the literature call into question the predictive accuracy and empirical adequacy of the theory. While measurement of surface cognitions or cognitive products, does indeed support the idea that the offense-supportive cognitions of offenders can be grouped along the lines of the five ITs proposed by Ward and Keenan (1999), the literature attempting to measure those ITs on a deeper level has yet to provide convincing support for considering these as schematic belief systems. Interestingly, methods of indirect measurements that rely on simple associations of concepts such as the IAT or IRAP (e.g., Dawson, et al., 2009; Mihailides, et al., 2004) seem to produce the best evidence in favor of ITs as schema. More complicated designs attempting to demonstrate more clearly that a coherent belief is held such as the interpretive bias task (Keown, et al., 2008a), sentence completion lexical decision tasks (Blake & Gannon, 2010; Keown, et al., 2008b), RSVP-M (Keown, et al., 2010), and the vignette-based task (Gannon, et al., 2006) have failed to find clear evidence of the ITs. One of the tasks (Keown, et al., 2008b) seemed to tap into an uncontrollability IT suggesting that the tasks do offer some potential. Additionally, an investigation of the ITs of female sexual offenders using an interpretive bias task (Gannon, et al., 2008) found evidence of a schema involving offenders seeing men as threatening. Despite this and while accepting that the empirical research looking at cognitive

distortions through indirect means is in its infancy, we must conclude at this point that the IT theory does not adequately account for the available evidence. Further rigorous well-designed research is, however, required to attempt to integrate the disparate findings in the research to date.

Mann and Beech's Schema-based model

Mann and Beech (2003) outlined a second schema-based account of cognitive distortion. In that account they proposed a model that shares many elements with the IT theory of cognitive distortion. Indeed within it, Mann and Beech identify Ward and Keenan's (1999) five ITs as schemas that would fit within their model. Much of the empirical evidence that would support or falsify this theory is the same as that we examined regarding the IT theory. However, after outlining the key points of the schema-based model and applying the same conceptual evaluation criteria to it, we will examine the key evidence for and against this theory from the same studies while introducing some additional research.

Mann and Beech define a schema as a "structure containing beliefs or attitudes that follow a similar theme or pattern and that [has] developed as a result of trying to make sense of early life experiences" (2003, p. 145). They describe schemas as stable, chronically accessible structures, containing fundamental assumptions about the individual and their relationship with others, and that information is processed using these schemas. In their model, schemas emerge from developmental experiences and are used to interpret ambiguous or negative life events (along with an interaction with other factors associated with sexual assault) to produce offending. These hypothesized other interacting factors include "lack of intimacy, lifestyle impulsivity, poor self-management, deviant sexual interest" (2003, p. 145).

Mann and Beech outline their theory briefly and in a very broad way. In many ways it may be seen as complimentary to Ward's IT theory (2000). A key difference is that Mann and Beech do not identify a certain set of schemas hypothesized to be present among sex

offenders. Rather they point to the body of literature that has demonstrated varied cognitive products that could be classed as schema. An implication of this may be that the schemas actually acquired by sex offenders are very much dependent on the developmental context unique to each individual. An additional key difference is that the theory focuses to a large degree on the interaction of schemas with other factors in offending and on the treatment implications of a schema based approach and may, therefore, be considered more of a potential multi-factorial or level 1 theory (Ward, Polaschek, & Beech, 2006).

Conceptual evaluation

The brief and multi-factorial nature of the schema-based model of sexual assault means that many components within it are too vague to adequately evaluate them. In this respect, the theory lacks explanatory depth regarding the structure and processes involved in offense-supportive schema and their interaction with other factors to influence offending. We believe that this level of depth was beyond the scope of what Mann and Beech (2003) were trying to achieve with their chapter rather than demonstrating a conceptual failure on the part of the authors. Ward et al. (2006) point out several other limitations of the theory. They argue that there is external inconsistency or at least a lack of clarity regarding the role of ambiguous or negative life events in interacting with schema to bring about offending. Offense chain models of child molestation indicate that some offending is associated with an approach pathway, with offenders demonstrating positive affect and event planning, and without triggering ambiguous or negative events (Ward, Loudon, Hudson, & Marshall, 1995). Additionally, the assertion by Mann and Beech that schema are “chronically accessible” is externally inconsistent with other schema literature suggesting that the activation of schema is dependent on affect and, therefore, not necessarily always accessible (Marshall, Marshall, Serran, & Fernandez, 2006).

