



An integrated theory of sexual offending

Tony Ward ^{a,*}, Anthony Beech ^b

^a*School of Psychology, Victoria, University of Wellington, P.O. Box 600, Wellington, New Zealand*

^b*University of Birmingham, UK*

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Abstract

This paper represents a first attempt to provide an integrated framework to explain the onset, development, and maintenance of sexual offending. According to the Integrated Theory of Sexual Offending (ITSO), sexual abuse occurs as a consequence of a number of interacting causal variables. We examine the factors that affect brain development (evolution, genetic variations and neurobiology) and ecological factors (social and cultural environment, personal circumstances, physical environment) and discuss how they impact upon core neuropsychological functions underpinning human action. The ITSO then explains how clinical symptoms arise from the interaction between these neurological systems and ecological factors. The capacity of the ITSO to incorporate competing theories of sexual offending is considered, and we end the paper by critically evaluating its usefulness in stimulating research and further theory development.

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* Corresponding author.

E-mail address: Tony.Ward@vuw.ac.nz (T. Ward).

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1. Introduction

Recently, Ward, Polaschek, and Beech (2005) have examined modern theories relating to all aspects of sexual offending, such as: comprehensive explanations of sexual abuse (e.g., Ward & Siegert, 2002); single factors associated with sexual abuse, such as intimacy deficits (e.g., Marshall, 1989), empathy problems (e.g., Marshall, Champagne, Brown, & Miller, 1997), cognitive distortions (e.g., Mann & Beech, 2003; Ward & Keenan, 1999); and the offense process itself (e.g., Ward & Hudson, 1998). Results of this extensive analysis suggest that there are a number of types of causes plausibly associated with sexual crimes. These causes include: *genetic predispositions* (Siegert & Ward, 2003); *adverse developmental experiences*, e.g., abuse, rejection, attachment difficulties (Beech & Ward, 2004); *psychological dispositions/trait factors*, e.g., empathy deficits, attitudes supportive of sexual assault, deviant sexual preferences, emotional skill deficits, and interpersonal problems (Thornton, 2002; Ward & Beech, 2004); *social and cultural structures and processes* (Cossins, 2000); and *contextual factors*, such as intoxication and severe stress (Hanson & Harris, 2000, 2001).

Achievements in the field of sexual offending have been considerable, and it is apparent that there are a number of subtle, rich, and valuable accounts of the various aspects of sexual offending. However, it is arguable that a key flaw in the majority of theories is that they tend to focus on the *surface* level of symptomology and fail to take into account the fact that human beings are *biological* or embodied creatures. What references there are to the casual (underlying) properties of sexual offenders and their environments are typically simply general descriptions of observable factors. They are convenient labels for summarizing behavior masquerading as causal mechanisms. The danger with such theorizing is that it may simply recycle ideas from everyday ‘commonsense views of human behavior (i.e., folk psychology), which fail to capture the causal origins of dysfunctional sexual behavior. Thus, existing theories neglect of neuropsychological and biological levels of analysis results in incomplete explanations of sexual offending, such as rape and child sexual abuse.

A further issue concerns whether, and how, such diverse processes could be unified into an integrated theory of sexual offending, or even if the attempt is worth the effort. It could be argued that we should continue to refine and evaluate etiological factors in a piecemeal way. However, in light of current knowledge it may now be possible to move towards a global integration of all aspects of sexual offending. Therefore, the preliminary theory we will outline below represents an attempt to acknowledge these features of human nature and human functioning by explicitly linking sets of causal factors to explain why sexual offenders exhibit the symptom or problems clusters they do. Our goal is to knit together a number of factors and processes thought to be causally implicated in the occurrence of sexual abuse into an Integrated Theory of Sexual Offending (ITSO). We believe that the field could benefit from the exposition of a theory that integrates different levels of analysis within an ecological framework.

It is important to note that at this stage we are concerned to knit together ideas from a number of distinct sources including *neuropsychology*, *ecology*, *psychopathology*, and *clinical assessment*. In this paper we do not explicitly set out to draw from other theories of sexual offending. This is due to our concern, as noted above, that such theories may be simply a re-description of surface features of sexual offending and neglect important areas of analysis. That is, other theories generally fail to address the underlying causal mechanisms actually resulting in sexual offending.

In summary, aims of this paper are: to describe the roots of the ITSO; outline its core set of assumptions; demonstrate its capacity to absorb competing theories of sexual offending; and critically evaluate its usefulness in stimulating research and further theory development. The ITSO is meant as a general theory of sexual offending and we will refer to examples of rape and child sexual abuse throughout the paper. The ability of the ITSO to incorporate or generate the key ideas of competing theories is addressed toward the end of this paper.

2. Theoretical Sources for the Integrated Theory of Sexual Offending (ITSO)

This section looks at the diverse sources from which the ITSO has been derived, these include: philosophy of science, current ideas in biology and ecology, neuroscience, developmental psychopathology, and clinical/empirical work in the risk assessment field.

2.1. Theories of human behavior

Scientific theories of human behavior set out to achieve two fundamental goals: explanation and prediction (Hooker, 1987; Newton-Smith, 2002). In essence, a theory is any description of an unobserved aspect of the world and may consist of a collection of interrelated laws or a systematic set of ideas (Kukla, 2001). Theoretical terms refer to entities and processes that are unobservable (e.g., intelligence, character traits) while observational terms denote processes that can be directly observed (e.g., test scores, behavior). A theory explains phenomena, why they exist, and why they possess certain properties. An explanation is basically the application of a theory in order to help understand certain phenomena. It tells a causal story concerning why and how specific events happen and why people behave the way they do.

Table 1 captures the knowledge-based values commonly accepted to be good indicators of a theory's explanatory adequacy and usefulness (Hooker, 1987; Newton-Smith, 2002). The key idea is that theories exhibiting such values have proved over time to be deeper and more satisfactory explanations, that is, they seem to be giving us a more accurate picture of the world and its workings. Because of this fact scientists are prepared to argue that the theory in question is more likely to be true (Hooker, 1987; Newton-Smith, 2002).

The ability of a theory to account for research findings and to survive hypothesis testing is certainly a necessary requirement for scientific acceptance. However, of equal importance is its ability to extend the scope of existing perspectives and to integrate competing or diverse approaches to the study of the relevant phenomena.

A meta-level framework for classifying theories of sexual offending based on their level of generality of focus, and also upon the extent to which the relevant factors are anchored in both developmental, and contemporary experiences and processes, has been provided by Ward and Hudson (1998). In this framework, Ward and Hudson distinguished three levels of theory. Level I theories represent comprehensive theories of sexual offending. The aim of these theories is to take account of the core features of sexual offending and to provide a complete account of what causes these phenomena and how they manifest in sexually abusive actions. Level II theories set out to provide detailed descriptions of the single factors thought to be particularly important in the generation of sexual crimes. Level III theories are seen as explaining the *process* of sexual offending. These micro-models typically specify the cognitive, behavioral, motivational, and social factors associated with commission of a sexual offense over time; they constitute

Table 1

Attributes of good theory

Predictive accuracy, empirical adequacy and scope concerns whether the theory can account for existing findings and the range of phenomena requiring explanation.

Internal coherence refers to whether a theory contains contradictions or logical gaps.

External consistency is concerned with whether the theory in question is consistent with other background theories that are currently accepted.

Unifying power relates to whether existing theory is drawn together in an innovative way and whether the theory can account for phenomena from related domains; does it unify aspects of a domain of research that were previously viewed as separate?

Fertility or heuristic value refers to a theory's ability to lead to new predictions and open up new avenues of inquiry. In a clinical setting this may also include a theory's capacity to lead to new and effective interventions.

Simplicity, as the name suggests, refers to a theory that makes the fewest theoretical assumptions.

Explanatory depth refers to the theory's ability to describe deep underlying causes and processes.

temporal or dynamic theories. The levels of theory model is meant to help researchers distinguish between different types of theory and ultimately to facilitate their integration through a process of ‘theory knitting’.

