

# 2

## Definitions and Major Assumptions

### Defining the Criminal Lifestyle

A behavioral definition of the criminal lifestyle can be derived from four behavioral styles or characteristics: irresponsibility, self-indulgence, interpersonal intrusiveness, and social rule breaking. The first behavioral style, irresponsibility, involves failure to meet social obligations and responsibilities at home, school, work, or in the community. Several examples of irresponsibility include dropping out of school prior to completing the twelfth grade, having a spotty work record or quitting a job without having another one to go to, and failing to provide financial support to a biological child. Self-indulgence is characterized by the pursuit of immediate gratification as exemplified by drug and alcohol misuse, sexual promiscuity, pathological gambling, and compulsive shopping. The violation of the rights and personal space of others comes under the heading of interpersonal intrusiveness, which is expressed in both criminal activity (person crimes) and everyday life (physical violence and psychological aggression directed at those with whom one comes into contact). Social rule breaking is the fourth and final behavioral style used to define a criminal lifestyle. Here, the individual flaunts

his or her disrespect for the rules, conventions, and laws of the home, school, job, or larger society.

Taxometric research can be useful in determining whether the latent structure of a construct like the criminal lifestyle is taxonic/categorical or dimensional/continuous (Ruscio et al. 2006). Studies conducted on a number of crime-related constructs, to include antisocial personality, conduct disorder, and psychopathy, using the taxometric method have consistently demonstrated that the latent structure of these constructs is dimensional/continuous rather than taxonic/categorical in nature (Haslam et al. 2012; Walters 2012). Taxometric research conducted specifically on the criminal lifestyle has also supported dimensional/continuous latent structure (Walters 2007a; Walters and McCoy 2007). What this means is that individual differences in crime-related constructs in general and in the criminal lifestyle in particular are a matter of degree rather than a difference in kind. As a result, people can be ordered along a continuum of increasing criminal lifestyle involvement from low to high rather than being pigeon-holed into mutually exclusive categories of criminals and non-criminals. Hence, it makes more sense to refer to a person's degree of involvement, commitment, and identification with a criminal lifestyle than to categorize him or her as either a criminal or non-criminal. This also avoids the labeling process that can lock an individual into a criminal lifestyle (Paternoster and Iovanni 1989).

The Lifestyle Criminality Screening Form (LCSF: Walters et al. 1991) was specifically designed to assess the four behavioral styles of a criminal lifestyle. The LCSF is a 14-item chart audit form that requires no input from the individual being rated. It does, however, require a fair amount of background information, to include the individual's family, criminal, and substance abuse histories (see Table 2.1). Although the LCSF generates scores on each of the four behavioral characteristics, these scores are much less reliable than the total score. It is therefore recommended that only the total score be used to determine a person's position on the criminal lifestyle continuum. The total LCSF score, which can range from 0 to 22, is sometimes organized into the following three risk categories: high (10–22), moderate (7–9), and low (0–6). These categories should be treated as nothing more than heuristic devices, however, given the dimensional nature of a criminal lifestyle. In other words, the difference between a score of 15 and

**Table 2.1** Lifestyle criminality screening form

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<i>Section I. Irresponsibility</i>	
A.	Failed to provide financial support for at least one biological child. Yes = 1, No = 0
B.	Terminated formal education prior to graduating from high school. Yes = 1, No = 0
C.	Longest Job ever held. <6 months = 2, $\geq 6$ months but <2 years = 1, $\geq 2$ years = 0
D.	Terminated from job for irresponsibility/quit for no apparent reason. 2 or more times = 2, once = 1, none reported = 0
<i>Section II. Self-indulgence</i>	
A.	History of drug or alcohol abuse. Yes = 2, No = 0
B.	Marital Background. Two or more divorces = 2, One prior divorce/ more than one separation or single with illegitimate child = 1, Married, no divorces/single no children = 0
C.	Physical Appearance. More than 4 separate tattoos/tattoos on face or neck = 2, Presence of one to four separate tattoos = 1, No tattoos = 0
<i>Section III. Interpersonal intrusiveness</i>	
A.	Confining offense. Intrusive (e.g., murder, rape, robbery, B&E, assault) = 1 Nonintrusive = 0
B.	History of prior arrests for intrusive behavior (excluding instant offense). Three or more = 2, One or two = 1, None = 0
C.	Use of weapon or threatened use of weapon during instant offense. Yes = 1, No = 0
D.	Physical abuse of significant others (primarily family members). Yes = 1, No = 0
<i>Section IV. Social rule breaking</i>	
A.	Prior non-traffic violation arrests (excluding instant offense). Five or more = 2, Two to four = 1, One or none = 0
B.	Age at time of first non-traffic arrest. 14 years of age or younger = 2, Older than 14 but younger than 19 = 1, 19 years of age or older = 0
C.	History of disruptive behavior in school (e.g., suspensions). Yes = 1, No = 0

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10 is more significant than the difference between a score of 9 and 10, even though the latter difference crosses risk categories and the former does not.

