CRAVINGS FOR CRIME: ADDICTION TO CRIMINAL BEHAVIOUR

BY

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A Final Project submitted to the

Campus Alberta Applied Psychology: Counselling Initiative

in partial fulfillment of the requirements for the degree of

MASTER OF COUNSELLING

Alberta

May 2006
Faculty of Graduate Studies and Research

The undersigned certifies that she or he has read and recommends to the Faculty of Graduate Studies and Research for acceptance, a final project entitled *Cravings for Crime: Addiction to Criminal Behaviour* submitted by Sidney Wolfe in partial fulfillment of the requirements for the degree of Master of Counselling.

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DEDICATION

To those so afflicted who have hope, even when others disclaim your reality.
ABSTRACT

Repetitive criminal behaviours have been examined through criminological perspectives and have been attributed to many factors. This work posits that a portion of habitual offenders are addicted to criminal behaviours and experience withdrawal and intense psychological and physiological cravings as a result. Psychological cravings for criminal behaviours will be as unique to the individual as they are for other addictions, however they will exhibit similar physiological responses. Scores of studies have examined the relationship between addictive substances and criminal behaviour; however the issue of addiction to criminal behaviours has been neglected in psychological literature. By extracting from the existing literature on substance and process addictions, an argument for crime addiction is presented. In addition, the structure for an experiment to further investigate the occurrence of physiological cravings for criminal acts is described.
ACKNOWLEDGEMENTS

Family is of utmost importance in the completion of this project. I recognize that without the assistance, persistence and continual support of my wife Lisa and our children Liam and Mason, my mother Linda, siblings Oliver and Christie and their families, my achievements would be meaningless. Thanks also go to the Esaiw family for their supports. Dr. Reid Webster, his patience and support are gratefully acknowledged along with Lyn Richards & staff. The supportive staff at the Phoenix Centre also deserve gracious thanks, in particular Leann Kopytko and Patrick McDonald, whom I admire and respect for their knowledge and compassion for their clients. Those that also deserve recognition here are the inmates at Kamloops Regional Correctional Centre and Missoula Pre-Release Centre, who have been critical in shaping my ideas about criminal behaviour and the human side of incarcerated life.
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Cravings for Crime: Addiction to Criminal Behaviour

CHAPTER 1

Introduction

Addiction is a serious issue with far reaching financial, psychological, emotional and physical consequences for individuals, families, employers, communities, cultures and nations (Bratter & Forrest, 1985). Bratter and Forrest report that in the United States alone, addiction kills thousands of people each year and destroys millions of families. Furthermore, they state that industry spends billions of dollars each year addressing the impacts of addiction. Coombs (2005) supports this with an assertion that U.S. industry spends between $60-100 billion annually on addiction-related costs. Addiction is not isolated to the U.S. and can be found across the world in all cultures in varying degrees of severity (Andlin-Sobocki & Rehm, 2005; Bonner, 1996; Bratter & Forrest, 1985; Canadian Centre on Substance Abuse, 2004; Hanson, 1997; London, 2005; McCoy, 2005; Senay & Uchtenhagen, 1990). Andlin-Sobocki and Rehm provided estimated European health care and crime related costs for dependence and divided the estimates between alcohol, illicit substances and nicotine dependencies. Using 2004 costs and data from studies conducted between 1998 and 2003, their work found that the cost per patient ranged between €10, 667 and €11,984 for alcohol dependence, €18,064 for substance dependence, and ranged between €835 and €856 for nicotine dependence. In Canada, the 2002 societal costs of substance abuse were estimated at nearly $40 billion by Rehm et al. (2006). Rehm et al included direct costs such as health care, law enforcement, prevention and research as well as indirect costs like productivity losses and premature mortality. When addiction can have such serious impacts on human lives across cultural and national boundaries, it is critical to advance knowledge about the field in
order to provide primary and secondary prevention as well as tertiary remediation of addiction’s impacts.

Purpose

The purposes of this project are twofold. The primary purpose is to explore the concept of an addiction to criminal behaviour and establish a basis for the hypothesis through the existing literature on substance and process based addictions. This will illustrate the possibility that an addiction to criminal behaviour exists. Since there is not a comprehensive body of literature examining the phenomena of addiction to criminal behaviours, the foundation of this work will be to examine selected literature in the field of addictions and synthesize information to support to the hypothesis of crime addiction. Thus, this paper extrapolates from existing research on substance addiction, process addictions such as gambling and criminological research on attributes of persistent offenders. Literature from other disciplines such as criminology will also be utilized when it has a direct contribution to the hypothesis.

The second purpose of this project is to outline a proposal for further research about this phenomenon by adapting a previous study regarding cocaine cravings into a study of cravings for crime. The proposal for further research is inspired by the study of cocaine cravings by Childress et al. (1999). Cravings are commonly experienced during withdrawal from substance addiction and their existence in process addictions provides good evidence that a condition can be classified under an addiction umbrella. Essentially, the proposed research will use polygraph technology to measure physiological responses during cue-induced cravings with the focus on criminal behaviours. The proposed research will utilize visual and auditory cues of specific criminal behaviours in lieu of cocaine-related cues used in Childress et al.’s work. The physiological responses
of cravings will be measured with the use of a polygraph and the research will involve control and experimental groups to lend validity to the outcomes.

The concept of addiction to criminal behaviour is currently following the historical path of alcohol addiction, which began with anecdotal evidence, evolving into 12-step based movements and finally shifting from “an outcropping of one or another personality type or psychological conflict” to its own designation and recognition within the scholarly community (Peele, 1987b). Anecdotal evidence regarding addiction to criminal behaviour exists through years of experience in correctional facilities. Further, a 12-step based group has been organized and operates in Vancouver, British Columbia (Baron, 2005; MacQueen, 2004). Since there is currently no diagnostic category specific to crime addiction in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), clinicians encountering this phenomenon in clients would likely diagnose as another psychological disorder such as antisocial personality disorder or obsessive-compulsive disorder or both.

It is explicitly recognized that this topic may be highly controversial. It is not the purpose of this work to prove the phenomenon exists beyond any doubt, only to explore the possibility and to encourage further research into the topic area. The exploration of the issue will result in a general outline of diagnostic criteria, estimates of prevalence, course and differential diagnosis. These results are intended to be debated by the scholarly community, afflicted persons and their support systems in order to provide accurate information about addiction to criminal behaviour. As the concept develops with further discussion, empirical research and development of more intricate knowledge, it is hoped that accurate diagnoses, effective treatment modalities and recovery for those suffering from this and other addictions can directly benefit. It is critical to note that the
recognition of an addiction to criminal behaviour is specifically for the diagnosis and treatment of individuals.

This work will provide a general definition of addiction, followed by explorations into substance addictions. This exploration into substance addiction is critical as it is the most researched area of addiction and provides the basis of theory and treatment modalities for other addictions. After substance addiction, the work will examine process addictions which are relatively new areas of addictions. The similarities and controversies between substance and process addictions will be discussed. The paper will illustrate the addiction to criminal behaviour with a definition, evidence of existence, cravings and estimates of prevalence. The next section of this work will explain the proposed research into cravings for criminal behaviours. This will utilize existing literature on physiological cravings for addictive behaviours and hypothesize the probable characteristics applicable to cravings for criminal behaviours. The parameters and methods for the proposed empirical investigation to follow the completion of this project will be outlined. Finally, the implications for the utility of this project and further research will then be reflected upon followed by the conclusions of the examination of the constructs offered in this work will be presented.

**Procedures**

This project is primarily a literature review designed to demonstrate that an addiction to criminal behaviour can exist, based on the current knowledge of substance and process addictions. This project addresses the following topic areas: (a) definitions of addiction; (b) substance addiction; (c) process addiction; (d) crime addiction; and (e) proposed research into cravings for criminal behaviour. Electronic databases used for this work include PsychINFO, PsycBOOKS, EMBASE, Journals@Ovid, Books@ Ovid, Ovid MEDLINE, Education Full Text and Social Sciences Abstracts in Wilson, Academic Search
Premier, Educational Resource Information Center (ERIC), and the Canadian Reference Centre. Whenever indicated, the most inclusive date range was selected and some databases provided literature sources as far back as 1806. The keywords used were “crime”, “addiction”, “dependence”, “compulsion”, “obsession”, “craving”, “pathological”, and “cue reactivity”. Due to the large number of returns for these searches, keyword searches were combined to sort for applicability. The Thompson Rivers University Library Catalogue and the Google search engine on the World Wide Web were utilized to search for specific resources unavailable through the electronic database searches. Finally, literature from personal collections was selected when relevant to the topic.

Books, journal articles, films and other media were reviewed for relevance and selected based on relevance to the scope of this project. The selected literature was then retrieved electronically and when unavailable in electronic full-text format, printed copies were obtained from libraries. Other media such as films were obtained through public and academic library systems. Selected personal communication from conversations with clinicians and academics were also incorporated into this document.
CHAPTER 2

Definition of Addiction

Addiction has been recognized as a human phenomenon with an extensive history; however its exact origins and definitions are hindered by considerable controversy and confusion (Davis, 1996, London, 2005). Spode (2005) credits the coining of the term ‘trunksucht’ translated to ‘addiction to drink’ to v. Brühl-Cramer who adapted it from the word ‘lesesucht’ which means ‘addicted to read’. The origins of the word are important because it has implications for the conflicting views held by those that advocate the addiction resides within the individual and those that see the primary responsibility as the substance. Spode describes this dichotomy in the thinking about addiction with the original concepts provided by v. Brühl-Cramer and by Hufeland. Spode argues that v. Brühl-Cramer intended the term to include “a broader idea of pathological excessive behaviour, be it reading, coffee drinking or craving for certain food” (p.125) and thus the primary issue of addiction rested within the individual personality. Contrary to this position and in the same time period was the work of Hufeland who promoted the idea that the substances caused the addictive behaviour, not the individual personality (Spode). Hufeland’s conceptualization delineates addictions that are separate and unique, each caused by a separate substance, whereas v. Brühl-Cramer argues that there is a single addiction that manifests in various forms (Spode). Evidence of Hufeland’s philosophies can be found today in the DSM-IV-TR, where substances have a separate diagnosis, for example alcohol dependence and amphetamine dependence.