A theory knitting strategy suggests that researchers should seek to integrate the best existing ideas in an area within a new framework (Ward & Hudson, 1998). This strategy involves identifying the common and unique features of the relevant theories, so it is clear what constitutes a novel contribution and what does not. The major virtue of this approach is that good ideas do not get lost in a continual procession of novel theories that appear briefly in the literature and then disappear forever, often for no good reason. This approach has been attempted by Ward and Siegert (2002) within the sexual offending field where the best aspects of current Level I theories have been integrated into a comprehensive etiological account of child molestation. The ITSO aims to take this approach a stage further through an integration of Level II and Level III theories to a fourth level of explanation, combining levels of explanation from genetics, ecology, neuroscience and clinical features of sexual offending. Therefore, the ITSO also draws heavily upon the work of Pennington (2002), who has provided a developmental account of psychopathology involving four main levels of analysis: *etiology*, *brain mechanisms*, *neuropsychology*, and *symptom levels*. We outline these ideas later in this Section but first we will outline some of the concepts from empirical and clinical work in risk assessment that informs the ITSO.

2.2. Current frameworks that attempt to explain sexual offending

A comprehensive theory of sexual offending ought to be able to describe not only the etiology of sexual offending (level I analysis) but also the mechanisms associated with offending (level II analysis) and the process of sexual offending as it unfolds across time (level III analysis). Therefore this Section gives a brief overview of the factors associated with sexual offending.

The types of risk factors identified as being involved in any kind of problematic antisocial behavior can be said to fall into four broad categories: (1) *historical factors or static risk factors*,¹ such as adverse developmental events and prior history of crime and violence; (2) *dispositional factors or dynamic risk factors*,² such as impulsivity, general level of anti-sociality; (3) *contextual antecedents to violence* such as criminogenic needs (risk factors for criminal behavior), deviant social networks, and lack of positive social supports; (4) *clinical factors*, such as emotional problems and social difficulties. For the purpose of providing a background to the ITSO we need to briefly outline what is currently thought about the nature of dispositional and clinical symptoms in the sex offender field. From a therapeutic perspective, these are the two most important types of risk factors.

Dynamic risk factors or problematic psychological functioning has been usefully described terms of problems in four risk ‘domains’ (Thornton, 2002) or problematic psychological traits (Beech & Ward, 2004; Ward & Beech, 2004). These risk areas are: [deviant] sexual interests (Domain 1 problems), dysfunctional schemas (Domain 2 problems), problematic attachment (Domain 3 problem), and impulsivity/mood problems (Domain 4 problems). Combinations of these vulnerabilities may result in illegal sexual behaviors under certain circumstances. Although vulnerability factors have their origins in a person’s developmental history, they are always causally implicated in the onset of sexually abusive behavior. For example, deficits in emotional competency may have been acquired during a person’s childhood but actively contribute to the onset of sexual offending several years later.

However, these vulnerabilities or traits can only be inferred from behavior or overt responses which are indicative of deeper causal properties of a person’s functioning (Cattell & Kline, 1977). It is assumed that by identifying the level of a particular genetic, physiological, or cognitive trait in an individual, this is likely to help predict a person’s future behavior (Matthews & Deary, 1998). While these psychological problems (i.e., traits) have been thought to be derived from neuropsychological processes by trait theorists, in their current forms they are simply convenient labels that can be used to *describe* a person’s functioning. What we are proposing is that the psychological vulnerability factors identified by various theorists in the sexual offending domain do not pick out in any meaningful sense the underlying causal mechanisms that actually generate sexual abuse. Our suggestion is, rather, that they are simply useful descriptive terms for referring to the surface manifestations of the underlying neuropsychological systems; what we have termed clinical phenomena. The logic underpinning this argument will, we hope, become clearer as the paper progresses.

¹ These are termed static as they cannot change by their very nature.

² These are termed dynamic in that they are seen as being amenable to change.

Clinical factors or symptoms, such as emotional problems and social difficulties, have been described by Beech and Ward (2004). Beech and Ward note that clinical risk factors are created when stable dynamic risk factors become transformed into states of acute clinical risk in the presence of triggering contextual cognitive, affective, and behavioral triggering factors. For example, victim access behaviors, rejection of supervision, substance abuse, anger and hostility, emotional collapse, and sexual preoccupations (Hanson & Harris, 2000, 2001). Therefore these *clinical* or *state* variables are best viewed as the expression of individuals' underlying vulnerabilities that have been activated by situational events. Obviously any useful theory should be able to explain how the dispositional factors are acquired and how the clinical symptoms arise. We will now outline the neurobiological framework which we have used in the ITSO to understand how clinical symptoms arise.

2.3. A neuroscientific account of human behavior

Pennington (2002) proposes that any neuroscientific account of human behavior/psychopathology requires considering four levels of analysis. First, *etiological* analysis is broadly concerned with the influence of genetic and environmental factors in causing psychopathology. Second, *brain mechanism* analysis is concerned with the effects of etiological factors on the development of the brain and its subsequent functioning. Severe and prolonged abuse or neglect might cause structural and functional changes to the brain that adversely affect individuals' chances of adjusting to social challenges and problems. For example, prolonged chronic stress, such as that induced by sexual or physical abuse, is associated with changes in the neurobiology of the person concerned, e.g., hippocampal atrophy (Sapolsky, 1997). Third, *neuropsychological* analysis is concerned with the brain based psychological systems generating human behavior, for example, spatial perception and language production. At this level, there is a careful attempt to ensure that the construction of theories concerning psychological systems is consistent with what we know about brain circuitry and architecture. Fourth, *symptom* (or surface level) analysis is concerned with the clinical phenomena thought to characterize the various forms of psychopathology (e.g., mood, sleep, appetite disturbances in depression).

Therefore, a complete neuroscientific account of schizophrenia would include: an *etiological* description of a genetic vulnerability to developing schizophrenia in conjunction with severe early stressors (Lewis & Levitt, 2002); a description of how these can adversely affect the proliferation and density of neurotransmitter receptors³ (*brain mechanism* analysis); a description of the neurobiology of the disorder which increase the chances of an individual developing the disorder (*neuropsychological* analysis- Cho et al., 2004); and a *symptom* analysis where schizophrenic positive symptoms (such as delusions, hallucinations, disorganized speech) and negative symptoms (such as affective flattening, alogia, or avolition) are described (as in DSM-IV-TR, American Psychiatric Association, 2000).

Pennington argues that all four of these levels are mutually constraining and theories at the different levels need to be consistent with each other. In effect, this means that researchers should seek to construct multidimensional etiological theories of the symptoms exhibited in psychopathology and work alongside their colleagues in other fields, for example, behavioral genetics and neuropsychology. It is important to note that this approach is not seeking to explain behavior by biological reductionism. On the contrary, our view is that the level of personal agency and meaning seeking is a crucial feature of human functioning and ought to be safeguarded in any explanation of sexual offending. However, genetic factors, brain development and functioning obviously underpin psychological functioning and should be contained in etiological theory building. In other words, the ability of human beings to form intentions and decide on a course of action crucially depends on the integrity and functioning of their brains. Therefore, we would suggest that a critical element as far as understanding the psychological vulnerabilities of sexual offenders is concerned, is the neuropsychological level. It is this level of analysis that directly informs researchers of the mechanisms generating offenders' psychological symptoms and problems.

Pennington (2002) follows Luria (1966) in hypothesizing that it possible to divide the human central nervous system into three systems, each associated with distinct functions and brain structures:- *motivation/emotional; perception and memory; and action selection and control*.⁴ These three functional systems, according to Pennington, interact to produce all psychological processes and phenomena. Pennington argues that because each system is

³ Here Cho, Gilbert, and Lewis (2004) note that 'the precise details of how these factors combine to give rise to illness remains elusive'.

⁴ Note that we have changed the labels of these systems described by Pennington slightly to suit our purposes.

associated with distinct brain systems and psychological functions, they are also likely to generate quite unique types of psychological problems if compromised in some way. More specifically, the motivation/emotional, perception and memory, and action selection and control functional systems emerge in ways that are relatively adaptive or problematic. For example, Pennington hypothesizes that depression is a disorder of the *motivation/emotional* system, conduct disorder of the *action selection and control* system, and developmental language disorders are caused by impairments in the *perception and memory* system. In the final part of this Section we will examine the biological and ecological influences that underpin the neuropsychological development of the individual.

