

A TAXOMETRIC ANALYSIS OF PEDOPHILIA IN ADULT MALES CONVICTED OF  
SEXUAL OFFENCES: EVIDENCE FOR A TAXON

by

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A dissertation presented to Ryerson University in partial fulfillment of the requirements for the  
degree of Doctor of Philosophy in the Program of Clinical Psychology

Toronto, Ontario, Canada, 2019

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Dissertation Title: A Taxometric Analysis of Pedophilia in  
Adult Males Convicted of Sexual Offences: Evidence for a Taxon.

Degree: Doctor of Philosophy

Year of Convocation: 2019

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Graduate Program: Clinical Psychology

University: Ryerson University

### **Abstract**

Pedophilia is a psychological disorder involving sexual attraction to pre-pubescent children. The precise nature of this disorder, however, is not fully understood. Some models, including the model adopted in this dissertation, also view emotional attraction to children as an integral feature. From this perspective, pedophilia is a sexual orientation, involving physical attraction to immature bodies and emotional attraction to children and childhood.

The central question addressed by this dissertation is whether this sexual orientation is an extreme point on a continuum of age/maturity attraction, or a distinct class (i.e., taxon). Such questions about a construct's latent structure can be examined using a set of specialized statistical techniques, the taxometric method. Prior studies produced inconsistent findings. Four studies indicated pedophilia is a taxon, two supported a dimensional structure, and one had ambiguous results. Lack of consistency may be owed to differences in how pedophilia was measured.

This dissertation presents two new taxometric studies on pedophilia's latent structure ( $Ns = 836, 407$ ). Pedophilia was measured using (a) a five-item screening scale on pedophilic interests based on criminal history, (b) a composite indicator of pedophilic physical attraction,

and (c) a composite indicator of pedophilic emotional attraction. Additional variables were identified in each dataset to examine the structural models' validity.

Pedophilia was a taxon in both studies. Almost all participants with pedophilia diagnoses were in the taxa. Taxon members' characteristics were consistent with what we understand of pedophilia. Compared to non-taxon members, participants in the taxon had more interpersonal deficits, neurodevelopmental perturbations, sex-crime specific problems, and less problems related to criminality overall.

Considering the pattern of findings in previous studies, the additions from this dissertation tilt the evidence in favour of viewing men with pedophilia as having a categorically unique set of psychological processes. Although the exact features of this taxon remain to be explored, it could represent a capacity to be sexually orientated towards individuals who have yet to attain puberty. If pedophilia is a taxon, then diagnosing this disorder is a valuable task. A taxonic interpretation of pedophilia may also shift the goals of rehabilitation from incremental change to constructively adapting to a chronic condition.

Keywords: pedophilia, sexual offenders, taxometric analyses, latent construct, risk assessment

## Acknowledgements

J. Abracen  
N. Al-Dajani  
K. Arthurton  
M. M. Antony  
A. Azubuike  
K. M. Babchishin  
R. Bartels  
R. Bergamasco  
B. Bigelow  
N. Borghese-McPherson  
G. J. Brankley  
W. E. Brankley  
G. Brissett  
J. Butcher  
M. Christopher  
F. Cortoni  
S. L. B. Daoud  
A. Davies  
V. De Civita  
K. Frey  
A. Fowler  
S. Gillespie  
F. J. Graham  
J. Gray  
L. Gutierrez  
J. Hamidi  
L. Harkins  
A. J. R. Harris  
L.-M. Helmus  
L. Herbinson  
C. A. Herman  
K. Horner  
W. Huggon  
D. S. Hutchinson  
D. A. Kingston  
R. A. Knight  
B. Koning  
L. F. Kuhle  
J. E. Mackaronis  
M. Mamak  
K. McLachlan  
I. V. McPhail  
E. McPherson-Crump  
H. M. Moulden  
M.-A. Légère  
S. C. Lee  
D. Loney  
N. Longpre  
B. J. Losier  
J. McDonald  
R. Metcalfe  
J. Newman  
C. Ó Ciardha  
D. L. Paulhus  
J. Picheca  
R. Ray  
K. S. Reale  
J. Ruscio  
N. O. Rule  
K. S. Ryan  
N. Sachewsky  
V. Salvatierra  
A. F. Schmidt  
M. C. Seto  
B. Sinclair  
C. Smith  
SSHRC  
R. G. Steele  
S. Stephens  
J. Sutherland  
J. L. Tackett  
J. Vervaeke  
S. Vettor  
S. G. Wanklyn  
K. White  
N. Whitney

### *The following people stand apart.*

E. A. Brankley   N. R. Brankley   S. A. Brankley   A. M. Goodwill   R. K. Hanson

I would finally like to acknowledge my previous clients, especially those I met while working at the Secure Treatment Unit at the St. Lawrence Valley Correctional & Treatment Centre. Thank you for allowing me to share in your journey and teaching me about the impact of pedophilia on your lives.

## **Dedication**

The following dissertation is dedicated to all people whose lives have been affected by pedophilia. This includes, but is not limited to, those who experience a sexual attraction to children, individuals who experience unwanted sexual attention or behaviour from someone with pedophilia, or individuals who know someone who identifies with the former groups. My hope is that the contributions in this dissertation increase our understanding of pedophilia and lead to changes in policy and practice to make the world a safer place for all of us to live in.

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## CHAPTER 1: INTRODUCTION

*It is psychologically incomprehensible that an adult of full virility and mentally sound should indulge in sexual abuses with children – Richard von Krafft-Ebing*

Men who report having a sexual interest in children, and who are troubled by it, present a conceptual problem for clinical professionals. Is this a “sexual attraction”? For most people, a sexual attraction occurs within the framework of sexual orientation. It influences the types of intimate and non-intimate relationships we have, and the concept of who we are. This same conceptual problem is raised when assessing men who sexually abuse or exploit children. A sexual interest in children is an established correlate of future harmful behaviour toward children (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2005). If we are going to intervene with these men, we need to know what it is they have. It is clear that some men do act on their sexual interest in children; what is less clear, however, is what their affliction actually is.

As explained in the following sections, this dissertation is based on a conceptual model that views pedophilia as a sexual orientation in men that includes both a sexual attraction to physically immature body structures and an emotional affiliation to children and childhood. These two aspects will be referred to as *physical* attraction to children and *emotional* attraction to children. The reasoning behind this premise is provided in this chapter. However, the question remains, what does it mean to have a sexual orientation to children? Pedophilia can be characterized as a discrete problem, as it is in the *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition* (DSM 5; American Psychiatric Association [APA], 2013). Alternatively, an orientation to children may reflect an extreme on a continuum of age/maturity attraction. The scientific and professional literature contains contradictory descriptions of the problem, describing individuals alternately as “more/less pedophilic” or as “pedophiles”. Indeed, pedophilia may be a non-discrete variation along a continuum of age/maturity attraction or it

may represent a distinct category (Imhoff, Banse, & Schmidt, 2017; Mokros, 2017; Seto, 2008, 2018a).

If sufficient evidence existed that adult males attracted to children are qualitatively unique, changes in research, practice, and policy would be required. Most assessment tools capture incremental variation in risk factors (e.g., more or less impulsive). Recommendations for treatment programs are based on the assumption that more treatment is required for individuals with more risk factors. Risk management, too, is often a step-wise process where individuals obtain increased freedom based upon observations that their risk is decreasing. These dimensional assumptions would not be appropriate if a risk factor does not vary by degree, but by kind.

Science is an iterative process. When researchers make proposals, they are evaluated, refined, and resubmitted for evaluation; this has been described as a research program (Lakatos, 1978). From this perspective, a research program is comprised of sets of methodological rules directing researchers to explore certain pathways and avoid others. A program of research has very much developed around the structure of pedophilia (e.g., King, 2010, Stephens, Leroux, Skilling, Cantor, & Seto, 2018). This dissertation is a continuation of that conversation.

### **The Structure of Psychological Constructs**

Psychological constructs are enduring individual differences that explain human behaviour. They are challenging to measure because they are not directly observable (i.e., latent), and have to be represented through a measurable network of associated meanings and attributes (i.e., manifest; Cronbach & Meehl, 1955). A physical attraction to children is not directly visible in a client but is inferred by, for example, his pattern of offending against children or the results of physiological responses to stimuli (Seto, 2008; Seto, Kingston, & Bourget, 2014).

How a psychological construct differs between people is referred to as its “structure”. Most psychological constructs are present in everyone to varying degrees and, consequently, have a dimensional structure. Dimensional constructs, such as psychopathy (Guay, Ruscio, Knight, & Hare, 2007), show considerable heterogeneity—some people are more likely than others to break rules and to have little empathy. Attempts to create boundaries within dimensional constructs result in quantitative, rather than qualitative, differences in attributes. People differ in their comfort with rule breaking, but that does not mean that there are “conformists” or “rule-breakers”. Most people can be placed along a dimension from rigidly conforming to completely unconstrained by rules and conventions. The boundaries between conformists and rule-breakers are not necessarily arbitrary, but artificial insofar as they do not reflect real differences in the construct.

Psychological constructs that are present in a distinct group but absent amongst others have categorical latent structures. The group with the distinctive feature(s) is called the “taxon” and can be identified by an objective categorical boundary. The boundary that separates taxon members from everyone else (i.e., the complement) reflects a shift in functioning that is independent of theory or measurement strategy (Meehl, 1992). Dimensional variability on the construct can occur within groups; however, a member is still more like others in his/her group than the opposing group.

The first psychological taxon to be supported by research was schizotypy, an inherited neurodevelopmental vulnerability towards psychotic illnesses (Meehl, 1962). Members of the schizotypy taxon are not just “more likely” to develop psychosis; their membership in the taxon is a pathway to an illness that complement members do not have. Examining latent structure can

generate information that would advance causal understanding because different causal models are implied by taxonic versus dimensional structure.

### **Identifying Latent Structure**

Various statistical procedures are commonly used to explore the content of psychological constructs (e.g., factor analysis, latent class analysis). Each procedure requires assumptions about the construct's structure and how it is represented in the dataset. If items measuring schizotypy are submitted to a factor analysis, dimensional factors will emerge—even though the latent structure is taxonic. Before using a statistical procedure that assumes any specific latent structure, it is worth first verifying that the assumption is appropriate. A separate set of procedures may be required to make that determination.

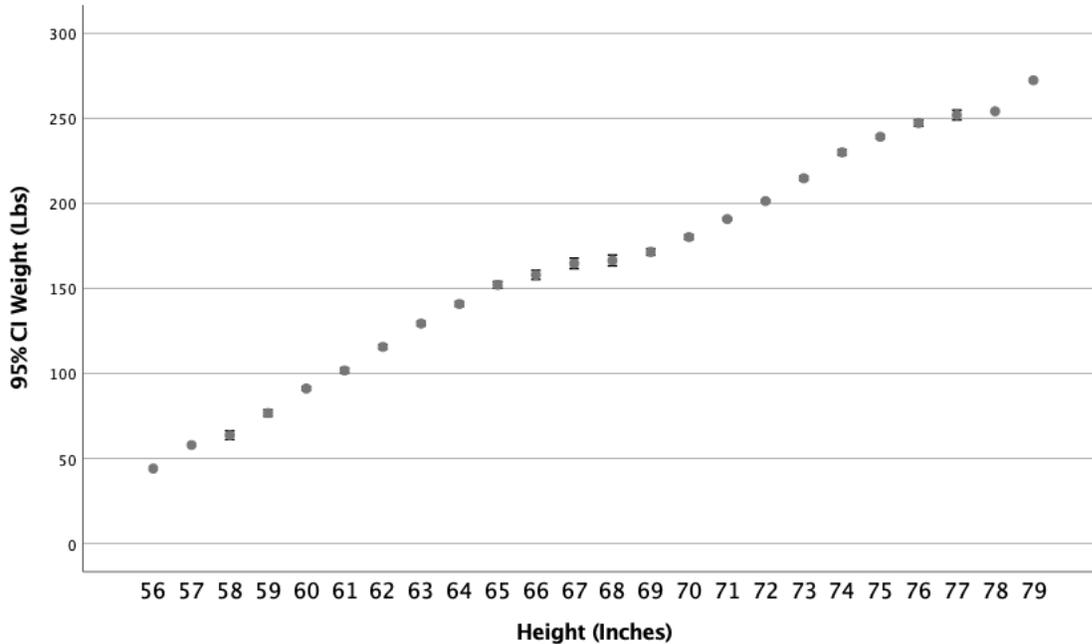
The taxometric methodology pioneered by Paul Meehl, and further refined by John Ruscio, was the first influential approach to analyzing latent structure. It includes a set of five quasi-independent and non-redundant statistical procedures to evaluate whether covariation on a set of indicators is best modeled as a dimension or by classifying individuals into two groups. Subsequently, two other approaches have been proposed to address questions about latent structure: a) model-based clustering and b) latent variable mixture modeling (e.g. Bernstein et al., 2010; Lenzenweger, McLachlan, & Rubin, 2007; Lubke et al., 2007). Each of these three general approaches share the same logic: namely, different latent models are estimated and the model with the best fit to the data is considered the most plausible. The approaches differ in the nature and complexity of their required assumptions concerning the latent structure of the construct and their indicators. Of the three methods, Meehl's taxometric methods require the least *a priori* inferences, and are appropriate when there is limited knowledge about the data (Lubke & Miller, 2015). In contrast, when the data is already well

understood, the other approaches, particularly latent variable mixture modelling, have the potential of addressing highly precise questions by integrating existing knowledge into the analysis. Given that little is known about the latent structure of pedophilia, and less is known about the measurement models of its indicators, the current program of research used the statistical approach that required the least assumptions, that is, Meehl's taxometric method.

The core of most taxometric procedures is Meehl and colleagues' concept of cut kinetics (e.g., Grove, 2004; Meehl & Yonce, 1994), where abrupt changes in the relationship between observed variables are interpreted as evidence of a latent taxonic boundary. The effects of these relationships are most easily explained through a visual example. Consider using height and weight as indicators of the categorical construct of sex<sub>1</sub>. To illustrate this, two datasets were generated ( $N = 2,000$ ) with different characteristics to infer a dimensional or categorical structure to sex ( $n_{\text{female}} = 1,000$ ). The mean weights in the samples were graphed as a function of height in Figures 1.1 and 1.2.

<sup>1</sup> Note: Height and weight are not good indicators of sex because they do not measure the essential biological characteristics of sex. Height and weight were used in this example, however, because they are continuous variables that are easy to visualize.

Figure 1.1. Mean Weight by Height in Simulated Dataset with Dimensional Structure



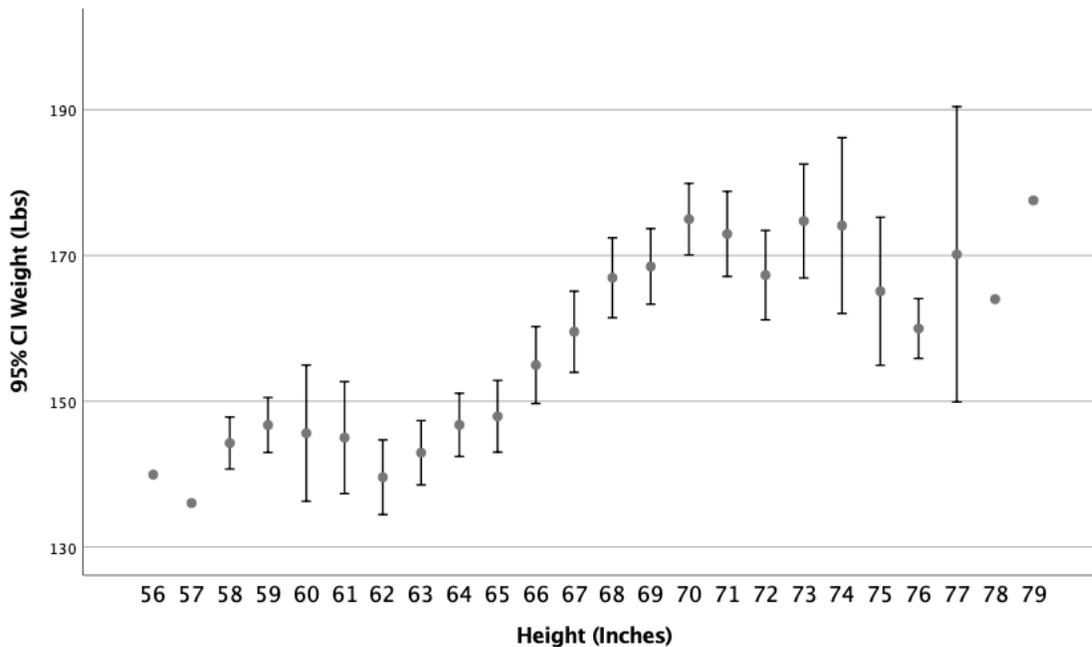
Note. Male height ( $M_{\text{Inches}} = 69, SD_{\text{Inches}} = 3$ )  
 Male weight ( $M_{\text{lbs}} = 172, SD_{\text{lbs}} = 31$ )  
 Female height ( $M_{\text{Inches}} = 64, SD_{\text{Inches}} = 2$ )  
 Female weight ( $M_{\text{lbs}} = 142, SD_{\text{lbs}} = 31$ )

The linear relationship between weight and height in Figure 1.1 is typical of a dimensional structure. There is a near perfect relationship between variables (i.e., Pearson’s  $r_s > .99$ ) within each group. The result is that weight rises steadily as height increases, leaving no optimal cut-point on height that would clearly indicate the presence of two, relatively homogenous, groups. What may surprise readers is that sex is still significantly related to both variables. In this dataset, males are on average six inches taller than females (Cohen’s  $d = 2.2, 95\%CI = 2.0, 2.3$ ) and 30 pounds heavier (Cohen’s  $d = 0.92, 95\%CI = 0.83, 1.01$ ). Despite these large effect sizes, the covariance between height and weight cannot be attributed to sex. In this dataset, if you are tall you are also heavy and if you are short you are light.