Employing terminology borrowed from nonlinear dynamical systems theory, it could be argued that the four behavioral styles of a criminal

lifestyle represent fixed limit attractors. An attractor is the portion of phase space within which a system evolves over time. A fixed limit attractor, such as a resting heartbeat or the swing of a pendulum clock, maintains a set pattern with minimal variation between cycles (Milnor 1985). This is because trajectories that are close to the attractor remain within the fixed limit cycle in  $n$ -dimensional space. This would seem to metaphorically, if not literally, capture the essence of the irresponsibility, self-indulgence, interpersonal intrusiveness, and social rule breaking behavioral styles that mark a criminal lifestyle. Both fixed limit attractors and the behavioral styles of a criminal lifestyle are patterned, engrained, and repetitious. A chaotic or strange attractor, on the other hand, is significantly more complex than a fixed limit attractor and as such, expands phase space, thereby offering more options for adaptation (Ruelle 2006). Patterning is a regular part of life but to meet the demands of a continuously changing environment and avoid extinction the organism must be capable of responding across a range of options.

## Major Assumptions

Lifestyle theory is underpinned by three principal assumptions: a motivational assumption, a process assumption, and a research assumption. These are discussed under the following headings: life instinct and existential fear, the two-dimensional model, and achieving integration through mediation and moderation.

### Life Instinct and Existential Fear

Nearly all of the research comparing different criminological theories has focused on the independent variables highlighted by each theory. According to Agnew (1995), the problem with this approach is that theories of crime frequently share the same or similar independent variables. Comparing theories on their independent variables, therefore, often yields few meaningful differences between theories. A more fruitful approach, says Agnew, is to contrast theories on their underlying motives for crime. Agnew (1995) identified four possible motives

for crime—moral evaluations of crime, rational evaluations of crime, negative affect, and freedom—and while his list is probably not exhaustive, it is a good starting point. Moral evaluations of crime indicate that some individuals are prevented from committing crime because of the perceived wrongfulness of the act. Rational evaluations of crime indicate that other individuals are deterred from crime because they perceive that the costs of crime outweigh the benefits. Negative affect reflects the possibility that some individuals are motivated by emotions like anger and frustration to engage in criminal activity. Finally, the freedom to engage in crime because of loosened external constraints resulting from decreased parental supervision or weak community informal social control can also be considered a motive for crime.

The lifestyle theory of crime incorporates each of Agnew's (1995) four motives for crime into one or more of its five models. Two motives in particular stand out as cardinal incentives for criminal behavior according to lifestyle theory: moral evaluations of crime and positive (excitement, pleasure) and negative (anger, frustration) affect. Moral evaluations of crime give rise to a right-versus-wrong principle that directs both the moral model of criminal lifestyle development and the moral portion of the criminal lifestyle decision-making model. Positive and negative affect give rise to a pain-versus-pleasure principle that directs both the control model of criminal lifestyle development and the hedonistic portion of the criminal lifestyle decision-making model. Neither principal, however, is innate. What is innate is a person's instinct for survival or what is known in lifestyle theory as the life instinct (Walters 2012). Given that environmental change threatens or challenges the organism's survival, the interaction of these two forces in the human organism gives birth to existential fear. The individual attempts to rid him or herself of this fear by incorporating the environmental change into an existing behavioral pattern or cognitive scheme (assimilation) or by creating a new behavioral pattern or cognitive scheme to represent the novel environmental information (accommodation).

The key to dealing effectively with existential fear is finding ways to balance assimilation and accommodation. Excessive assimilation will lead to a lifestyle composed of rigid cognitive and behavioral patterns that, in the terminology of nonlinear dynamical systems theory, form fixed limit

attractors. Excessive accommodation, on the other hand, can lead to system overload, confusion, or even breakdown if dissipative structures, another term borrowed from chaos theory, are not used to dispel the surplus energy (Arrigo and Barrett 2008). The life instinct and existential fear derive primarily from evolutionary theory. As such, they can be understood within the context of a developing nonlinear dynamical systems interpretation of evolutionary processes. Rather than adopting the view that evolution is a slow, gradual, predictable process, nonlinear dynamical systems theory holds that evolution is marked by brief periods of rapid change and bifurcation, followed by longer periods of general quiescence (Ferrière and Fox 1995). Nonlinear dynamical systems theory consequently proposes that far from being an orderly sequence of events, evolution is a nonlinear process that while deterministic, is not fully predictable. Evolutionary change, according to this perspective, comes in short bursts rather than in one long gradual crescendo (Doebeli and Ispolatov 2014).