As the Mann and Beech (2003) schema-based model is preliminary it lacks the same

degree of unifying power or fertility as the IT theory (Ward, 2000; Ward & Keenan, 1999). However, and while noting concerns about explanatory depth, the theory does have the benefit of simplicity. The theory asserts that offenders hold category and belief schemas that arise out of early experiences and interact with other factors to play a role in offending.

Empirical evaluation

As there is so much overlap between the two theories, much of the empirical evidence that speaks to the validity of the IT theory also can be related to Mann and Beech's (2003) model. We therefore summarize the relevant findings from the literature already reviewed while introducing a couple of additional studies that have particular implications for this model. It should be clear from the empirical literature presented earlier regarding the IT theory (Ward & Keenan 1999; Ward 2000), that offense-supportive cognitive structures, whether they are referred to as ITs or schema, are difficult to measure and to elicit. While the evidence from offenders' statements, interviews and questionnaires consistently suggests that sex offenders hold distorted beliefs (e.g., Beech, et al., 2006; Keown, et al., 2010; Marziano, et al., 2006; Polaschek & Gannon, 2004), attempts to measure deeper cognition have met with limited success (e.g., Dawson, et al., 2009; Keown, et al., 2008b; Mihailides, et al., 2004), or have been unsuccessful in tapping into any apparent schemas or ITs (e.g., Blake & Gannon, 2010; Gannon, et al., 2006; Keown, et al., 2008a; Keown, et al., 2010).

While most recent research has concentrated on measuring the ITs of offenders, these are not the only candidates for the types of schema held by offenders. Mann and Beech (2003) describe findings from a presentation by Mann and Hollin (2001) where they identified schemas inferred from explanations of the motives of rapists and child molesters. They suggested schemas that included grievance, self as victim, need for respect/control, entitlement, and disrespect for certain women. Using these schemas as a starting point Mann and Hollin (2001) developed a questionnaire to tap into these cognitions. Milner and Webster

(2005) compared the responses to this questionnaire among violent offenders, child molesters and rapists. They also examined differences between groups in their responses when using an autobiographical life event interpretation exercise. While some of the identified themes or schemas (the authors seemed to use the words interchangeably) mirrored Polaschek and Gannon's (2004) IT theory closely (e.g., suspiciousness/ hostility to women compared with women are dangerous), others were less clearly related to any ITs. Examples of these were grievance/vengeance and worthlessness. Milner and Webster point out that this type of research needs investigations of the underlying cognitive structures as well as the surface products they were basing their findings on. Nonetheless, their results demonstrated that there are ways of conceptualizing the cognitive products of offenders other than those proposed by those using IT terminology.

Mann and Hollin (2007) present data looking once again at motivating factors in rapists and child molesters and conclude that two of the emerging themes could be described as schema: grievance and need for respect/control. They describe these as more prevalent among rapists than child molesters. Drawing on the qualitative data presented in Mann and Hollin (2007), the same authors administer a questionnaire of "general belief statements about the self, life or other people" (Mann & Hollin, 2010, p. 838) to a large sample of mixed sexual offenders, forensic controls and non offenders. A factor analysis yielded a two factor solution suggesting a theme of (1) dominance, which involved "a need for respect and a desire for revenge" (p. 845) and (2) disadvantaged, which involved "beliefs that one has been damaged by others and controlled in the past" (p. 838). These themes are considered by Mann and Hollin to be modes rather than schemas, which refer to a network of "cognitive, affective, motivational and behavioral components" (Beck, 1999, p. 2). They explain that schema fit within the modes and are cognitive-conceptual themes relating to self-identity, personal goals and values. While based on an impressive sample of participants the two

factors identified seem to be of limited value as they do not discriminate between different types of sex offenders. Rather they show differences between offenders and non-offenders.

Gannon, Keown, and Rose (2009) analyzed the items contained in six questionnaires designed to measure child molesters' offense-related beliefs. They found that most contained items that could map onto some, if not all, of Ward and Keenan's (1999) five ITs. However, they also found that some items did not map onto the IT model and so could be seen to form clusters that may represent new theories or schemas. These were intimacy-sex confusion, children are unknowable, and self as victim.

While the results of the studies above taken together lack a coherent narrative, they do stress that there are more ways of looking at the cognitive products of offenders than ones based on the types of ITs proposed by various authors (i.e. Polaschek & Gannon, 2004; Polaschek & Ward, 2002; Ward, 2000; Ward & Keenan, 1999). It may well be that a comprehensive examination of the cognitive products of sexual offenders, using large samples, exhaustive questionnaires and qualitative analysis of interviews, could reconcile the discrepancies found across the literature regarding the cognitive products of offenders.