The variables in the second dataset have the same means and standard deviations as the first dataset; the only difference is that there is no relationship between weight and height within

each group (see Figure 1.2). The result is a logarithmic curve with relatively little variability in weight for individuals below 66 inches and then a sudden increase with most individuals above 68 inches weighing over 160 lbs. In other words, there is an optimal height in the second dataset that can be used as a boundary between males and females. In this dataset, tall participants are not necessarily the heaviest, nor short participants the lightest. Despite the variety of body types in this dataset, males will still be, on average, taller and heavier than females.

Figure 1.2. Mean Weight by Height in Simulated Dataset with Categorical Structure



Note. Male height ( $M_{\text{Inches}} = 69, SD_{\text{Inches}} = 3$ )  
 Male weight ( $M_{\text{lbs}} = 172, SD_{\text{lbs}} = 31$ )  
 Female height ( $M_{\text{Inches}} = 64, SD_{\text{Inches}} = 2$ )  
 Female weight ( $M_{\text{lbs}} = 142, SD_{\text{lbs}} = 31$ )

Although discussed in detail in Chapter 5, the five taxometric procedures will be briefly introduced below to support a discussion in this chapter of relevant taxometric research.

Maximum Slope (MAXSLOPE; Grove, 2004; Grove & Meehl, 1993) is a rarely used but straightforward application of cut kinetics. In MAXSLOPE, a smoothed regression line is fitted to pairs of construct indicators; a strictly linear regression line would be interpreted as evidence

of a dimension, whereas a sufficiently non-linear regression line would be interpreted as evidence for a taxon. The score on one variable where the line is sufficiently maximized would be interpreted as the taxonic boundary.

Mean Above Minus Below a Cut (MAMBAC; Meehl & Yonce, 1994), as its name describes, involves the creation of cut-points on one indicator of a construct, in order to compare the mean scores for individuals on a second indicator. Mean differences between groups will stay relatively even for dimensional constructs, but should increase in categorical constructs as scores approach the taxonic border, creating an inverse “U” curve.

Maximum Covariance (MAXCOV; Meehl & Yonce, 1996) and Maximum Eigenvalue (MAXEIG; Waller & Meehl, 1998) are two further taxometric procedures that have similar approaches. As with MAMBAC, MAXCOV involves the computation of covariance between two output indicators at different levels of an input indicator. MAXEIG follows the same process, but uses the factor scores determined by the largest eigenvalue.

The final approach is Latent Mode factor analysis (L-Mode; Waller & Meehl, 1998), in which all available indicators are submitted to a factor analysis and the density of scores on the first factor are examined in a plot. L-Mode is unique because it is the only procedure described here that is not based on the principles of cut kinetics. If the construct is taxonic, the density plot should be bimodal, whereas it should be unimodal if the construct is dimensional.

As these taxometric procedures are derived in mathematically distinct ways, and therefore yield non-redundant results, each procedure provides a consistency check against the others. They also produce graphs that can be examined to detect factors that can obscure results (e.g., indicator skew), and are used to generate estimates of the taxon’s base rate. Because any resultant model will, at best, only imperfectly correspond to the true latent structure of the

construct, taxometric procedures are not for exploratory research. Studies should be theory driven.

### **Making Hypotheses in Taxometric Studies**

Instead of a traditional null hypothesis framework, the trend in taxometric research is to compare the evidence for competing hypotheses that explain either a dimensional or taxonic model. The relative strength of evidence supporting these two positions can be expressed numerically using a comparison curve fit index (CCFI; Ruscio, Ruscio, & Meron, 2007). CCFI values range from 0 (dimensional) and 1 (categorical), with values between .45 and .55 considered as ambiguous. The result is that a taxometric study can inform a decision between structural types, rather than decisions from a null hypothesis framework, which are intended to decide between one structure and chance variation. The CCFI also enables researchers to examine the similarity of findings across the non-redundant sources of information provided by the various taxometric procedures. Although any single finding from a null hypothesis framework may be ambiguous or scrutinized as the result of a particular technique, the strength of a taxometric study is that the cumulative findings from different analyses reduce the likelihood that the purported latent structure can be attributed to chance or anomalous features of the dataset.

### **Defining and Measuring Pedophilia**

Taxometric analysis is a hypothesis testing methodology that requires that the proposed structural models are grounded in a shared theory of the construct (Lenzenweger, 2004; Meehl, 2004). Researchers need to map the essential features of the construct to inform decision-making at various stages of a study, including selecting an appropriate sample and constructing effective

indicators. This section elaborates on the definition of pedophilia as a sexual orientation that was referred to earlier, and what implications that has for measurement.

The phenomena of men being sexually drawn to children is well documented and uncontroversial. The term “paedophilia” entered the clinical lexicon via an 1892 paper by Richard von Krafft-Ebing (1906/1999), who discussed it in terms of psychopathological and moral weakness. Sigmund Freud (1905/2011) echoed the sentiments and descriptions provided by von Krafft-Ebing, but referred to them as “sexual inverts” whose sexual object is children. Both authors observed that exclusive interest in children was rare and emphasized co-occurring psychological difficulties (e.g., difficulties forming relationships with adults, identity problems). August Forel (1908/2017) used the term “pederosis” (sexual appetite for children) to describe the same phenomenon. Unlike Freud, Forel believed that it was unchangeable.

More recent discussion has moved away from the early moralizing descriptions of pedophilia to reconciling it with other models of sexuality. For most people, sexual behaviours and interests are organized by the concept of our gender orientation. The definition of sexual orientation, however can be broadened to include a propensity to orient—in terms of attention, interest, attraction, and genital arousal—to particular classes of sexual stimuli (Seto, 2017a; see also Chivers, 2015; Sell, 1997). Although we typically think of sexual orientation in the context of gender, another class of sexual stimuli is a target’s age or maturity. Pedophilia could be a sexual orientation (Seto, 2012).

This model is not without its critics. Bailey and Hsu (2016) and Imhoff and colleagues (2016) find the above definition of sexual orientation overly broad, with the former suggesting men’s sexual orientation should be limited to their sexual arousal pattern only. The limitation of this narrower definition is its difficulty to account for the lack of perfect agreement between

subjective and physiological measures of sexual arousal (Chivers, Seto, Lalumière, Laan, & Grimbos, 2010). In other words, what men say they are attracted to is not always the same as that to which they physically respond. For a further review of the discussion see Seto (2017b).

The sexual orientation model of pedophilia guides the construction of indicators for taxometric analysis in this dissertation. The description of an interest or attraction as “sexual” is usually used to describe the physical features of a target or activity that stimulates our arousal. Sexuality, however, is not just limited to physical attraction. Romantic bonds and attachment can, but do not necessarily, develop along with physical attraction between adults. In the context of pedophilia, sexual attraction would, therefore, include both a persistent physical interest (i.e., attraction) in children and a non-physical, emotional longing to bond with children.

The relationship between these concepts may be clarified by examining the etymology of pedophilia. “Pedophilia” is derived from two ancient Greek words: παῖς or παιδός (país or paidós), meaning "child", and φιλία (philía), one of the Greek words for “love”. There are in fact four ancient Greek words for love: στοργή (storge) meaning “familial love”, ἀγάπη (agape) meaning “love of god”, ἔρως (eros) meaning “passionate or physical love”, and φιλία (philía) meaning “friendship or brotherly love”. Eros is the basis for the word erotic, that is typically used to describe physical depictions that stimulate sexual arousal. It has hedonistic and self-interested connotations. Philía, in contrast, is self-less and refers to doing well by someone for his or her own sake.

“Pedophilia” (paidós and philía) then can be contrasted with “Pedastry” (paidós and eros). von Krafft-Ebing (1906/1999) uses both terms interchangeably, but they actually have different meanings. Pedastry is the erotic desire or lust for children; pedophilia is the desire to form a romantic bond with children. In this dissertation, both “eros” and “philía” are thought to

be important in understanding pedophilia. The following sections detail the research supporting the link between each type of love. Specific attention is paid to separating what we assume is present in the underlying construct of pedophilia, what sources of information can be used to infer this understanding, and how that information is measured.

### **Physical Attraction (Eros) to Children**

A physical attraction to children is the feature most commonly associated with pedophilia. “Children”, in this context, does not refer to an age group *per se* but to a stage of physical maturity. Tanner’s (1978) stages of sexual development provide a means to conceptually articulate pedophilic physical attraction, as well as a scaling method (others are discussed below). The Tanner stages describe secondary sex characteristics across the life span based on physical changes, such as growth of pubic hair, breast development. Table 1.1 below provides brief descriptions of each of the five Tanner stages (Blanchard, 2010; Blanchard et al., 2009; Hames & Blanchard, 2012; Tanner, 1978). Pedophilia includes a physical attraction to children without secondary sex characteristics (i.e., Tanner 1).

Table 1.1. *Tanner Stages and Approximate Age Ranges*

Tanner Stage	Description	Approximate Age(s)
1	No secondary sex characteristics.	10 and under
2	Small amount of pubic hair growth. Males: Male genitalia change. Females: Breast buds develop and areola begins to widen.	11 - 14
3	Pubic hair becomes coarser. Males: Male genitalia continue to change and the penis begins to lengthen. Females: Breast start to develop and extend past the areola.	11 - 14
4	Pubic hair extends across the pubis bone. Males: Testicular volume continues to change and the penis continues to lengthen. Females: Breasts continue to develop and the areola and nipple become an additional mound.	15 - 16
5	Secondary sex characteristics reach full maturity.	17 and older

*Note.* See Tanner (1978) for a full description of each stage.

Discovering one's physical attraction to children typically mirrors the process described for gender: awareness of a physical interest precedes sexual behaviour or self-identification (e.g., Abel et al., 1987; Marshall, Barbaree, & Eccles, 1991). The window of awareness seems to differ slightly. The average age of onset for gender attraction in men is between 9 and 11 years of age (Bailey & Oberschneider, 1997; Savin-Williams & Diamond, 2000). For physical interest in children, empirical data suggest individuals typically start to recognize their tendencies between 14 and 18 years of age (Bailey, Hsu, & Bernhard, 2016; Tozdan & Briken, 2015). For the present purpose, the similarity is compelling, especially as the developmental gap may largely be due to methodological issues (McPhail, 2018).

A physical attraction to children is generally conceptualized as an enduring phenomenon (e.g., as Pedophilic Disorder in DSM 5, APA, 2013), although appropriate epidemiological studies have not been conducted.

**Measurement of Pedophilic Physical Attraction.** Several methods have been devised to measure physical attraction to children (for an in-depth review see Chapter 2 in Seto, 2018a). Self-reporting a physical attraction to children is the simplest way information can be collected, typically dichotomously or on a Likert scale. But, with severe social and legal consequences in admitting a physical attraction to children, evaluators have to rely on other sources of information. As with self-report, these other information sources are still an imperfect representation of the underlying construct.

A behavioural history of sexually harming children, either through contact offences, non-contact offences, or use of child sexual exploitation materials, is a good indicator of physical attraction to children (e.g., Babchishin, Hanson, & VanZuylen, 2014; Seto, Lalumière, & Kuban, 1999). Seto, Stephens, Lalumière, and Cantor (2015) devised a brief behavioural checklist that highlights victim gender, victim age, persistence in offending against children, and the use of child pornography—The Revised Screening Scale for Pedophilic Interests (SSPI-2). The scale moderately correlated with a positive physical interest in children via phallometric index ( $r[948] = .25$ ). Physical interest in children does not, however, equal child sexual abuse so other measurement strategies are often required.

The next class of measures is based on physical reactions clients have to stimuli associated with their physical attraction. Measuring penile changes (i.e., phallometry) is considered to be one of the preferred methods to infer a physical attraction to children (Seto, 2009). Participants are presented with visual or auditory stimuli varying, in this case, along the

continuum of physical maturity. Volumetric or circumferential changes in the penis are recorded and then difference scores are calculated by comparing groups to a target group (e.g., pre-pubescent children).

Viewing time measures are the most studied strategies that make use of cognition related to physical attraction. The basic procedure requires a participant to perform a task while showing them a series of pictures of children, adolescents, or adults (e.g., The Abel Assessment of Sexual Interests; Abel, Huffman, Warberg, & Holland, 1998). A recent meta-analysis of 14 studies found a moderate effect size for view time tasks discriminating between men who had offended against children from other men (Schmidt, Babchishin, & Lehmann, 2017).

Other cognitive measures include choice reaction time, cognitive interference tasks such as the Stroop (Smith & Waterman, 2004) and rapid sequential visual presentation, and the Implicit Association Test. Although these measures have potential (e.g., positive results from a meta-analysis on Implicit Association Tests; Babchishin, Nunes, & Herman, 2013), none have the same body of research support as phallometry or behavioural measures. The informational value of these scores are unclear; they may, for example be comparable, but not incremental, to the SSPI-2. Future research examining the integration of different information sources is required.

Professionals typically use the aforementioned measures to inform a clinical diagnosis; however, diagnostic criteria provide both a definition of the construct and a means of scaling information. Consider the following three criteria and three specifiers for Pedophilic Disorder in DSM 5 (APA, 2013):

- A. Over a period of at least 6 months, recurrent, intense sexually arousing fantasies, sexual urges, or behaviours involving sexual activity with a prepubescent child or children (generally age 13 years or younger).

- B. The individual has acted on these sexual urges, or the sexual urges or fantasies cause marked distress or interpersonal difficulty.
- C. The individual is at least age 16 years and at least 5 years older than the child or children in Criterion A.

Note: Do not include an individual in late adolescence involved in an ongoing sexual relationship with a 12- or 13-year-old.

*Specify* whether:

Exclusive type (attracted only to children)

Nonexclusive type

*Specify* if:

Sexually attracted to males

Sexually attracted to females

Sexually attracted to both

*Specify* if:

Limited to incest

Criterion A includes an implicit definition of pedophilia—as an attraction to prepubescent children—and that it can be inferred by fantasies, urges, and behaviour. A specific, but arbitrary, minimum six-month time period is given. The DSM authors provide a different definition of “children”: the age range (i.e., 13 years or younger) is considerably outside the age-approximated Tanner 1 stage (i.e., 10 years and under) and would include many children already exhibiting secondary sex characteristics (i.e., Tanner stages 2 and 3).

Criterion B speaks to the level of impairment, which leads to an interesting distinction made in DSM 5 between “paraphilia” and “paraphilic disorders” (APA, 2013). Paraphilia implies “any intense and persistent sexual interests other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners” (p. 685). A paraphilic disorder, on the other hand, is a paraphilia that “is currently causing distress or impairment to the individual or a paraphilia whose satisfaction has entailed personal harm, or risk of harm, to others” (pp. 685-686). If a client’s symptoms meet Criterion A, but not B, he would have a sexual attraction to children but not Pedophilic Disorder.

It is unclear whether the distinction between “pedophilia” and “Pedophilic Disorder” actually reflects differences in the underlying construct. Unrelated factors, like degree of antisociality or sexual self-regulation, could explain the distinction described in Criterion B. An individual who has very little interest in following rules is much more likely to act on his sexual attraction to children than another individual who is more prosocial, yet equally attracted to children. It may also be the case that Criterion B can capture real variability in sexual attraction to children. For example, men with more exclusive interest in children are, all other things being equal, more likely to subsequently experience distress or impairment. In Chapters 8 and 9, we use pedophilic disorder as a putative taxon marker. This dissertation, however, is not about pedophilic disorder, but rather about pedophilia.

The function of Criterion C is to reduce false positives by excluding individuals whose sexual activity may be age-typical. It implies that pedophilia only arises in late adolescence. What is more likely is that the indicators described in Criterion A become reliable indicators of pedophilia in late adolescence. Pedophilia, or rather its underlying mechanisms, could be present earlier in development.

The specifiers provide a means of indicating the intensity, exclusivity, and nature of the individuals’ sexual attraction. Like Criterion B, it remains unclear what relationship these distinctions in measurement have with the underlying construct.

### **Emotional Attraction (Philia) to Children**

Sexual orientation is about much more than just physical attraction; it influences self-identity and social behaviour (see Diamond, 2003). In research on gender orientation, physical and affectional components typically agree (Bell, Weinberg, & Hammersmith, 1981; Money, 1988). This means that individuals who physically desire partners of a particular gender also fall

in love with members of that gender. Although there are exceptions to this proposition (e.g., Diamond, 2003), physical and emotional desire are intimately linked.

Some men who sexually abuse children exhibit an exaggerated affective and cognitive affiliation with children and the concept of childhood (McPhail, Herman, & Nunes, 2013). This non-sexual attraction to children has been termed “Emotional Congruence with Children” or “Emotional Identification with Children”. I will refer to both concepts as pedophilic *emotional* attraction to parallel the use of the term pedophilic *physical* attraction in the previous section.

The “emotional” part of pedophilic emotional attraction is similar to the ancient Greek word “*philía*”, meaning “friendship or brotherly love”, and should be contrasted with “*storge*”, meaning “familial love”. *Storgic* love is the need to nurture and protect children that is experienced by parents and other caregivers. The distinction involves power dynamics and reciprocity in the relationship. *Philic* love is the mutual dedication experienced amongst life-long friends. For men emotionally attracted to children, children are believed to fulfil attachment and other nonsexual needs that these men have not been able to fulfil in their relationships with adults (i.e., *philía*, Beckett, 1987; Wilson, 1999). Children are seen as equals.