How, one might ask, does the innate general motivational state of existential fear give rise to specific motives for crime (Agnew 1995), moral evaluations and positive and negative affect, in particular? The answer to this question can be found in what these motives represent. According to lifestyle theory, these motives represent coping strategies used to manage a constantly changing environment, an environment that poses an ongoing threat to a person's physical and psychological survival. By adopting the moral code of a larger group the individual can anticipate receiving social and emotional support from the group which would then likely improve his or her chances of survival. Without a shared moral code, a primitive would probably have been ostracized from the group and forced to deal with the harsh external environment on his or her own. By the same token, if the primitive had trouble differentiating between behaviors with a high probability of reward (pleasure) and behaviors with a high probability of punishment (pain) this would also put his or her survival at risk. According to traditional evolutionary theory, a behavioral pattern like crime which places a person's physical survival in jeopardy should eventually extinguish by lowering the person's odds of passing his or her genes onto future generations. Over time, however, adaptive abilities can become distorted to where concerns for physical survival of the individual are replaced

by concerns for survival of a behavioral pattern or lifestyle (Walters 2012). This illustrates how an evolutionary-based motive for physical survival can lead to either adaptive or patterned (lifestyle) behavior depending on a complicated set of life circumstances.

## A Two-Dimensional Model

A second assumption made by criminal lifestyle theory evolves directly from the life instinct assumption. This second assumption holds that a criminal lifestyle is composed of two principal dimensions: a dimension that runs from disinhibition to low self-control to reactive criminal thinking and a dimension that runs from fearlessness to callous-unemotional traits to proactive criminal thinking. This second assumption can be divided into three more specific assumptions: correlated novelties, substantial overlap, and countervailing relationships.

*Correlated Novelties.* Correlated novelties, also known as expanded adjacent possibilities, derive from the self-organization principle of nonlinear dynamical systems theory. Kauffman (1993) theorized that system growth occurs by expanding the adjacent possible. What this means is that a system grows by actualizing a portion of the formerly unactualized space that had previously been adjacent to the surrounding actualized space (Tria et al. 2014). Through self-organization, the system grows by taking on increasingly more space, energy, and information. Hence, one process triggers another, which, in turn, triggers yet another in a fractal-like progression characterized by self-similarity, with all subsequent processes derived from and modeled after the original process (Lazer et al. 2009). In this way, various characteristics are passed on to an expanding system, the growth of which depends on the system's ability to actualize adjacent space. Self-organization is not always smooth and orderly—in fact, there are times when it jumps and lurches by means of bifurcation and period doubling (Kuznetsov 2004).

The two-dimensional model is first observed in the temperament dimensions of fearlessness and disinhibition. Fearlessness is marked by decreased autonomic arousal in response to punishment cues. In developing his low fear theory of psychopathy, Lykken (1957) envisioned

that psychopathic individuals lacked guilt and remorse because of abnormalities in the limbic system that prevented them from conditioning to punishment and learning from their mistakes. Disinhibition, on the other hand, is marked by weak effortful control (Rothbart et al. 2000) and impulsivity (Farrington et al. 2006) and derives from Krueger et al. (2007) notion of an externalizing spectrum. Walters (2015) created a six-item measure from Facets one and two of the Psychopathy Checklist-Revised (PCL-R: Hare 2003) and a four-item measure from Facet three of the PCL-R to assess the fearlessness and disinhibition dimensions of temperament, respectively. This model was found to provide a significantly better fit than the traditional two, three, and four-factor PCL-R models (Walters 2015) and displayed strong construct validity when the fearlessness and disinhibition dimensions were correlated with gray matter concentrations in selected regions of the limbic system (Walters and Kiehl 2015).

The two temperament dimensions of fearlessness and disinhibition give rise to the early behavior dimensions of callous-unemotional traits and low self-control, respectively. This is believed to be a consequence of the correlated novelties/expanding adjacent possibilities process described previously. Both behavioral dimensions should be measured with behavioral rating scales like the PCL-R-derived temperament indices. In fact, the PCL-R items used by Walters (2015) to assess fearlessness (superficial charm, pathological lying, conning/manipulative, lack of remorse or guilt, shallow affect, and callousness) and disinhibition (need for stimulation, lack of realistic long-term goals, impulsivity, and irresponsibility) may actually be more appropriate measures of callous-unemotional traits and low self-control than they are measures of fearlessness and disinhibition. It would probably be best if temperament was assessed with physiological measures and early behavior assessed with behavioral rating scales like the PCL-R. Without separate measures, the assessment of temperament and early behavior will be confounded.