The DSM-IV-TR addresses substance use, process addictions and criminal behaviours under differing classifications. Each of the disorders and their associated criteria has been carefully reviewed prior to inclusion (American
Psychiatric Association [APA], 2000). The review includes an extensive examination of the empirical evidence supporting the existence, features, course, prevalence and diagnostic criteria of each disorder (APA, 2000). The DSM-IV-TR does not currently have a specific classification of process addictions, which would include such addictions such as sex, religion, internet and crime, among others.

Another widely used classification system, the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), also does not specifically recognize process additions; it does include, for example, a category for other habit and impulse disorders that could be used for process addictions other than gambling which is recognized by the ICD-10 (WHO, 1992). For example, the ICD-10 also recognizes excessive sexual drive, which could arguably be a basis for sex addiction.

Process addictions are not present in the DSM-IV-TR with the exception of gambling. Pathological gambling is classified as an impulse control disorder, which occupies “an interesting and controversial niche” within the DSM-IV-TR (Oltmanns, Emery, & Taylor, 2002, p. 319). The ICD-10 also recognizes pathological gambling and, similar to the DSM-IV-TR, groups it with impulse control disorders. The controversial niche for gambling is that it is recognized by others as an addictive disorder, yet cannot be placed in the substance use disorders categories because it does not involve exogenous substances (Alberta Alcohol and Drug Abuse Commission & Connecticut Council On Compulsive Gambling [AADAC & CCCG], 1994; Alexander, 2000; Committee on the Social and Economic Impact of Pathological Gambling, Committee on Law and Justice, Commission on Behavioral and Social Sciences Education, & National Research Council [NRC], 1999; Psychology, 2006). Therefore, it is relegated to the impulse control disorders category, which one could argue is an inappropriate association.
Sex addiction is acknowledged in scholarly literature and Oltmanns et al. proposed that it be considered for inclusion into the next DSM due to its similarity to substance use disorders. They argue that the criteria for substance dependence in the DSM-IV-TR are interchangeable with the definition of sex addiction by replacing “the word substance with the term sexual behaviour” (Oltmanns et al., p. 411).

The condition of addiction is well described in existing literature. Rosenthal and Lesieur (1996) describe the condition of addiction as having the following components: (a) a continuous or periodic loss of control, (b) a progression in frequency and intensity of occurrence, (c) a preoccupation about participating in the behaviour and obtaining means to participate, (d) irrational thinking associated with the addictive behaviour and (e) continued participation despite harmful consequences. The DSM-IV-TR takes a different stance by not including the term “addiction”, and refers to “abuse of” and “dependence” on substances in its classification system (APA, 2000). The DSM-IV-TR criteria include concepts of tolerance, withdrawal, overuse, inability to cease the behaviour, and adverse consequences as a result of continued use despite knowledge of potential harm.

Schneider and Weiss (2001) state that any addiction, substance or process, must contain the following elements: (a) loss of control over the behaviour, (b) continuation despite adverse consequences, and (c) a preoccupation or obsession. Without any one of these components, the behaviour, though possibly maladaptive, does not qualify as an addiction. This definition is not comprehensive as it fails to account for tolerance and cravings, among others. Brown (1997) promotes Dr. Patrick Carnes’ (1989) three levels of sexual addiction behaviours. The first level includes behaviours that have potential for addiction but are generally acceptable. Examples of level one behaviours include pornography, sex with multiple partners and masturbation.
Level two behaviours are not considered to be acceptable by society and are considered criminal acts. Examples of level two behaviours include exhibitionism, voyeurism and public sex. The third level contains serious criminal behaviours not tolerated by society such as rape, molestation and sexual abuse. These levels are important because they can be adapted for use with criminal addictions and their associated behaviours and are utilized in later discussion of crime addiction.

Merriam-Webster (2004) describes addiction solely within the context of substance use. This simple definition neglects the complexity of the condition and excludes the existence of process addictions. This definition would support some proponents of the chemical dependency model who “assert that addiction occurs only on a physiological level” (Kennedy, 2005, para. 2). According to Habit and addiction (2006), the WHO also defines addiction as requiring a physiological component. The article continues to state that behaviours that incur only psychological symptoms are determined to be habits and therefore not in the addiction category. To illustrate the common confusion about the definition of the term addiction, another article in the same encyclopaedia lists gambling as an example of an addiction, contrary to the description provided in the Habit and addiction article (Psychology, 2006). Advocates of the inclusion of the process addictions into the addictions classification could argue that there is a significant physiological process occurring naturally within the neurochemistry of the brain, thus producing powerful rewards for the behaviours that are similar to substance-based addictions (Sunderwirth & Milkman, 1991).

Peele (1978) states the WHO has discontinued using the term addiction in favour of the term dependence. The APA also uses the term dependence which may be due to addiction’s lack of “definitive index against which diagnosticians and researchers can judge the status of a clinical state” (Shaffer & Albanese, 2005, p. 13). The WHO has delineated substances between those that cause
physiological and psychological dependence; Peele argues, however, that this only serves to confuse the definition of addiction. He argues that the primary attribute of addiction is the ability of the substance or behaviour to act as an analgesic and that these properties are at the crux of addiction, whichever form it takes.

Considering the above positions around the controversies of defining addiction, this paper is based on the definition that an addiction is the engagement in a maladaptive behaviour which results in a persistent preoccupation, loss of control, tolerance and continued participation despite adverse consequences. While these criteria constitute the core attributes of addiction, other symptoms may be present, including cravings, physiological or psychological withdrawal and intoxication.

**Characteristics of Addiction**

Research has been conducted into the common physiological, psychological and social influences on the addictive processes (Childress et al. 1999). These three distinct categories are common to both substance and process addictions (Shaffer & Albanese, 2005). It is important to note that the characteristics in these categories do not operate in complete isolation from each other; rather they are inextricably linked in a complicated manner unique to the individual.

**Physiological characteristics.** The physiological characteristics described here include intoxication, tolerance, withdrawal and dependence. Intoxication is described by the DSM-IV-TR as “clinically significant maladaptive behavioural or psychological changes” (APA, 2000, p. 199) associated with the physiological effects caused by substance use. These maladaptive changes can manifest in “belligerence, mood lability, cognitive impairment, impaired judgement, impaired social or occupational functioning” or any combination thereof (APA, p. 201). This
definition refers specifically to substances; however it can also be applied to behavioural addiction.

Schneider and Weiss (2001) argue that the source of behaviour addictions, like substance addictions, lie in the neurochemistry of the brain. With substances, the psychotropic ingredients of the drug interact with the neurochemistry of the brain to produce the desired effects. For example, Goldstien, Lowney and Pal (1971) and Pert and Snyder (1973) found that opiates acted upon the endorphins and their receptor sites in the brains of mice, beginning the idea that the analgesic effect was critical to the development of addiction. In process addictions, the release of neurochemicals such as “adrenaline (epinephrine), serotonin, dopamine and endorphins create a distracting and intense drug-like state” (Schneider & Weiss, p. 26) when participating in specific behaviours. Furthermore, other neurotransmitters have been implicated in the development of addiction and include norepinephrine, acetycholine, glutamate and gammabutyric acid (Frantz & Koob, 2005). This theory is supported by writers such as Peele (1978) who advocate that the crux of addiction is the ability of the substance or behaviour to alleviate physiological, psychological or social based pain.

Tolerance occurs when the desired effect of the substance decreases after repeated use of the same dose or requiring a larger dose to achieve the desired results (APA, 2000; Siegel, 2005). For substance use, this requires an increase in the dosage or the frequency of use to maintain the desired effects. This increase in dosage, or frequency, or both, leads to an increase in negative side effects (Inaba and Cohen, 2004). For example, increased use of opiates is associated with constipation, sexual dysfunction and death from overdose (Smart, 1983). With behavioural addictions such as computing, tolerance is described by Charlton (2002) as a need to spend increasing amounts of time engaging in
computing. The effects of increased engagement in behavioural addiction also increases the occurrence of negative side effects, including marital difficulties, poor performance in employment or educational settings and a decline in social functioning (Charlton).

From a physiological perspective, withdrawal occurs subsequent to the termination or rapid decrease of participation in addictive behaviours (Smart, 1983). For substance-based addictions, this is related to the cessation or rapid tapering of the dosage and frequency of the substance. Substances vary in their withdrawal syndromes and can range from mild physical discomfort to death (APA, 2000). As an example, withdrawal from heroin can include symptoms of cramping, irregular breathing, vomiting and diarrhoea while alcohol withdrawal can result in delirium tremens and/or epileptic seizures resulting in death (Segal & Sisson, 1985; Smart, 1983). For behavioural addictions, physiological withdrawal does not appear to exist and current pharmacological knowledge indicates that physiological withdrawal is only associated with specific substances under specific circumstances (Brust, 2002; Kauffman, Shaffer, & Burglass, 1985; Peele & Brodsky, 1976). Withdrawal can exhibit itself in psychological form, which will be discussed in the next section.