Meta-analysis of emotional attraction to children amongst men convicted of sexually offending against children revealed higher scores in extra-familial men and men who chose male victims—both types of men are also more likely to be pedophilic (McPhail et al., 2013). This hypothesis—that emotional attraction is a component of pedophilia—was tested against other hypotheses (e.g., immaturity) in a sample of 229 men convicted of sexual offences (McPhail, Herman, & Fernandez, 2014). Evidence supported an association between emotional and sexual attraction to children, including cognitions that condone or support sexual activity with children.

Pedophilia is also associated with interpersonal deficits relating to adults. Men with pedophilia generally experience feelings of inferiority, isolation or loneliness, low self-esteem, internal dysphoria, lower sexual satisfaction with adults, and emotional immaturity (e.g., Hall & Hall, 2007; Lang, Langevin, Van Santen, Billingsley, & Wright, 1990). Their difficulty with mature, age-appropriate interpersonal interactions is likely related to their desire to pair bond with children; the nature of the relationship, however, is actually unclear. Difficulties with adult relationships may actually just be the result of social exclusion due to their physical attraction to children. Conversely, an emotional attraction to children may actually be a maladaptive coping strategy driven by the desire to avoid discomfort in adult interactions, reduce social and emotional loneliness, or achieve affection and positive self-regard (e.g., Beckett, Beech, Fisher, & Fordham, 1994; Marshall, 1989, 1993).

To a lesser extent, descriptions of pedophilic emotional attraction have emphasized cognitive issues in which men present as psychologically immature or identify with the concept of childhood itself (Beckett, 1987; McPhail, 2010). Men who are sexually interested in children often perceive themselves as children in an adult body, and many are sexually attracted to the thought of themselves as children (autopedophilia; Hsu & Bailey, 2017). It is unclear, though, whether this is a separate facet of pedophilic emotional attraction, a cognitive manifestation of pedophilia, or a feature of a separate, related disorder.

**Measurement of Pedophilic Emotional Attraction.** Cognitions reflecting an emotional attraction to children include (a) a belief that one has a special ability to identify the thoughts and feelings of children; (b) children prefer to spend time with the individual instead of significant others; or (c) some relationships with children are intimate, mutual, and reciprocal (Beckett et al., 1994; Knight, Carter, & Prentky, 1989). Other beliefs include a preference to spend time with

children or having a childlike self-concept (Beckett, 1987; McPhail et al., 2013). These can be inferred through observations or directly measured through questionnaires (e.g., Child Identification Scale-Revised; Wilson, 1999).

Commonly noted behavioural indicators of an emotional attraction to children include owning children's recreational equipment and child-oriented gaming entertainment technology, obtaining child-focused employment, spending large amounts of time in the presence of children, and having children as friends (Fernandez, Harris, Hanson, & Sparks, 2014; Knight et al., 1989). Some measures focus more exclusively on affective features (e.g., The Massachusetts Treatment Center Child Molester Typology 3; Knight & Prentky, 1990), whereas others also combine cognitive features (e.g., "Emotional Identification with Children" from STABLE-2007; Fernandez et al., 2014). In particular, individuals may score high on the STABLE-2007 Emotional Identification with Children item based on feeling like a child, or by wanting to be a child.

### **A Dimensional Model of Pedophilia**

Two competing structural models of pedophilia are evaluated in this dissertation. "Pedophilia" in the dimensional model does not refer to a discrete phenomenon; it is a pragmatic clinical label to describe an extreme on a continuum of age/maturity attraction. This is consistent with arguments that Pedophilic Disorder is an arbitrary mental disorder, reflecting contemporary social norms and biases (e.g., Sandfort, Brongersma, & van Naerssen, 2013).

It is conceivable that age/maturity attraction is a continuous distribution that comes about by the interplay of several independent processes occurring at varying intensities and frequencies (Mokros, 2017; Seto; 2017a). The roots of the dimensional model can be traced back to Finkelhor and Araji's (1986) four factor model of pedophilia and the work of Quinsey (2003,

Quinsey & Lalumière, 1995). Finkelhor argued that pedophilia is an extreme on *two* dimensions: motivation to have sex with children and the exclusivity of interest. He uses these two dimensions to collapse together groups of non-pedophilic and pedophilic men who offended against children. Offences by men who are non-pedophilic, and who are also less likely to continue sexually abusing children, but have a high sex drive, could be explained by their motivation to engage in sex resulting in low discrimination in victim selection. McPhail and colleagues (2013) made a similar argument regarding emotional congruence to children. An underlying assumption of Finkelhor’s two dimensions is that variations in men’s sexual age/maturity interests are differences in degree, not in kind.

Chronophilia, a term coined by Money (1986) to refer to specific variations in age/maturity orientation, is the conceptual successor to Finkelhor’s work. Table 1.2 highlights various chronophilia used in research and practice (Seto, 2017a). Orientation to immature persons is not limited to pedophilia; others include an attraction to babies or toddlers (i.e., nepiophilia or infantophilia), pubescent children (hebephilia), or postpubescent adolescents who are not sexually mature (ephebophilia).

Table 1.2. *Description of Chronophilias*

Term	Focus	Tanner Stage
Nepiophilia	Infants and toddlers to age 2	1
Pedophilia	Prepubescent children, approximately ages 3–10	1
Hebephilia	Pubescent children, approximately ages 11–14	2 – 3
Ephebophilia	Adolescent minors, approximately age 15–17	4
Teleiophilia	Young, sexually mature adults (ages 18 to late 30s)	5
Mesophilia	Middle-aged adults, peri-menopausal or peri-andropausal, from 40 to late 50s	5
Gerontophilia	Old adults, from age 60 plus	5

*Note.* From “The Puzzle of Male Chronophilias” by Seto (2017a)

The conceptual overlap between adjacent chronophilia is a critical argument for the dimensional model; each term is not a separate construct, but a degree of variation on the underlying construct of age/maturity orientation. This sentiment was echoed in dissenting opinions around the inclusion of hebephilia in DSM 5 (APA, 2013).

Men vary greatly in their physical arousal to different Tanner stages, with some exhibiting arousal to multiple groups (Seto et al., 1999). Observed overlap in men's interests have led some to suggest collapsing neighbouring groups (e.g., "pedohebephilia"; Freund, Seeley, Marshall, & Glinfort, 1972). Differences between physical attraction to pre-pubescent and pubescent children were understood to denote incremental, not categorical, differences in a single underlying construct. The extent to which these terms do not reflect discrete constructs is further underscored by research on sexual response gradients and victim selection.

Sexual response gradients are a generalization of stimulus generalization gradients studied by experimental psychologists elsewhere (Blanchard et al., 2012). A stimulus generalization gradient is the extent to which a behaviour that is most strongly elicited by a core, target stimulus is also elicited by stimuli that are similar but not identical to the core stimulus. The maximally excitatory stimulus, which in experimental psychology studies is usually defined by operant or classical conditioning paradigms, is analogous to an individual's desired age preference (i.e., Tanner stage 1, 2, etc.). If this analogy is meaningful, then one would expect to observe lower, but not trivial, levels of arousal to those of an age/maturity who are adjacent to an individual's favoured age/maturity, with a decrease in response that is proportionate to the perceptual distance from the maximally excitatory age preference.

Blanchard and colleagues (2012) examined differences in sexual response models as a function of age and gender by modeling age and gender as either separate or integrated

dimensions. If age and gender are separate dimensions, then responses should vary inversely as the sum of stimuli differences in age and gender. If age and gender are processed simultaneously, then there should be a single dimension with adult females and males at either poles and children in the middle, because they would be the least differentiated from each other in terms of gender. The models were tested through their accuracy in predicting differences in male participants' penile response between his least and most arousing stimulus categories.

Two findings from Blanchard and colleagues' (2012) study provided evidence for the dimensional model. First, the single dimension model of sexual response was superior to the two-dimensional model. Implications of sexual response being thought of as a single dimension are that age and gender orientation are meaningfully linked in male sexual arousal. The second is that the penile response profiles of so-called "pedophilic" and "hebephilic" participants showed greater responses to individuals adjacent to their preferred category (e.g. pedophilic participants showed greater response to stimuli of pubescent individuals than to adult individuals' stimuli). These findings were replicated using self-report, victim choice, and phallometric assessment to measure sexual arousal in a large sample of men convicted of sexual offences (Stephens, Seto, Goodwill, & Cantor, 2017). These results imply that sexual response to age, and potentially gender, is a difference of degree rather than kind.

The phenomenon of age polymorphism is another research finding that supports a dimensional understanding of pedophilia. Age polymorphism refers to offenders selecting victims from different age groups. Rates of polymorphism vary substantially due to the nature of the sample (e.g., high risk, routine) and the age ranges used to classify participants. Age polymorphism has been observed in up to 70% of men convicted of sexual offences (e.g., Heil, Ahlmeyer, & Simmons, 2003), with highest estimates found in those who offended against

adults, 32% of whom also sexually offended against a child (Weinrott & Saylor 1991). Stephens, Seto, Goodwill, and Cantor (2018) found age polymorphism ranged from 22-35% (depending on age range cut offs) of a sample of 751 men convicted of sexual offences. At least 7% of the sample sexually offended against prepubescent children (i.e., under 11), pubescent children (i.e., 11-14), and adolescents and adults who are likely to be sexually mature (i.e., 15 and older).

In summary, there are plausible arguments for a dimensional model, the crux of which is the apparent lack of stable boundaries between different age/maturity interests. From this perspective, there is no real category of men who are pedophilic and any observed taxon is actually just a result of oversampling the tails of the distribution. Although this perspective is plausible, there are other plausible, competing models.

### **A Taxonic Model of Pedophilia**

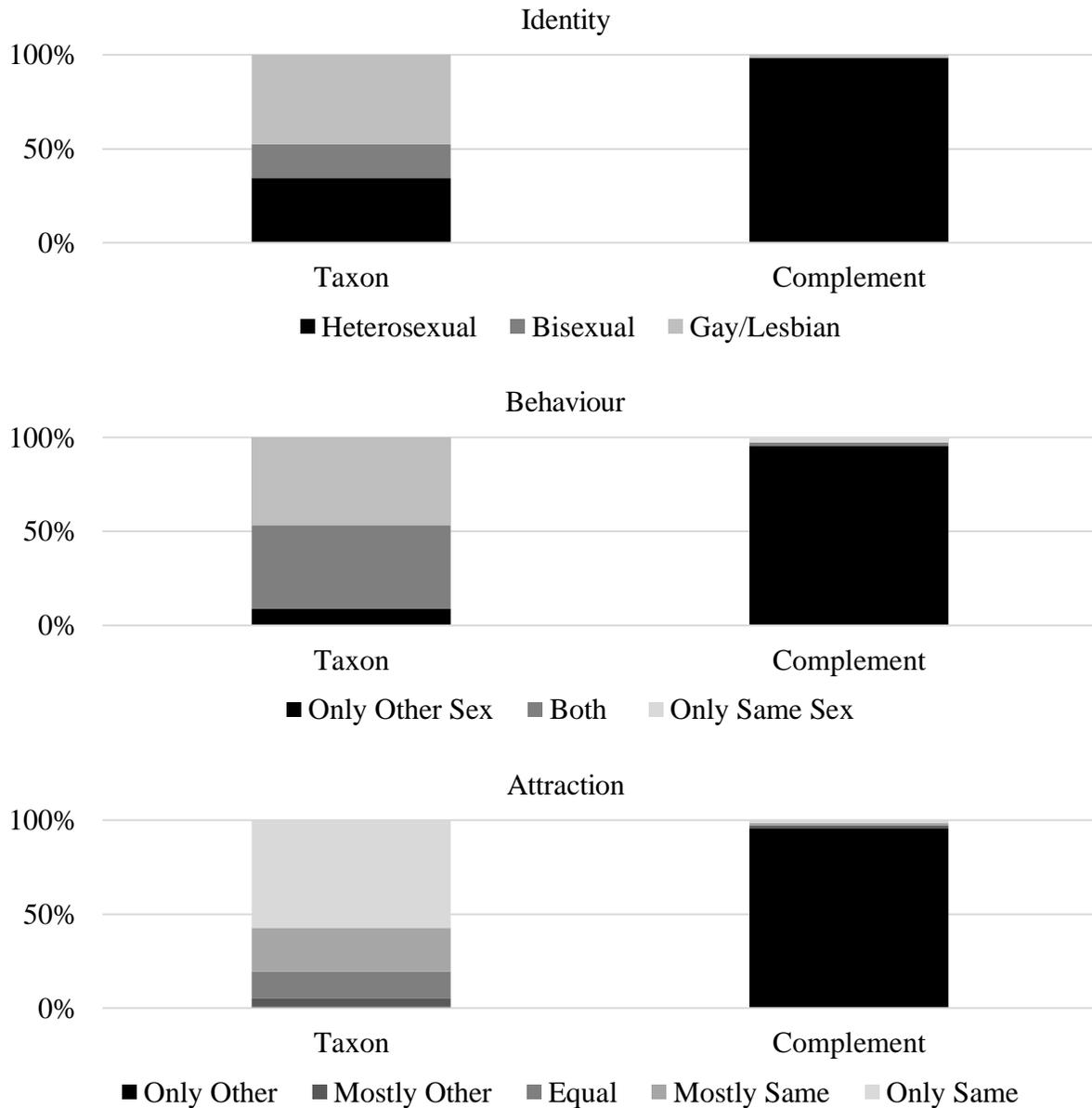
Instead of being a dimension, pedophilia may, in fact, refer to a discrete phenomenon found in men who are physically and emotionally attracted to children. The boundary of this purported taxon is not defined by men's observed or manifested age/maturity orientation, but by possessing the capacity to be attracted to immaturity. Evidence for this position comes from research in areas related to pedophilia: sexual orientation and neurodevelopmental phenomena.

If pedophilia is a sexual orientation, due to the similarities between gender attraction and age/maturity attraction, pedophilia may also be taxonic. Taxometric analyses of gender orientation tend to find a taxon. Gangestad, Bailey, and Martin (2000) identified a taxon underlying gender orientation and related measures of gender identity. Authors recruited 4,901 participants (36% males) to complete the Kinsey scale of sexual attraction and fantasy, a childhood gender nonconformity scale, and a gender identity scale. Two taxometric procedures, maximum covariance (MAXCOV) and mean above minus below a cut (MAMBAC), produced a

taxon for about 12-15% of men. The taxon was heterogeneous: 53% of men in the taxon self-identified as exclusively heterosexual (i.e., a Kinsey 0) and 31% identified as varying degrees of bisexual and homosexual (i.e., a Kinsey 4 to 6). By contrast, very few men in the complement (9%) scored higher than a Kinsey 3 (i.e., equally heterosexual and homosexual).

Norris, Marcus, and Green (2015) replicated Gangestad and colleagues' findings with a larger, epidemiological sample ( $N = 33,525$ , 42% males). Information on gender orientation was collected from survey questions: sexual attraction ("Which category best describes your feelings on sexual attraction to others?"), sexual identity ("Which of the categories best describes you?"), and sexual behaviour ("In your lifetime, have you had sex with. . ."). CCFI values from MAXCOV, MAMBAC, and L-Mode procedures were consistent with a taxonic structure. Base rate estimates of the taxon in males were lower than in Gangestad, 3% instead of 12-15%, but the interpretation of the construct was clearer. See Figure 1.3 for a summary.

Figure 1.3. *Indicator Distributions in Male Taxon and Complement from Norris and Colleagues (2015)*



A clear pattern emerges across all three indicators—male taxon members have more diverse sexuality than those in the complement. Male complement members are almost exclusively heterosexual in their identity, behaviour, and attraction. The taxonic boundary reflects a capacity for non-heterosexuality. Taxon members likely exhibited atypical sexuality early in life, but not all would go on to identify as homosexual or bisexual. The consistency of

structure in gender orientation supports a biological theory of sexual development (e.g., Hines, 2011), suggesting that there is a shared pathway indicative of a taxonic process.

Neurodevelopmental research also suggests that abnormal brain development is a taxonic phenomenon. Tran, Steiger, and Voracek (2014) submitted self-report information on cerebral lateralization (e.g., handedness, footedness) from 15,000 individuals to a series of MAMBAC analyses. Cerebral lateralization is associated with increases in neurobehavioural disorders, neurodevelopmental instability, and deficits in cognitive functioning. The results supported a taxonic interpretation to the data. Individuals who were right or mostly right sided made up a majority of the complement (approximately 85%). A taxon was identified of exclusively left sided (one sub-taxa) and mostly ambidextrous individuals. The taxon was more likely to be male.

In this dissertation's taxonic model, pedophilia may be part of a capacity for sexual attraction to individuals who have not attained puberty. The complement would be comprised of men exclusively interested in adults, whereas men in the taxon would vary in age/maturity attraction and exclusivity. This taxonic model builds upon previous models of pedophilia as a sexual orientation and a neurodevelopment phenomenon; however, it would also allow for sexual response and victim selection to be observed as gradients. Age polymorphism would be expected in the taxon. Taxon membership is not defined by exclusivity of attractions, but by a latent capacity to be sexually and emotionally attracted to prepubescent boys or girls.

### **Existing Taxometric Research on Pedophilia**

To date, there have been six taxometric studies relevant to the discussion of pedophilia's latent structure. Four of them are presented in Table 1.3 below. Two of the early studies are not included in the table and will not be reviewed in detail due to concerns about construct validity of their indicator variables. King (2010; see also King and Knight, 2008; Knight and King, 2012)

modeled pedophilia exclusively using neurodevelopmental indicators, while Mackaronis (2011; Mackaronis, Strassberg, & Marcus, 2011) modeled pedophilia on subscales from the Multiphasic Sex Inventory (Nichols & Molinder, 1984) that are likely measuring other constructs, such as denial (Simkins, Ward, Bowman, & Rinck, 1989). The four remaining studies examined pedophilic physical attraction.