The correlated novelties principle of self-organization does not stop at early behavior but goes at least one step further to shape cognition. Adjacent possibilities give rise to proactive and reactive criminal thinking, which should be considered extensions of callous-unemotional traits and low self-control, respectively. Whereas callous-unemotional traits



(Frick et al. 2014) and low self-control (Gottfredson and Hirschi 1990) are best assessed behaviorally, proactive and reactive criminal thinking are best assessed with self-report measures. A self-report inventory, it is reasoned, is superior to a behavior rating scale in gauging the attitudes, thoughts, and cognitive processes that give rise to and help maintain criminal thinking. Criminal thinking is therefore best measured by taking stock of the individual's own attitudes and beliefs, as represented by the 80-item Psychological Inventory of Criminal Thinking Styles (PICTS: Walters 1995b) and more recently developed PICTS proactive and reactive criminal thinking scores (Walters 2007a).

When using data from studies where the PICTS was not administered or for which the PICTS is inappropriate (i.e., small children, participants without any history of criminality), it is imperative that proxy measures of these two thinking dimensions be identified and validated. In a recent investigation on this issue, Walters and Yurvati (2017) discovered that measures of neutralization (Sykes and Matza 1957) and moral disengagement (Bandura et al. 1996) were effective proxies for proactive criminal thinking. In this same study, self-report measures of thrill-seeking interests (Center for Human Resource Research 2009) and impulsive tendencies (Weinberger and Schwartz 1990) were effective proxies for reactive criminal thinking. The use of these proxy measures to assess hypotheses central to the moral and control models of criminal lifestyle development has greatly advanced our understanding of the role of criminal thinking in mediating important criminological relationships.

*Substantial Overlap.* A second assumption criminal lifestyle theory makes regarding the two-dimensional model is that the two dimensions overlap extensively. Researchers normally select an orthogonal rotation when conducting an exploratory factor analysis. This is based on simplicity and convenience rather than on the belief that relationships naturally follow an orthogonal path. A factor analytic solution with orthogonal or uncorrelated factors is easier to visualize, interpret, and understand than one based on oblique or correlated factors. From the standpoint of nonlinear dynamical systems theory, however, the world and all that is in it is neither orthogonal nor linear. It is, instead, non-orthogonal and nonlinear. Researchers regularly impose

orthogonality and linearity on their data in an attempt to simplify the results and make the world more comprehensible but this does not change the fact that we live in a nonlinear world marked by non-orthogonal relationships.

Overlap is assumed to exist at all three levels of the two-dimensional model, although the degree of overlap may vary across time and context. It is further assumed that the overlap grows as a result of a person's level of involvement in and experience with the lifestyle. Hence, at the early stages of a criminal lifestyle, the overlap is often not as extensive as it is during the later stages. In a study conducted on juvenile offenders using data from the Psychopathy Checklist: Youth Version (PCL: YV; Forth et al. 2003) and gray matter levels obtained through brain scans, the biomarkers for the two dimensions (decreased gray matter in the amygdala as a marker for fearlessness and decreased gray matter in the hippocampus as a marker for disinhibition) displayed modest overlap ( $r = 0.16$ ,  $p < 0.05$ ), whereas the behavioral ratings from the PCL: YV displayed moderate overlap ( $r = 0.48$ ,  $p < 0.001$ ; Walters and Kiehl 2015). Even greater overlap was obtained when behavioral ratings for the two dimensions were correlated in adult offenders ( $r = 0.58$ ,  $p < 0.001$ ; Walters 2015).

The majority of research on the overlap between the two dimensions of criminal lifestyle theory has examined proactive and reactive criminal thinking, either as measured by the PICTS or by various proxy measures. In studies conducted with the PICTS, the overlap between the proactive and reactive scores is high and falls within a narrow range ( $r = 0.69$ – $0.73$ ). Correlations of this magnitude indicate that the two dimensions share approximately half of their variance in common. The consistency of these research findings is made all the more impressive by the fact that widely divergent samples were used in these studies: from federal probationers and supervised releases (Walters and Lowenkamp 2016), to medium (Walters 2011c) and maximum security prison inmates (Walters and Geyer 2005), to forensic inpatients (Gonsalves et al. 2009) and incarcerated sex offenders (Walters et al. 2009), to mentally disordered prisoners (Morgan et al. 2010). A similar, though slightly lower, degree of overlap has been noted when proxy measures of proactive and reactive criminal thinking have been studied. In a recent

cross-national study (Walters [in press-b](#)), a moderately high degree of overlap was observed between the two dimensions in early adolescents from 30 nations regardless of gender, although boys typically achieved slightly higher correlations than girls (see Table 2.2).