Appraisal Summary

Taken as a whole, the schema based model is too preliminary to allow satisfactory conceptual evaluation. While appealingly simple, this simplicity comes at the expense of explanatory depth. Additionally, the difficulty faced by those studies adopting indirect measures of cognition in tapping into the ITs or schemas demonstrates further the fact that schemas are unlikely to be "chronically accessible" as suggested by Mann et al. indicating a minor point of empirical inadequacy. As with the IT theory, the schema based model needs to gain further empirical support from cognitive experimental approaches tapping into cognitive structures and processes before solid conclusions on its validity can be drawn. The lack of explanatory depth in the theory makes it difficult, however, to generate falsifiable

hypotheses. As a result, the ITs approach is currently more scientifically appealing.

The Judgment Model of Cognitive Distortion

Given the mixed success of the cognitive-experimental research in eliciting evidence of sexual offenders' ITs, Ward and colleagues (Ward, Gannon, & Keown, 2006; Ward, Keown, & Gannon, 2007), revisited the IT theory to attempt to account for those findings. They refer to the resulting theory as the Judgment Model of Cognitive Distortions (JMCD). Within this model surface cognitive distortions are seen as emerging from thematic networks, which in turn emerge out of an interaction of the individual's belief-based judgments, their value based-judgments, and their action-based judgments. The JMCD suggests that the kind of statements made by offenders, previously classed as cognitive distortions, can be explained using these three judgment types. Belief-based judgments incorporate most of the IT theory. Ward and colleagues argue that some but not all offenders hold problematic ITs or schemas that produce surface cognitions in the form of cognitive distortions.

Value-based judgments, as argued in the JMCD, can result in cognitive distortions, not because the offender values the wrong things but rather because they make bad decisions in order to achieve these values. These judgments relate strongly to the Good Lives Model of treatment (Ward & Gannon, 2006) where the identification of values or goods important to the offender is central, along with determining ways of meeting these goods in a non-offending manner. In producing cognitive distortions, value-based judgments may elicit problematic statements or questionnaire responses that do not represent an entrenched problematic belief. A desire for intimacy for example may encourage an offender to interpret a friendly interaction with a female as a sexual advance (Ward, et al., 2007). This type of "sloppy thinking" could occur in the absence of a belief that women are sex objects. Rather it is the contextual factors combined with a problematic value-based judgment that could start a chain of events where the offender acts in a sexually aggressive manner. Ward et al. (2007)

explain that an offender who justifies his/her actions by accepting their original sloppy interpretation of the victim's action could ultimately develop offense-supportive beliefs. In this way beliefs-based judgments and value-based judgments can interact with the third type of judgment in the JMCD, action-based judgments.

Cognitive distortions arising out of action-based judgments are hypothesized by the JMCD to be apparent distortions resulting from the offender's actions. These include the types of minimizations, denials and justifications that are seen among offenders. Ward et al. (2006) view these as emerging from social processes surrounding the implications of their actions. As a result the offender may make offense-supportive utterances in the absence of offense-supportive beliefs. Additionally, as in the example above, their evaluation of their action may be based on faulty conclusions drawn as a result of a problematic value-based judgment. Ward et al. (2006) propose that this type of post-offense reasoning may feed back into the belief structures of the offender if engaged in to a sufficient degree.

The JMCD includes an account of how the discourse indicative of offense-supportive cognition can be considered within thematic networks. These networks map the JMCD onto the five ITs of child molesters (Ward, 2000; Ward & Keenan, 1999) and of rapists (Polaschek & Gannon, 2004; Polaschek & Ward, 2002), and explain how different arrangements of belief-, value-, and action-judgments may bring about the type of discourse previously taken as evidence for these ITs.