Mackaronis presented a second taxometric study at the 2011 Association for the Treatment of Sexual Abusers annual conference (Mackaronis, Byrne, Strassberg, Marcus, & Solari, 2011). The sample included 2,146 males who underwent phallometric assessment (i.e., penile strain gauge measuring change in circumference) using the Monarch 21 (79% had at least one child victim, 14% had at least one adult, 6% had both). Two variables were selected as indicators of pedophilic physical attraction: highest (*Z*-score) response to any child segment (girl or boy) and highest (*Z*-score) response to any adult segment (woman or man). CCFIs from MAXSLOPE and MAMBAC supported a dimensional structure. An interesting finding in this study was that the first version of the Screening Scale for Pedophilic Interests (SSPI;  $M = 1.36$ ,  $SD = 1.11$ ) was not sufficiently powerful enough to discriminate between the putative taxon and complement to be used as an indicator. Given the SSPI's strong performance in other studies, the lack of significant findings in this study remains a mystery.

Table 1.3. *Summary of Taxometric Studies on Pedophilic Physical Attraction*

Authors	Year	Sample		Indicators	MAXSLOPE		MAMBAC		MAXCOV		MAXEIG		L-Mode		Average	
		<i>N</i>	Victim Type		CCFI	BR	CCFI	BR	CCFI	BR	CCFI	BR	CCFI	BR	CCFI	BR
McPhail et al.	2018 <sup>aa</sup>	805	Adult, Child, Both, Non-Sexual	Phallometry (Slides Only)	-	-	.719	-	-	-	.400	-	.565	-	.561	.254
McPhail et al.	2018 <sup>b</sup>	632	Adult, Child, Both	Phallometry (Audio Only)	-	-	.763	-	-	-	.627	-	.681	-	.690	.226
McPhail et al.	2018 <sup>ca</sup>	402 <sup>b</sup>	Adult, Child, Both	Phallometry (Mix of Audio/Slides)	-	-	.709	-	-	-	.322	-	.609	-	.547	.186
McPhail et al.	2018 <sup>da</sup>	261	Adult, Child, Both	Phallometry (Slides Only)	-	-	.834	-	-	-	.622	-	.528	-	.661	.206
Stephens, Skilling et al.	2018 <sup>c</sup>	2,227	Adult, Child, Both	Self-Report, Phallometry, SSPI-2	-	-	.31	.24	-	-	.29	.15	.38	.47	.33	-
Schmidt et al.	2013	302	Adult, Child, Non-Sexual, Non-Criminal	Self-Report, Viewing Time, Implicit Association	-	-	.80	.179	.71	.096	-	-	.66	.152	.72	.142
Mackaronis, Byrne et al.	2011	2,146	Adult, Child, Both	Phallometry (Audio/Slides)	.426	-	.435	-	-	-	-	-	-	-	.430	-

*Note.* MAMBAC: mean-above-minus-below-a-cut; MAXCOV: maximum covariance; MAXEIG: maximum eigenvalue; L-Mode: latent mode factor analysis; CCFI: Comparison Curve Fit Index; BR: mean taxon base rate.

<sup>a</sup>Additional taxometric results available for male and female oriented stimuli. Overall reported here. <sup>b</sup>McPhail reported on overlapping samples of 531 participants. The largest unique sample was reported here that included participants who had slide stimuli only and a mixture of audio and slide stimuli. <sup>c</sup>Additional taxometric results available on sub-sample of participants who offended only against children.

In their taxometric study, Schmidt, Mokros, and Banse (2013) modeled pedophilic physical attraction using self-report questions about preference, Implicit Association Tests, and viewing time tasks. They collected a diverse sample of 304 adult males, 266 of which were convicted for either contact child offences or child pornography offences, sexual offences against adults, or other non-sexual offences. Of their total sample, 38 had no criminal history, nor known history of sexual offending.

Schmidt and colleague's (2013) first measure was the Explicit and Implicit Sexual Interest Profile (Banse, Schmidt, & Clarbour, 2010), a 40-item self-report questionnaire on the occurrence of five different sexual behaviours (e.g., enjoyment of oral stimulation) and sexual fantasies (e.g., daydreams of having sex) with men and women, as well as prepubescent boys and girls. Also included in this measure is a viewing time task (Schmidt, Banse, & Imhoff, 2015) that unobtrusively registers the time taken to judge the physical attractiveness of male and female targets at different stages of physical maturity on a 5-level Likert scale. The same visual stimuli were used in three Implicit Association Tests; target categories included Men vs. Women, Girls vs. Women, and Boys vs. Men and the attribute categories were Sexually Exciting vs. Unexciting (word stimuli, e.g., erotic, exciting, dull, boring).

The structure of pedophilic physical attraction was taxonic in Schmidt and colleagues' data. The analyses were rerun without the self-report indicator to control for biased self-report and taxometric results were maintained (average CCFI = .65). The size of the taxon group was relatively small (14% of total sample) and was comprised of men who had sexually abused children (49 out of 51 participants).

Stephens, Skilling and colleagues (2018) completed a taxometric study of pedophilic physical attraction with a large sample of men convicted of sexual offences ( $N = 2,227$ ). Two-

thirds of participants had at least one victim 16 years of age or under; over half (54.9%) had at least one victim 10 years of age or under. Only 11.6% ( $n = 239$ ) of the sample had only offended against adults. Indicators of pedophilic physical attraction included scores on the SSPI-2 (Seto et al., 2017), phallometric measures, and self-reported sexual interest. As the SSPI-2 was discussed previously, only the latter two indicators will be considered in greater detail below.

Volumetric phallometry, which measures penile blood volume change during the presentation of sexual stimuli, was used in contrast to strain gauge discussed previously (e.g., Mackaronis, Byrne et al., 2011). The audio and visual stimuli used in the clinical assessment depicted male and female prepubescent children, pubescent children, and fully mature adults (for details on the procedure see Blanchard, Klassen, Dickey, Kuban, & Blak, 2001). Raw scores were ipsatized across stimulus categories (Harris, Rice, Quinsey, Chaplin, & Earls, 1992). An index of pedophilic sexual attraction was calculated by subtracting the maximum sexual arousal score to adult stimuli from the maximum sexual arousal to prepubescent children score; more positive scores indicate greater arousal to children, irrespective of gender.

The last indicator was taken from clinical interview data, where the assessor directly asked participants about their level of sexual interest in males and in females in each of the following age categories: under 6-years-old, 6- to 10-years-old, 11-years-old, 12- to 14-years-old, 15- to 16-years-old, and 17-years or older. Of these 12 age-sex categories, the category in which the participants had the strongest interest was given a score of 5. The category in which he had the next strongest interest was given a score of 4, the next category a score of 3, and so on until a score of 1 which indicated no sexual interest. The variable used in analyses was the individuals' highest score from all age categories 11-years-old and under, regardless of gender interest.

The structure of pedophilic physical attraction was dimensional in Stephens, Skilling and colleagues' data. The analyses were repeated on a sub-sample of individuals who had at least one child victim ( $n = 1,968$ ) with similar findings.

Lastly, McPhail, Olver, Brouillette-Alarie, and Looman (2018) submitted data from strain gauge phallometric assessment in four samples ( $ns = 805, 632, 531, 261$ ) to taxometric analyses. Phallometric data from the samples were transformed into percent full erection scores. This data processing method involved dividing the maximum penile change during a stimulus trial by an estimate of full erection (i.e., 30 mm of penile tumescence change) and multiplying the product by 100.

No key criterion was available to evaluate the validity of these indicators prior to taxometric analysis (e.g., diagnosis of pedophilia), so the base rate classification technique was used (Ruscio & Kaczetow, 2009; Ruscio et al., 2007). The base rate used in each dataset, however, was taken from the taxometric analyses. This means that the data was submitted to taxometric analysis, which subsequently produced taxon base rates, that was then used to sort participants into taxon and complement by asserting that a predetermined percent of participants with the highest scores on all indicators are in the taxon and the rest are in the complement. Validity indices were above the 1.25 recommendation, but this may be an overestimation due to overfitting. All variables demonstrated a strong positive skew (i.e.,  $> 1.00$ ).

The data was submitted to taxometric analyses in three ways: (1) using all stimulus trials available, (2) restricted to stimulus trials depicting female children, and (3) restricted to stimulus trials depicting male children. Results from McPhail and colleagues' samples were mostly consistent with taxonic latent structure.

The researchers argued that a visual inspection of the graphical output supported their suspicion that pedophilia has a trichotomus latent structure and pursued a second set of taxometric analyses. Complement members were removed from each dataset. Because the sample sizes of the groups were then not large enough to conduct separate taxometric analyses, datasets were combined based upon stimuli type: slides only ( $n = 332$ ) and audio only ( $n = 228$ ). The indicators were again evaluated using the base rate classification system. Likely due to the restricted range of variance, indicators were less skewed in the sub-sample. Results were, again, consistent with a taxonic data structure.

McPhail and colleagues interpreted the trichotomus structure of pedophilia as relating to exclusivity of sexual attraction to children. The complement were individuals who did not demonstrate sexual attraction to children, the first taxon were individuals who were sexually interested in children, but not exclusively (i.e., they were also interested in adults), and McPhail and colleague's second taxon included individuals who were exclusively sexually attracted to children.

The existing taxometric studies have explored different, but related, structural models of pedophilia. Early studies measured associated features of pedophilia (e.g., neurodevelopmental perturbations). More recent studies examined physical attraction to children, with inconsistent results. Each study had its own limitations (e.g., sampling strategy, indicator construction). Although it is hard to determine the effect of any one of these choices, they do point to the need for further research. This dissertation moves the research program forward in a theoretically informed set of taxometric studies based on a current model of pedophilia that involves both physical and emotional attraction to children.

## **CHAPTER 2: ADVANCING THE RESEARCH PROGRAM WITH THIS DISSERTATION**

Chapter 1 presented a view of pedophilia as a male sexual orientation. The implication of this perspective is that the mechanism(s) explaining physical attraction to children should also be responsible for other associated psychological features, most notably a desire to emotionally bond with children. What remains unclear is if pedophilia describes a sub-group of men who have a capacity to be child-oriented, or if it is an extreme in an uninterrupted continuum of age/maturity attraction. Both positions are plausible, and the available studies have produced inconsistent findings. Previous taxometric research, however, has focused on pedophilic physical attraction, to the neglect of emotional attraction to children.

This dissertation advances the research program on pedophilia's latent structure in the following ways. First, pedophilia is modeled as a sexual orientation. Indicators submitted to taxometric analyses provide information about physical and emotional attraction to children in two separate samples. As well, planned analyses tested the extent to which the resulting latent structure aligns with our understanding of pedophilia. These findings on the construct validity of the latent structure provided evidence that informs the theoretical models described in Chapter 1. Examining latent structure is a methodologically intensive process. Decisions about who is sampled, what information is collected from them, and how it is recorded determines the conceptual and empirical adequacy of a dataset for taxometric analyses. The following chapters review relevant considerations, including the conventional taxometric guidelines derived from Monte Carlo studies. Even appropriate datasets can have features that complicate the interpretation of taxometric results. With the dearth of systematic research on these issues, researchers are required to make many decisions with only limited guidance.

Chapter 3 introduces a detailed discussion of sampling considerations that minimize inaccurate structural conclusions. A dataset must not only be large enough but must have enough potential taxon members to be detected by the analyses. This can mean that a representative sample may not be the best population to use for taxometric analysis. Balancing competing requirements is difficult, and there is no ideal dataset nor ideal analytic approach. There are, however, some approaches best avoided. Chapter 3 cautions against certain questionable strategies, which have the potential of generating misleading findings.

In Chapter 4, the reader's attention is drawn to the process of modeling pedophilia. The ability to draw inferences about the latent structure of a construct requires careful thought to how that construct is represented by the indicators submitted to analysis. The first half of the chapter introduces the concept of measurement models, followed by a series of taxometric requirements for indicator validity, correlations between indicators, distribution, and number. This information is applied in the second half of the chapter to constructing indicators of pedophilia. Detailed descriptions are given on desired sources of information and how they are scaled and integrated.

Chapter 5 advances the discussion of the taxometric procedures to which the indicators in Chapter 4 are submitted. The logic underlying each taxometric procedure is reviewed, including a description of its conceptual rationale and mathematical underpinnings. Also reviewed are the mechanics of how the procedures are implemented, including the decisions that must be made when the procedures are used in Chapters 8 and 9.

Regardless of whether data suggests a dimensional or taxonic structural model, it is useful to follow up with additional analyses exploring construct validity. The relationship between the resultant structural model and other variables was rarely examined in previous studies, if at all. A series of planned analyses are discussed in Chapter 6 to examine the extent to

which the relationship between the structural models and other sets of variables in Chapters 8 and 9 are consistent with what we already know about pedophilia. The first set of variables are those used to create indicators of pedophilia, that is, the variables used to empirically define the construct of pedophilia. In addition to examining the core features, the analyses examined associated features of pedophilia, such as deficits in adult interpersonal relationships and neurodevelopmental perturbations. To determine the extent to which the construct examined by taxometric analysis represents the core features and associated features of pedophilia, a final set of variables are examined that are not expected to be features of pedophilia (e.g., propensity for violence), but were nonetheless expected to differentiate it from other constructs relevant for forensic psychology. Chapter 7 introduces the two empirical studies that are the focus of this program of research (i.e., Chapters 8 and 9). Chapter 10 concludes with a discussion of how the findings advance our overall understanding of pedophilia.

## **CHAPTER 3: SAMPLING CONSIDERATIONS**

The first set of decisions in a taxometric study concern who is going to be represented by the data and how that population will be sampled. The nature of the population influences the size of a taxon and the range of indicator scores. The goal is to sample individuals who represent the full range of variation on the target constructs in sufficient detail so as to detect the presence of a taxonic boundary, should any exist. This chapter reviews the general recommendations for taxometric research and how they were applied in this dissertation to the study of pedophilia's latent structure.

### **Sample Size**

#### **Absolute Sample Size**

A minimum of 300 cases is traditionally recommended for taxometric analysis, a figure based upon Monte Carlo studies (e.g., Meehl & Yonce, 1994, 1996). Although it is possible to detect taxa with smaller samples, this has generally been the case when the data contained highly favourable characteristics that are uncommon in actual research settings (e.g., equal-sized groups that are easily distinguished on continuous indicators that are normally distributed) (Ruscio et al., 2006).

Large sample sizes are the norm in taxometric research. In an early review of 66 taxometric studies, the median sample size was 585; the median jumped to 809 when the nine unpublished studies were removed (Haslam & Kim, 2002). A more recent review of 177 taxometric studies found that the median has increased to 934 cases, with a broad range from 130 to 80,304 cases (Haslam, Holland, & Kuppens, 2012).

Samples of such size can rarely be collected prospectively during a graduate student's tenure, which is why many previous taxometric dissertations have used archival samples (e.g.,

King, 2010; McPhail et al., 2018). Caution has been advised in the use of archival data collected in institutional settings for taxometric analyses, in part because of the potential threat that the idiosyncratic manner in which data was collected could have an adverse effect on the representation of the construct (Lenzenweger, 2004). As the current dissertation made use of archival sources, the results were interpreted carefully within the context in which data were collected.

### **Taxon and Complement Size**

Absolute sample size is not the only concern. As will be discussed in Chapter 5, taxometric procedures are designed to detect the presence of two distinct distributions (i.e., the taxon and the complement). Both distributions, then, should be adequately represented within the sample for the procedures to have the chance to detect them.

The simulated datasets used in Monte Carlo studies had a taxon base rate ( $P$ ) of .50. Assuming a minimum sample size of 300 people, this would equate with having a minimum of 150 taxon members and 150 complement members. There is flexibility within these recommendations. Taxa were successfully detected when an absolute taxon size ( $n = 100$ ) was held constant and large numbers of complement members ( $n = 200$  to  $n = 80,000$ ) were added to the sample, varying the taxon base rate from .50 to .00125 (Ruscio & Ruscio, 2004; Ruscio, 2005). As the relationship between the absolute and relative size of the taxon is not clear, both should be considered when evaluating the appropriateness of a dataset.

### **Relationship Between Sampling and Construct Representation**

The taxon base rate in a sample is another means of expressing the representation of the construct in a sample. For example, pedophilia would not be well represented in the general population because it has a low base rate. The low base rate indicates that the upper range of the

construct would be infrequently present. Although being an accurate reflection of the frequency of pedophilia in the population, it does not facilitate an examination of the construct.

Preselecting samples for taxometric analyses involves balancing competing demands. Preselection, pushed to extremes, would produce a sample where the complement, rather than the taxon, is in the minority. This poses just as much concern as using a more representative sample where the taxon is in the minority—in either case, the distribution of both groups is not sufficiently represented on indicators to be detected by the analyses.

One approach to sampling is extreme groups: one that is expected to be predominantly populated by the taxon and another that is expected to be predominantly populated by the complement. This technique is not recommended. The risk of this technique is that because the distribution of the construct is not well understood, middle values could be excluded to such an extent as to produce artificial taxonic results. For example, Schmidt and colleagues (2013) combined men who sexually offended against children with those who offended against adults, those who had non-sexual criminal histories, and those who had no criminal history. This was a risky choice because the distribution of pedophilia is not well understood. Mixing samples that present with different densities of the construct can distort the resulting model. There is no way, yet, to know if this kind of strategy omits or overpopulates different levels of pedophilia (see Chapter 4 for more on scaling). Samples are also likely to differ on other constructs, with their own latent structure (e.g., socioeconomic success), so that mixing very diverse groups could introduce bias to the structural interpretation of the target construct.