*Countervailing Relationships.* Given that measures of proactive and reactive criminal thinking correlate so highly it could be argued that they are measuring the same construct. Two sets of findings, however, argue against such a conclusion. First, the results of confirmatory factor analyses (CFAs) and item response theory (IRT) analyses indicate that a two-dimensional model fits the relevant data significantly better than a one-factor model (Walters 2014; Walters et al. 2011). In fact, the results of these studies indicate that the PICTS is hierarchically organized, with a general criminal thinking superordinate factor at the top, proactive and reactive higher order factors in the middle, and individual criminal thinking styles at the bottom. The individual thinking styles that have been found to load onto the proactive factor are mollification (Mo), entitlement (En), power orientation (Po), and superoptimism (So) and the individual thinking styles with the strongest loadings on the reactive factor are cutoff (Co), cognitive indolence (Ci), and discontinuity (Ds). A diagram of the hierarchically organized structural model for the PICTS is reproduced in Fig. 2.1.

A second way to determine whether the two dimensions are from the same or different constructs is by testing for countervailing relationships, particularly when these relationships are congruent with theory and predicted a priori. Despite high inter-dimensional correlations, if it can be demonstrated that the fearlessness/callous-unemotional/proactive and disinhibited/low self-control/reactive dimensions correlate differentially with outside criteria then it is less likely that the two dimensions represent the same construct. Nearly all of the countervailing research, similar to the research on the overlap between the two dimensions, is restricted to proactive and reactive criminal thinking. One of the first countervailing studies predicted that proactive criminal thinking, like proactive aggression (Crick and Dodge 1996; Smithmyer et al. 2000), would correlate with positive outcome expectancies for crime but not with hostile attribution biases. Conversely, it was predicted that reactive criminal thinking, like reactive aggression (Crick and Dodge 1996;

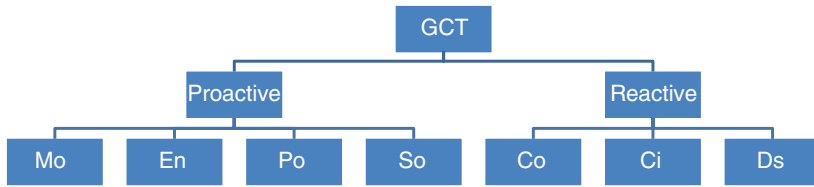
**Table 2.2** Correlations between proactive and reactive proxy scores across nation and gender

Country	Males		Females	
	<i>N</i>	<i>r</i>	<i>N</i>	<i>r</i>
Armenia	914	0.49*	1089	0.46*
Aruba	277	0.60*	315	0.52*
Austria	1340	0.59*	1401	0.53*
Belgium	1035	0.54*	1035	0.49*
Bosnia & Herzegovina	990	0.56*	979	0.55*
Cyprus	1082	0.63*	1156	0.51*
Czech Republic	1579	0.54*	1582	0.56*
Denmark	616	0.59*	664	0.57*
Estonia	1073	0.53*	1115	0.54*
Finland	601	0.58*	614	0.58*
France	1404	0.60*	1411	0.54*
Germany	1601	0.56*	1553	0.55*
Hungary	972	0.57*	971	0.53*
Iceland	259	0.63*	308	0.64*
Ireland	770	0.59*	696	0.62*
Italy	2445	0.66*	2604	0.62*
Lithuania	989	0.54*	1105	0.52*
Netherlands	1084	0.47*	1062	0.47*
NL Antilles	586	0.60*	711	0.50*
Norway	713	0.58*	711	0.51*
Poland	643	0.66*	771	0.64*
Portugal	1160	0.66*	1226	0.61*
Russia	1068	0.58*	1165	0.57*
Slovenia	1079	0.62*	1111	0.55*
Spain	873	0.61*	838	0.50*
Suriname	640	0.54*	859	0.46*
Sweden	957	0.58*	1043	0.51*
Switzerland	1538	0.64*	1604	0.53*
United States	1176	0.62*	1095	0.61*
Venezuela	943	0.60*	1034	0.57*
Totals	30,407	0.58*	31,783	0.54*

Note *N* sample size, *r* = correlation between the proactive and reactive scores

\* $p < 0.00081$  (Bonferroni-corrected alpha level = 0.05/62 correlations)

Items for the Proactive scale = "one needs to make use of force to be respected;" "it is completely normal that boys want to prove themselves in physical fights with others;" "I try to look out for myself, even if it means making things difficult for other people;" "if things I do upset people, it's their problem not mine;" "I will try to get the things I want even when I know it is causing problems for other people" Items for the Reactive scale = "if someone attacks me, I will hit him or her back;" "I act on the spur of the moment without stopping to think;" "sometimes I will take a risk just for the fun of it;" "I do whatever brings me pleasure here and now, even at the cost of some distant goal;" "excitement and adventure are more important to me than security"



**Fig. 2.1** Hierarchical structure of criminal thinking in general and the psychological inventory of criminal thinking in particular. *GCT* General Criminal Thinking, *Proactive* proactive criminal thinking, *Reactive* reactive criminal thinking, *Mo* mollification, *En* entitlement, *Po* power orientation, *So* superoptimism, *Co* cutoff, *Ci* cognitive indolence, *Ds* discontinuity

Smithmyer et al. 2000), would correlate with hostile attribution biases but not with positive outcome expectancies for crime. This is exactly what was found when proactive and reactive criminal thinking scores from the PICTS were correlated with self-report measures of positive outcome expectancies for crime and hostile attribution biases in a medium-sized sample of federal prison inmates (Walters 2007b).