2.4. *Biology and ecology*

Two forms of developmental resources are responsible for providing the psychological and social competencies necessary for human beings to function in the world. These two resources are *biological factors* (i.e., genetic and evolutionary factors) and *social learning* (due to social, cultural environment, personal circumstances and the physical environment). Throughout development, it is hypothesized that these two types of developmental resources combine and interact to shape an individual's unique psychological functioning. Specifically, an individual is hypothesized to enter the world with various genetic advantages and disadvantages (e.g., an overly anxious temperament—a *distal* factor), that in conjunction with environmental factors (e.g., relationship conflict—a *proximal* factor), may create problems in psychological functioning. However, the cultural and social context in which a person develops can also directly create problems ultimately increasing his chances of behaving in a dysfunctional way. For example, being exposed at an early age to parental violence and abuse can adversely effect an individual's brain development and result in impaired functioning (Beech & Mitchell, 2005).

Of course, genetic determinants of human function are inextricably linked to evolution. But here we would note that there are two major forms of evolutionary explanations of human traits/functioning, *ultimate* and *proximate*. Ultimate explanations, such as ancestral environment, sexual selection, and natural selection, attempt to identify the function of a given trait by determining its role in solving a particular adaptive problem within a specific environment. A *proximate* explanation focuses on the nature of the causal mechanisms that underpin its current functional role, such as the person's genes, their developmental history, learning, and environmental stimuli. (Buss, 1999). In the ITSO, the focus is primarily on providing a proximate explanation of sexual offending, thus the emphasis on learning, brain development, ecological variables, and so on. However, discussion of inherited or innate characteristics such as temperament or the tendency to seek basic human goods in the ITSO does address the issue of ultimate explanations to some extent. That is, we assume that there is such a thing as a relatively robust human nature but argue that it is heavily modified by cultural and social learning, and the process of niche construction (see below).

We will now examine genetic determinants and how they can have an impact upon sexual behavior in slightly more detail. One particular gene-culture co-evolution theory that neatly describes this intertwining of genetic and ecological influences has been developed by Odling-Smee, Laland, and Feldman (2003) and is best defined by its focus on the construct of 'niche construction'. According to Odling-Smee et al., there are three types of processes involved in niche construction in a population of living organisms: *genetic processes*, *ontogenetic processes* (individual learning within a lifetime), and *cultural processes*. Each of these processes is associated with unique ways of acquiring, storing, and transmitting information, and also with distinct means of interacting with the environment. These three types of processes result in the modification of the environment and are also implicated in the creation of three quite different types of inheritance: genetic inheritance, cultural inheritance, and ecological inheritance (the altered ecological niche).

Genetic inheritance consists of the genetic resources (i.e., the genome) available to the next generation, and is responsible for some of the cognitive, motivational and behavioral characteristics comprising the nature of the species in question.

Cultural inheritance consists of the knowledge, values, practices, and technology passed on to offspring by way of social learning (i.e., imitation and modeling).

Ecological inheritance refers to the changed environment and ecology passed on to the next generation, and as such, constitutes a new selection environment; this is the constructed niche.

Each of these inheritance systems makes a potentially valuable contribution to the offspring of the organisms in question and may equip them to successfully exist within their niche, or in some situations, result in additional

problems. The crucial point is that the selection environment is fundamentally altered in some way, thereby modifying the relationship between the traits of the organism and the features of the environment.⁵

3. Overview of the theory

We will now systematically outline the ITSO, which is shown in schematic form in Fig. 1.

It can be seen from Fig. 1 that we suggest that there are three sets of factors which interact continuously, these are: *biological* factors (influenced by genetic inheritance and brain development), *ecological* niche factors,⁶ i.e., social, cultural, and personal circumstances, and *neuropsychological* factors. According to the theory outlined here, sexual offending occurs through the ongoing confluence of *distal* and *proximal* factors that interact in a dynamic way. Genetic predispositions and social learning have a significant impact upon brain development and results in the establishment of three interlocking neuropsychological systems (described by Pennington, 2002).

We would further argue that genes, social learning, and neuropsychological systems interact to generate the clinical problems evident in offenders, i.e., deviant arousal, offense related thoughts and fantasies, negative/positive emotional states, and social difficulties. These state factors, as shown in Fig. 1, are the states that lead to sexually abusive actions. Consequences of sexually abusive behavior, in turn, function to maintain a positive feedback loop that entrenches the offender's vulnerabilities through their impact on the environment, and psychological functioning, i.e., the consequences of sexual offending will function to maintain and/or escalate further sexually deviant actions. This is hypothesized to occur through the modification of environmental factors and the reduction or enhancement of the individual's psychological functioning (e.g., mood, sexual arousal and satisfaction, feelings of powerlessness and so on). For example, reducing negative mood states is likely to negatively reinforce the maladaptive emotional regulation strategies utilized, while an improvement in mood will function as a positive reinforcer.

Therefore, in our theory brain development (influenced by biological inheritance and genetics) and social learning interact to establish individuals' level of psychological functioning. Such functioning may be compromised in some way by poor genetic inheritance, biological insults, or developmental adversity to make it difficult for the individual concerned to function in an adaptive manner; this will lead to problematic psychological functioning and subsequent clinical symptomatology. We will now look at each of these areas in more detail.

3.1. Brain development

The first source for offense related vulnerabilities is brain development. It is clear that there are a wide variety of biological variables associated with abnormal brain development, ranging from the existence of evolutionarily inherited mating strategies (i.e., the acquisition of aggressive or problematic strategies—Buss, 1999), the role of genetics and the modulation of sexual behavior by hormonal activity in normal and abnormal contexts, and, for example, the biological processes associated with attachment (Nelson & Panksepp, 1998). Therefore in this section we will briefly examine how evolution, genetics and neurobiology shape the neurological functioning of an individual.

3.1.1. The role of evolution in brain development

The fundamental idea in evolutionary theory is that organisms slowly evolve over time and through a process of natural selection either adapt to environmental challenges or become extinct. The process of change is gradual, comprised of small, incremental modifications in existing organs or characteristics, which can lead to the emergence of new characteristics or even a new species. Through the processes of natural selection and sexual selection animals that are the winners in the evolutionary struggle develop specific physical and psychological adaptations that enable them to meet these challenges.

⁵ There are two basic types of niche construction: (1) inceptive niche construction, the original modification of the environment; and (2) counteractive niche construction, modification in an attempt to counteract a previous change or problem. In addition, organisms may choose to alter an existing niche or to move and create a new one.

⁶ According to Steiner (2002), 'Ecology is, by definition, the reciprocal relationship among all organisms and their biological and physical environments.' (p. 2). The *habitat* is the actual locality in which a person resides in and *niche* the role(s) occupied by that person in an ecological community (Steiner, 2002).

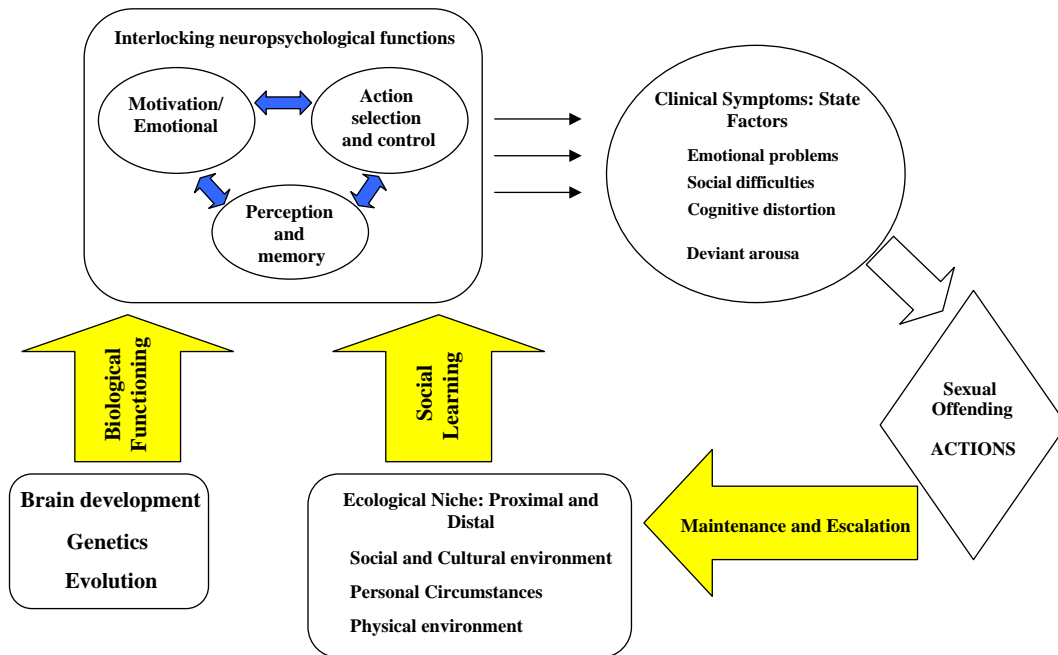


Fig. 1. Unified Theory of Sexual Offending.