In attempts to avoid the pseudo-taxonic results from the above concerns, researchers may be inclined to eliminate extreme values (i.e., individuals known to be very low or high on the construct). The sample would end up representing the middle ranges of scores on the indicators

and produce pseudo-dimensional results, even if two distinct groups existed. Consider the secondary taxometric analyses conducted by Stephens, Skilling and colleagues (2018) using participants who had offended against at least one child. Excluding participants who had only offended against adults artificially reduces the range of variance of the construct. Participants who offended against children, and are not pedophilic, are still likely to appear more pedophilic than participants who had only offended against adults.

There is no perfect strategy for sampling. Some degree of sample preselection may be required to bring the taxon into focus. Populations should be considered that are more likely to include sufficient numbers of the putative taxon but exclude as few putative complement members as possible. Like focusing the lens of a camera, researchers should strive to bring the construct into clear view. The result should be a balanced sample of taxon and complement members that, overall, represents the full range of indicators scores.

### **Selecting an Appropriate Sample to Examine Pedophilia's Latent Structure**

The first half of this chapter discussed various sampling constraints. The attention now shifts to focus on four candidate populations that could be reasonably sampled for modeling pedophilia's latent structure. The benefits and limitations of each population are examined, leading to a justification for the population (and samples) selected for this dissertation.

#### **General Population of Adult Males**

The most inclusive population considered was all adult males. The highest estimate of pedophilia in this population is .05 (Seto, 2018a). Therefore, at least 2,000 adult males would need to be sampled to get 100 putative taxon members with pedophilia. Even if the resources were available to recruit these participants, the resulting data will be positively skewed. In other words, this would be an extreme (complement) sample. It could be possible to detect a real taxon

if the data contained other favourable characteristics (e.g., strong indicators), but pseudo taxonomic results are likely because of the skewed data. General population studies of pedophilia would make a limited contribution to the research on its latent structure because the construct of pedophilia would not be well represented.

### **Adult Males who Sexually Abuse Children**

Another approach is to preselect a sample where pedophilia is most likely to occur. Expert opinion suggests that approximately 50% of adult males in the criminal justice system as a result of sexual offences with children are likely to be pedophilic (Seto, 2018a). The higher proportion of putative taxon members makes this a superior population to the general adult male population.

A concern is that this population is too extreme on the other end of the distribution. In other words, non-pedophilic adult males who sexually abused children are still likely to be more pedophilic than, for example, adult males without a criminal history. The lower end of the complement is missing, potentially biasing structural models towards a dimension. Criminal justice samples also pre-select for other factors (e.g., antisociality) unrelated to pedophilia that could also bias results.

### **Other Populations of Males Involved with or Interested in Children**

Pedophilia may also be a consideration for men who work or volunteer their time with children (e.g., scout leaders, teachers, clergy). These groups are identifiable and such research would clearly contribute to public protection policy. The base rates of pedophilia in this population are, however, unclear. The averaged base rate of pedophilia amongst clergy who had sexually abused children was 17.7% across seven studies ( $n/N = 58/328$ )—much lower than the 50% estimate amongst all men convicted of sexually abusing children (Dressing et al., 2017).

Further research on pedophilia in these populations is required to determine if the construct is adequately represented for taxometric analysis.

A related group is the population of help-seeking men attracted to children. The upper range of the construct would be adequately represented in such a sample. However, the concern here is similar to using adult males convicted of a sexual crime against children; the complement would not be sufficiently represented.

### **Adult Males Convicted of Sexual Crime**

The fourth, and final, group considered for use in this dissertation is comprised of men who have been convicted of any sexual offence. Sampling this population provides a reasonable chance to adequately represent the full range of pedophilia. Men who sexually abused children would likely represent the middle and upper range of the construct (i.e., the most pedophilic individuals). Men who only offended against adults would likely represent the lowest end of the construct.

Structural results from these samples also have relevance for policy development. Sex crime policy can be dated back to the 1980s and early 1990s, where legislation was introduced in direct response to sexually motivated murder of children (e.g., Joseph Fredericks [Petrunik & Weisman, 2005] in Canada or the kidnapping and murders of Megan Kanka and Jacob Wetterling in the United States). In many jurisdictions, residency restrictions, prohibition from entering schools, parks, etc., apply to all men convicted of a sexual offence, not just those who offended against a child (Letourneau & Levenson, 2010). The perceived concern is linked to polymorphic offending discussed in Chapter 1 (e.g., Stephens, Seto et al., 2018). With over 70% of males convicted of a sexual offence showing some age variability in one study (i.e., Heil et al., 2003), policymakers have not assumed that victim specialization is the norm.

Sampling the population of adult males convicted of sexual offences provides a reasonable balance of potential populations for representing pedophilia in taxometric analysis. There is also strong potential that the findings about pedophilia in this population could inform policy and practice.

### **Sample Selection and Base Rate Estimation**

The relationship between preselection and base rate estimation was left until the end of this chapter because it is not an overall priority of this dissertation. Each taxometric procedure is associated with a mechanism for estimating the taxon base rate (further discussed in Chapter 5). Should research identify that pedophilia is a taxon, the base rates produced in those studies will only reflect the population sampled. In other words, the structural results of the study can be generalized more broadly than the estimated prevalence. Subsequent studies could use an efficient set of indicators to estimate the population base rate within representative samples.

## CHAPTER 4: OVERVIEW OF INDICATOR CONSTRUCTION

*We must measure what is measurable  
and make measurable what cannot  
be measured - Galileo Galilei*

This chapter discusses issues in psychological measurement relevant to the construction of indicators for taxometric analysis. The first half outlines the considerations for building indicators. It begins with a brief introduction to the logic of psychological measurement, with a specific focus on the concept of measurement models (i.e., the proposed relationships between latent constructs and the manifest variables used to characterize them). The focus then turns to the requirements for manifest variables before they can be used as indicators in taxometric analysis. The latter half of the chapter addresses how these considerations were applied to create a set of pedophilic indicators that have the potential to identify a taxonic structure in the data, but which do not distort information in such a way as to make dimensionality unlikely.

### **On Measuring Latent Constructs with Manifest Variables**

Measurement is a procedure for identifying values of quantifiable variables through their numerical relationships to other values (Michell, 1990). Take a simple example. We wish to know the length of a blue whale. This may be done by relating the blue whale's length to that called a meter. The whale is found to be  $r$  meters long (where  $r$  represents a real number). Here,  $r$  is the ratio of the length of the blue whale to that of a meter, and this fact enables the length of the whale to be characterized. More generally, in measurement some (unknown) value of a quantifiable variable is identified as being  $r$  units.

It can be difficult to separate language from reality; the problem is the meaning of measurement statements. Consider the statement, "A blue whale is 30 meters long". Taken literally, the statement indicates that metricity is somehow a property of the blue whale's length rather than an external means of representation. It would be more accurate to say "The blue

whale's length ( $x$ ) is equal to a value of 30 on the metric scale". This may seem like a pedantic distinction because most would not take the first statement literally. It is easy to picture the isomorphic relationship between a blue whale and a meter. However, the ability to understand the relationship becomes less clear when the blue whale is replaced with a psychological construct.

In psychology, we map numerical structures onto psychological constructs in order to draw empirical conclusions. Numerical measurements, however, do not come from direct observations of the psychological constructs, like they do with measuring the length of the blue whale. A full treatment of this problem is a subject of debate in measurement theory that extends beyond this dissertation. The present concern is that if characteristics of the scale are confused with those of the psychological construct, then any empirical conclusions will fail to penetrate the representation to the reality represented (Michell, 1990). The character of valid inferences from measurements must be relative to scale type, simply because such inferences depend on the character of the empirical information represented.

### **Measurement Models**

Measurement models refer to the implicit or explicit models that relate latent constructs to manifest variables. Several basic questions require consideration prior to building a measurement model (e.g., Bollen, 2001, Moustaki, & Knott, 2000): (a) Are the manifest variable(s) causal or effect in nature? (b) Are there multiple or single manifest variables of the latent construct? (c) Is the latent construct dimensional or categorical? (d) Are the manifest variables dimensional or categorical? (e) Does more than one latent construct influence the manifest variable? (f) Should some manifest variables be weighted differently than others? (g) What is the relationship between the manifest variables and the latent construct (e.g., linear,

logistic)? As question (c) is the focus of a taxometric study, this research program could be characterized as an effort to build a better measurement model of pedophilia.

Question (a) is concerned with whether the manifest variables influence the latent construct (causal) or whether the latent construct drives the manifest variables (effect). The overwhelming majority of social science work on measurement has focused on effect indicators where the manifest variables depend on the latent construct. The primary method for making this determination is performing mental experiments where the researcher imagines whether changes in a manifest variable are likely to result in changes in a latent construct as would occur with causal manifest variables or, vice versa, as would be the case for effect manifest variables. For example, does sexually abusing children (manifest) cause a man to become sexually attracted to children (latent)? Likely not.

Question (b) is whether there are multiple manifest variables that are indicators of the latent variable or just one. For pedophilia, multiple plausible manifest variables were discussed in Chapter 1 related to physical and emotional attraction to children. Having multiple manifest variables is generally preferable because they can lead to a fuller description of the latent construct.

The fourth question (d) —whether the manifest variables are dimensional or categorical—is discussed in more detail in the following section on recommendations for constructing indicators for taxometric analysis. Manifest variables that more closely approximate continuous variables are preferred.

Questions (e) and (f) are whether one or more latent constructs are linked to a manifest variable and, if so, if they should be weighted equally. In psychology, it is a rare case where a researcher can confidently state a single latent construct is the only determining force behind an

observation. In our context, a man's penile response, or lack of response, to stimuli could be influenced by his chronophilic orientation and sexual self-regulation. The use of multiple manifest variables in a model enables assessments of indicators' quality, the results of which can be used to justify the weighting of information. For example, having a male child victim was given twice the weight of other items in the original Screening Scale for Pedophilic Interests (Seto & Lalumière, 2001).

The final question (g) concerns the expected relationship between the manifest variables and the latent construct measured (Moustaki & Knott, 2000). Observed variables may be binary (e.g., any male victim), categorical (e.g., number of child victims), or metric (e.g., percent full erection). These variables may belong to a normal linear distribution, but they could just as easily belong to a Poisson, Binomial, or log-linear distribution. A measurement model must take into account the scale and distribution of each manifest variable. Changing the scale and distribution of manifest variables alters the link function to the latent variable, and can artificially influence estimates of latent structure using cut kinetics.

For example, consider how the different Grade Point Average scales (a manifest variable) can distort the measurement of academic achievement (a latent construct). Table 4.1 contains the relationship between grade percentage, Ryerson University's Grade Point Average (GPA) in the Faculty of Arts and Sciences, and the British GPA scale (Higher Education Academy, 2015). The GPA scales have different relationships with grade percentage, but both truncate variance unequally, resulting in scaling whose units have an unequal informational value within each scale. Both systems aggregate extreme values in grade percentage into fewer GPA units and make finer discriminations in middle ranges. A single GPA point change at either end of the scale represents greater change than it does in the middle of the scale.

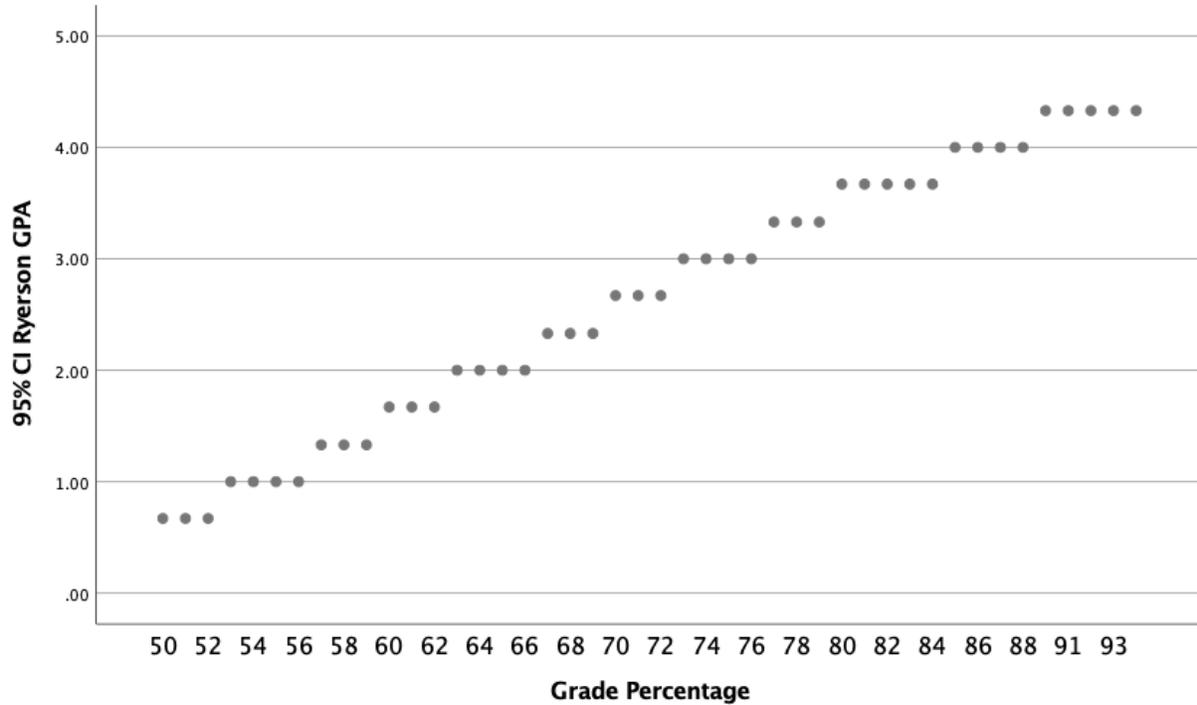
Table 4.1. *Relationship Between Grade Percentage, Ryerson GPA, and British GPA*

%	Ryerson GPA	British GPA	%	Ryerson GPA	British GPA
99	4.33	4.25	69	2.33	3.75
98			68		
97			67		
96			2.00	3.50	66
95					65
94					64
93					63
92			1.67	3.25	62
91					61
90					60
89	4.00	4.25	59	1.33	3.00
88			58		
87			57		
86			56		
85	1.00	2.75	55		
84			54		
83			53		
82	3.67	2.50	52		
81			51		
80	0.67	2.50	50		
79			49		
78			48		
77			47		
76	3.00	2.00	46		
75			45		
74			44		
73	4.00	2.00	43		
72			42		
71			41		
70	2.67	3.75	40	1.50	

To examine the impact of the different GPA scales on the distribution of grades, a simulated dataset of 1,000 cases was created with characteristics typical of Ryerson undergraduate students—a mean grade percentage of 71, a standard deviation of 7, and a range of grades between 50 and 98. The relationship between Ryerson GPA and grade percentage is relatively linear in this simulated dataset (see Figure 4.1). This is not surprising as Ryerson’s GPA construct was created with the Ryerson student population in mind. The truncation of

extreme grade percentages does not significantly influence the distribution of scores because most percentages occur between 60 and 80.

Figure 4.1. *Relationship Between Grade Percentage and Ryerson GPA (N = 1,000)*



A nonlinear function emerges, however, when the grade percentages from the simulated dataset are converted into the British GPA scale (see Figure 4.2). If the British GPA variable was used in a taxometric analysis, a categorical interpretation of data could be made. Participants with grade percentages higher than 74 are aggregated in this GPA system, and would appear to be more homogenous.