Conceptual evaluation

The JMCD represents an impressive attempt to account for inconsistent findings in measuring cognitive distortions beyond surface cognitions. It demonstrates strong unifying power as well as external consistency in subsuming most of the key features of the IT theory for both rapists (Polaschek & Gannon, 2004; Polaschek & Ward, 2002) and child molesters (Ward, 2000; Ward & Keenan, 1999) and the schema based model (Mann & Beech, 2003)

along with complimenting the Good Lives approach to offender treatment (Ward & Gannon, 2006). Furthermore it fits well into the Integrated Theory of Sexual Offending (Ward & Beech, 2006; Ward & Beech, 2008) which is currently the most complete multi-factorial theory of sexual offending. Gannon, Ward and Collie (2007) point out that the JMCD lacks explanatory depth when it comes to explaining how different offender types might be associated with the different distortion mechanisms. A strength of the theory is that it incorporates the types of post-offense cognitions such as denial, minimization and justifications that were not accounted for in other theories, yet routinely referred to as cognitive distortions and thus shows further unifying power. Though Ward et al. (2007) acknowledge the concerns raised by several authors (Dean, Mann, Milner, & Maruna, 2007; Maruna & Mann, 2006) that some of these types of post-offense cognitions are normative and may not play an etiological role in offending, the exact role of action-judgments in the etiology of offending is unclear; thus the JMCD suffers from a lack of explanatory depth. It is not apparent, for example, how some justifications may be normative and non problematic while others may eventually feed back into the belief structures of the offenders.

At the time of writing, no empirical study has been published that has explicitly claimed to test the JMCD in the six years since its publication. This suggests that the theory suffers from a lack of fertility or heuristic value. At the same time, the IT theory of cognitive distortions that pre-dates it continues to have a large impact on both the research and treatment literature. Given that the JMCD was designed to account for some of the discrepancies in the empirical literature it is disappointing that no studies allow us to directly examine its success at resolving those discrepancies. We suspect that the continued appeal of the IT theory over the JMCD approach stems from the former's appealing simplicity and from difficulties with falsification of the latter. While internally coherent on the whole, the JMCD accounts for both null and alternative findings and thus makes it difficult to generate testable

hypotheses.

Empirical evaluation

As mentioned, there are no published studies directly examining the predictions of the JMCD. Ward et al. (2006) outline several research implications of the model, but to date most have not been pursued. The research streams mentioned, using lexical decision tasks (Keown, et al., 2008a, 2008b) and offenders' online interpretations, did not end up reviewing their results in the context of the JMCD. The JMCD is, however, consistent with the majority of research conducted on cognitive distortions in sexual offenders. This is unsurprising as it was developed to accommodate the results from that body of data. It is difficult to evaluate the empirical adequacy of the theory, however, as it has yet to be challenged by research questions with the potential to falsify the theory. The main challenge to the validity of the JMCD is identical to that which challenges the validity of the IT theory. While the JMCD is less reliant on being able to identify distorted beliefs in offenders, it is still underpinned by the belief that they exist in a significant proportion of cases. However, we know from our evaluation of the empirical evidence relating to the IT theory that, with the possible exception of the children as sexual beings IT, that the evidence for identifiable belief structures among offenders is overwhelmingly limited. Since the early success of the IAT paradigm (Mihailides, et al., 2004) successive attempts using different paradigms have failed to demonstrate convincing evidence for multiple cognitive structures akin to ITs or offense-supportive beliefs (Blake & Gannon, 2010; Gannon, et al., 2006; Keown, et al., 2008a, 2008b, 2010).

Appraisal Summary

The JMCD is conceptually strong and represents some clear improvements over previous theories. In the absence of clear empirical evidence of the presence of offense-supportive belief systems among at least a proportion of offenders, however, it is impossible

to consider the JMCD supported. Despite this, it remains a better fit for the available data than its predecessor, the IT theory. In addition there is reason to believe that further work investigating cognitive structures and processes could yet yield evidence for offense-supportive beliefs in offenders. First, the notion of beliefs in the form of schemas or ITs is well established in the wider social cognitive literature. Therefore, it would be surprising if such structures were not a factor in sexual offending. Second, research with sexual offenders is plagued by heterogeneous samples and small sample sizes. As a result, subtle findings may be masked by noise in the data or offenders with contrasting profiles could cancel each other out in group analysis. Third, there are additional paradigms in the field of social-cognition that may offer alternative ways of accessing these constructs. Furthermore, methodological refinements to paradigms used already may boost their ability to measure deeper cognitions.

Extended Mind Theory of Cognitive Distortion

Ward and Casey (2010) outline a compelling alternative view of cognitive distortions. They apply extended mind theory (EMT) to the study of sexual offending. EMT considers individuals' cognitive systems to extend into the surrounding world much as a spider's web is an integral part of a functional unit that is not bounded by the body of the spider (Barrett, 2011; Menary, 2007; Sterelny, 2012). Similarly, if the individual allocates cognitive-type tasks to entities outside their brain, such as keeping notes with a piece of paper or using a computer to calculate, these may be seen as an extension of their cognitive system. In formulating their theory Ward and Casey distil the vast literature on EMT down to three main assumptions: "(a) human cognitive agents are physically embodied, (b) human agents have soft selves (that is, they exhibit plasticity of cognitive functioning and agency capability), and (c) human agents possess hybrid cognitive systems that incorporate internal and external components" (2010, p. 53). Armed with these assumptions, Ward and Casey present how this might be applied to cognitive distortions in sexual offending.