There are three essential elements in Darwin's (1859) ideas about natural selection. First, individual members of a species vary with respect to their physical and psychological traits. Second, some individual members of a species will demonstrate variations which make them better able to survive or adapt to changing environmental conditions. Third, those individuals who are better equipped to survive will be more likely to breed and in doing so will pass on these characteristics to their progeny. Consequently, these inherited characteristics will become more common within that species. In addition to natural selection, Darwin also discerned one other important process in evolution—*sexual selection*. This is the idea that male and female members of a particular species will demonstrate distinct preferences in their choice of mates based upon the physical or behavioral characteristics of such organisms. Some of these genetically based predispositions may be linked to the sex of the individual, and in this sense, create gender linked vulnerabilities. For example, the tendency for males to engage in impersonal sex (Brennan & Shaver, 1995) or for males to rape if they cannot attract a sexual partner (Thornhill & Palmer, 2000; Thornhill & Thornhill, 1992).

3.1.2. Genetic determinants of brain development

Probably the most recent evolutionary theory is Gene-culture theory (Odling-Smee et al., 2003). This is a flexible evolutionary model claiming that genetic, individual learning, and cultural processes propel the evolution of human beings. Because of this, the explanation of human traits is likely to involve these three sets of processes (Odling-Smee et al., 2003). *Genetic factors* may result in a predisposition to seek certain types of basic goods (e.g., sex autonomy mastery), while *learning events* within a particular cultural context, provide socially constructed ways of achieving these valued experiences, activities, and outcomes (e.g., sexual relationships, place in a dominance hierarchy, etc.). For our theory this means that the causes of sexually aggressive behavior are likely to have a naturalistic basis, and that motivational and cognitive biases lead individuals to seek basic human needs in socially unacceptable ways. An important aspect of this idea is the powerful influence of genetic and cultural processes; neither dominates the other, giving both biological and social learning oriented researchers an important role in accounting for sexually abusive behavior. The final part of this Section examines neurobiology and its relationship to higher level functioning in the brain.

3.1.3. Neurobiological functioning

The neurobiological level of analysis is concerned with the nature of the physical processes associated with the functioning of the brain, such as type and levels of neurotransmitters, the existence of neural pathways, and the

integrity of neural structures. There are at least two ways such brain processes impact on the neuropsychological systems underpinning human actions: (a) functional systems may be *disrupted* by brain-based abnormalities, and (b) the *calibration* of the systems may be directly influenced by physical processes. An example of the first possibility occurs when high levels of stress hormones such as cortisol compromise the operation of the action selection and control system, e.g., an individual behaves impulsively (Bremner et al., 1997; Sapolsky, 1997). An example of the second type of relationship is when persistently high levels of sex hormones increase the salience and availability of sexual goals and strengthen their influence in the life of an individual (e.g., a person becomes preoccupied with sexual goals and needs). The brief discussion below exemplifies both of these types of influence.

It has been argued that the origins of paraphilias may derive from abnormal brain development leading to problems in neurological function, specifically problems in neurobiology around the levels or operation of the neurotransmitters (or *monoamines*) such as serotonin (5-hydroxytryptamine, 5HT), norepinephrine, and dopamine. In terms of the general function of these monoamines, current evidence would suggest that norepinephrine is crucial to the maintenance of alertness, drive, and motivation (Colman, 2001), dopamine is strongly implicated in the experience of pleasure and reward (Colman, 2001), and 5HT is involved in arousal, attention, and mood. Taken together these monoamines act as, ‘neuromodulators mediating attention, learning, physiological function, affective states, goal motivated and motor behavior, as well as appetitive states such as sleep, sex, thirst and appetite’ (Kafka, 1997, p. 346). Fisher, Aron, Mashek, Li, and Brown (2002) notes that the attraction system in humans is associated with elevated levels of dopamine, norepinephrine and decreased levels of central serotonin.

Kafka (1997, 2003) makes a number of arguments to suggest that deviant sexual behavior is due to problems in 5HT function, these are: 1) Pedophilia may be associated with a dysregulation of particular 5HT receptors, in that some evidence has been found related to decreased activity of the serotonergic pre-synaptic neuron and an up-regulation of the post-synaptic 5-HT_{2A/2C} receptors in this group (Maes et al., 2001); 2) There is some evidence that there is a relationship between 5HT dysregulation and antisocial impulsivity, anxiety, depression, and hypersexuality (these perhaps underpinning specific paraphilic disorders); 3) There is some evidence that there is comorbidity of some DSM (APA, 2000) Axis I disorders, such as mood disorders, anxiety disorders, psychoactive substance abuse, conduct disorder and attention deficit hyperactivity and sexual offending; 4) The pharmacological treatment for DSM Axis I disorders, typically by altering monoamine function by the use of psychostimulants, neuroleptics or antidepressant medication, would appear to have substantial effects upon human sexual functioning, including a reduction in sexual appetite. Typically such effects are viewed as the ‘side effects’ of these types of medication (i.e., Montejo, Llorca, Izquierdo, & Rico-Villadermos, 2001); 5) In animal work there is evidence that decreased levels of 5HT may disinhibit or increase sexual appetitive behavior, while increased central 5HT activity may inhibit or reduce sexual appetitive behavior (Lorrain, Riolo, Matuszewich, & Hull, 1999).

These findings illustrate how neurobiology can impact upon sexual behavior. For example, we suggest that for some individuals the motivation/emotional system can be compromised by dysfunctional neurotransmitter mechanisms. This may lower the threshold for sexually aggressive behavior by increasing the strength, salience, and duration of sexual goals, and desires, and additionally, by weakening the action selection and control systems. Put simply, the presence of extremely intense sexual feelings might override an individual’s ability to control his sexual behavior.

3.2. *Ecological niche: Proximal and distal factors*

A second source for offense related vulnerabilities is the ecological niche (social and cultural roles of the offender) and habitat (environment in which a person lives), which in certain circumstances may cause a person to commit a sexual offense in the absence of any significant psychological deficits or vulnerabilities. We have used the term ‘ecological niche’ to refer to the set of potentially adverse social and cultural circumstances, personal circumstances, and physical environments confronting each person as he or she develops throughout their life.

Psychological vulnerabilities are thought to function as a diathesis, making it more probable that an individual will struggle to effectively meet specific environmental challenges and therefore make it likely that he or she will commit a sexual offense at some future time. These circumstances can be regarded as a *distal* dimension of risk. The person’s current ecology or physical environment is also an important contributor to the etiology of sexual offending through making available potential victims, and by creating the specific circumstances that trigger the psychological deficits involved, this is a *proximal* or current dimension of risk. For example, the experience of fighting in a war (Henry, Ward, & Hirschman, 2004), being subject to social circumstances such as the erosion of one culture by another, or the

death of a partner may sometimes lead to individuals deciding to commit a sexual offense. In these kinds of unique circumstances individuals can behave in ways they would not normally consider and may even engage in actions that they would view as utterly reprehensible in their normal environments.

In other words, sometimes the major causal factors resulting in sexual offending reside in the ecological niche rather than within the person. The offending may be quite opportunistic, or the consequence of circumstances that effectively erode an individual's capacity to behave in an ethical, and typical, manner (see Marshall & Barbaree, 1990). Consideration of these factors leads us to an understanding that sexual offending emerges from a network of relationships between individuals and their local habitats and niches, and is not simply the consequence of individual psychopathology. Furthermore, an individual's unique circumstances are hypothesized to influence his psychological and social development by virtue of their influence on the core functional systems. For example Watkins and Bentovim (1992) report evidence that the long-term effects of childhood sexual victimization are psychological disorder, with marked risk for the development of alcohol and drug misuse. In a similar vein, Beitchman et al. (1992) report that the long-term effects of childhood sexual abuse include disturbed adult sexual functioning, poor social adjustment, confusion over sexual identity, inappropriate attempts to reassert masculinity and recapitulation of the abuse. Each of these problems is associated with impaired psychological skills and competencies.