Other countervailing relationships have also been observed using either the PICTS or proxy measures of criminal thought process to assess proactive and reactive criminal thinking. Previous involvement in proactive offending, as represented by prior arrests for instrumental crimes (e.g., robbery, burglary) was found to correlate positively with scores from the PICTS proactive criminal thinking scale but not with scores from the PICTS reactive criminal thinking scale (Walters et al. 2007). When previous involvement in reactive offending was assessed with prior arrests for expressive crimes (e.g., assault, domestic violence) the PICTS reactive criminal thinking scale but not the PICTS proactive criminal thinking scale correlated significantly with prior reactive offending. In a recent study on gender, race, and crime, Walters (in press-a) found that instrumental motives for crime, embodied in elevated scores on the PICTS proactive criminal thinking scale, were strongest in black male offenders under federal supervision, whereas expressive motives, embodied in elevated scores on the PICTS reactive criminal thinking scale, were strongest among white female offenders under federal supervision. Using proxy measures of proactive and reactive criminal thinking, Walters (2016a) determined that proactive but not reactive criminal

thinking mediated the peer influence effect (peer delinquency leading to participant delinquency), whereas reactive but not proactive criminal thinking mediated the peer selection effect (participant delinquency leading to peer delinquency). Countervailing relationships also surfaced when proactive and reactive criminal thinking were used to mediate the past crime-future crime (Walters 2016b, [in press-c](#)) and past crime-future drug abuse (Walters 2016c) relationships in that only reactive criminal thinking displayed a significant mediating effect.

The seeming paradox of highly correlating scales and constructs demonstrating divergent patterns of correlation with outside criteria supports all three elements of nonlinear dynamical systems theory. First, it reminds us that the world in which we live is neither linear nor orthogonal. Rather, it is a world filled with twists, turns, and curves. For those who study crime, it means looking beyond the independent-dependent variable relationship to the motives that drive and mediate these relationships. It may be more productive, therefore, to compare theories of criminology in terms of their views on motivation than on their independent variables, not only because motivational factors more often speak to the essence of a theory, but also because so many theories in criminology share the same independent variables (Agnew 1995). Second, it reminds us that the world in which we live and the variables that make up this world are dynamic and changeable. The change can be measured across time or across situation, and it can be analyzed using a variety of methods, to include mediation and moderation. Third, the world is a system composed of many smaller subsystems. The lifestyle system is made up of two smaller systems, the fearlessness/callousness/proactive system and the disinhibition/impulsivity/reactive subsystem. What the present discussion demonstrates is that these systems overlap, interact, and influence one another while retaining their individual identities and unique patterns of correlation with external criteria.

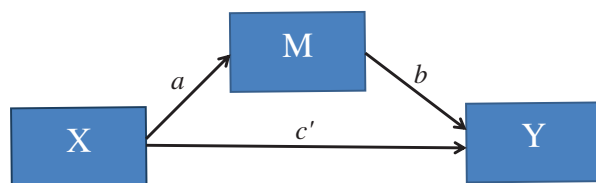
### **Achieving Integration through Mediation and Moderation**

Agnew (1995) has argued that criminological theories must move beyond the independent variable if they wish to identify the root causes

of crime and begin the process of differentiating themselves from the rather large field of potential explanations for crime, many of which share the same independent variables. In order to accomplish this, we must look to the dynamic features of crime and accept the fact that crime changes as a function of both time (mechanism) and situation (context). The time aspect of crime can perhaps best be modeled using mediation research in which the focus is on identifying the mechanism of effect over time. The situational aspect of crime can perhaps best be modeled using the contextual approach adopted in research on moderation.