Once freed from the constraints of considering the skull as the end point for cognition, the theory allows researchers and therapists to consider how social network, therapists, group members etc. all fit into an extended cognitive system for the offender (Ward & Casey, 2010). As a result of this extension Ward and Casey argue that cognitive practices and, thus, cognitive distortions are “dynamic, context dependent and involve both internal and external components” (p. 55). It follows, therefore, that a significant cause of distorted thinking involves the external social and cultural context of the offender’s life. Furthermore, any typologies of cognitive distortions need to take ecological context into account. Ward and Casey also argue that since EMT highlights the individual as an embodied agent, threats to the physical body can have deleterious effects on cognition. In this way physical stress, intoxication, or illness, for example, may lead to problematic cognitive practices, resulting in heavily context dependent cognitive distortions and potentially problematic behavior.

Ward and Casey (2010) outline the implications of their model for treatment. They emphasize that it encourages therapists to engage in addressing the broader context of offending. The theory also suggests that offenders need to be surrounded by individuals who will demonstrate the appropriate levels of acceptance, sympathy and understanding of social and cognitive norms. This emphasis on a supportive ecological context would include both the offenders’ surrounding during treatment but also when attempting to integrate into the wider community. Finally Ward and Casey argue that skills should be taught that allow the individual to function better within their environmental context.

Conceptual evaluation

Though on a whole the theory is internally coherent, it lacks a clear demonstration of why external factors in offending should be considered an extension of cognition. It is clear that the cognition of an individual plays a role in a larger system in which external factors influence that cognition. However, a tenet of the theory is that distorted cognition is

something that can happen outside the skull and this is not demonstrated convincingly by Ward and Casey. It is important to note that the EMT is not a universally accepted theory in cognition (for one alternative view see Adams & Aizawa, 2008). The theory lacks explanatory depth in terms of the mechanism through which cognition can extend into the outside world. To illustrate, we take the use of pornography as an example. The EMT might argue that such exploration of sexually salient material would be considered cognition if it were occurring within the brain in the form of fantasy. As a result drawing a distinction between internal processes (fantasy) or external practices (pornography) regarding the cognitive nature of that exploration is arbitrary. While intuitively appealing, the theory does not explain why we should consider this as an extension of the mind rather than as a process that interacts with the mind.

Despite concerns about the explanatory depth of the extended mind theory of cognitive distortions, it has appealing external consistency in that it fits well with the Integrated Theory of Sexual Offending (Ward & Beech, 2006; Ward & Beech, 2008). Similarly to the other theories examined in this paper it addresses the need to elaborate on the role of cognitive distortions in offending within the Integrated Theory. In addition, since the EMT emphasizes external influences on cognition it seeks to explain how cognition interacts with (or is extended by) biological, social, cultural, and environmental factors. The theory also has unifying power in that it incorporates the relatively new literature on EMT with that on sexual offending.

As mentioned in the discussion of the Judgment Model of Cognitive Distortion, an appealing aspect of Ward and colleagues' earlier IT based accounts of cognitive distortions was their simplicity. Problematic cognitions with an etiological role in offending arose out of the interaction of cognitive structures, processes, and products with the individual's social context. When distilled down to its simplest form, the extended mind theory of cognitive

distortions is very similar. The key difference is that EMT views cognition as extending beyond the physical brain and into the offender's environment. In this way the role of the overlap between the internal and the external is emphasized by EMT. However, this emphasis would have been possible within the confines of the Judgment Model approach, for example. It appears that, by seeing these factors as extensions of cognition, the extended mind theory of cognitive distortions theory includes a worthwhile emphasis on the role of external factors on cognition but at the expense of simplicity.