3.3. Neuropsychological functioning

Both biological inheritance and social learning can have a significant impact on individuals' developing brains and have an impact upon the three interlocking neuropsychological systems (*motivation/emotional, perception and memory, and action selection and control* (Pennington, 2002) that underpin psychological functioning. Although the systems may be differentially compromised in some ways, it is likely that problems in any of the systems will adversely affect the others in some respects. We will now examine each of these systems in more detail and consider how they can be involved in specific aspects of dysfunction.

3.3.1. The Motivation/emotional system

This system is associated with cortical, limbic, and brainstem brain structures. According to Pennington, a major function of this system is, '... to allow goals and values to influence both perception and action selection rapidly and to adjust motivational state to fit changing environmental circumstances' (p.79). Problems in an individual's genetic inheritance, cultural upbringing or negative individual experiences, may lead to defects in the motivational/emotional system. For example, someone who was brought up in an emotionally impoverished environment might find it difficult to identify their emotions in an accurate manner and also become confused when confronted with emotionally charged interpersonal situations. Such an individual might become angry and act in an antisocial manner on occasions. Another type of problem could be related to the range of needs or goals sought by a person. Poor early learning could lead to an individual lacking the skills necessary (internal conditions) to establish strong interpersonal relationships and result in social isolation and further psychological and social deficits, such as intimacy problems (Marshall, 1989) or attachment problems (Baker & Beech, 2004; Ward, Hudson, & Marshall, 1996), that could lead to sexual offending. These deficits in interpersonal functioning are exactly the kinds of problems that Thornton (2002) and Hanson and Harris (2001) regard as a particular type of stable dynamic risk factor for sexual offending, i.e., causal psychological risk factors (Beech & Ward, 2004; Ward & Beech, 2004). Our point here is that psychological vulnerabilities that have been previously described in the sexual offending literature as a stable dynamic risk domain⁷ can be reconceptualized as disturbances in the motivation/emotional system.

3.3.2. The action selection and control system

The action selection and control system is associated with the frontal cortex, the basal ganglia, and parts of the thalamus. A major function of this system is to help the organism to plan, implement, and evaluate action plans, and to control behavior, thoughts, and emotions in service of higher-level goals. The action selection and control system is concerned with the formation and implementation of action plans designed to achieve individuals' goals.

⁷ A Domain 3 (socio-affective problem) according to Thornton (2002).

It draws heavily upon the *motivation/emotional* system for the goals that effectively energize behavior and the *perception and memory* system for procedural and declarative knowledge (i.e., knowledge about how to do certain things, and relevant facts and information pertaining to a given situation). Problems that might arise from malfunctions in the action control and selection system essentially span self-regulation problems such as impulsivity, failure to inhibit negative emotions, inability to adjust plans to changing circumstances and poor problem solving skills.

Again these deficits in self-management/general self-regulation are exactly the kinds of problems that in the sexual offending literature have been described as a stable dynamic (Domain 4) risk factor (Hanson & Harris, 2000, 2001; Thornton, 2002). As we have argued above, it is possible to view these “vulnerability factors” as essentially disturbances in the action selection and control system — in conjunction with input from the other two neuropsychological systems comprising the ITSO. In other words, the ‘self control’ constructs involved in many theories/descriptions of sexual offending (e.g., Ward & Hudson, 1998) can be reformulated in terms of the interlocking neuropsychological systems. Thus we are not simply *relabeling* clinical phenomena but rather are showing how these factors can be produced by the casual mechanisms comprising the ITSO.

3.3.3. *The perception and memory system*

This system is associated primarily with the hippocampal formation and the posterior neocortex. A major function of this system is to process incoming sensory information and to construct representations of objects and events, and make them available to the other two systems. Problems in the perceptual and memory system can lead to maladaptive beliefs, attitudes, and problematic interpretations of social encounters. Presence of maladaptive beliefs that are chronically activated (i.e., frequently available to guide information processing) is likely to cause the subsequent activation of problematic goals and emotions, which in turn make it difficult for a person to effectively control his sexual behavior. We hypothesize that these cognitive structures can function as pre-attentive filters biasing the processing of social information and resulting in a variety of personal and social difficulties.

These problems may underlie the kinds of offense supportive cognitions that Thornton (2002) and Hanson and Harris (2000, 2001) regard as another particular type of stable dynamic (Domain 2) risk factor for sexual offending. What have been termed cognitive distortions (Abel et al., 1989) are arguably caused by entrenched beliefs and subsequent biased information processing originating in the perception and memory system. An intriguing aspect of the ITSO is that different types of cognitive distortions stemming entrenched beliefs or rationalizations and excuses are hypothesized to have their origins in different neuropsychological systems (see the concluding Section of this paper).

3.4. *Clinical symptomatology*

Problems in any of the neurological systems outlined above will comprise a person’s adaptive functioning in any number of ways, depending on the specific dysfunction in question, e.g., if there are problems in the *action selection and control* system it will make it more difficult for an individual to effectively regulate his or her mood. Exposure to antisocial models is also likely to teach individuals maladaptive ways of solving personal and interpersonal problems and result in problematic values and attitudes which will have an impact upon the *perception and memory* system. The three functional systems are hypothesized to always interact to cause a sexual offense, but the motives and particular issues related to a person’s offense pathway will vary depending on the specific types of problems with these systems. In addition, there are numerous types of problems that can occur within the three systems that might result in different clinical presentations and treatment needs. The fact that the three functional systems can individually, or collectively, create offense related vulnerabilities, means that different types of deficits in these systems will be associated with different offense variables. That is, individuals are hypothesized to commit sexual crimes for quite different reasons and therefore present with diverse clinical problems.

There is a considerable body of research and clinical evidence to support the view that there are four clusters of problems or symptoms typically found among adults who sexually abuse children and rape adults: emotional regulation problems; cognitive distortions; social difficulties; and deviant sexual arousal (e.g., Hanson & Harris, 2000, 2001; Marshall, 1989; Thornton, 2002; Ward & Beech, 2004). We consider empathy deficits to be subsumed under cognitive distortions and emotional dysregulation difficulties. These core clusters of phenomena are typically the foci of interventions in sex offender treatment programs (Marshall, 1999).

According to the ITSO, deficits in neuropsychological functioning interact with individuals' current *ecology* or physical environment (proximal dimension) to cause the emergence of symptoms that are directly associated with sexual offending. These clinical phenomena can be usefully viewed as acute risk factors (Hanson & Harris, 2000, 2001) or the *acute state* of psychological dysfunction (Beech & Ward, 2004), i.e., emotional problems, social difficulties, pro-offending thinking and deviant sexual arousal. Once these clinical phenomena are expressed in a state form they are likely to lead the individual concerned to commit a sexual offense, depending of course on the availability and accessibility of a potential victim (another ecological variable).

We will now briefly describe how state factors can arise from an interaction between an individual's neuropsychological functioning and proximal triggering risk factors.

3.4.1. *Emotional problems*

The first set of clinical symptoms/problems includes commission of impulsive acts, poor emotional control (tendency to explosive outbursts) or other behavioral expressions of emotional impulses. These phenomena may arise from problems in two different neuropsychological systems. For example, problems in an individual's *motivation/emotional* system may manifest at a psychological functioning level as mood problems, while a problem in the *action selection and control* system will present as impulsive behavior.

We would suggest that this occurs, because exposure to sexual activities such as compulsive masturbation during early adolescence, and absence of alternative means of increasing self-esteem or mood, can create a profound link between sex and emotional well-being (Cortoni & Marshall, 2001). Emotional competency deficits are likely to produce powerful negative emotional states, say for example, following an argument with a partner or a stressful life event such as losing a job. Especially if an individual lacks the ability to dampen down, or communicate, their emotions in a 'healthy' way. Such an inability to effectively manage mood states may result in a loss of control, which, in conjunction with sexual desire, can lead an individual to either become disinhibited or else opportunistically use sex as a soothing strategy to meet his emotional and sexual needs. This may be especially likely when confronted with triggering factors such as substance abuse, anger, hostility, and emotional collapse.

3.4.2. *Social difficulties*

The second set of clinical symptoms revolves around social difficulties and includes: emotional loneliness, inadequacy, low self-esteem, passive victim stance, and suspiciousness. Problems in this area are arguably a reflection of dysfunction in the *motivation and emotional* system and can be viewed in terms of attachment insecurity leading to problems establishing intimate relationships with adults (Ward et al., 1996). Attachment style is a relatively enduring set of characteristics for making sense of one's life experiences (Young, Klosko, & Wesharr, 2003), where either one has a positive or negative view of self and others. Beech and Mitchell (2005) have outlined how distal ecological factors, such as: adverse childhood experiences, are highly significant for neurological systems (especially such adverse events as abuse, stress, and rejection) which can produce biochemical changes in the neuropsychological system that underlies and modulates attachment behaviors.