*Mediation.* Causal mediation analysis is a time-ordered research methodology designed to identify mechanisms that link an independent variable to a dependent variable (usually crime or delinquency in research on criminological theory). As illustrated in Fig. 2.2, the total effect between the independent and dependent variables can be broken down into three individual effects: the first leg of the indirect effect, labeled  $a$  in Fig. 2.2; the second leg of the indirect effect, labeled  $b$  in Fig. 2.2; and the direct effect, labeled  $c'$  in Fig. 2.2. Traditionally, it has been thought that complete mediation, where the indirect effect ( $ab$ ) is significant and the direct effect ( $c'$ ) is not, was the desired outcome (Baron and Kenny 1986). It is now believed that at least in social and behavioral science research, nearly all mediation is partial (both  $ab$  and  $c'$  significant) and that if one observes full mediation it is most likely the result of a statistical or methodological anomaly or an artifact of the mediator variable being seriously confounded with the independent variable, dependent variable, or both (Rucker et al. 2011). It is even possible to achieve a significant mediation effect in the absence of a significant total effect for reasons of opposite-sign multiple mediation and suppressor effects (Kenny and Judd 2014). Mediation is an important method for the purpose of theory development and integration because it allows incorporation of third and fourth variables into an independent-dependent variable relationship. Although simple mediation is displayed in Fig. 2.2, multiple mediation, using either a parallel (simultaneous mediators) or serial (sequential mediators) multiple mediator model, is also possible.

Mediation research holds a great deal of promise in advancing theory, but the technique must be properly implemented before it can realize this



**Fig. 2.2** Simple Mediation Model.  $X$  independent variable,  $M$  mediator variable,  $Y$  dependent variable,  $a$  first leg of the indirect effect,  $b$  second leg of the indirect effect,  $c'$  direct effect

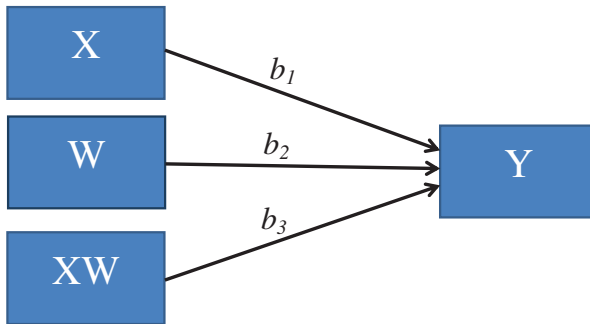
promise and yield meaningful results. To this end, a putative causal mediation analysis should satisfy five core requirements: proper causal order, proper causal direction, proper modeling, proper evaluation of results, and sensitivity testing. Proper causal order means that the independent variable precedes the mediator variable which precedes the dependent variable using either prospective or retrospective data. Cross-sectional data or data with overlapping or non-independent waves are normally inappropriate for use in causal mediation analysis. Proper causal direction means that prior levels of the mediator and dependent variables are controlled if the independent or mediator variables were not randomly assigned, which they ordinarily are not in criminological research. Proper modeling refers to the fact that causal mediation analysis is a confirmatory rather than exploratory approach (James and Brett 1984). As such, a limited number of clearly articulated hypotheses should be in place to guard against false positive results and an elevated Type I error rate. Proper evaluation of results means that researchers use the most up-to-date statistics for testing indirect effects. Thus, the full indirect effect, and not just the individual  $a$  and  $b$  paths, should be evaluated using bias-corrected or percentile bootstrapped confidence intervals (Hayes 2013) or confidence intervals constructed using Preacher and Selig's (2012) Monte Carlo procedure. Sensitivity testing is conducted to determine the extent to which an unobserved extraneous variable would need to correlate with both the mediator and dependent variable, controlling for the mediator and independent variables, to eliminate a significant mediating effect along the  $b$  path of the indirect effect (Imai et al. 2010).

Effect size estimation is a major consideration in many areas of research, including causal mediation analysis. Unlike many other areas



of research, however, a satisfactory estimate of the strength of an indirect effect has yet to be identified. Whereas standard effect size measures like the Pearson Product Moment Correlation and Cohen's  $d$  are designed to measure the relationship between two variables or the difference between two groups, effect size estimates in a mediation study involve three non-independent relationships:  $a$ ,  $b$ , and  $c'$ . This complicates matters such that a measure of the ratio of the indirect effect to the total effect ( $P_M$ ) satisfies some of the requirements of an effect size indicator (independent of sample size, comparable across studies, and monotonic in the sense that an increase in value is invariably associated with a rise in the strength of relationship) but falls short on a fourth criterion, namely independence from external influence. This is because  $P_M$  shrinks as  $c'$  grows, even when the size of  $ab$  is held constant (Walters 2017). My recommendation, then, is to deemphasize effect size estimates in mediation research until a reliable estimate can be found and focus instead on making direct comparisons between competing theoretical models using the comparison pathways approach. The comparison pathways approach involves creating contrasts between a target and comparison pathway by switching cross-lags (e.g., the independent variable becomes the mediator and the mediator become the independent variable) or by comparing variables of differing relevance (e.g., in testing general strain theory, comparing a pathway mediated by anger with one mediated by a less relevant emotion like depression).