There are two distinct types of dependence, physical and psychological, which can occur independently of each other (Brust, 2002). Physical dependence has been documented for many substances, but several have no apparent physical dependence, such as hallucinogenics, inhalants and anticholinergics (Brust). Physiological dependence is the body’s physical reaction to the absence of a drug and is closely linked with tolerance and withdrawal. The syndrome of physical dependence is manifested in the withdrawal symptoms, where the body requires the substance to remain in its altered homeostatic state (Brust). For example, regular opiate users generally develop tolerance quickly with increased
dosages to maintain the effects of the substance, and during acute withdrawal, the body becomes dysfunctional while it readjusts to the absence of the substance.

*Psychological characteristics.* Psychological characteristics of addiction are influenced by intrapersonal factors such as personality factors, affect, cognition and sex differences (Leigh, 1985). Despite the wide range of influences, the characteristics are relatively static and include psychological dependence, cravings and often comorbidity with other addictive behaviours. Process addictions such as gambling do not possess physical dependence properties, but do have significant psychological dependence characteristics. Brust (2002) defines psychological dependence as “a psychic drive that requires periodic or continuous administration” (p. 29) to prevent withdrawal symptoms. Evidence of psychological dependence is demonstrated during the acute and post-acute withdrawal phases with symptoms such as “dysphoria, irritability, anxiety, malaise” (Frantz & Koob, 2005, p. 38). For stimulant abusers, frequent symptoms of psychological dependence are expressed by the occurrence of anhedonia and depression (Brust; Tcheremissine & Krupitsky, 2004).

Cravings are “a cardinal feature of addictive disorders” (Childress et al. 1999, p. 11) and studies of cravings are an integral part of addictions research. Cravings have been shown to be a “reliable predictor” (Davidson, Tiffany, Johnston, Flury, & Li, 2003, p. 1251) of relapse behaviours, however there is no consensus of the specific definition of craving in academic literature (Davidson et al., 2003; De Bruijn, Korzec, Koerselman, & Van Den Brink, 2004). As referenced in De Bruijn et al., there are two critical components to a craving: (a) a strong desire; and (b) obsessive-compulsive qualities to the desire. This definition is supported in part by Davidson et al.’s assertion that cravings govern the thoughts of alcoholics. Bailey (2004) describes cravings as “a state of the brain that
undermines free will and motivates individuals who are addicted to continue to use a substance, despite irrefutable evidence of harm to themselves or people close to them” (p. 17). Oltmanns, et al. (2002) describe cravings more succinctly as “a forceful urge” (p. 367) while acknowledging that the craving condition is more complicated than this simple statement suggests. Bordnick, Elkins, Orr, Walters, and Thyer (2004) assert that a combination of social learning theory and the substance abuse perspective explains cravings as a result of conditioning that are triggered by environmental cues associated with past substance use.

Pelchat (2002) suggests that cravings have shared pathways in the brain, an idea supported by the work of Adinoff (2004) who asserts that the striato-thalamo-orbitofrontal circuit is primarily responsible for cravings, while acknowledging that other neural structures such as the limbic system and amygdala also have important roles in the development and maintenance of addictive behaviours. This is also supported by Frantz and Koob (2005) who state that the medial forebrain bundle is the most relevant structure involved in addiction. Frantz and Koob go on to state that the primary brain structures affected by the release of dopamine are the “nucleus accumbens, amygdala, frontal cortex, and the limbic cortex” (p. 42). This is also supported by Bailey (2004) and Potenza et al. (2003). Childress et al.’s (1999) study measuring cerebral blood flow found strong evidence that the limbic system is activated during craving periods. McEvoy, Stritzke, French, Lang, and Kettermann (2004) examine the neuroanatomical model of Anton (1999) which specifies neural pathways implicated in craving research. This model implicates the nucleus accumbens, amygdala, dorsolateral prefrontal cortex, and orbitofrontal cortex in the creation of cravings, supporting the evidence cited above. These structures are involved in the reward pathways, emotion and the linking of emotion to experiences, all of which have a strong role in the creation of addiction. Meyer
(1996) asserts that addictions “dominate brain mechanisms related to anticipation, and purposeful (motivated) behaviour” (p.163). Cravings for pathological gambling have been documented and studied (Crockford, Goodyear, Edwards, Quickfall, & El-Guebaly, 2005). Crockford et al. (2005) showed that brain structures activated during cravings for pathological gamblers are similar to that for substance-based cravings. Reward and positive association with the target experience will determine if an individual repeats the behaviour. Repetitive behaviour is required to achieve addiction as it is necessary for maladaptive behaviours to persist.

The occurrence of multiple addictions within an individual is common. Rosenthal and Lesieur (1996) cite several studies that indicate comorbidity between substance addiction and pathological gambling. Rosenthal and Lesieur state that as many as half of pathological gamblers have a history of substance addiction and that 10-20 percent of substance addicts are also pathological gamblers. In addition, the DSM-IV-TR recognizes the occurrence of comorbidity with a diagnosis of polysubstance dependence, which requires the use of at least three different categories of substances (APA, 2000). It is important to distinguish comorbidity between addictive disorders and other diagnoses. In their study, Dannon et al. (2004) found significant differences between subjects diagnosed with kleptomania and pathological gambling in regards to substance dependence. This study illustrates that gambling addicts have a much higher prevalence of substance addiction than kleptomania patients, providing an opportunity to infer that the underlying pathology of gambling is more closely linked to addiction than kleptomania, which is more associated with mood disorders. If Peele and Brodsky’s (1976) assertion that a great number of people involved in intimate relationships are in fact addicted to love, then comorbidity rates between addictions would undoubtedly be much higher.
Social Characteristics

The social environment is critical to the development of addiction and within this context there are a number of important factors. For the purposes of this paper, three categories of characteristics will be discussed: cultural, interpersonal and environmental. Within the cultural category, there are two sub-categories of customs or mores and attitudes. Customs and mores are generally governed by the culture and subcultures of the society in which an individual associates. Leigh (1985) cites Johnson (1980) who identified substance-abuse based subcultures that are based on the use of the substance to achieve euphoria. Customs such as integrated using and spiritual rituals can contribute to the onset of addictions if not managed carefully (Leigh).

Attitudes and social policies towards substance use also have a significant impact on the development of addiction. For example, during the early 20th century in the U.S., elixirs containing opiates, cocaine, and other drugs of abuse were easily available (Leigh, 1985). When the prevailing attitudes towards narcotics shifted, resulting in social policies such as the Harrison Narcotic Act of 1914 and the Eighteenth Amendment prohibiting alcohol, the reduction in availability corresponded with a reduction in the harms associated with the use of the substance (Leigh).

Brief History of Addiction

Addiction to substances has been recognized by humans for hundreds of years. The term "addict" comes from Roman law, indicating the recognition and existence of addictive behaviours for at least several hundred years (Habit and addiction, 2006; Shaffer & Albanese, 2005). These early representations of addiction were broad based and “devotion to a habit or pursuit was considered the essence of an addiction” (Shaffer and Albanese, p. 5). Despite beginning as a concept that could be applied to a variety of behaviours, the attachment of
addiction to substance use has grown from its roots in the 18\textsuperscript{th} century to predominance in today’s culture, with some shifting towards its original meanings (Shaffer and Albanese).

Hanson (1997) reports that evidence of alcohol consumption in the form of beer and wine and messages about moderation exist in the ancient civilizations of China, Egypt and Greece. Hanson also cites Patrick (1952) who described evidence of fermented beverages dating back to the Neolithic period. Messages about moderation imply instances of abuse and addiction. Moving away from alcohol and looking at drug addiction, specifically at opiates, abuse of this class of drugs have been documented for more than 500 years (McCoy, 2005). In the U.S., abuse of opiates such as morphine has been documented since its introduction in the 1860s (Gottheil, Sterling, & Weinstein, 1993). Evidence of process addictions are also present in historic times as Taylor (2002) states evidence exists in Egyptian writing circa 1500 BC.

The King of Siam recognized the severity of harms associated with opiate use and implemented a harm reduction strategy to control opium use as early as the 19\textsuperscript{th} century (Senay and Uchtenhagen, 1990). More recently, harm reduction strategies such as drug maintenance and needle exchanges have been implemented in North America, Australia and Europe (Small, 2005; Small et al. 2005; Stimson, 1998).

The problem of addiction is not relegated to history. Recent surveys have shown that substance addiction is still a significant issue (Alberta Alcohol and Drug Abuse Commission [AADAC], 2003; Andlin-Sobocki & Rehm, 2005; Canadian Centre on Substance Abuse, 2004; Coombs, 2005). The Canadian Addiction Survey: Highlights (Canadian Centre on Substance Abuse) reports that substance abuse creates significant harms in many life areas. Coombs cites a recent National Survey on Drug Use and Health, which reports that 18.6 million
people older than 12 years need treatment for alcohol and 7.7 million need drug treatment.

Models of Addiction

Models of addiction provide an explanation for the causes of addiction and therefore have a significant influence on the development and implementation of treatment modalities. There are three models that will be discussed, namely: (a) the medical or biological model, (b) the moral model, and (c) the biopsychosocial model. There are numerous other models but these three have been chosen because of their significant influence on the understanding of addictions. The medical and the moral models were chosen because of their longevity, and the biopsychosocial model was chosen for its current widespread use.