There are several different kinds of attachment style that have been identified in sexual offenders, each reflecting different types of motivation/emotional system dysfunction. Ward et al. (1996) have argued that there are three insecure attachment styles in the four-category model that would be related to different types of sexual offending given the particular environmental triggers. Here, they argued that: *Dismissive* individuals would be more likely to demonstrate hostility to others, making them likely to offend violently against adult women; *Preoccupied* individuals would tend to seek approval from others and sexualize attachment relationships, leading them to engage in sexual contact with children; Further to these ideas, Burk and Burkhart (2003) note that individuals with a *Disorganized* style of attachment are likely to use sexual offending as one of several possible strategies of externally based control in response to the intense negative emotional states which are the sequelae of such a attachment style. Further to this idea, Smallbone and Dadds (1998, 2000) suggest that for intra-familial abusers— if an individual has some level of disorganized attachment—distress (which normally activates the attachment system), may in fact activate the sexual system such that individuals with a disorganized attachment style may employ sex in the service of non-sexual needs.

Empirically there has been some support for these theoretical ideas. Ward et al. (1996) found some evidence that attachment insecurity was associated with specific types of sexual offending. Specifically, child abusers were more likely to report having preoccupied attachment styles compared to rapists, violent offenders, and non-violent

offenders. In contrast, rapists were more likely to report a dismissing style than child abusers and non-violent offenders. While, Baker and Beech (2004) report that sexual offenders are likely to report greater variability in attachment styles, i.e., disorganized attachment, than non-offenders.

3.4.3. Cognitive distortions

The third set of clinical symptoms considered to be related to committing sexual offenses in child molesters and rapists are cognitive distortions, i.e., offense supportive cognitions. The type of cognitive distortions that child abusers typically report reflect the views that children are sexual beings and that sex does not cause harm to children (Ward & Keenan, 1999). The kinds of offense supportive cognitions evident in rapists include the beliefs that heterosexual encounters are inherently adversarial, that women seek to deceive men about what they really want, and that women are constantly sexually receptive to men's needs (Polaschek & Ward, 2002). Ward (Ward & Keenan, 1999) has been one of the few to provide a rigorous definition of the fundamental nature of attitudes supportive of sexual assault, arguing that underlying schema generates these types of attitudes. Ward and Keenan further suggest that these schemas, plus the process by which these schemas explain, predict, and interpret interpersonal phenomena can be regarded as 'implicit theories'. These implicit theories are likely to have been formed during an offender's early life and therefore exert their effects through the filtering of perceptual information. In other words, implicit theories are located in the *perception and memory system*.

A more complete description of this process has been outlined by Mann and Beech (2003). Here they note that dysfunctional schemas interact with ecological niche factors (e.g., life events) to produce cognitive distortions (i.e., thoughts supportive of sexual offending). In particular, Mann and Beech notes that both stereotypical and belief schemas are hypothesized to be of importance here.

First, stereotypical schemas (i.e., *category* schemas) about women or children may be relevant if they contain abnormal hostile or sexual components. Here Mann and Beech note that rapists may exhibit hostile beliefs about women, which involve assumptions that women are deceitful or treacherous. While some child molesters, particularly fixated pedophiles, may hold assumptions that children are interested in having sex with adults and/or are sexually knowing. These category schemas would mean that ambiguous information about women or children (such as a woman being dismissive or abrupt in manner or a female child doing a handstand and displaying her underwear) are interpreted in such a way as being consistent with the offender's schema. Here, the offender in question either assumes that he is being rejected or that sexual signals are being sent out. Mann and Beech argue that nature of these biased interpretations increase the likelihood of sexual offending. Mann and Beech also hypothesize that the sex offenders also hold *belief* schemas, that contain assumptions about themselves, the world and other people should behave. When these schemas are activated by ambiguous or threatening events, information processing becomes biased in favor of the underlying schema. Mann and Beech give the example of a sexual offender holding a schema that 'I must be in control of others, or they will hurt me' (power schema). Therefore, when he feels threatened thoughts intensify around the theme of power. This would trigger the emotional states of anxiety or anger. Then the motivational states of humiliation or domination (Darke, 1990) become engaged. Therefore to the offender, sexual assault then becomes an appropriate, necessary or attractive behavioral response to the offender.

3.4.4. Sexual interests

It is commonly thought that child molesters sexually abuse children because they have a deviant sexual interest in children, and that rapists prefer forced sexual contact with women to consensual sex. In other words, expression of deviant, sexual behavior is thought to be the direct product of a deviant sexual preference. These deviant sexual preferences (or paraphilias) are thought by many to have become entrenched prior to the initial deviant act (Abel et al., 1987; Marshall, Barbaree, & Eccles, 1991). Paraphilias have been defined as, 'recurrent intense sexually arousing fantasies, sexual urges or behaviors' generally around children or non-consenting persons, the suffering or humiliation of oneself or others, or non-human objects' (DSM-IV-TR, APA, 2000, p. 522). More recently those who have described acquisition of deviant sexual preference have suggested a more sophisticated description of how such paraphilias are acquired. Here, fantasy is seen as being important in the maintenance of deviant interests. Leitenberg and Henning (1995) define sexual fantasy as almost any mental imagery that is sexually arousing or erotic to the individual. Sexual fantasies do not have to be accompanied by masturbation, although they often are. The role of sexual fantasy in the etiology of sexual offending is described

by Abel et al. (1987), who report that in a sample of 400 outpatient sexual offenders, 58% stated that they had experienced, prior to the age of 18, sexual arousal to deviant ideas that were later translated into deviant acts. While, Marshall and Eccles (1991) report that 41% of men who had molested extra-familial male children had experienced deviant fantasy prior to the age of 20. Hence it is hypothesized that deviant fantasies precede deviant arousal, which, in turn, leads to sexual offending.

We would suggest these problems arise through an interaction between the three areas of dysfunctional psychological functioning discussed above (in Sections 3.4.1–3.4.3). That is, the inability to effectively manage attachment issues and mood problems (problems in the *motivation/emotional system*) system, in the presence of dysfunctional schema (problems in their *perception and memory* system) may lead to the occurrence of deviant sexual fantasies and sexual pre-occupation. These problems coupled with a failure to regulate sexual desire (a basic physiological drive—*motivation/emotional* system) might lead an individual to use sex to meet their emotional and sexual needs. Specifically, if an individual has problems with sexual control (problems in the *action selection and control* systems), in conjunction with high levels of sexual arousal, driven by deviant interests this would mean that deviant sexual arousal could easily occur in particular situations, given certain triggering factors, such as anger, hostility or the presence of a potential victim. That is, situations where due to personal circumstances and/or the nature of the physical environment, an individual would become deviantly aroused to children or to the thought of coercive sex with a woman. We will now describe how such ‘deviant’ arousal, and the other three types of clinical problems are maintained and can escalate.

3.4.5. Maintenance and escalation of clinical factors

So far we have spelled out how a combination of biological, ecological (social, cultural, and personal circumstances), and psychological vulnerabilities (i.e., the three interlocking neuropsychological systems) interact to generate the clusters of clinical phenomena typically seen in sexual offenders and which are associated with offending behavior. According to the ITSO ecological variables (1) help to shape the neuropsychological systems generating human behavior and (2) also function to trigger offending behavior in certain situations. By “trigger”, we mean activate the vulnerabilities present in an individual. However, we are also clear that in some sets of circumstances ecological variables can override normal psychological controls to facilitate sexually abusive behavior (e.g., in combat situations). An important question is what maintains sexual offending and/or helps to escalate it on occasions?

The ITSO accounts for maintenance and escalation of sexual offending by virtue of its impact on the ecology of the offender and on his psychological functioning. The sexual abuse of a child might result in a person becoming further socially isolated from his normal social supports and lessen his chances of forming appropriate intimate relationships. If an individual in this situation also has problems with his mood, then sex with a child may become increasingly a powerful way of regulating problematic emotional states. In other words, the consequences of sexually abusive actions can modify, entrench, or worsen the personal circumstances of an offender and in this way, increase or maintain the offending behavior.