Figure 4.2. Relationship Between Grade Percentage and British GPA (N = 1,000)

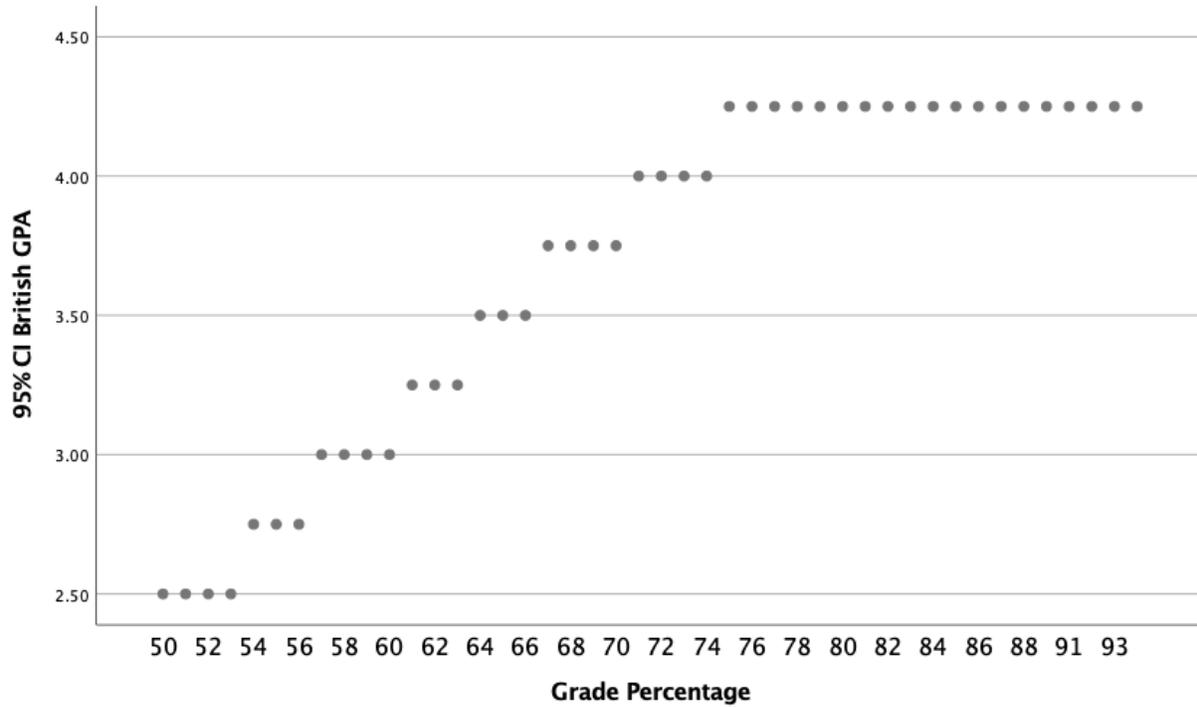
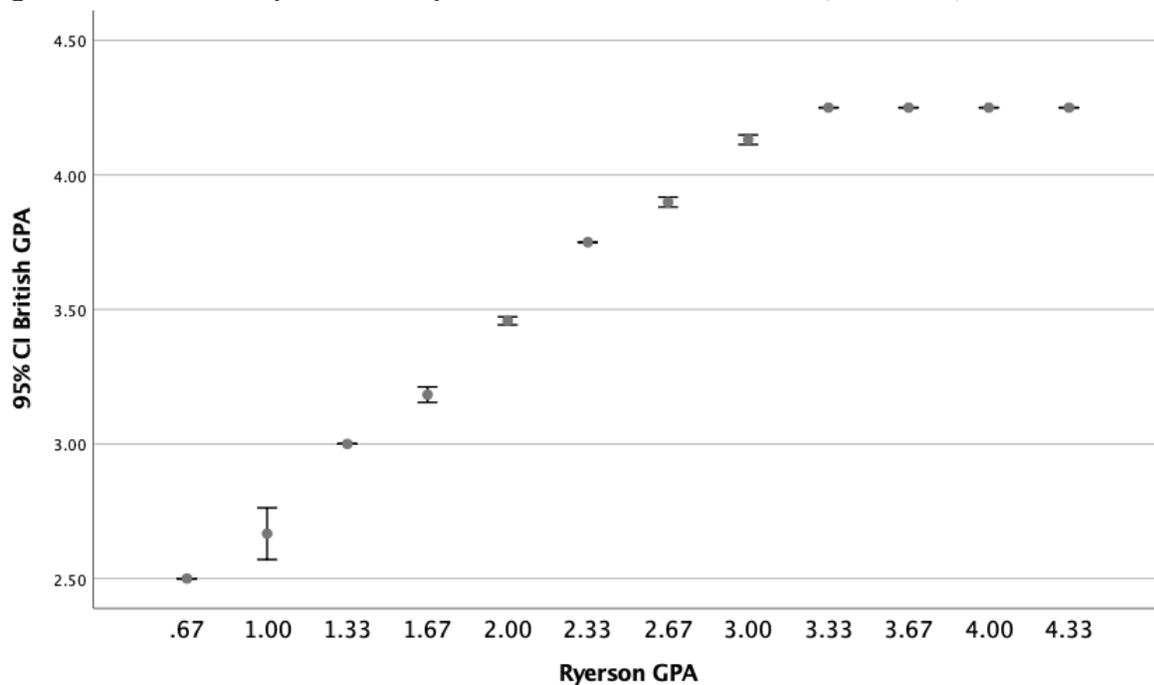


Figure 4.3 shows a logistic relationship between Ryerson’s GPA and the British GPA in the simulated dataset. Values of 1.00 and below on the Ryerson GPA scale show relatively little difference on the British GPA scale. Higher values seem to have a linear relationship until a score of 3.33. After that point, the British GPA scale does not discriminate between the higher levels of the Ryerson GPA scale. Using the British GPA scale would distort values in this dataset.

Figure 4.3. *Relationship Between Ryerson GPA and British GPA (N = 1,000)*



The purpose of this example was to make clear that inferences about an underlying construct must first take into account the impact of scaling. In this example, the British GPA scale aggregated more variance than Ryerson's system amongst the highest scoring students. Awareness of this bias was only possible because a known distribution was used (i.e., the distribution of Ryerson student's grades). If the distribution was unclear, as is often the case with psychological constructs, it would be challenging to know whether the scaling is skewing the representation of the construct.

### **Using Manifest Variables to Create Indicators for Taxometric Analyses**

An indicator can be a single item or rating scale, or a composite of any two or more of the aforementioned that assess the same aspect of the construct (Ruscio et al., 2006). Because the identity of the target construct in a taxometric analysis is primarily determined by the constellation of indicators that are used to study it, indicators must (1) assess all relevant facets of the construct and (2) not measure unrelated constructs.

Taxometric procedures hinge upon mathematical differences between indicators that represent either a single distribution of scores implying a single dimensional factor, or two or more unimodal, overlapping distributions. In other words, a psychological construct is dimensional or taxonic because the indicator set was observed to be dimensional or taxonic. The implication of this seemingly circular line of reasoning is that more continuously scored indicators are preferred even when an underlying construct has a categorical latent structure. The following are best practice recommendations for creating taxometric indicators.

### **Score Distribution**

All indicators must be quasi-continuous and composed of four or more ordered categories (Walters & Ruscio, 2009). Taxometric analyses involve no assumptions regarding normality or continuity; however, deviations from these properties can influence the shape of a taxometric curve and the estimates of taxon base rates (as demonstrated in the above GPA example). Ordinal indicators can also influence curve shape. If participants vary across too few levels of an indicator to allow for multiple meaningful cut-off values to be created, it may be necessary to aggregate indicators into a composite whose distribution better approximates continuity (Ruscio et al., 2006). For these reasons, continuous variables are always preferred to ordinal.

There is a wide range of plausible options when determining scaling of observed data. Decisions based upon previous research allow for a consistent examination of the measurement model. The distribution of observed scores should also be considered when determining scaling. As was demonstrated in the GPA example above, more densely populated regions of the construct allow for finer distinctions to be made in scaling than sparsely populated regions. When less is known about the distribution of the underlying construct, as is presently the case

with pedophilia, scaling decisions are plausible guesses. Structural models should be interpreted with these decisions in mind.

### **Indicator Validity**

Indicators must be able to adequately separate participants into two relatively homogenous groups (i.e., low within-group correlations). This ability is first evaluated by using Cohen's  $d$  and a putative taxon indicator as a grouping variable (e.g., diagnosis of pedophilia). Meehl (1995) recommended a minimum cut off of  $d = 1.25$ , a large effect, in order for analyses to have sufficient power to detect a taxon.

The second evaluation of indicator validity is to examine correlations between indicators. Ideally, between-group correlations should approach  $r = 1.00$  and within-group correlations should approach  $r = .00$ , but taxometric procedures are quite robust to deviations in this regard. Meehl (1995) recommends that  $r$  values not exceed  $.30$  within-group.

One way to reduce nuisance variance is to create indicators that use different methods of assessment (e.g., self-report, clinician rating, physiological assessments). Also, when variables assessing similar aspects of the target are combined (rather than used as separate indicators), the resulting within-group correlations tend to be low (Ruscio et al., 2006).

Meehl's recommendations ( $d > 1.25$  and  $r < .30$ ) were based on Monte Carlo studies using a large sample ( $n = 600$ ) and a high taxon base rate ( $P = .50$ ). Greater deviations from these parameters may require more valid indicators to successfully detect a taxon (Ruscio et al., 2006). For example, analyses using indicators with larger effect sizes (i.e.,  $d > 1.25$ ) are more resilient if within-group correlations are high (i.e.,  $r > .30$ ).

## **Optimal Number of Indicators**

Some taxometric procedures require two indicators; others require three. The addition of more equally valid indicators generally increases the statistical power, and decreases potential distortion effects of other deviations from the ideal (e.g., extreme taxon base rates, small samples; Ruscio et al., 2006). The larger the number of pairwise combinations, the larger the number of curves for interpretation. For example, assigning each of four variables to all possible pairwise input/output indicator combinations generates 12 curves, whereas using each of the four variables as an output indicator in turn, generates four curves (with the remaining three combined to make the input).

The ability to detect a taxon is not improved by adding new indicators that (a) measure the same aspect of the target construct as an existing indicator, (b) have few levels, (c) have little variation across those levels, or (d) have poor discriminate validity. Within-group correlation will also increase if separate indicators are measuring the same part of the construct. Composite indicators of variables measuring the same aspect of the construct are preferred—they also provide a greater range of values than do the corresponding single indicators for rank ordering cases.

Forming composite indicators requires a measurement model; differences in scaling and distribution of values have to be guided by assumptions concerning the construct's characteristics. Let us refer back to the Ryerson GPA scale and British GPA scale from earlier in the chapter as an example. Assume, now, you wanted to examine the latent structure of academic achievement. A unique dataset was available of students who attended both Ryerson and British universities and, subsequently, had grades available using both scales. These variables could be

used separately as indicators. But, because they likely measure the same aspects of academic achievement, an argument could be made for aggregation. How best to do it?

Aggregating the two scales in their raw forms would be unintelligible. Despite using similar numeric ranges, the informational value of each unit is different between scales. A Ryerson GPA of 4.00 does not mean the same thing as it would in the British GPA scale. The British GPA scale is roughly based on a median grade of 60%, whereas the Ryerson GPA scale is based on a median grade of 70%. This knowledge could be used to produce an approximation of the Ryerson GPA using British GPA values (assuming median position in class is a more basic indicator than grades). However, one could plausibly take the information about the scaling of the British GPA scale and transform the other two scales to be centered on a median grade of 60%.

There are several methods to aggregate values. The simplest three are averaging, taking the highest value, and taking the lowest value. Other more complicated approaches (e.g., rolling average) exist. All methods require assumptions about the link function between the manifest variables and the latent construct, or, more specifically, how information should be weighted. In the absence of previous research on the issue, averaging is a defensible approach because all information is weighted equally.

### **Constructing Indicators of Pedophilia**

A limitation in previous taxometric research on pedophilia is the lack of theoretical and methodological consistency with which pedophilia was measured. What follows in this section is a description of how the considerations in the first half of this chapter were applied to the measurement of pedophilia in Chapters 8 and 9.

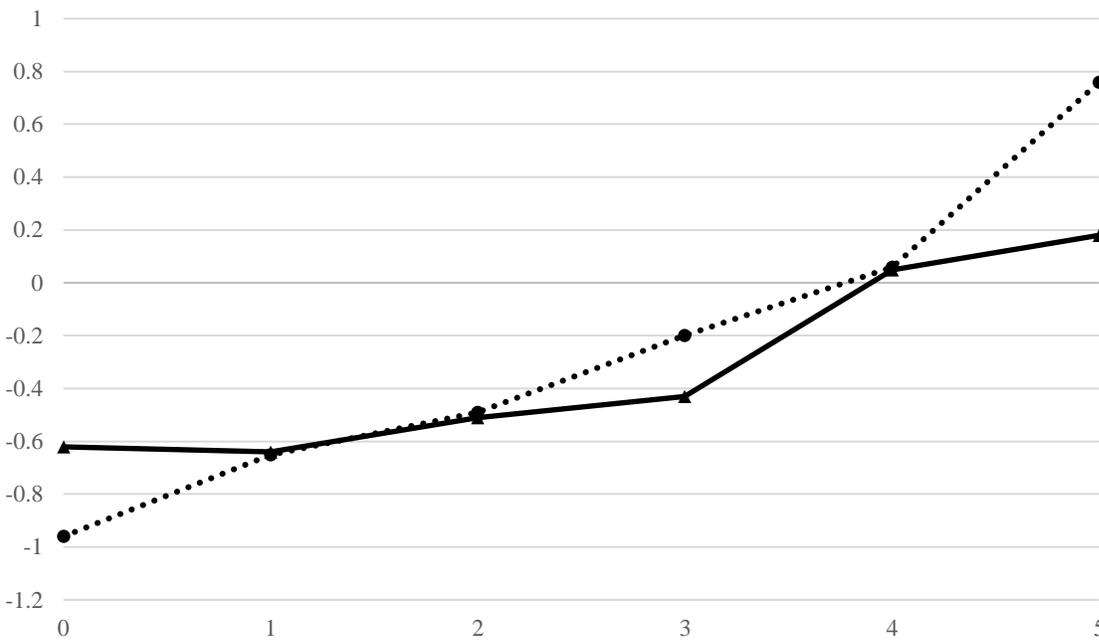
In the current dissertation, the construct of pedophilia is inferred through observations of physical and emotional attraction to pre-pubescent children. A limitation is that the nature of pedophilia is still not well understood; consequently, defining it as having physical and emotional components of attraction is conjectural. Moreover, observed variables are imperfect representations of the constructs measured and are, at best, probabilistic methods for sorting individuals. This section describes a proposed strategy for assembling a set of indicators that is based on both rational and empirical considerations in the absence of a gold standard.

### **The Revised Screening Scale for Pedophilic Interests**

The SSPI-2 (Seto et al., 2017) is a five-item scale used to assess pedophilic physical attraction based on victim information. Individuals are given a score of one for each of the following criteria that are present in their offence history: a male victim under 15 years old; more than one victim under 15 years old; a victim under 12 years old; an extra-familial victim under 15 years old; and a child pornography offence history. Total scores ranged from 0 to 5, with higher scores reflecting greater pedophilic physical attraction.

The SSPI-2 positively correlated with both phallometric results and self-reported sexual interests, suggesting good convergent validity with pedophilic physical attraction (Seto et al., 2017). Examining the relationship between variables provides some insight to the measurement model. Figure 4.4 depicts the mean pedophilic index scores from phallometric assessment for each level of the SSPI-2. The relationship in the development sample was linear, but logistic in the validation sample. In both samples, scores of 4 and 5 on the SSPI-2 were associated with positive pedophilic indices. Although the lack of consistency limits confidence in any specific measurement model, the findings do support a positive relationship between sexual preference for pre-pubescent children and SSPI-2 scores.

Figure 4.4 *Mean Pedophilic Index in Development (●, n = 950) and Validation (▲, n = 950) Sample by Each Level of the SSPI-2*



*Note.* Adapted from “The revised screening scale for pedophilic interests (SSPI-2): Development and criterion-related validation” by Seto and colleagues (2017).

The SSPI-2 was replicated in an independent sample and has also been found to predict sexual reoffending (Seto, Sandler, & Freeman, 2017). The original version of the SSPI has been used as a proxy for sexual arousal to children in research conducted in countries such as Germany, where phallometric testing is not permitted (e.g., Mokros, Dombert, Osterheider, Zappalà, & Santtila, 2010).

Stephens and colleagues (2017) used it previously as an indicator in their taxometric study. In this dissertation, the SSPI-2 provided a consistent indicator of pedophilia across studies and was used as a point of comparison for new variables.

The SSPI-2 was designed for use on adult males convicted of sexual offences against children under the age of 15. As argued in Chapter 3, the samples used in this dissertation will consist of males convicted of sexual offences against victims of any age. Readers will note that

scoring the SSPI-2 on participants with adult-only victims represents a departure from the scale's traditional use.

### **Pedophilic Physical Attraction**

A second measure of pedophilic physical attraction was used to complement the SSPI-2. This measure was a composite of other available information in each dataset that was theoretically associated with pedophilic physical attraction. In order to reduce the potential influence of random scaling, variables were scaled to six levels (0 through 5) to be consistent with the SSPI-2. Other scaling ranges were considered, but sufficient information was available to discriminate between degrees of pedophilic physical attraction using the guidelines in Table 4.2. The resulting variables were averaged to create a more continuous composite indicator.

Table 4.2. *Scaling and Interpretation of Pedophilic Physical Attraction*

Score	Conceptual Meaning	Heuristic
0	Definitely not pedophilic	Beyond a reasonable doubt
1	Probably not pedophilic	Clear and convincing
2	Maybe not pedophilic	Balance of probabilities
3	Maybe pedophilic	Balance of probabilities
4	Probably pedophilic	Clear and convincing
5	Definitely pedophilic	Beyond a reasonable doubt

The first step was to draw from each database a pool of potential variables that measure pedophilic physical attraction. Candidate variables had to meet the rational criterion of reflecting a physical attraction to pre-pubescent children. There must be a reasonable degree of specificity that these variables do not just represent engagement in child sexual abuse. For instance, attitudes supportive of sex with children should be more likely among individuals with

pedophilia, but it is not restricted to that population. Individuals without pedophilia may endorse attitudes supportive of adult-child sex. For example, non-pedophilic men may form beliefs, such as “the child was seducing me”, to rationalize their actions. This belief does not mean that they have a physical attraction to children. The following are general descriptions of the content categories from which candidate variables were drawn.

**Proportion of Tanner 1 Victims.** Pedophilic men are more likely to offend against children in Tanner 1 than all other Tanner stages. This premise can be operationalized using victim age information. Ages can be used to approximate the Tanner stages of victims (see Table 1.1 in Chapter 1 for details). Although children 10 years of age and under do not usually begin puberty, the relationship between age and maturity is imperfect. For example, an American study found the normal onset of puberty in females can range from 8 to 13 years old, and it can range from 9 to 14 years old in males (Lee, 1980). Despite this substantial level of imprecision, age-approximated Tanner stages are often used in research for convenience.

Both datasets had detailed information on victim age for participants’ index (i.e., current) offences and previous known offences. The total number of victims can be used to predict the total number of victims in Tanner 1 using linear regression. The standardized residuals can be used to measure the amount of difference between the observed and expected proportion of Tanner 1 victims. The standardized residuals are the residuals (i.e., the expected subtracted from the observed) divided by the standard error of the estimate. In other words, an individual who is pedophilic would be expected to have a positive standardized residual because they had a higher proportion of Tanner 1 victims. Table 4.3 describes how the standardized residuals were converted into a six-level metric. These thresholds were guided by theory and the observed distribution of scores in the first (Chapter 8) study.