Medical Model. This model is also known as the biological or disease model. In this model, the addict has contracted an unwelcome disease that requires specialized treatment and is therefore held not responsible for the condition (Morse, 2004). Morse states that this model posits the “signs and symptoms are not human action, but instead are simply mechanistic biophysical effects of the underlying pathology” (p.442). This is a result of the conceptualization of substance abuse centred on the overuse of the particular substance and that the person lacks the control to resist the behaviour. The treatment for addictive behaviours from this perspective is to educate about the consequences of overuse, often with confrontational methods and a subsequent admission by the addict that they no longer can control the substance use. In order to rectify the individual’s substance abuse, it is necessary to embrace abstinence and religiously attend self-help groups in perpetuity to avoid a relapse and consequent return to active addiction. The reliance on the abstinence method and lack of explanations of the array of psychological, social and other problems associated with the onset and maintenance of addiction, coupled with a limitation
to substances that produce an altered state create significant room for criticism. For example, Peele (1978) reports many flaws with the medical model, and in particular its emphasis on the biochemical approach. Peele points to evidence those societal, cultural, and psychological factors contribute to the individual experience of addiction and in particular, withdrawal.

Although, the medical model has made some progress, it remains plagued with the construct of observing behaviour to diagnose disease versus “the state or movement of a body” (Morse, 2004, p. 442). This model relies heavily on the physiological processes of addiction and views the addict as a victim which has little or no control over the course of the affliction. The disease model perpetuates helplessness and relies on pharmaceutical interventions, which have only limited effectiveness and some have severe side effects. The benefit to this model is that it has heightened the awareness of the physiological bases of addiction and much progress has been made with treatments involving pharmacotherapy. About the same time as Hufeland and v. Brühl-Cramer, Thomas Trotter described addiction as a disease of the mind, spurring on the medical model of addictions treatment.

Shaffer et al. (2004) propose a syndrome model of addiction that utilizes some aspects of the medical model. They state that both substance use and behaviours “have the capacity to stimulate neurobiological systems, in general, and the brain’s dopamine reward system, in particular” (p.369). The course of addiction, either process or substance based, will have implications for and roots in neurobiological functioning (Shaffer et al.). The medical model later conflicted with the moral model, of which one proponent, Edward Levinson “discounted any psychological explanation” (London, 2005, p. 99).

Moral Model. The moral model interprets the behavioural component of addiction as evil or undesirable (Peele, 1987a). This stems from the view that the
addict is morally weak, defective or makes a deliberate choice to be evil. The addiction “is seen as an infringement of societal rules” (Narconon, 2003, Para 3) and requires punishment to correct the behaviour. Narconon reports that the causal factors in this model are a spiritual deficit and conscious choice and that this model treats the condition with clergy intervention, moral persuasion and imprisonment or social consequences. The concept of choice in addictive behaviour has caused some confusion but authors such as Halleck (1992) clarify by determining the difference between conscious choice and the voluntariness of behaviour. Halleck states that choices to participate in behaviours are not necessarily voluntary and compulsive acts are prime examples of involuntary choices.

Peele (1987a) strongly criticizes this model on the basis that it “oppresses the addict and impedes progress toward a solution for alcoholism and addiction” (Para 1). Peele continues the criticism by alleging that the moral model has assisted the medical model in retaining rigid views towards addiction. Alexander (1990) criticizes the moral model by its reliance on the concepts of responsibility and free will. The use of punishment can at times be effective at changing behaviour, however it appears that addiction is resistant to extinction with the current aversive techniques.

Alcoholics Anonymous’ (1976) twelve steps show evidence of the moral model. The steps repeatedly defer the individual to the power of God, require adherents to give up their free will, and even require a moral inventory as part of the prescription for addiction. Furthermore, the Big Book calls for abstinence and suggests that alcoholics have weak characters and morals (Alcoholics Anonymous).

Despite the criticisms of the model, there are a number of faith based treatment centres across Canada that practice this model, with prescriptions of
moral decision making, faith conversion or rebirth and spiritual awakening. One could speculate that the use of strict moral model principles in rigid religious environments within a treatment setting would likely be just substitution therapy, trading substances for religion.

*Biopsychosocial Model.* This model incorporates three basic human properties to explain addictive behaviour. It recognizes that the individual has various influences contributing to addictive behaviour that cannot be explained by a single model. This model makes headway towards what Peele (1985) described for a successful pan-theoretical model of addiction. The biopsychosocial model recognizes the importance of multiple dimensions of the human experience and that biological, psychological and social environments all play critical roles in addiction.

The model recognizes factors such as the role of neurotransmitters and receptors, the role of genetics and other biologic functions that influence the experience of addiction. Validating the important research into the brain’s reward system and understanding the biological processes allows for a partial explanation of addictions, both process and substance based. The medical model has contributed to the development of pharmacological treatments for addiction, such as disulfiram and naltrexone. The psychological component of the model explains the psychological issues associated with addiction and allows practitioners to utilize effective psychologically-based treatments. An example of a psychological issue in addiction would be the occurrence of cravings after acute physiological withdrawal. Psychological treatments can include improving self-esteem, examining the psychological defence mechanisms and improving interpersonal skills (Narconon, 2003). Social learning theory posits that addiction is a result of “faulty learning from a distorting and problem generating environment” (Brown, 1997, p. 15) and as such, the social environment plays a
critical role in addiction. Alexander (2000) points to the social phenomenon of dislocation as a root cause of addictive behaviours and the social aspect of addiction is supported by Peele & Brodsky (1976) and Peele (1978), who assert that addiction is primarily a social phenomenon. To emphasize the importance of the social environment in addiction, consider the work of Robins (1973) as cited in Kozlowski and Edwards (2004). Robins found that a significant number of heroin addicted U.S. soldiers in Vietnam were not addicted after their return home.

The biopsychosocial model is undoubtedly not the last model to be proposed for addictions; however it has strength in its multi-faceted approach. With this model, the explanations and treatments for addictions from the biological, psychological and social perspectives can be utilized in combination to provide for more treatment efficacy. As well, considering each type of influence can assist the clinician in making a more holistic and individualized treatment plan.
CHAPTER 3

Substance Addiction

Davis (1996) briefly describes evidence that humans have sought mind-altering experiences throughout our history with the use of hallucinogenic, stimulant and depressant substances found in the flora and fauna of various geographic regions and cultures. Substance addiction is simply defined as an addiction to an exogenous substance. These substances take various forms and have vastly diverse physiological and psychological effects.

Commonly Abused Substances

The National Institute on Drug Abuse [NIDA] (2004) classifies commonly abused drugs into seven different categories based on the type of substance. The first category is cannabinoids of hashish and marijuana. The active ingredient in this psychotropic class is tetra hydra cannabinol (THC), which is found in the cannabis sativa plant. THC produces euphoria, impaired balance and coordination and confusion. The second category is depressants including barbiturates, benzodiazepines and methaqualone. These substances have varied effects, including reduced anxiety, depression, slowed breathing, heart rate and lowered blood pressure, sedation and sometimes euphoria. The third class is dissociative anaesthetics which includes ketamine, phencyclidine and analogs. These substances induce impaired motor functioning, delirium, respiratory depression and sometimes panic or aggression. The next category is hallucinogens which comprises mescaline, psilocybin and lysergic acid diethylamide. These substances have profound effects on perception and feeling and can cause nervousness, paranoia or hyperthermia. The fifth class is the opiates. Opium and its numerous derivatives are very effective pain-killers with euphoric properties. In addition these substances can cause respiratory arrest, making them high risk for fatal overdose. The next classification is the stimulant
category. Cocaine, amphetamine, methamphetamine and nicotine are examples of stimulants. The euphoria associated with these drugs is often associated with increased energy, feelings of exhilaration, increased alertness and concentration. Heavy stimulant abuse is frequently associated with psychotic behaviours, violence and aggression. Finally, the seventh class includes other substances of abuse not otherwise classified. The most common substances in this category are inhalants such as gasoline, solvents or other gases and anabolic steroids. The anabolic steroids do not have psychotropic properties, but are often abused by individuals seeking to improve muscle bulk or athletic performance. Inhalants have various psychotropic properties and are known to cause significant cognitive impairments and severe damage to cardiovascular and nervous systems. These categories briefly illustrate the common types of abused substances in North America and do not include the plethora of other abused substances across the globe (NIDA).

In regards to substance use, the DSM-IV-TR recognizes that people may abuse substances or become dependent on them and establishes criteria for the diagnosis of substance abuse, dependence and related disorders. Subcategories in the DSM-IV-TR identify specific substances that have a high prevalence rate and classes of abused substances. For example, under the umbrella of substance use disorders there are the subcategories of alcohol; amphetamine or amphetamine like drugs; caffeine; cannabis; cocaine; hallucinogens; inhalants; nicotine; opioids; phencyclidine; sedative, hypnotic or anxiolytic drugs; in addition to substance-induced and polysubstance related disorders. The ICD-10 uses a substantially similar drug classification system and acknowledges the associated disorders present with the abuse of specific substances.
Prevalence

The Canadian Addiction Survey provides information on prevalence rates (Canadian Centre on Substance Abuse, 2004). This survey is the only major survey measuring substance abuse across Canada since 1994 when the Canada's Alcohol and Other Drugs Survey was conducted. The Canadian Addiction Survey canvassed 13,909 participants on alcohol and other drug use. The results indicate that 79.3% of Canadians consumed alcohol in the preceding twelve months and 13.6% of those qualifying as participating in hazardous drinking behaviours. This survey also examined other substance use and lifetime marijuana use was reported at 44.5%, lifetime cocaine use at 10.6% and lifetime hallucinogen use at 11.4%. The use of any drug within the past year was reported at 14.5%. The results of this survey indicate that a significant portion of Canadians are actively using alcohol and illicit substances on a regular basis, increasing the risk for addiction. Further information reported by the survey about severity in terms of alcohol use indicates “22.6% of past-year drinkers exceeded the low-risk drinking guidelines” (Canadian Centre on Substance Abuse, p. 4).