It is difficult to imagine experimental-cognitive paradigms that would be adequate to test the theory. Ward and Casey (2010) state: "There is no expectation that cognitive distortions would necessarily endure beyond a particular cognitive task. Whether cognitive distortions do or do not persist depends on the nature of the task and the environment in which individuals are located, and the degree to which their routines and life patterns are relatively fixed (2010, p. 55)". While this goes some way to explaining some of the inconclusive findings in the literature to date, there may be concerns about the falsifiability of the theory that impacts on its fertility and heuristic value. In contrast to the testability of the theory itself, Ward and Casey (2010) outline recommendations for treatment with clear heuristic value and that complement current approaches to offender treatment (e.g., Good Lives; Ward & Gannon, 2006) and offender management (e.g., Circles of Support and Accountability; Wilson & Prinz, 2001) yielding a further demonstration of external consistency. The effectiveness of treatments based on the extended mind theory of cognitive distortions is something that is testable.

Empirical evaluation

Ward and Casey's (2010) theory accounts for much of the evidence regarding the role of cognition in offending. This evidence, that they argue has to be fitted to the ITs of cognitive distortions post hoc, is accommodated from the start in their model. Specifically the

extended mind theory of cognitive distortions allows for the types of cognitive processes engaged in to be heavily influenced by context, thus explaining how narrative exploration of offenders cognition sometimes yield evidence of problematic cognition, whereas the evidence from less direct, laboratory based methods is less clear cut. The theory incorporates much of the strengths of the schema-based accounts of cognitive distortions while stressing the contribution of external factors. Therefore, the theory represents a broadening in scope relative to the preceding theories. However, the empirical accuracy and adequacy of the theory needs to be established by rigorous testing of falsifiable hypotheses. As noted, however, the generation of testable hypotheses arising out of the theoretical components of the theory (rather than the treatment recommendations) may prove problematic.

Appraisal Summary

The strength of the extended mind theory of cognitive distortions lies in the fact that it accentuates the role of the offender in a wider system implicated in their offending and the reciprocal influences of this system on their cognition. In this way the theory asserts that a holistic view of the offender's life is required in order to effect therapeutic change. Furthermore, it acknowledges that an offender's cognitive functioning is highly context dependent. A possible weakness of the theory is that it relies on a controversial underpinning theory, namely EMT. As a result the strengths of the theory may be dismissed out of hand by individuals who do not subscribe to the broader EMT, despite the fact that those strengths are not necessarily incompatible with more conventional views on cognition. To illustrate; where an individual commits sexual offenses against children and is a user of child pornography, it could be argued, in keeping with Ward and Casey's theory, that their pornography use is an external extension of cognitions relating to sexual interest and fantasy (Bartels & Gannon, in press). Using this example Bartels and Gannon argue, in line with Ward and Casey, that these internal and external elements of what they call the "offender's cognitive system" should be

addressed by practitioners. In truth, this recommendation is valid, whether these external elements are truly part of the offender's cognition or not. Thus the overarching message of Ward and Casey's model of cognitive distortions may be that the interaction of external and internal factors is crucial to understanding offending behavior. Where, exactly, the bounds of cognition end may be a moot point in terms of the utility of the theory.

The major challenge facing proponents of the extended mind theory of cognitive distortions will be to find ways of testing empirically the cognitive processes involved. Since these processes are argued to be very dependent on context, there is a real danger that the theory will prove unfalsifiable. Testing the impact of its recommendations for treatment should prove a lot more straightforward, using recidivism rates etc. However, any demonstration of treatment efficacy only would not be sufficient evidence for the validity of the underlying theory.

Cognitive distortions from a discursive psychology perspective

Auburn (2010), challenges the current standing of cognitive distortions in the domain of sex offender treatment. His criticism applies a discursive psychology lens to the phenomenon while drawing on some of the literature questioning treatment practices where practitioners challenge excuse making or minimizations by offenders (e.g., Maruna & Mann, 2006). While Auburn's paper refers to itself as a critique of the concept of cognitive distortions, there are enough claims made within it to consider those claims from a theory appraisal perspective. For example Auburn states that "cognitive distortion[s are] in a sense an artifact of the very situation which is designed to uncover and challenge them" (Auburn, 2010, p. 119). In appraising the work, it is important to note that Auburn does not set his stall out as formulating a theory of cognitive distortion, and, as a result, some of the criticism we level may simply reflect the fact that a theory has yet to be fleshed out.