Table 4.3. *Description of Standardized Residual Variable*

Score	Conceptual Meaning	Standardized Residuals
0	Definitely not pedophilic	< - 0.2900
1	Probably not pedophilic	- 0.2901 to 0.2900
2	Maybe not pedophilic	0.2901 to 0.500
3	Maybe pedophilic	(3.5) 0.5001 to 0.9000
4	Probably pedophilic	
5	Definitely pedophilic	> 0.9001

**Professional Judgment.** Information related to atypical sexuality is often collected during clinical interviews for risk assessment or treatment. This information can be standardized (e.g., item on a risk tool) or may be a study specific variable coded for a particular data set. All such variables were considered for inclusion and rescaled based upon the fit between the original coding of the variable and the meaning of the six levels described above.

**Diagnosis.** One particular type of professional judgment is the diagnosis of pedophilia. Including this variable under pedophilic physical attraction is justifiable given the emphasis in the DSM on physical attraction. Its inclusion does provide a problem for evaluating the indicator sets if the variable is also used as the putative taxon indicator. Analyses will be run with and without diagnosis to ensure consistency in results.

### **Pedophilic Emotional Attraction**

A unique contribution of this dissertation was the focus on measuring the emotional bond pedophilic men form with children. These men are more likely to find children less judgemental, more understanding, and easier to relate to than adults. Although it would have been possible to scale this indicator to six levels, similar to the SSPI-2 and Pedophilic Physical Attraction, a less

nuanced scaling was selected because relatively little is known about pedophilic emotional attraction. The information on emotional attraction was scaled to three levels (0 through 2) (see Table 4.4) and then averaged to make a continuous indicator. Inspiration for this scaling came from clinical measures that were available in the research datasets, which all used a three-level scale to discriminate between clinically significant symptoms, sub-clinical symptoms, and normal functioning. Although it is important that the scaling within each composite indicator is consistent, there is no requirement that the scaling between indicators considered in taxometric analysis use the same range of scores. What is important is that there are sufficient gradations within each indicator for cuts to be made.

Table 4.4. *Scaling and Interpretation of Pedophilic Emotional Attraction*

Score	Conceptual Meaning
0	No emotional attraction to children
1	Possible emotional attraction to children
2	Definite emotional attraction to children

Similar to Pedophilic Physical Attraction, the first step in constructing this indicator was to draw a pool of potential variables from each database. Candidate variables had to meet the rational criterion of reflecting a propensity to form unhealthy emotional attachments with children (i.e., “*philia*” in Greek for friendship or brotherly love, as discussed in Chapter 1). There must be a reasonable degree of specificity that these variables do not just represent the love or attachment seen between family members (i.e., “*storge*” in Greek). The following are general descriptions of the content categories from which candidate variables were drawn.

**Professional Judgment.** Information related to atypical social relationships is often collected during clinical interviews for risk assessment or treatment. This information can be

standardized (e.g., item on a risk tool) or may be idiosyncratic to the coding of a particular data set. All such variables were considered for inclusion and rescaled based upon the fit between the original coding of the variable and the meaning of the three levels described above.

**Time Spent with Children (Outside Offending).** Individuals with an emotional attraction to children will express this in their interests and leisure activities (spending time at or working at parks, daycares, swimming pools, or playing primarily child-oriented video games, seeing children's movies or television shows, reading child-oriented comic books, being involved in children's sports leagues). As discussed previously, this type of activity is different from the normal parent-style relationship.

### **Summary**

This chapter introduced the theoretical issues associated with using manifest variables to characterize latent constructs. The concept of measurement models was introduced, along with indicator requirements for taxometric procedures. In the absence of a well-researched measurement model of pedophilia, some arbitrary scaling decisions must be made or accepted (e.g., SSPI-2). To the extent possible, the scaling of all variables was intended to correspond to plausible measurement models and decrease distorting effects of scaling for taxometric analysis of indicators of pedophilia.

## CHAPTER 5: THE TAXOMETRIC METHOD

The taxometric method refers to the techniques used to examine the latent structure of constructs, such as pedophilia. Although the term “taxometrics” can be used to broadly refer to an entire domain of empirical classification techniques (e.g., latent class analysis), it has come to be associated with the approach pioneered by Paul Meehl and colleagues (e.g., Meehl & Yonce, 1994, 1996). It is a set of complementary procedures that can be used to evaluate the latent structure of the construct under investigation. Because many of these procedures are derived in mathematically distinct ways, they provide non-redundant evidence that can be used to check the consistency of results and thereby build confidence in an inference of latent structure.

The present chapter expands upon four of the five taxometric procedures introduced in Chapter 1: MAMBAC (*Mean Above Minus Below A Cut*), MAXCOV (*MAXimum COVariance*), MAXEIG (*MAXimum EIGenvalue*), and L-Mode (*Latent MODE*). The fifth taxometric procedure (i.e., Maximum Slope [MAXSLOPE]) was excluded because, at present, virtually nothing is known about the conditions under which it can distinguish taxonic and dimensional structure. The logic underlying the other four taxometric procedures is described below, including the conceptual rationale and mathematical underpinnings. This chapter then examines the mechanics of how the procedure is implemented, including the critical decisions that must be made when the procedure is applied. These points are illustrated graphically with error-free figures of simulated dimensional and categorical data.

### **Mean Above Minus Below A Cut (MAMBAC)**

The logic of the MAMBAC procedure is that if a taxon exists, then there must be an optimal value of an input indicator that will classify cases into groups with a minimum number of false positives and negatives. At least two indicators are required for MAMBAC: each will

serve as an input and output. If multiple indicators are present, then either all possible pair-wise combinations of indicators can be used (i.e., if  $k$  = number of indicators in a data,  $k[k-1]$ ) or indicators can be collapsed into a single composite input indicator and one indicator repeatedly removed to serve as the output. Composite indicators, for that reason, generally produce more interpretable results.

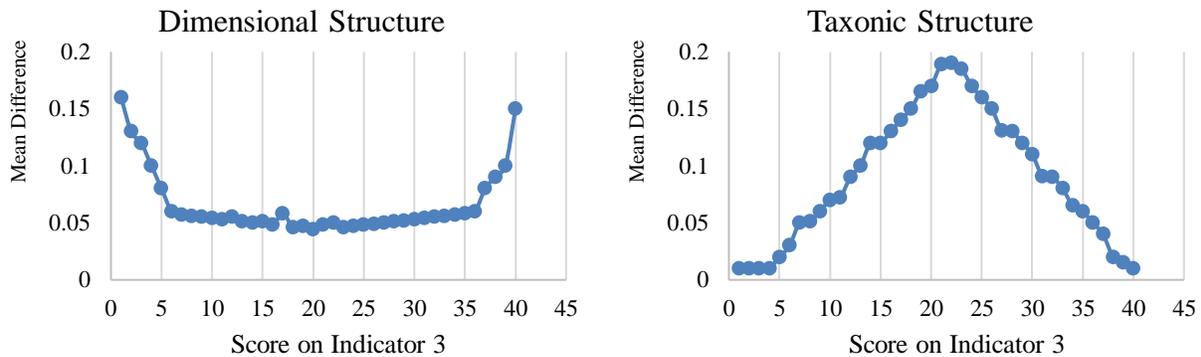
Cuts are made along the indicator to divide participants into those above and those below an indicator cut. There are three ways in which cuts can be made, each with respective benefits and weaknesses. Researchers can make cuts between each successive case, resulting in the greatest number of data points for interpretation. With large datasets, the computational demands significantly outweigh any incremental difference over the following options.

Researchers can also make cuts at every  $n$ th case or, lastly, at fixed  $SD$  intervals (e.g., placing cuts every  $.25 SD$  units along the indicator). Making cuts at every  $n$ th case will often create cuts between equal scoring cases on the input indicator (i.e., ties). Ruscio and colleagues (2006) recommend resolving such issues with a process called *internal replication*. The analyses are repeated, and equal-scoring individuals are reshuffled before computing the MAMBAC values. The results of the replications are averaged and, with increasing numbers of internal replications, the complicating effect of cutting between equal-scoring cases is reduced. This is the strategy used in this dissertation (i.e., with 50 evenly spaced cuts and internal replication to resolve tied scores) as it is preferred to using the  $SD$  strategy, which will often generate too few cuts for interpretation.

Output indicator values are then calculated by taking the difference between mean values from both groups and are then graphed. MAMBAC curves that reach a peak (i.e., inverted U

shapes) are suggestive of a taxonic construct, whereas flatter or U-shaped curves indicate dimensionality (see Figure 5.1, Meehl & Yonce, 1994; Waller & Meehl, 1998).

Figure 5.1. *MAMBAC Error Free Curves*



Taxon base rate can be estimated for each MAMBAC curve using the following equation:

$$\hat{P} = \frac{1}{R + 1}$$

$R$  is equal to the mean difference for the highest cutting score used, divided by the mean difference for the lowest cutting score used.

### **Maximum Covariance (MAXCOV)/ Maximum Eigenvalue (MAXEIG)**

MAXCOV and MAXEIG (Meehl & Yonce, 1996) procedures are discussed together as they share a similar logic, the General Covariance Mixture Theorem, to examine latent structure and, consequently, should not be used in the same study. The General Covariance Mixture Theorem (Meehl, 1973, 1995) can be expressed with the following equation:

$$\text{cov}(xy) = P \text{cov}_t(xy) + Q \text{cov}_c(xy) + PQD_xD_y$$

This equation states that the covariance between a pair of indicators (i.e.,  $\text{cov}[xy]$ ) can be expressed as the sum of the covariance of those indicators in the taxon (i.e.,  $\text{cov}_t[xy]$ ), the covariance in the complement (i.e.,  $\text{cov}_c[xy]$ ), and the magnitude with which each indicator

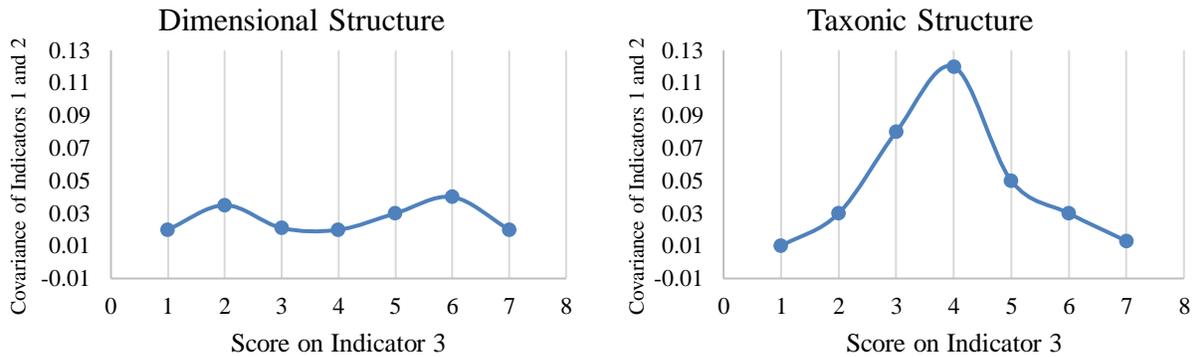
separates the taxon and complement, expressed in unstandardized mean differences (i.e.,  $D_x D_y$ ). Each term is weighted by the base rates of their respective classes, that is the taxon ( $P$ ) and the complement ( $Q$ ).

### **MAXCOV**

In MAXCOV, the General Covariance Mixture Theorem is used to examine the covariance of indicators across multiple subsamples. Indicator construction decisions are similar to MAMBAC except that three variables are required: one acting as an input and two acting as output indicators. With more than three indicators present, one can form all possible combinations (i.e.,  $k[k - 1][k - 2]/2$ ); however, combining a single composite input indicator and systematically removing two output indicators increases discrimination. The number of potential curves using the latter method can be expressed as  $k(k - 1)/2$ . Options for making cuts along the input indicator are the same as MAMBAC.

Figure 5.2 provides graphical examples of taxonic and dimensional structures. Given a taxonic structure, the covariance will reach a maximum value in a subsample consisting of an equal mixture of taxon and complement members as the cut point on the input indicator reaches an optimal cutting point. Conversely, data with a dimensional structure should reveal little changes in subsamples' covariance at different points on the input indicator. Meehl (1973) provided a detailed strategy for using the optimal cutting point to estimate taxon base rate.

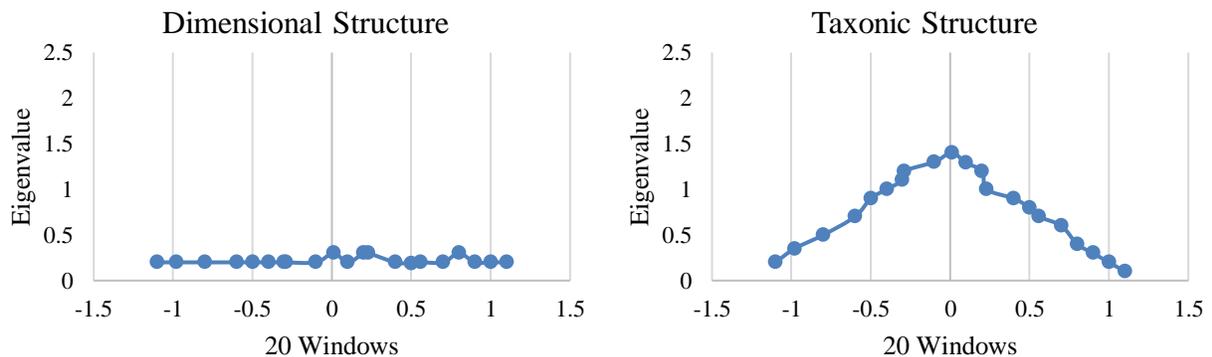
Figure 5.2. MAXCOV Error Free Curves



### MAXEIG

MAXEIG is a multivariate extension of MAXCOV; it can accommodate more than two output indicators by calculating the first (largest) eigenvalue of their covariance matrix (a variance-covariance matrix modified by replacing each variance with 0). See Figure 5.3 for examples of MAXEIG curves for dimensional and taxonic structure. In a study of how best to implement taxometric procedures, Walters and Ruscio (2010) found that results for MAXCOV and MAXEIG were nearly identical, with a very slight edge for MAXEIG. In their study of consistency testing, Ruscio, Walters, Marcus, and Kaczetow (2010) found these procedures correlated at  $r = .999$ .

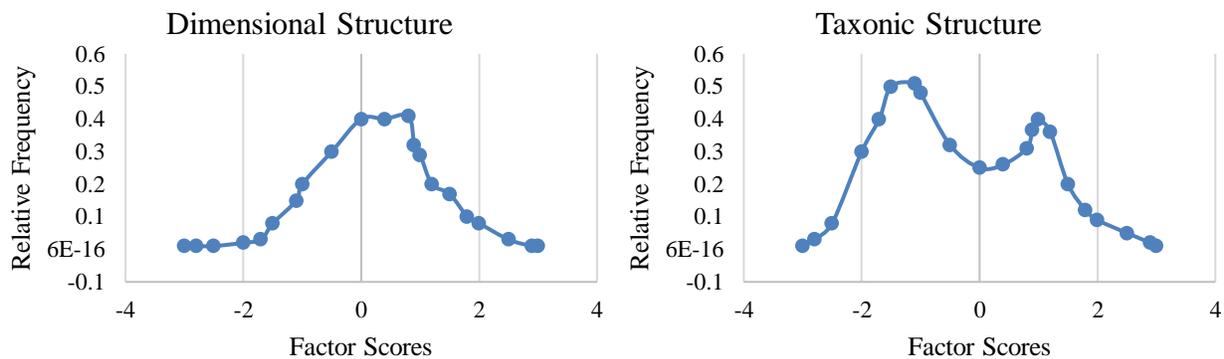
Figure 5.3. MAXEIG Error Free Curves



## Latent Mode (L-Mode)

L-Mode is based on Thurstone's (1935, 1947, as cited in Ruscio et al., 2006) argument that latent factors can provide useful information about categorical, not just dimensional, variables. Unlike the other techniques, it does not examine the relationships among indicators relative to sliding cut points. Instead, participants' factor scores (from the first principal factor) are calculated using Bartlett's (1937) method and the distribution is graphed (see Figure 5.4 for examples). A bimodal plot suggests a taxon, whereas a more unimodal plot is evidence of a dimension (Waller & Meehl, 1998).

Figure 5.4. *L-Mode Error Free Curves*



## Examining Consistency Across Procedures

Instead of visually inspecting graphs and comparing them to an idealized prototype (e.g., the error-free figures previously presented), Ruscio and colleagues (2007) introduced a bootstrapping technique to generate comparison datasets. These datasets have many of the original dataset's characteristics (e.g., number of variables, correlation matrices), but have either a taxonic or dimensional structure (Ruscio & Kaczetow, 2008). Given that taxometric procedures require large samples, relatively few simulated datasets are need; 100 has been used as a heuristic but as few as 25, or even 10, have performed adequately with optimal data (Haslam &

Kim, 2002; Meehl, 1995; Ruscio et al., 2007). Simulated datasets are then submitted to the planned taxometric procedures.

Relative fit between results from the comparison data and obtained data is measured by the comparison curve fit index (CCFI; Ruscio et al., 2007). The Root Mean Square Residual (RMSR) is first calculated by summing the squared differences between an existing data point in the obtained data ( $y_{res.data}$ ) and its corresponding data point in the simulated data ( $y_{sim.data}$ ), and then averaging it by the number of data points and the curve.

$$Fit_{RMSR} = \sqrt{\frac{\sum(y_{res.data} - y_{sim.data})^2}{N}}$$

Values of  $Fit_{RMSR}$  approaching 0 correspond to increased curve fit. This process is completed with the simulated dimensional data (i.e.,  $Fit_{RMSR-dim}$ ) and taxonic data (i.e.,  $Fit_{RMSR-tax}$ ).