AADAC (2003) reports that alcohol consumption was at 81% within the past year and 10% reported at-risk drinking. In regards to illicit substance use, the AADAC study found problem drug use in 2.5% of workers. Since this was a replication of an earlier study, the summary provided comparison details which revealed no major differences between this and the previous study. Also, comparing data between AADAC and the Canadian Addiction Survey reveals similar rates for substance use and problem use.

Andlin-Sobocki and Rehm (2005) cite Rehm’s (2005a, b) literature reviews on prevalence of substance use in Europe, which lists European and country-specific estimates for alcohol dependence and illicit substance dependence. For alcohol, the country-specific rates varied from 0.1% to 6.6%, with a European
estimate at 3.7%. Illicit substance dependence averaged 0.6% Europe wide, while country-specific estimates ranged from 0.1% to 2.2%. The information reported in Andlin-Sobocki and Rehm also lists country-specific nicotine dependence, which ranged from 5.5% to 12.7%. The authors readily acknowledge that due to the definition variances of abuse in the studies selected, they focused solely on dependence as defined in the ICD-10.

Summary

Regardless of the substance used, one common component of substance abuse is the use of a substance to achieve the desired effects. These substances are usually derived from plants or animals in the natural environment and are sometimes highly refined. In other cases, such as methamphetamines, combinations of chemicals are refined to create a specific substance producing a mood-altering effect. The rates for use appear to be fairly consistent with figures from the U.S., as cited in Coombs (2005) and they indicate an alarming amount of problem use, concurrently suggesting significant substance addiction.
CHAPTER 4

Process Addiction

Although substance based addiction continues to be a significant issue in modern industrialized societies, process addictions have gained attention in recent years (Bonner, 1996). Process addiction has been defined as an addiction to mood-altering behaviours, within the context of a general definition of addiction offered by Rosenthal and Lesieur (1996) above. Alexander (2000) asserts that the original definition of addiction is more comprehensive and “there are no important differences in behaviour or experience between people who are addicted to drug use and those who are addicted to other pursuits” (p. 504). Alexander continues his argument stating that “non-drug addictions are often as dangerous and certainly more widespread” (p. 505) than substance-based addictions, and that substance addictions are “merely a special case of the diverse addictions of the larger society” (p.509).

To provide evidence that behaviour without the introduction of an exogenous chemical substance can be addictive, consider McGurrin (1992) who described pathological gamblers who reported that they experience “intense pleasure associated with alternations of tension and tension release” (p.10) and that they are seeking an escape from reality, equivalent to those experiencing substance addiction. To support this, further evidence exists that psychological and physiological symptoms present in addicted substance users are also present in pathological gamblers (NRC, 1999). The NRC cites several authors who describe physiological arousal in pathological gamblers in anticipation of or during gambling episodes, neglecting basic needs of sleep or food and the existence of cravings and tolerance to gambling behaviours. Childress et al. (1999) conceded that their findings regarding limbic activation during cocaine cravings could be “generalizable not only to other drugs of abuse but also to the
appetitive states associated with natural rewards such as food and sexual activity” (p.16), which could arguably be applied to process addictions. Adinoff (2004) examined the underlying neurobiological processes involved in addictive processes for substance abuse and asserts that “neurobiology, brain structures, and behavioural and cognitive processes” (p.306) for process addictions would be substantially similar to substance based addictions. Citing still more authors, the NRC asserts that pathological gamblers are engaging in mood-altering behaviours ostensibly to escape discomfort or achieve a desired state. This is substantiated by reports of “amnesic episodes, trances and dissociative states” (NRC, p. 29) providing more evidence that process-based addictions exist.

Professionals in the field of problem and pathological gambling also liken the condition to an addiction and sometimes neglect to distinguish the behaviours as an impulse control disorder, thus lending credence to the theory that the behaviour is more similar to addiction. For example, Marvin Steinberg in Easy money, hard times: Hidden addiction of gambling states, “Pathological gambling, addictive gambling, and compulsive gambling are all synonymous.” In the same video, Chris Armantano states that pathological gambling is “very much like drug or alcohol addiction” and that pathological gamblers become “more and more dependent on the gambling high” (AADAC & CCCG, 1994).

**Common Process Addictions**

Carson and Butcher (1992) argue that overeating can be classified within the realm of addictive behaviours. A recent newspaper article reports that a researcher believes that tanning can also be addictive, as studies on the role of endorphins have been conducted on frequent tanners, indicating the possibility of tolerance and withdrawal (Spears, 2006). Alexander (2000) asserts that there is a vast field of process addictions, and include
gambling addicts in the casinos, money and power addicts in the financial district, political junkies at city hall, computer geeks and workaholics in the universities, video game addicts in the arcades, skibums in the resorts, television addicts in the old age homes, alcoholics in the bars, food addicts on the exercise machines, love addicts in the bedrooms, religious fanatics on the farms, and on and on. (p. 506).

Other authors have proposed various process addictions including gambling, religion, sex, computer use, relationships and crime (Carnes, Murray, & Charpentier, 2005; Charlton, 2002; Hodge, McMurrnan, & Hollin, 1997; Lundrigan, 2004; McGurrrin, 1992; Peele & Brodsky, 1976; Rosenthal & Lesieur, 1996; Schneider & Weiss, 2001; Taylor, 2002; Vanderheyden, 1999).

Carson and Butcher (1992) include hyperobesity as a disorder that can be classified in several DSM-IV-TR categories. Carson and Butcher look at a wide range of influences common to substance addiction, including biological, psychosocial and sociocultural factors that influence the development of the condition. They describe one type that looks beyond the weight of the individual and involves habitual overeating and state that some people have a “loss of control over an appetite” (Carson and Butcher, 1992, p. 329) suggesting an addiction to food. Furthering the link to addictive behaviour is their perspective that cravings for food exist, people with this condition experience high relapse rates with weight-loss programs, tolerance to satiety cues and treatments that are effective tend to have properties similar to substance abuse treatments. These properties include group treatments that focus on behaviour management, group settings for reinforcement, and follow ups for evaluation and modification of plans.

**Controversies**

The process addictions are currently experiencing a great deal of controversy regarding their existence and their classification as a psychological...
disorder. Although still in relative infancy, process addictions are gaining recognition as mental disorders. Pathological gambling is currently recognized in the DSM-IV-TR and it is classified as an impulse control disorder (APA, 2000). The inclusion on pathological gambling into the DSM-III in 1980 focused on the damage caused by the behaviour to the afflicted individual’s “family, personal or vocational pursuits and issues that had to do with money” (NRC, 1999, p. 25). The ICD-10 includes gambling similar to the DSM-IV-TR, but also includes a classification used for sex addiction and is labelled excessive sexual drive (World Health Organization [WHO], 2003). There are other addictive processes that are currently not recognized by either the DSM-IV-TR or the ICD-10 but are recognized by self-help groups and the general public. Schneider and Weiss (2001) quote John Markoff to define sex addiction as “a problematic relationship to a mood-altering experience” (p.26). This definition can be easily extrapolated to include other process addictions of gambling, internet use, exercise, work, and spending/buying.

Oltmanns et al. (2002) assert that “relatively little is known” (p. 318) about impulse control disorders. The DSM-IV-TR describes five disorders classified under impulse control disorders (APA, 2000). Oltmanns et al. state that pathological gambling is the most frequently occurring of the impulse control disorders and commonly co-occurs with substance dependence. The comorbidity of substance dependence and pathological gambling is well-established (McGurrin, 1992; NRC, 1999; Rosenthal & Lesieur, 1996).

It is possible that impulse control disorders are fundamentally different than an addictive disorder. The differences between substance addiction and impulse control disorders are quite clear in the DSM-IV-TR due to the lack of a substance and the absence of withdrawal or tolerance, among other criteria (APA, 2000). The differences between process addiction and impulse disorders
are less clear, since they both lack the substance component and a specific physiological withdrawal. There are commonalities between the two conditions and it is asserted here that comorbidity could exist. A more careful examination of the individual’s experiences will bear out the correct diagnoses if present.

Impulse control disorders tend to have three basic properties: (1) a failure to resist an impulse that is likely to cause harm, (2) tension or arousal is experienced prior to the commission of the act, and (3) feelings of pleasure, relief or satisfaction are experienced during the act (Sue, Sue, & Sue, 2006). Addiction has separate properties that may appear quite similar. The properties for addiction include a repetitive failure to resist urges to engage in the behaviour, with the knowledge of potential harms; tolerance for the behaviour or substance is developed, requiring increased doses of substances or increased participation in the behaviour; and psychological or physiological withdrawal is present (Sue et al., 2006).

The NRC (1999) recognizes that there is controversy about the classification of pathological gambling as an impulse control disorder and encourages the consideration of pathological gambling within the addiction construct. NRC (1999) cites Shaffer in describing gambling as a “robust phenomenon” (p.19) and reports a significant lack of research into the occurrence of pathological gambling. Thus the NRC encourages further research considering gambling addiction to consider: “(1) behavioural signs, (2) psychophysiological signs (e.g., tolerance, withdrawal), and (3) consequences to the person and his or her social functioning, or surroundings” (p.37).

Prevalence

Prevalence data on the wide variety of process addictions is weak due to the lack of empirical research into the phenomena. However, some studies have been conducted that provide estimates of prevalence for specific process
addictions. For example, Gold and Heffner (1998) cite Carnes (1991) work estimating the prevalence of sexual addiction between 3%-6% of the U.S. population and prevalence rates vary from 1-6.3% for pathological gambling (AADAC & CCCG, 1994). AADAC (2003) reports that 66% of Alberta workers gambled in the past year and 30% gambled while at work, while 1% were identified as problem gamblers. The AADAC work also reports that gambling has cost Alberta employers an estimated 7 million dollars in 2002.