The main thrust of Auburn's challenge to the current understanding of cognitive

distortions regards the interpretation of language and talk. Auburn argues for a discursive approach focused on talk as an action designed to achieve “particular interpersonal and ideological projects for the moment at hand” (Auburn, 2010, p. 105). This contrasts with what he sees as the cognitivist approach of seeing talk and discourse as simply a “window on the mind” or a route to mental entities. To illustrate his point Auburn outlines several examples from offenders’ discourse where the offenders structure or repair their speech in such a way as to achieve minimization. Auburn concludes that such minimizations are unrelated to cognitive distortions in the form of beliefs or attitudes. Rather these actions allow the speaker to project a certain desired identity. Auburn then argues that the lexicon of cognitive distortion terms furnishes actors in the treatment process with resources with which to conduct the business of the treatment group. He illustrates this point by presenting extracts where apparent minimization is explicitly challenged by a group member and where a speaker avoids a potential accusation of minimization by repairing the conversation, thus demonstrating an implicit awareness that his discourse may be construed as minimizing.

Conceptual evaluation

A strength of Auburn’s critique of the current standing of cognitive distortions is that it focuses on how offenders’ naturally occurring discourse should be a greater focus for detailed examination. As a result the critique demonstrates fertility. It also demonstrates unifying power in applying the field of discursive psychology to the study of phenomena typically classed as cognitive distortions. The account, however, lacks explanatory depth in that, while it does examine how individuals may minimize their culpability using discourse, it does not examine the relationship between their mental structures or processes and their social identity. In other words Auburn offers no explanation as to what mechanisms underpin speech that, once articulated, needs to be repaired in line with what they feel is expected of them. The critique is internally incoherent as it takes issue with the cognitivist model of

cognitive distortion, calling it an artifact and arguing for a “radical reconsideration”, while advocating a discursive psychology approach may complement traditional “attitudinal and other cognitive measures” (2010, p. 118).

Empirical evaluation

As mentioned, Auburn’s (2010) view of cognitive distortions as social practices demonstrates fertility in that it advocates a greater focus on the function of offenders’ discourse. While a fertile method of possible future research, Auburn makes no clear predictions within his critique. It is not clear as a result, whether or not evidence of the presence of cognitive structures in the form of etiological ITs would falsify his view. In this way the model lacks predictive accuracy. The implication, however, that much of what offenders say, and in all likelihood much of how they respond on questionnaires, should be seen as tools through which the offender constructs his/her social identity is one that seems to tally with much of the empirical literature to date. As repeated throughout this review, it is the evidence of cognitive products that is consistently found. The results of Keown et al. (2010), for example, could be seen as demonstrating some support for Auburn’s position. In that study there was little agreement between the explicit measures of cognitive distortion. These results could be interpreted, following Auburn, as indicating that offenders’ interview and questionnaire responses were a product of the image they were attempting to present, rather than a window to underlying cognition. The lack of clear evidence for distorted underlying cognition using the implicit measure in Keown et al.’s study, would further support this interpretation.

The results of Gannon, Keown and Polaschek (2007), however, would counter this view somewhat. In that study extrafamilial child molesters were twice administered a questionnaire measure of cognitive distortions and measures of desirable responding. On the second administrations they were connected to a convincing fake lie detector. As

hypothesized, participants endorsed cognitive distortions to a greater degree and reduced desirable responding when connected to the fake lie detector. This indicates that while offenders may attempt to minimize where possible, they show greater endorsement of items indicative of cognitive distortions even when minimization is reduced. This finding further illustrates the need to consider which cognitive distortions truly play an etiological or maintaining role in offending and which are by-products of being identified as an offender.

Appraisal Summary

The strength of Auburn's critique of the concept of cognitive distortions is that it highlights the social context and function of the discourse between offenders, clinicians, and other therapeutic group members. Auburn sees cognitive distortions, not as a window into the mind of the offender but as tools used to "transact particular sorts of business or actions" (2010, p. 106) within a treatment setting. The thrust of the critique questions whether minimizations reflect distorted cognition. This conclusion echoes the prevailing view of the unsatisfactory nature of the term cognitive distortion and that concepts such as minimisations, excuse making, denial etc. should be considered separately to concepts that represent deficits in cognitive structures, processes, or products. That the critique is in fact consistent with the prevailing view while advocating "a radical reconsideration of the notion of cognitive distortions" (p. 119) demonstrates a major weakness in it. Auburn takes a limited implied working definition (i.e. focusing on minimizations) of cognitive distortions and reasonably argues for it to be considered a situational artefact rather than a cognition while ignoring the other facets of cognitive distortions.