From the perspective of the ITSO, cultural factors interact with biological and individual learning to create ecologies that support or discourage sexual offending. An example of a relevant cultural process might be the portrayal of females as sexual objects and males as sexually entitled to have sex when and where they want (Polaschek & Ward, 2002). For some males, a weak genetic predisposition toward sexual promiscuity may interact with a learning environment where females are routinely ridiculed and presented as inferior, and a culture where females are not valued and are under-represented in positions of power and influence. In this situation, it is probable that males will grow up with pro-rape attitudes and beliefs. Furthermore, continued exposure to a social environment characterized by sexist and hostile attitudes to women, and dysfunctional sexual norms, can help to maintain, and even escalate sexual offending.

4. Relationship to other theories of sexual offending

We propose that the ITSO has the theoretical resources to unify other prominent theories of sexual offending. We do not have the space in this paper to demonstrate this for every theory, so we have chosen what we see as some of the most promising etiological theories in print in order to illustrate how this can be done. The theories we have selected are: Finkelhor’s (1984) precondition theory, Hall and Hirschman’s *Quadrupartite Theory* (1992),

Marshall and Barbaree's (1990) Integrated Theory, and Ward and Siegert's (2002) Pathway Theory. We will limit ourselves to a brief description of each theory and a few comments about how it could be incorporated within the ITSO.

4.1. Finkelhor's precondition theory

Finkelhor (1984) suggests that four underlying factors have typically been used to explain the occurrence of child sexual abuse, usually in the form of single factor or level II theories. These theories are based on the following claims: sex with children is emotionally satisfying to the offender (emotional congruence); men who offend are sexually aroused by a child (sexual arousal); men have sex with children because they are unable to meet their sexual needs in socially appropriate ways (blockage); and finally, these men become disinhibited and behave in ways contrary to their normal behavior (disinhibition). He suggests that the first three factors explain why some individuals develop sexual interest in children and the fourth why this interest manifests as sexual deviance.

In Finkelhor's theory, these four factors are grouped into four preconditions that must be satisfied before the sexual abuse of a child occurs. The first precondition suggests that the offender must be motivated to sexually abuse a child, and encompasses three of the four factors (i.e., emotional congruence, sexual arousal, and blockage). The second precondition involves overcoming internal inhibitions (e.g., alcohol, impulse disorder, senility, psychosis, severe stress, socially entrenched patriarchal attitudes, or social tolerance of sexual interest in children), and is related to the disinhibition factor. The third precondition involves overcoming external inhibitions, or conditions that increase the possibility of offending (e.g., maternal absence or illness, lack of maternal closeness, social isolation of family, lack of parental supervision, unusual sleeping conditions, or paternal domination or abuse towards mother). The final precondition suggests that the offender must overcome a child's resistance to the abuse (e.g., giving gifts, desensitizing a child to sex, establishing emotional dependence, using threats or violence). These two remaining preconditions are associated with the how of the offense process and do not relate to the four causal factors. Finkelhor hypothesizes that these preconditions occur in a temporal sequence with each being necessary for the next to occur.

The four factors or motives in Finkelhor's theory can be subsumed within the three psychological systems outlined earlier: the motivation/emotional, perception and memory, and action selection and control systems. Emotional congruence and sexual arousal are motivational constructs and have affective aspects to them. In the ITSO they would both be incorporated within the motivation/emotional system. The constructs of blockage and disinhibition can be seen as reflecting faulty planning or self-regulation and can be viewed as parts of the action and control system. The preconditions of overcoming both external and a child's resistance can also be viewed as reflecting control strategies, and would also involve the retrieval of information from strategies from the perception and memory systems.

4.2. Hall and Hirschman's quadripartite theory of child molestation

Hall and Hirschman's (1992) Quadripartite Model of child molestation is based on four components: physiological sexual arousal, inaccurate cognitions that justify sexual aggression, affective dyscontrol, and personality problems. The first three factors are considered primarily state and situation dependent (state factors) while personality problems represent enduring vulnerability factors (trait factors). This implies that personality deficits are the source of vulnerabilities to sexually abuse children, which are activated in certain contexts and opportunities, resulting in deviant arousal, affective disturbance and/or distorted thinking.

A key idea in the Hall and Hirschman model is that while each of the above factors serve as motivational precursors that increase the probability of offending, usually one factor is prominent for each child molester and constitutes their primary motive. Activation of this primary motivational precursor functions to increase the intensity of the others. This synergistic interaction may in turn propel an individual above the critical threshold for performing a sexually deviant act.

Furthermore, various combinations of the above factors are hypothesized to characterize a particular type of child molester, with distinct treatment needs. The first subtype has deviant sexual arousal and strong sexual preferences for children (i.e., the classic preferential offender), and tends to commit offenses against large numbers of children. Treatment would revolve around the reduction of deviant sexual arousal using a range of conditioning strategies, for

example, directed masturbation. Offenders who are characterized by cognitive motivation typically misinterpret children's behavior as revealing sexual intent and also possess good self-regulatory and planning skills (e.g., incest offenders). Therapy may involve the challenging of their sense of entitlement and the modification of other dysfunctional cognitions. The third group of offenders is defined by their susceptibility to negative affective states, and frequently they behave in an impulsive and unplanned manner (i.e., situational offenders). Treatment would center on learning how to control and regulate negative emotions. The final subgroup of offenders consists of those who have developmentally related personality problems. These individuals experience difficulties establishing intimate adult relationships and functioning effectively in the world (i.e., preferential offenders). Treatment would be prolonged and intensive requiring the modification of entrenched and maladaptive interpersonal strategies and beliefs about themselves and other people.

The four major constructs comprising the Quadripartite Model (i.e., physiological sexual arousal, inaccurate cognitions that justify sexual aggression, affective dyscontrol, and personality problems) can be integrated into the ITSO in two ways. First, they can be seen as state factors and allocated to the four clusters of state factors in our theory (with personality problems being relabeled as social difficulties). Second, the trait like facets of the four types of problems could be absorbed into the three major neuropsychological systems comprising the ITSO. The physiological sexual arousal factor is clearly an example of a motivational construct and is easily accommodated within the motivation/emotional system. Cognitive distortions could be allocated into two of the four ITSO systems, motivation/emotional because of the fact that some types of cognitive distortions primarily function to disengage self and other evaluative processes. While the existence of stable implicit theories or schemas are likely to reside within the perception and memory system. The affective dyscontrol concept is probably best distributed across two systems in the ITSO, the motivation/emotional and the action selection and control systems. This is because of its links to emotional regulation and goals. Finally, personality problems are likely to be distributed across all three systems of the ITSO, depending on the aspect of personality under consideration. Goals and motives are best conceptualized as motivation/emotional constructs while impulsivity and self-regulation facets of personality clearly belong in the action control and selection system.

4.3. Marshall and Barbaree's integrated theory

Marshall and Barbaree's Integrated Theory (1990) proposes that the sexual abuse of children occurs as a consequence of a number of interacting distal and proximal factors. Specifically, this theory suggests that individuals experiencing developmentally adverse events (e.g., poor parenting, inconsistent and harsh discipline, physical and sexual abuse) are likely to exhibit distorted internal working models of relationships, particularly, with respect to sex and aggression, resulting in poor social and self-regulation skills from an early age.

For these individuals, transition into adolescence is a particularly critical period. It is at this stage that individuals are most receptive to acquiring enduring sexual scripts, preferences, interests and attitudes. Furthermore, the massive increase of sex hormones during this period increases the salience and potency of these sexual cues. According to Marshall and Barbaree, sex and aggression originate from the same neural substrates (e.g., hypothalamus, amygdala, striatum etc.) and are thought to cause qualitatively similar experiences. If an individual comes from an adverse background and, therefore, is already predisposed to behaving in an antisocial manner, the pubertal release of hormones may serve to fuse sex and aggression and to consolidate or enhance already acquired sexually abusive tendencies.

As a young adult, lack of effective social and self-regulation skills makes it more probable that relationships, or attempted relationships, with women will be met by rejection and result in lowered self-esteem, anger, and negative attitudes toward females. These powerful negative emotions may fuel the intensity of sexual desires and the development of deviant sexual fantasies. Masturbation to these fantasies will increase their strength and also function as mental rehearsals in which future sexual offenses are planned. Young children may be viewed as more inherently trustworthy and to constitute a "safe haven" for the individual. The individual may therefore, see deviant sex or fantasies as meeting a multitude of needs, including releasing sexual tension, and increasing personal effectiveness and control, interpersonal closeness, self-esteem, and masculinity.