Gambling and sex addictions have enjoyed a relatively high rate of scholarly attention compared to other process addictions, thus more prevalence data is available in the scholarly literature. As evidence of this, the existence of dedicated peer-reviewed journals for sex addiction and gambling addiction exist. For example, Sexual Addiction & Compulsivity: The Journal of Treatment and Prevention, and Journal of Gambling Issues both have a focus on the addiction aspects of their respective topics.

**Summary**

Process addictions have yet to be fully recognized as specific addictive disorders and the literature in reference to sexual addiction uses terms such as compulsive, dependent, excessive and addiction (Gold & Heffner, 1998). Addiction to sex has been recognized tentatively by some writers, while others have labelled the dysfunctional behaviour as outright addiction (Adams, 2003; Carnes et al., 2005). Considering the lack of a gold standard for addictions diagnosis, even the substance-based addictions which have garnered far more research compared to the process addictions, is still relegated to the fringes of psychological lexicon in favour of abuse and dependence.
CHAPTER 5

Crime Addiction

Criminal behaviour is a construct that evolved with the formation of rules and laws governing behaviours, to allow people to coexist in peace and with a measure of psychological security. In the western world, the responsibility for behaviour enforcement has rested with the secular governments charged with defending the innocent and prosecuting the guilty. Many aspects of criminal behaviours have been comprehensively studied and the field of criminology has investigated the social, psychological and behavioural aspects of repetitive criminal offending to determine causation and create remedies for impacts these behaviours have upon individuals, communities and societies. Despite these efforts, Wood, Gove, Wilson, and Cochran (1997) admit “behavioural scientists have only a very limited understanding of the processes that reinforce, and thus maintain, habitual criminal conduct” (p.336). Despite the countless man-hours examining the innumerable aspects of criminal behaviour, it still persists in all societies. Even in cities such as Singapore, which is well-known for its strict enforcement of law, still experiences crimes of all types (Yin, 1994).

Like addiction, criminal behaviours have numerous theories applied to the issue from various perspectives. Within the discipline of psychology, criminal behaviour occupies several classifications with the ICD-10 and DSM-IV-TR. The most common classifications fall under the personality disorders, such as anti-social personality disorder, sexual disorders including the paraphilias, and substance use disorders. Criminal offenders often present with a wide range of issues concurrent to their criminal behaviours. Issues such as substance abuse, process addictions, mental health, family dysfunction, employment and educational challenges are often seen by practitioners working with offenders (Hodge, McMurran, & Hollin, 1997). This paper focuses on the hypothesis that a
specific subset of offenders are addicted to committing criminal acts and experience similar addictive cycles as those addicted to substances.

The models of addiction covered previously in Chapter 2 do contribute to the concept of addiction to crime. The medical model has made a significant contribution to addictions knowledge especially in brain neurochemistry that allows addictive behaviours to develop. Under this model, many argue that crime addiction cannot exist due to the lack of a substance (Brown, 1997). To say that process addictions like gambling or crime do not involve substances is a rather narrow view. In fact, they involve numerous substances, also known as neurotransmitters which play a pivotal role in reinforcing behaviour and numbing pain. The moral model would view the crime addict as an evil or sinful person who makes a deliberate choice to be evil, and the treatment under this model would proscribe religious conversion, punishment and deterrence. Based on centuries of experience, this has not been widely effective at transforming criminal nor addictive behaviours. The biopsychosocial model can help to explain crime addiction by recognizing that there are multiple factors contributing to the condition. Biologically, neuroadaptation occurs when behaviour is repetitive and produces tolerance and withdrawal on a behavioural level. Psychologically, motivation plays a key role and can incorporate concepts such as mood management into the individual’s subjective experiences (Brown, 1997). The social perspective allows the consideration of “expectancies, belief systems, self-control, internally administered rewards and decision making” (Brown, 1997, p. 16) in the context of cognitive social learning. Despite the inclusiveness of the biopsychosocial model, its multifaceted nature is replete with complexity; therefore it creates dissension as to which factors play the predominate roles.

This paper conceptualizes addiction to criminal behaviours into a framework of a process addiction. The intrinsic value of the project lies in the
hypothesis that addiction theory can be applied to a specific subset of criminal offenders, providing another viewpoint in which to explain persistent offending. This will provide new avenues for treatment and prevention of the condition assisting those offenders that would otherwise be further ostracized from society and creating related harms to individuals, families and communities. In addition to the ethical arguments of making available treatment methods that may have some success and provide individuals with opportunities to reintegrate and lawfully thrive within society, treating persistent offenders from an addictions perspective will have tangible benefits to the communities which offenders will return to following the completion of their incarceration.

In North America and many other parts of the world, incarceration is the common response to criminal behaviours. Some jurisdictions provide cognitive behavioural treatment programs, substance abuse programs, basic and advanced education opportunities and other specifically designed programs to reduce recidivism (Ministry of Public Safety and Solicitor General, 2004). Despite these offerings, criminal behaviour persists for a portion of these offenders. It is the repetitive, chronic and persistent offenders that are the focus of the hypothesis put forth in this paper. The difficulty in successfully treating this population with the current methodologies is analogous to the difficulties experienced in successfully treating the substance dependent population. Some of the common attributes of both populations are disenfranchisement, high relapse rates, low education rates, and higher prevalence of mental health issues (Brown, 1997).

One of the harms identified for addiction is legal problems and this assists in substantiating the correlational link between substance abuse and crime. (French, McCollister, Alexandre, Chitwood, & McCoy, 2004). French et al. cite Chaiken & Chaiken (1990) who suggest that the relationship between substance
abuse and crime may be causal, and that criminal lifestyles contribute to substance abuse. The scholarly research that examines both addictions and criminal behaviours generally is seeking to establish a causal relationship or a correlation between the two behaviours. For example, extensive research has examined substance based addictions treatment and its impacts on participation in criminal offending (Hanlon, Nurco, Kinlock, and Duszynski, 1990; Nurco, 1998; Nurco, Hanlon, Balter, & Kinlock, 1991).

**Definition.** It is neither the purpose nor the intent to classify all criminal offenders as addicts. Rather, Moffitt (1993) and Farrington and Loeber (2000) describe differentiated classes of criminal offenders. These classes can be described as those that tend to limit their criminal activity to relatively minor crimes committed during adolescence and the more persistent offenders that demonstrate protracted and robust criminal careers. It is within this latter group that the crime addict is most likely to belong to.

Brown (1997) lists 11 features that originate from a hedonic management model that are due serious consideration. These features are: (1) specialisation in a single offence or narrow range of similar offences, (2) individual vulnerabilities similar to those in substance addictions, (3) a powerful emotional reaction associated with the commission of a crime, (4) increasing salience of the criminal activity, (5) positive feedback loops characterized by tolerance and withdrawal, (6) cycles of criminal activity, (7) low self-esteem characterized by loss of control or inability to remain abstinent, (8) rituals before or after offending, (9) disconnection from normal flow of mental life, (10) patterns of offending signifying relapses and, (11) occasional reinstatement phenomena. These 11 features will form a part of the screening of the volunteers recruited for the proposed research described in the next chapter.
Consistent with other substance-based and process-based addictions, simple participation in criminal behaviour is only one component of addiction to crime. Other factors, such as “persistent, compulsive, and uncontrolled behaviours that are both maladaptive and destructive” (Adinoff, 2004, p. 305) must be present. Adapting the definition of addiction provided by Rosenthal and Lesieur (1996), an addiction to criminal behaviour is present when the individual experiences: (a) a loss of control over criminal behaviour; (b) tolerance, as manifested by an increase in frequency, severity, or both to maintain the desired effects; (c) a preoccupation about crime or means to commit crime; (d) associated irrational thinking about criminal behaviour, including blaming, minimizing, and justifying; and (e) continued participation despite adverse consequences.

With crime addiction, any one of a wide range of criminal behaviours can represent the addict’s crime of choice. In addition, similar to many substance-based addicts, crime addicts can have multiple crimes of choice; all while comorbid with other addictive disorders. Similar to Carnes’ levels of sexual addiction, addiction to criminal behaviours differentiated levels. In Carnes’ typology, the differentiations are based on criminality and severity of criminality. As such, a crime addiction differentiation is based on punishment, for example fine or imprisonment and within imprisonment lays property-based and violent offences. Level one behaviours can include finable offences which do not cause damage to persons or property. Level two behaviours would be property-based offences such as theft, vandalism, arson, burglary, etc. The third level contains serious criminal behaviours involving injury, death or threat of injury or death to persons and includes robbery, homicide, assault, etc.
Evidence

Very little empirical investigation has been conducted into the construct of an addiction to crime. This is not a completely new concept, as the topic has been documented in some scholarly works such as Hodge, McMurran, and Hollin’s (1997) edited book, legislation in Sri Lanka and Austria, State of Arkansas case law and in other media (Arkansas Judiciary, 2005; Baron, 2005; Country-Data.Com, 1993; MacQueen, 2004; Tribune News Service, 2002).

Some of those who are afflicted with an addiction to crime have come to recognize the issue and are beginning to participate in treatment. In Vancouver, British Columbia, a Crime Addicts Anonymous has been established (Baron, 2005; MacQueen, 2004). This self-help group was established in 2004 and recognizes that resistance to the concept of crime addiction from the academic community will continue until a considerable amount of empirical research refines and validates the conceptual frameworks. These articles also provide support with anecdotal evidence about the condition and the brief descriptions are strikingly similar to the anecdotal evidence provided during my experience working in correctional institutions.