Conclusions

In this review of theories of cognitive distortions we have outlined the major perspectives and evaluated them against accepted theory appraisal criteria. Unsurprisingly all the theories examined have areas of strength and weakness, with the Implicit Theories Theory

arguably emerging as the strongest overall (see Table 1). However, a limitation of this review is our dependence on a relatively small number of experimental and quasi-experimental studies, which often rely on small samples that may not generalize adequately given the heterogeneity of sexual offenders. Moreover, the theories have been typically developed in clinical domains without necessarily sufficient attention being paid to their analytical rigor. A further limitation is that the theories and associated studies were primarily constructed on adult, usually male, sex offenders and it is unclear whether they can be validly applied to child, female, adolescent, and ethnic minority sex offenders.

Taking these limitations into account, what can we deduce from the preceding review (see also Table 2)? We think the most important take home point is that theories matter, and clinicians need them. They are cognitive tools that illuminate aspects of phenomena that have remained hidden and thus enable clinicians to construct treatment plans because of their ability to identify causal mechanisms generating offending behavior. Case formulations (i.e., clinical explanations of a client's problems) are necessary requirements for treatment planning as they track causal pathways associated with offending related problems, and in addition, specify the interrelationships amongst these problems (Ward, Vertue, & Haig, 1999). Such knowledge is indispensable for effective practice as it informs clinicians what to target in treatment and how best to go about this task. Single factor theories such as those explaining the genesis of cognitive distortions in sex offenders underpin treatment modules dedicated to modifying offense-supportive beliefs and attitudes, and function to guide the nature and delivery of cognitively oriented interventions. For example, Drake, Ward, Nathan, and Lee (2001) developed a cognitive distortions module as part of a comprehensive treatment program for child molester based upon using the notion of implicit theories. In their approach cognitive distortions were viewed as deriving from a smaller number of more general, but maladaptive, set of underlying beliefs about the offender themselves, their

victims and the world in general, which then form the target of intervention. They found that organizing offenders' cognitive distortions into distinct themes effectively reduced the number of elements requiring specific intervention in therapy, and furthermore, as these implicit theories were formed as a result of early experience and represent attempts to understand the world, it proved easier for offenders to admit they were mistaken and to replace them with more adaptive cognitions. Relatedly, conceptualizing cognitive distortions in terms of the extended mind theory prompts clinicians to lift their attention to offenders' use of technology and social supports rather than focusing exclusively on what is going on inside individuals' heads (Ward & Casey, 2010). In the absence of theories of cognitive distortions clinicians tend to fall back upon 'intuitive' judgments concerning the nature of their causes or simply accept the default etiological theories built into the treatment model. In our view, being theoretically literate is an essential requirement for good practitioners dealing with sex offending clients. Such literacy is especially required in assimilating theoretical and empirical advancements regarding the role of cognitive distortions in sexual offending since it is a fluid topic where a complete picture has yet to emerge.

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Table 1: Evaluating cognitive distortion theories against key appraisal criteria

| Theories | Key appraisal criteria | | | | | | |
|-----------------------|------------------------|--------------------|----------------------|----------------|-----------------|------------|-------------------|
| | Empirical adequacy | Internal coherence | External Consistency | Unifying power | Heuristic value | Simplicity | Explanatory depth |
| Abel and colleagues | Poor | Poor | Mixed | Mixed | Mixed | Mixed | Poor |
| Implicit Theories | Mixed | Good | Good | Good | Good | Good | Mixed |
| Schema-based model | Mixed | Mixed | Mixed | Mixed | Mixed | Good | Poor |
| Judgment Model | Mixed | Good | Good | Good | Mixed | Mixed | Mixed |
| Extended Mind Theory | Mixed | Good | Good | Good | Mixed | Poor | Poor |
| Discursive psychology | Poor | Poor | Mixed | Mixed | Mixed | Good | Poor |

Table 2: Implications for practice, policy, and research

- Theories of cognitive distortions function to guide the nature and delivery of cognitively oriented interventions with sex offenders.
- When working with sex offenders it is important to consider the external context in which they demonstrate cognitive distortion along with the internal cognition that may be problematic.
- Practitioners should consider whether discourse indicative of distortions arise out the social context, out of difficulties in achieving valued goals, or represent truly distorted belief systems.
- No one theory satisfactorily accounts for the phenomena of cognitive distortions. As a result, literacy regarding new theoretical and empirical developments in offender cognition is an essential skill for practitioners with sex offending clients.
- Theories that offer falsifiable predictions need to be subjected to rigorous empirical testing that explores both the surface cognitive products relating to cognitive distortions and any underlying cognitive structures or processes.