According to the integrated theory the above vulnerability factors interact with more transient situational elements such as stress, intoxication, strong negative affect, sexual stimuli, and the presence of a potential victim to impair an individual's ability to control their behaviors, resulting in a sexual offense. The reinforcing effects of deviant sexual

activity and the development of cognitive distortions maintain offending. This reinforcement may be positive (e.g., sexual arousal, sense of power) or negative (e.g., reduction of low mood) in nature.

Marshall and Barbaree's Integrated Theory is a very sophisticated and powerful theory and its accommodation within the ITSO requires considerable thought. In order to ease the task we will simply take each of the three systems comprising the trait factors of the ITSO and consider its relationship to key ideas in the Integrated Theory. With respect to the trait or vulnerability factors the following analysis is feasible: (a) The motivation/emotional system can incorporate the sexual attachment, intimacy, emotional, and needs constructs of the Marshall and Barbaree theory; (b) The action selection and control aspect of our theory can absorb the impulsivity, social skills, and self-regulation components of the Integrated Theory; (c) The perception and memory system is able to integrate the entrenched beliefs, strategies, identity, and values referred to in the Integrated Theory. Concerning the other variables comprising this elegant theory, the emphasis on ecological, social learning, circumstantial and biological factors are all easily dealt with. For example, early learning events are viewed as part of the developing offender's social ecology. One of the virtues of the Integrated Theory is that it explicitly addresses the role of biological and hormonal variables in the genesis of sexual abuse. With its strong neurobiological orientation, the ITSO is also able to take these factors in account without neglecting the important role of psychological agency and identity.

4.4. *Ward and Siegert's (2002) pathways model of child sexual abuse*

Briefly, the Pathways Model suggests that there are multiple pathways *leading* to the sexual abuse of a child; it does not attempt to explain why child molestation may *continue*. Each pathway involves a core set of dysfunctional psychological mechanisms. In this sense, mechanisms are psychological processes that cause specific outcomes, effects or clinical phenomena. These mechanisms constitute vulnerability factors and are influenced by distal and proximal factors, including learning events, biological, cultural and environmental factors.

In line with the previous three theories, the Pathways Model suggests that the clinical phenomena evident among child molesters are generated by four distinct and interacting psychological mechanisms: intimacy and social skill deficits; distorted sexual scripts; emotional dysregulation; and cognitive distortions. Each mechanism depicts a specific offense pathway with different psychological and behavioral profiles, and separate etiologies and underlying deficits. The number and type of etiologies will vary depending on a pathway's particular developmental trajectory.

Although each pathway is hypothesized to be associated with a unique set of primary mechanisms and cluster of symptoms or problems, the mechanisms always interact to cause a sexual crime. That is, every sexual offense involves emotional, intimacy, cognitive, and arousal components, however, each distinct pathway will have at its center a set of primary dysfunctional mechanisms that impact on the others. The primary causal mechanisms involve other types of mechanisms in order to generate the range of symptoms typically seen in child molesters. But these additional causal mechanisms may be functioning normally and only exert a dysfunctional effect because of the driving force of the primary set of mechanisms. This is similar to Hall and Hirschman's thesis that one of four factors may be a primary motivational precursor that activates the other elements. However, these authors also suggest that each factor can operate on its own to cause sexual deviance. The Pathways Model, in contrast, argues that *every* sexual offense involves all four sets of mechanisms.

In the Pathway Model there are four interacting causal mechanisms that collectively result in a sexual offense against a child. The four sets of mechanism can rather easily be incorporated within the ITSO. (This fact is not surprising as the Pathways Model was explicitly constructed with the strengths and weaknesses of the above three theories in mind.) First, intimacy and social skill deficits are probably distributed across a number of psychological systems, including the motivation/emotional system because of the emphasis on goals, and also the action selection and control system by virtue of its focus on interpersonal strategies. Distorted sexual scripts will have the affective component nested within the motivational/emotional system, the ongoing control of emotions and behavior located in the action selection and control systems, and the perceptually relevant aspect of sexual behavior residing in the perception and memory system. The emotional dysregulation mechanism will be primarily placed in the action selection and control system, with goals and affective aspects derived from the motivation/emotional system. Finally, cognitive distortions are likely to be multifaceted again and as stated above entrenched beliefs placed in the memory systems and rationalizations and excuses, primarily located in the other two systems. This is because what we have called negative distortions are essentially concerned with social and personal impression management (Ward et al., 1997).

5. Future directions and conclusions

In this paper we have sketched out a possible framework for integrating many of the factors identified in research and theory determinants of sexual offending (see Fig. 1). Although it is clearly premature to systematically evaluate the ITSO, in our view it does have certain strengths. First, as the name of the theory itself suggests, the Integrated Theory of Sexual Offending shows considerable potential for bringing together theories from all three levels of theory, including the major multifactorial theories of sexual abuse (*strong unifying power*). It incorporates the insight from the comprehensive etiological theories that there are multiple trajectories to sexual offending. It also provides a useful way of incorporating single factor theories in terms of the three psychological systems outlined earlier. Individually and collectively the three systems can be utilized to explain specific problems evident in sexual offenders such as emotional loneliness or deviant sexual arousal. It is also possible to create a unified or integrated account such as the one sketched out in this paper. Finally, theories of the offense and relapse process are easily accommodated by virtue of the ITSO's stress on self-regulatory capacities and the role of ecological factors in facilitating sexual crime. Cultural factors are considered to be both a developmental resource and also part of the offender's current ecology.

Second, according to the ITSO, biological, cultural, social, individual learning, and psychological traits are all implicated in the commission of a sexual offense. In other words, the theory unifies a range of sexual offending theories that are currently accepted (*unifying power* and *external consistency*) and draws upon empirical research findings (*empirical adequacy* and *scope*). Because of this, it has the potential to provide well grounded guidance to researchers working on different facets of sexual offending, and remind those operating purely with psychological or social models, that it is ultimately necessary to cash them out in biological and neuroscientific terms. All the four levels of analysis are important if we are to satisfactorily explain and manage the complex problem of sexual abuse. Clinicians need to think about their clients in biological as well as cultural, social, and psychological terms.

Third, the theory has the capacity to change the way we think about the surface clinical phenomena evident in sexual offenders (*heuristic value or fertility*). Rather than inferring that each class of problems has a common cause, it is arguable that they sometimes have unique causes, located in different functional systems. For example, an offender may articulate offense supportive statements which appear to stem from offense supportive implicit theories (the perception and motivation system), but which are actually the function of impression management strategies instead (motivation/emotional and action selection and control systems). This is really a point about the utility of our current classification systems for sexual offending. It may make more sense to allocate individuals to groups based on the type of functional systems compromised rather than upon the basis of their surface symptoms (Pennington, 2002). Our prediction is that future diagnostic systems are likely to be based on explanatory theories comprised of Pennington's four levels of analysis. A major implication is that future etiological theories of sexual offending will be solidly grounded in neurobiological constructs. Our current theories may be increasingly seen as simply examples of sophisticated folk psychology with little explanatory power.

Fourth, theories can be usefully viewed as cognitive tools and are indispensable for the assessment and treatment of sexual offenders. Theories of sexual offending are resources that spell out the aims of intervention, the nature of therapeutic practices, and instruct practitioners how to work with abusive individuals and their families. They provide a framework for assessment by noting the difficulties individuals are likely to experience, describing how such problems are interrelated, and specifying their psychological, social, biological, and cultural causes. A good case formulation in the sexual offending arena should outline the developmental factors that make individuals vulnerable to committing an offense. In essence, it is a micro theory designed to explain why a particular person, embedded within a specific ecological (social, personal, and cultural) network, committed an act of sexual abuse. The ITSO provides a systematic and multifaceted framework for the assessment and treatment of sexual offenders. Its ability to account for multiple offense trajectories and varying clinical presentations means it will help clinicians to focus on offenders' unique problems. The use of the ITSO will facilitate the construction of tailored treatment programs and avoid the mistakes inherent in a one-size-fits-all perspective.

Finally, the ITSO is really an abstract framework for thinking systematically about sexual offending and its constituent causal variables. It is necessary for researchers to unpack its assumptions in greater detail and apply it to different types of sexual crimes, for example, rape, exhibitionism, or child molestation (i.e., to achieve greater explanatory depth, and to improve upon existing heuristic value). We believe it has the conceptual resources to make such an effort worthwhile.

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