Anecdotal evidence is an important precursor to systematic research into a disorder. In the case for addiction to criminal behaviour, ten years of counselling inmates at two separate correctional institutions has provided me with numerous instances of individuals exhibiting symptoms of an addiction to criminal behaviour. During my professional career, clients have self-identified as “crime addicts”. These individuals describe the physical, emotional and intellectual experiences of being a crime addict as one would discuss an addiction to alcohol, heroin or cocaine. The physical components include agitation and tension prior to the commission of the act, the adrenaline rush and tension release immediately prior to, during, and after the behaviour and the release of tension and fatigue.
after the commission. Some of the emotional components described have been anxiousness, nervousness and irritability during the build-up phase; excitement and trance like states immediately prior to the act; euphoria and intense pleasure during and sometimes immediately after the act; and quite often shame, disgust, guilt and remorse following. The intellectual components include the common defence mechanisms like denial, justification, minimization and other rationalizations. The intellectual experiences often incorporate persistent thought patterns of seeking criminal opportunities, planning and committing their crime of choice. Wood et al. (1997) documented the “rush” experience related to the commission of criminal acts in a group of offenders, and published excerpts of six such examples.

These anecdotal descriptions align with the assertion that committing crime can ”be intrinsically pleasurable” (Wood et al., 1997, p. 336) and produces a “neurophysiologic high” (p. 336) which help to establish and maintain an addiction cycle which includes tolerance, withdrawal and cravings. In addition, the descriptions provide evidence that psychological and social functioning of crime addicts are impacted robustly.

**Cravings for Crime**

Cravings are a fundamental component of addictions and are significant due to their potential to instigate a relapse (Adinoff, 2004; Childress et al. 1999). Descriptions of cravings in criminal addiction involve physical, emotional and intellectual components. In their study of cue-induced cravings of cocaine users, Garavan et al. (2000) noted that executive functioning has an integral and discerning role in the inducement of addictive cravings. Furthermore, addictive cravings can be distinguished from other cravings “because they often are associated with emotional pain rather than pleasure” (Halleck, 1992, p. 228).
Cravings are “a cardinal feature of addictive disorders” (Childress et al. 1999, p. 11) and studies of cravings are an integral part of addictions research. Despite this, there is no consensus of the specific definition of craving in academic literature (Davidson et al., 2003; De Bruijn, Korzec, Koerselman, & Van Den Brink, 2004). Cravings have been shown to be a “reliable predictor” (Davidson, Tiffany, Johnston, Flury, & Li, 2003, p. 1251) of relapse behaviours. As referenced in De Bruijn et al., there are two critical components to a craving: (a) a strong desire; and (b) obsessive-compulsive qualities to the desire. This definition is supported in part by Davidson et al.’s assertion that cravings govern the thoughts of alcoholics and by Halleck (1992) who describes cravings as having a motivational base. Pelchat (2002) states cravings must have an intense desire and specificity to the object of the craving. Bailey (2004) describes cravings as “a state of the brain that undermines free will and motivates individuals who are addicted to continue to use a substance, despite irrefutable evidence of harm to themselves or people close to them” (p. 17). Oltmanns, et al. (2002) describe cravings more succinctly as “a forceful urge” (p. 367) while acknowledging that the craving condition is more complicated than this simple statement suggests. Bordnick, Elkins, Orr, Walters, and Thyer (2004) assert that a combination of social learning theory and the substance abuse perspective explains cravings as a result of conditioning that are triggered by environmental cues associated with past substance use.

Pelchat (2002) suggests that cravings have shared pathways in the brain, an idea supported by the work of Adinoff (2004) who asserts that the striato-thalamo-orbitofrontal circuit is primarily responsible for cravings, while acknowledging that other neural structures such as the limbic system and amygdala also have important roles in the development and maintenance of addictive behaviours. This is also supported by Frantz and Koob (2005) who state...
that the medial forebrain bundle is the most relevant structure involved in addiction. Frantz and Koob go on to state that the primary brain structures affected by the release of dopamine are the “nucleus accumbens, amygdala, frontal cortex, and the limbic cortex” (p. 42). Childress et al.’s (1999) study measuring cerebral blood flow found strong evidence that the limbic system is activated during craving periods. McEvoy, Stritzke, French, Lang, and Kettermann (2004) examine the neuroanatomical model of Anton (1999) which specifies neural pathways implicated in craving research. This model implicates the nucleus accumbens, amygdala, dorsolateral prefrontal cortex, and orbitofrontal cortex in the creation of cravings, supporting the evidence cited above. Meyer (1996) asserts that addictions “dominate brain mechanisms related to anticipation, and purposeful (motivated) behaviour” (p.163). Reward and positive association with the target experience will determine if an individual repeats the behaviour. Repetitive behaviour is required to achieve addiction as it is necessary for maladaptive behaviours to persist.

Ultimately, the question is what does a craving for criminal behaviour entail? As with cravings for other substances or behaviours, cravings are complex and involve physical and emotional experiences. It is asserted here that physical cravings for crime will be substantially similar to cravings for substances and other process addictions, activating the brain regions involved in the reward pathways. This activation will produce considerable changes in the mood, cognition and behaviour of individuals so afflicted with addiction. Mood changes will impact on the decision making and cognition as the person seeks to change to a more desirable mood state. Cognition will entail rationalizations and other thought distortions such as minimization and justifying to encourage the participation in a criminal behaviour. Emotional responses, being purely subjective and based on social and psychological experiences, will be powerful
and also encourage relapse behaviours. This subjectivity provides for a unique experience for each individual which is difficult at best to quantify with current research methods.

Prevalence

Singapore has a relatively low crime rate, but 1991 statistics still indicate 1,934 reported crimes per 100,000 population (Yin, 1994). Yin also examined comparable cities in North America and found much higher rates. For example, Detroit in 1990 had a rate of 16,142 per 100,000 and Montreal in 1990 reported 13,255 per 100,000.

Canada incarcerates large numbers of offenders each year (Corrections Service Canada [CSC], 2005). In 2003, correctional institutions across Canada admitted 85,364 sentenced admissions and 123,401 remanded persons, with an additional 41,727 admitted under other statuses, totalling 250,492 admissions for the year. Furthermore, information from CSC shows that on April 11, 2004, 12,413 men and women were incarcerated in federal prisons. This does not include the persons incarcerated in provincial and territorial jails. In 2003, community admissions including probation, conditional sentences and conditional releases totalled 107,858 (Statistics Canada, 2005a). Using 2001 census data and 2003 crime rate information which is reported as per 100,000 population, the estimated number of reported crimes for 2003 would be approximately 2,673,452 (Statistics Canada, 2005b, 2005c). This does not include unreported or undetected crimes which would undoubtedly inflate this number significantly. As demonstrated by these statistics, Canada incarcerates a significant number of persons each year and a proportion of them, albeit a small subgroup, are bound to be addicted to criminal behaviours.

“Little is known about the predictors and correlates of the individual offending frequency” (Farrington, 1992, p. 529). Despite this statement,
Farrington’s research demonstrates that recidivism is fairly stable and increases in probability based on the number of previous convictions. The probabilities shown predict recidivism rates ranging from 68% for men with a single conviction up to 90% for multiple offenders. Farrington’s study showed that 5.8% of the sample committed 48.8% of offences. This supports Wolfgang, Figlio, and Sellin’s (1972) findings that approximately 5% of offenders commit between 50-60% of offences, which was also cited by Farrington. Berg & Delisi (2005) assert a “rare group typifying approximately 5% of males” (p.319) are persistent offenders committing a disproportionate number of criminal acts. Furthermore, Wood et al. (1997) state “while career criminals are relatively few in number, they account for a significant proportion of serious crimes” (p. 336).

Drawing from the estimates of crime rates, recidivism and prevalence and other addictive disorders previously discussed in this paper, it should be reasonable to assume that approximately 5% of offenders have an addiction to criminal behaviours. Considering the fact that the Canadian federal prison population was 12,413 on April 11, 2004, this theory would assume that about 620 people were in need of addictions treatment for crime. This does not include the people in provincial institutions, on probation, remanded awaiting trial or not currently involved with the justice system. This undoubtedly needs empirical validation which can occur at a later date.

Summary

Not all criminal offenders are addicted to the behaviours they demonstrate. Only those that qualify as addicted according to the five criteria of Rosenthal and Lesieur (1996), described in Chapter 2, and Brown’s (1997) 11 features can be presumed to have an addiction to crime. These criteria will no doubt be modified if and when process addictions become part of the next DSM, however this is a reasonable starting point. Brown (1997) states “it would be ideal if a model of
addictions could be presented based on ready-made research findings” (p. 17) but this is not the case for crime addiction at this time. Perhaps the future inclusion of crime addiction research will spur the development of a comprehensive model that advances the knowledge and understanding of addictive behaviours.
CHAPTER 6

Proposed Research

The proposed research will investigate the psychological and physiological existence of cravings for criminal behaviour. Childress et al. (1999) studied the activation of the limbic system in response to cue-induced cravings in cocaine addicts. In this work, the authors utilized medical technology to map cerebral blood flow to determine which areas of the brain were activated during cue-induced cocaine craving. Similarly, the activation of the limbic system can be monitored with less invasive procedures such as a polygraph and subjective reports from the participants.

Davidson et al. (2003) describe a critical distinction in cue-reactivity that impacts the design of the proposed research, which is the concept of cue-availability. Davidson et al. argue that the measurement of cravings with subjective self-reports and more objective physiological responses can be confounded by a frustration of inaccessibility to the cue. For research into crime addiction, we cannot ethically allow a criminal act to be committed, but there may be possibilities of simulation that can be integrated into the research design. These factors are still under investigation as to whether they are appropriate to include in the final design.