*Moderation.* Mediation and moderation are frequently confused but they actually represent distinct processes. Whereas mediation is concerned with clarifying the mechanism responsible for the independent-dependent variable relationship, moderation is concerned with providing a context for the relationship between the independent and dependent variables. Hence, while mediation is concerned with variation or change over time, moderation is concerned with variation or change across context. Statistically, moderation involves an interaction between the independent ( $X$ ) and moderator ( $W$ ) variables and is depicted as variable  $XW$  in Fig. 2.3. To test for moderation one must compute the interaction between  $X$  and  $W$  and determine whether it has a significant effect ( $b_3$ ) on the dependent variable ( $Y$ ) when included as a predictor of  $Y$  along with  $X$  and  $W$ . Some researchers use degree



**Fig. 2.3** Simple Moderation Mode.  $X$  independent variable,  $W$  moderating variable,  $XW$  interaction between independent and moderating variables,  $Y$  dependent variable,  $b_{1-3}$  coefficients between predictors and outcome

of invariance in a structural equation modeling analysis to test for moderation, but it has been my experience that trivial differences can often register as significant effects using this approach, particularly in large samples. I would recommend using the interaction term, which while less sensitive than invariance testing, can be viewed as a more reliable indicator of moderation.

There are several factors that should be taken into account when conducting a moderation analysis. First, moderation is measured by the interaction between the independent or predictor variable and moderator variable. Values for the independent and mediator variables are ordinarily centered (converted from raw-score scaling to deviation-score scaling) prior to being multiplied. Although centering is not required to conduct a moderation analysis, it can be helpful in keeping collinearity between the main effect variables and the product of their interaction to a minimum (Cronbach 1987). Second, the two main effects used to compute an interaction should be included in the equation along with the interaction term. Analyzing the interaction term independent of the contributing main effects confounds the moderator effect with the individual effects of the independent and moderator variables (Judd et al. 1995). Third, a significant,  $b_3$  coefficient means that the effect of the independent and moderator variables on the dependent variable is conditional on the moderator variable. If the  $b_3$  coefficient is non-significant then the effect of the independent and moderator variables

on the dependent variable are unconditional. When  $XW$  is included as a predictor,  $b_1$  and  $b_2$  should be interpreted as conditional effects but that when  $XW$  is excluded from the equation  $b_1$  and  $b_2$  should be interpreted as unconditional partial effects (Hayes 2013).

Just as mediation can be performed with more than one mediator, moderation can be performed with more than one moderator. It is also possible to merge mediation and moderation into a single model. Moderated mediation and mediated moderation are hybrid models formed by combining the mediation and moderation methodologies. These two mixed models are referred to collectively as conditional process analysis, because they combine the contextual or conditional emphasis of moderation with the process or mechanism emphasis of mediation (VanderWeele 2015). Moderated mediation occurs when the mediated relationship between  $X$  and  $Y$  varies at different levels of a fourth variable ( $W$ ). In other words, the indirect effect running from  $X$  to  $M$  to  $Y$  is conditional on a moderator variable. Mediated moderation occurs when a moderated relationship between  $X$  and  $W$  is found to be mediated by a fourth variable ( $M$ ). This is another way of saying that the interaction between  $X$  and  $W$  is accounted for by a mediator variable. Mathematically, moderated mediation and mediated moderation are identical, the only difference being the interpretation or focus of attention. This is similar to identifying the moderator variable in moderation analysis. Whether  $X$  moderates  $W$  or  $W$  moderates  $X$ , the results are the same; the only difference is our interpretation of the relationship. For more information on conditional process analysis the reader should consult the Preacher et al. (2007) paper on this subject or the recent Hayes (2013) text on mediation, moderation, and conditional process analysis.

## Conclusion

The purpose of this chapter was to define a criminal lifestyle and outline its principal assumptions. Whereas a behavioral definition of the criminal lifestyle was provided at the beginning of this chapter, there are also important cognitive (thinking styles) and affective (anger, frustration)

features that should also be taken into account when defining a criminal lifestyle. The focus of the present chapter was on behavior because this offers the most stable and reliable estimate of a lifestyle, although it is not without certain limitations. These limitations can be mollified to some extent by taking the cognitive and affective features of the lifestyle into account. Assumptions can be as important as definitions in outlining a theory. There are three principal assumptions that guide criminal lifestyle theory. One assumption is that the life instinct and resulting existential fear provide the motivation for all subsequent behavior on the part of the human system. A second assumption upon which criminal lifestyle theory rests states that the lifestyle is a function of two dimensions and that these dimensions evolve from temperament to influence both behavior and cognition, overlap extensively, and exhibit countervailing relationships with a number of important external criteria. A third assumption, the research assumption, holds that the mediation and moderation research methodologies can be of great assistance in integrating theory in criminology. As we move from these first two introductory chapters to the actual models that constitute criminal lifestyle theory, the groundwork laid by these definitions and assumptions should make subsequent conceptualizations and postulates more understandable.

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Walters, G.D.

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