Methods. Psychological and physiological states will be measured to evaluate the existence of cravings for criminal behaviours. To accomplish this, several methods will be employed as a means to cross reference the relative strength of cravings. A description of the psychological and physiological instruments used for this proposed research follows. Proper and ethical empirical investigation requires voluntary recruitment and the creation of separate subject groups according to specific criteria to ensure validity of the research outcomes.
The data will be compiled and analyzed using standard statistical calculations to measure differences between the experimental and control groups.

Subjects. Volunteer subjects will form control and experimental groups after giving written informed consent. The community group will be recruited from the local geographic area. Criminal offenders will be recruited from British Columbia Corrections Branch and Corrections Service Canada Pacific Region institutions in British Columbia, provided permission to conduct the study is granted from these agencies. The subjects that meet the criteria established for criminal addiction will be placed in the experimental group. Those that do not meet the criteria will be placed in one of two other control groups, a community-based control group and an institutional-based control group. All subjects will be required to be at least 19 years of age, have no medical conditions that place an undue risk to health due to the requirements of the study and be psychologically capable of understanding the risks and benefits of the procedures used.

Screening Procedures. Each participant in the study will undergo a standardized screening process utilizing standardized instruments and a structured interview. The standardized instruments will include a Substance Abuse Subtle Screening Inventory III, the Michigan Alcohol Screening Test – 10, the Drug Abuse Screening Test – 20, the South Oaks Gambling Screen, the Criminal Behaviour Review, the Sexual Addiction Screening Test and the Minnesota Multiphasic Personality Inventory-2. In addition, each subject will be asked to consent to the release of their criminal history information provided by the Canadian Police Information Centre. These instruments will assist the researchers in determining the addictive personality of the subject and their criminal involvement.

The semi-structured interview will be designed to assess the subject’s psychological state. It will be designed to provisionally diagnose any major
psychological disorders present in the individual that would preclude participation in this study. In addition to gaining valuable data on the psychological profiles of the criminally inclined, this semi-structured interview will evaluate subject appropriateness for the study and placement into the correct group.

Finally, each subject will be required to have a medical screening. The screening form will be developed by the researchers in collaboration with a physician trained in addiction medicine and experienced with criminal offenders. The form will be provided to the participants who must return it completed and signed by a physician of their choice prior to proceeding. The purpose of this screening is to ensure the minimization of medical risk to participants in the study.

The ideal subject will be one who has a sole addiction to criminal behaviour, but this is not expected to be a predominant trend due to the expected comorbidity with other substance and process addictions. As such, experimental group subjects must be assessed through the screening process to have a primary addiction to criminal behaviour with no comorbidity with another addiction. The cues presented can be structured to exhibit specific criminal behaviours that minimize an association with other substance or process addictions.

Exclusion Criteria. Volunteers will be excluded from the study if they have a significant medical condition that places them at risk by participation or physical limitations that prevent the proper use of the polygraph equipment. Subjects will also be excluded if they possess a formal thought disorder. In addition to these requirements, subjects that demonstrate significant comorbidity with other addictive disorders, such as substance addiction, sexual addiction or gambling addiction, will be excluded due to confounding effects.

Psychological Evaluation. Evaluating the psychological components of the cravings for criminal behaviours will be accomplished with several methods. The subjects will be asked to complete a Profile of Mood States questionnaire to rate
their subjective interpretations of craving intensity. Each subject will be observed
during the entirety of their participation by a trained observer and a semi-
structured interview process will be used immediately after the visual/audio
stimulation to assess the severity of the cravings and psychological impact. The
subject will then be debriefed and given a relaxation exercise to assist them in
returning to a baseline state of arousal.

Physiological Evaluation. The participants in this study will have their
physiological states evaluated before, during and after the cue exposure session.
This will be accomplished using visual observation and a polygraph. The visual
observer will look for obvious signs of distress in body language and expression.
This can include sweating, hyperventilation, nervousness, clammy extremities
and other physical cues of distress. The polygraph is intended to objectively
measure the physiological arousal by monitoring heart rate, galvanic skin
response, blood pressure, breathing rate and body tension. This data will be
combined with the subjective psychological evaluation to complete the picture
and discern discrepancies.
CHAPTER 7

Implications

The most prominent implication for this research is the development of the subtypes of addictions (Milkman & Sunderworth, 1987). There is some valid criticism as noted in Jaffe (1990) that addiction is becoming so inclusive in the realm of human behaviour that it is devaluing the meaning of the term. It is only more recently that the process addictions such as gambling have been recognized as legitimate addictions, since they do not “fit the simple ‘chemical dependency’ and substance abuse model” (Brown, 1997, p. 14). Rosenthal and Lesieur (1996) argue otherwise by presenting historical evidence about pathological gambling. Lastly, the construct of addiction to criminal behaviour is in its infancy (Brown).

In its history, addiction commonly referred to substance based addictions such as alcohol, nicotine, cocaine, heroin, etc. Observations and research on criminal behaviours and addiction largely focused on the relationship between substance abuse and crime. For example, the concerns about substance abuse and criminal behaviour in the U.S. led to a significant investment in research.

Given that this is largely an unexplored area, the possibilities for research into crime addiction are near endless. The primary research that needs to be completed first is verifying its existence and secondly defining the parameters of the condition. These parameters need to include at a minimum the diagnostic features, specifiers, course specifiers, associated features and disorders, prevalence, differential diagnoses and diagnostic criteria so that inclusion into the next DSM can be facilitated. Further research would also be necessary to determine if, like other addictions, there are genetic components, the extent of social influences, common psychological issues and the exact nature of the neurobiological processes.
The inclusion of process addictions in the next DSM would have significant economic and treatment ramifications. In the short term, inclusion of process addictions would increase costs to insurers and employers who provide benefits for the diagnosis and treatment of conditions contained in the DSM-IV-TR. It is surmised that initially there would not be a great influx of persons claiming these benefits, but over time as education and information about the process addictions spreads, more people will seek treatment. In the long-term view, providing access to targeted treatment would improve individual lives and have the ripple effect of improving familial relationships, workplace productivity and community integration, reducing productivity losses and social costs associated with addictions.

It is hoped that this project and the subsequent research will promote further research resulting in effective prevention and treatment for those addicted to committing crime. From the biopsychosocial approach, this could entail a combination of medical and medical interventions, in addition to the psychosocial rehabilitation already available to substance-based addicts.

Research into an addiction to criminal behaviour may also have implications in the court process. The identification of a crime addict before the courts may result in different sentencing to allow for improved treatment access for the offender. It is anticipated that the Not Criminally Responsible Due to Mental Disorder designation will not apply solely on the basis of an identified addiction to crime, just as substance addiction does not automatically qualify. Furthermore, the DSM-IV-TR specifically disclaims that inclusion of any disorder in the manual meets “legal or other non-medical criteria for what constitutes mental disease, mental disorder, or mental disability” (APA, 2000, p.xxxvii).
Conclusion

Addiction is a vastly complex notion that has enjoyed a considerable amount of academic debate and empirical attention. Researchers have shown the impact of substance based addiction on individuals, families, communities and nations. Substance-based addictions have enjoyed a relatively high proportion of scholarly research and process addictions are still in relative infancy, although they have reaped benefits from substance-based addictions research.

It is proposed that a return to the original definition of addiction will provide a greater consistency for diagnosis and treatment of all addictions. The exclusion of the process addictions within the DSM-IV-TR and the ICD-10 serves to promote a narrow view, limiting addiction to the medically-based substance addictions. The call for changes to the diagnosis of addictive behaviours that is more inclusive of non-substance based addictions has been made (Kennedy, 2005). Similar to the path of substance addictions, gaining recognition for process addictions is a considerable challenge that requires further development with validated qualitative and quantitative research.

The inclusion of pathological gambling under the impulse control disorders is a limiting factor, but as the condition gains credit as a bonafide addiction, this will increase the pressure to include other process addictions. The ICD-10 already has a category that, although not classified as an addictive disorder, recognizes the primary concern of sexual addiction, namely excessive sexual drive (WHO, 1992). Once a process addiction is recognized, the threshold will be set for the entry of other process addictions to become included in the next DSM or ICD. The further exploration of addiction into criminal behaviours may see the identification of addicted offenders, the development of effective treatment
modalities for this subgroup and a significant reduction in their recidivism rates, resulting in a better quality of life and increased safety for communities.

McGuire (1997) notes two important concerns for an addiction to crime. The first concern pertains to the proper identification of the condition, as it will impact “the contents of reports prepared for courts, and subsequent sentences; the nature of interventions used; and the evaluation of outcomes” (p. 227). The second concern is about “theory construction in relation to offending and addictions” (p.227). More specifically, the construction of a theory that includes a range of addictive behaviours will be critical to the ongoing advancement of addiction knowledge. This will require the integration of various models into a comprehensive framework that explains addiction and provides effective treatments. Klein (2002), in examining sex addiction, suggests requirements for the development of a clinical model which could be applied to a crime addiction model. These requirements are that the model considers phenomenological context, has differential diagnosis, based in personal agency and responsibility, has cross-cultural insight, minimizes self-diagnosis, and lastly has utility for public and political policy. From a client-centred perspective, if the client believes they have an addiction to crime, it would be reasonable to integrate addictions theory into their treatment regime to validate their viewpoint and to give hope of recovery.

Finally, a warning summed up by Brown (1997) who states “addiction models of the explanation of criminal behaviour are in their early stages of development and will be lucky if their rivals do not strangle them in their cradle” (p. 55). Empirical evidence must be pursued, even if that pursuit ends in indisputable proof that crime addiction does not exist.
References


http://www.pssg.gov.bc.ca/corrections/in-bc/details/overview.htm


http://www.family-drug-intervention.net/addiction_models.html