These two values are integrated into a final statistic using the following formula:

$$CCFI = \frac{Fit_{RMSR-dim}}{Fit_{RMSR-dim} + Fit_{RMSR-tax}}$$

A CCFI approaching .00 is interpreted as there being fewer differences between the obtained data and simulated dimensional data than there was with the simulated taxonic data. CCFI values approaching 1.00 would indicate greater similarity between the obtained data and simulated taxonic data. CCFI scores around .50 are interpreted as equivocal support for both the dimensional or taxonic hypotheses (obtained when  $Fit_{RMSR-dim} = Fit_{RMSR-tax}$ ).

Several Monte Carlo studies have established the CCFI as a robust measure of relative fit (Ruscio, Carney, Dever, Pliskin, & Wang, 2018; Ruscio et al., 2010). For example, Ruscio and colleagues (2010) demonstrated that classifying data as categorical when  $CCFI > .50$  and as dimensional when  $CCFI < .50$  achieved an accuracy rate of 98.0%. This rate can be bumped to 99.4% if investigators are willing to categorize 5.2% of results with  $.45 \leq CCFI \leq .55$  as

ambiguous. The use of a single (i.e.,  $CCFI < .50$ ) or dual (e.g.,  $.45 \leq CCFI \leq .55$ ) interpretive threshold is consequently defensible.

### **What to do When Datasets' Characteristics Violate Multiple Assumptions**

The data requirements for taxometric analysis discussed in Chapters 3 and 4 are summarized in Table 5.1. In the presence of unfavourable data conditions (i.e., multiple violated assumptions), the following conservative procedures can increase confidence and interpretability of results. Researchers should use dual interpretation thresholds (i.e.,  $.45 \leq CCFI \leq .55$ ) instead of a single threshold and adopt the multiple hurdles approach (Ahmed, 2010; Ruscio & Kacetow, 2009; Ruscio et al., 2007). The latter involves interpreting results as indicative of taxonic or dimensional structure only when the majority of CCFIs (i.e., two out of the three CCFIs produced by the MAMBAC, MAXEIG, and L-Mode procedures) or the mean of the three CCFIs exceed the dual thresholds. Findings from simulated (Ahmed, 2010) and research (McPhail et al., 2018) datasets demonstrate the usefulness of this approach.

Table 5.1. *Data Requirements for Taxometric Analysis*

---

Sampling Considerations (discussed in Chapter 3)	
✓	Sample size > 300 cases
✓	At least 150 taxon members
✓	At least 150 complement members
✓	Ratio between taxon and complements approximates 1:1
✓	Sample represents full range of scores
✓	Problematic sampling strategies avoided
	X Admixing different samples
	X Splitting sample into subsamples for analysis
	X Removing extreme cases
Indicator Characteristics (discussed in Chapter 4)	
✓	Indicators composed of 4 or more levels
✓	Cohen's $d \geq 1.25$
✓	Within-group correlations < .30
✓	Between-group correlations > within-group correlations
✓	Skew < 1.00

---

## **CHAPTER 6: EXAMINING THE VALIDITY OF PEDOPHILIA'S LATENT STRUCTURE**

Regardless of whether the results of Chapters 8 and 9 suggest a taxonic or dimensional structure to pedophilia, it would be useful to follow up with additional analyses exploring construct validity. Psychological constructs are not directly observable, so they are defined in terms of theoretically coherent sets of statements that map out the core features and correlates of the construct. The logic of construct validation is testing the statements associated with the construct. As discussed in Chapter 4, a numerical framework is imposed onto psychological constructs in order to turn those statements into empirically testable hypotheses.

The focus of this dissertation is on the latent structure of pedophilia. Consequently, the resultant structural models in Chapters 8 and 9 advanced our understanding by elaborating and testing a network of statements about pedophilia (i.e., nomological net, Cronbach & Meehl, 1955). In other words, the dissertation's studies explored the extent to which the features that we expect to describe pedophilia similarly describe the structural model (dimension or taxon) supported by taxometric analysis.

The proposed nomological net for pedophilia was based on the theoretical developments of Chapter 4, which provided the rationale for selecting variables to create indicators of pedophilia. The remainder of this chapter provides a rationale for selecting variables within four domains to test construct validity. This chapter is organized in order of decreasing relatedness to pedophilia. The first section discusses the core features of pedophilia, itself; the second and third sections examine variables that are closely related to, but currently thought to be distinct from, pedophilia (i.e., interpersonal deficits and neurodevelopmental perturbations). The last section examines constructs relevant to public safety and the protection of children.

## **Pedophilia**

The structural models in Chapters 8 and 9 were produced by taxometrically analyzing indicators of pedophilia. But any model based on manifest indicators will be, at best, an imperfect representation of the underlying construct. This is partly due to the fact that manifest indicators are often influenced by more than one latent construct. It should not then be taken for granted that the structural models actually reflect pedophilia. This requires empirical justification.

The first step in analyzing the construct validity of the structural models is to examine core features of the target construct. In Chapter 1, a definition of pedophilia was provided that included a physical and emotional attraction to pre-pubescent children. This definition can be operationalized by examining the relationship between the structural model and the indicators of pedophilia described in Chapter 4.

## **Interpersonal Deficits**

The attraction experienced by men with pedophilia cannot be acted upon without causing harm to others. To the extent, then, that these men are unable to act on their physical and emotional desires to connect with children, or are uninterested in pursuing intimate relationships with adults, such men are expected to display interpersonal deficits. Previous studies have indicated that men who offend against children show social skill deficits (Abracen et al., 2004), are passive (Segal & Marshall, 1985), and experience fear of intimacy (Bumby & Hansen, 1997). Not all men who offend against children are, however, pedophilic.

It was expected that in so far as the structural model reflects pedophilia, it should also be associated with deficits in interpersonal functioning. The first step in testing this statement was identifying potential variables in each dataset that measure the quality of interpersonal

functioning. The ideal candidate variables would be influenced only by the latent constructs of pedophilia and interpersonal functioning. However, some saturation with secondary constructs is unavoidable. For example, being married is a plausible indicator of interpersonal functioning and normative sexual orientation, but it is also influenced by age (i.e., older people have had more opportunities to get married).

### **Neurodevelopmental Phenomena**

Brain abnormalities feature prominently in etiological models of pedophilia (e.g., Alanko et al., 2013; Blanchard et al., 2012; Cantor, Blanchard, Robichaud, & Christensen, 2005). The brain must be involved in pedophilia because all psychological traits and behaviour involve the brain (Seto, 2018a). Evidence for the causal role of neurodevelopmental perturbations comes from prenatal and perinatal risk factors (which necessarily precede any manifestation of sexual interests). As well, it is supported by evidence of differences in brain structure and/or function between individuals who have committed sexual offences against children and other individuals.

Consistent with the idea of prenatal factors influencing the onset of pedophilia, high rates of non-right-handedness, low weight, short stature, and minor physical abnormalities are associated with pedophilia (Dyshniku, Murray, Fazio, Lykins, & Cantor, 2015; Suchy, Eastvold, Strassberg, & Franchow, 2014). Handedness emerges prenatally and non-right-handedness is an indication of neurodevelopmental perturbations. Greater non-right-handedness is also associated with non-heterosexual sexual orientation (Lalumière, Blanchard, & Zucker, 2000). Minor physical anomalies are small deviations in structure that arise because of developmental perturbation during the first and early second trimester (e.g., wide-set eyes, curved pinky fingers, low-set ears; Waldrop & Halverson, 1971). Perturbations are associated with mental disorders believed to be neurodevelopmental, such as schizophrenia, autism, and attention-

deficit/hyperactivity disorder (e.g., Ismail, Canto-Graae, & McNeil, 1998; Sommer, Aleman, Ramsey, Bouma, & Kahn, 2001). Lower intellectual ability is reliably associated with pedophilia (e.g., Cantor, Blanchard, Robichaud, & Christensen, 2005); intelligence is both moderately heritable and influenced by the prenatal environments (Nisbett et al., 2012).

There are three explanations of pedophilia that implicate the brain's structure (Cantor et al., 2008). The first explanation implicates frontal brain regions: pedophilic physical attraction could represent an inability to inhibit sexual impulses (e.g., Flor-Henry, Lang, Koles, & Frenzel, 1991; Schiffer et al., 2007; Stone & Thompson, 2001). The underlying assumption is that many men exhibit some sexual response to children and that pedophilia is a failure to inhibit that response. The second explanation implicates the temporal-limbic structures that help regulate sexual behaviour (e.g., Langevin, Wortzman, Wright, & Handy, 1989; Schiltz et al., 2007). A third explanation involves deficiencies in white matter in the areas involved in the processing of sexual cues (Cantor et al., 2008; Poepl et al., 2015). Imaging studies also found an association between pedophilia and the pattern of brain activation to child versus adult stimuli, although the implicated structures vary by study (e.g., Poepl et al., 2011; Walter et al., 2007).

Overall, there is compelling evidence for the brain to have a causal role in pedophilia. The research has yet to establish consensus, however, on the specific structural or functional features of the brain are related to pedophilia. Methodological limitations leave it unclear if the brain's role in pedophilia is distinct from other atypical sexual interests, or even if they are restricted to issues with sexual regulation and antisociality. Neurodevelopmental perturbations should still be positively associated with pedophilia in whichever structural model is supported by taxometric analyses. Potential variables in each dataset were identified to test this statement.

## **Risk-Relevant Constructs**

Understanding the latent structure of pedophilia should inform risk management and prevention related to child sexual abuse and exploitation. The two major risk domains supported by empirical research are (a) rule breaking and criminal behaviour, and (b) sex crime-specific problems (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2004, 2005).

### **General Criminality**

Many factors can bring individuals into contact with the criminal justice system (e.g., unemployment, poor use of free time), and these factors can also increase the likelihood that an individual will commit a sexual crime. The most important personality feature is a propensity for rule-breaking and violating the rights of others (i.e., antisociality). Speaking to the concerns of this dissertation, the latent structure of antisociality has been studied and there is consensus that it is a dimension, not a taxon (e.g., Guay et al., 2007; Lilienfeld, Edens, & Poythress, 2006; Walters, Duncan, & Mitchell-Perez, 2007).

There is growing evidence that pedophilia in criminal justice samples is negatively related to general criminality (e.g., Babchishin et al., 2011; Baxter, Marshall, Barbaree, Davidson, & Malcolm, 1984; Lussier, LeBlanc, Proulx, 2005). In other words, men convicted of a sexual offence and who also have pedophilia are less antisocial and less likely to engage in non-sexual criminal behaviour than men who have a similar criminal history and do not have pedophilia. Research on users of child sexual exploitation materials (e.g., “child porn”) find that antisociality predicts crossover into contact offending (Babchishin, Hanson, & VanZuylen, 2014). It may be the case that antisociality is related to the degree of intrusiveness or violence associated with the criminal behaviour (i.e., non-contact versus contact), whereas pedophilia explains their target preference.

## **Sex-Crime Specific Risk Factors**

Sex-crime specific risk factors are a loosely related collection of constructs that contribute to sexual offending. The first group of constructs are paraphilias, the most common of which are codified in the DSM. Different explanatory structures have been imposed upon the paraphilias to explain observed co-occurrence (e.g., courtship disorders of voyeurism, exhibitionism, and frotterurism; Freund & Seto, 1998; Freund et al., 1997), but no particular explanation has consensus. The second group of constructs relate to sexual regulation, examples of which have been described as hypersexuality, sexual preoccupation, and sexualized coping.

There are two distinctions between general and sex-crime specific risk factors that are important for the current discussion. First, pedophilia is expected to be positively, not negatively, related to other aspects of risk factors specifically related to sexual offending (as it has been elsewhere, Abel et al., 1988; Bradford, Boulet, & Pawlak, 1992). Second, our understanding of sex-crime specific risk factors, especially outside of pedophilia, is quite poor compared to our understanding of general risk factors. This makes it difficult to anticipate how pedophilia will be related to other risk factors specific to sexual offending (except that positive associations are expected).

The co-occurrence of pedophilia and other sex-crime specific risk factors may be meaningful, arising from discrete conditions that are commonly found within the same individual because they are etiologically related (e.g., they share a common cause, or one is a risk factor for another); or the co-occurrence may be artifactual, reflecting an overlap that exists only at the manifest level and that could (at least in principle) disappear following changes in sampling, classification, or measurement. For example, co-occurrence could reflect an underlying disturbance of the serotonergic brain systems, because serotonin is associated with mood, sexual

behaviour, and aggression (Kafka, 1997). Alternately, observed co-occurrence of pedophilia with other constructs in samples of men convicted of sexual offences could be attributed to a self-selection effect. Men who experience multiple propensities for sexual crime (i.e., pedophilia, voyeurism) would, all things being equal, be more likely to come in contact with the criminal justice system. Some or all of the observed co-occurrences would, in this case, not be attributed to a shared etiology but would be better explained by sample selection processes.

Taxometric research can help to clarify the co-occurrence of psychological constructs. Building an understanding of the relationships between constructs requires investigating their latent structure. Each model of co-occurrence poses a specific, testable prediction about the relation between the constructs at the latent levels. Many of these models can be tested through taxometric analysis. The first step is to apply taxometric analyses to each disorder in turn to determine whether it is dimensional or categorical (Ruscio & Ruscio, 2004a). Based on the results, researchers could assign participants to taxon/complement or locate them along a latent dimension for each construct. Then, using traditional measures of association, they could examine the nature and degree of the relation between constructs.

### **Variable Selection**

The first step in each study in this dissertation was to draw a pool of potential variables from each database. Candidate variables would be related to antisociality (e.g., conduct disorder, conflict with authority) or atypical sexuality (e.g., presence of paraphilia, problematic masturbation). There should be a reasonable expectation that these variables do not just represent descriptions or normative judgments about participants' sexuality (e.g., gender orientation). Given the importance of measuring these constructs in correctional settings, several pre-existing measures were available. The following are descriptions of these measures.

**Three Dimensions from Static-99R/Static-2002R** (Brouillette-Alarie, Babchishin, Hanson, & Helmus, 2016; Brouillette-Alarie & Hanson, 2015). Static-99R (Hanson & Thornton, 2000; Helmus, Thornton, Hanson, & Babchishin, 2012) and Static-2002R (Hanson & Thornton, 2003; Helmus et al., 2012) are empirically derived actuarial risk tools designed to measure risk for sexual reoffending amongst adult males charged or convicted of a sexual offence. Factor analyses of the 13 non-redundant items from both tools reveal three latent dimensions: General Criminality, Youthful Stranger Aggression, and Persistence/Paraphilia.

**General Criminality.** The first latent factor is related to the construct of general criminality/antisociality. This broad domain is ubiquitous throughout recidivism risk assessment tools, for obvious reasons. Items loading on this factor are breach of conditional release, years free prior to index offences, prior nonsexual violence, and previous sentencing occasions. Scores on this latent factor predict any type of recidivism, not just sexual recidivism.

**Youthful Stranger Aggression.** The second factor has been described as youthful stranger aggression (Brouillette-Alarie & Hanson, 2015). Items included on this factor are young age, unrelated/unknown sexual victims, and violence in the index offence. Although some authors have interpreted this factor as emotional detachment (Allen & Pflugrad, 2014; Roberts, Doren, & Thornton, 2002), others are concerned that it is a statistical artifact devoid of any psychological meaning (Brouillette-Alarie et al., 2016; Knight & Thornton, 2007). It has also been interpreted as a propensity to commit sexual crimes involving an intention to hurt the victim, akin to sadism (Brouillette-Alarie et al., 2017). Like general criminality, this factor predicts all types of recidivism (sexual, violent, general).

**Persistence/Paraphilia.** The items in the Persistent/Paraphilia factor are related to persistent sexual offending (e.g., total prior sexual offences) and paraphilias (e.g., child victims,

non-contact sexual offences). This factor also correlates with poor sexual self-regulation (e.g., sexual preoccupation, sex as a coping strategy; Brouillette-Alarie & Hanson, 2015). This factor is only predictive of sexual recidivism.

**Psychopathy Checklist-Revised (PCL-R, Hare 1990).** The PCL-R is a 20-item rating scale based on a semi-structured interview and review of collateral information. The items are rated on a three-point scale according to the degree to which the individual's personality and behaviour matches the item description. Items are summed for a total score ranging from 0 to 40. The revised scale has a two-factor structure: the interpersonal/ affective and social deviance dimensions. These two dimensions can also be organized into four facets: interpersonal, affective, lifestyle, and antisocial.

### **Summary**

This chapter presented an approach to exploring the construct validity of the structural model by the core features and correlates of pedophilia. The results from these analyses can both inform our understanding of the resultant structural model, and advance our understanding of the latent construct of pedophilia. The next chapter introduces how the methodological decisions about sampling, indicators, and analyses in Chapters 3 through 6 respectively were applied in the selection of datasets used in Chapters 8 and 9.

## CHAPTER 7: RESEARCH PLAN

The first six chapters of this dissertation outlined the intention and approach to examining the latent structure of pedophilia using the taxometric method. Chapter 1 presented a view of pedophilia as a male sexual orientation that involves a physical and emotional attraction to children. Chapter 3 discussed different populations that could be used to study pedophilia, with the goal of representing as full a range of the construct as possible. Chapter 4 introduced the complications associated with measuring latent constructs with manifest variables (i.e., measurement model). Because the measurement model for pedophilia is ill defined, an approach was outlined to use the convergent information from multiple variables. Chapter 5 summarized the taxometric procedures and how results can be integrated into a structural model. Chapter 6 argued for a series of secondary analyses to examine the construct validity of the resultant structural model. The current chapter discusses the process through which the considerations in the preceding chapters were translated into two empirical studies.

The first sampling decision was whether to engage in data collection or make use of archival datasets. Neither option is clearly superior. Prospective data collection allows for a high degree of control over the information collected, with obvious benefits. The large number of participants required for taxometric analysis, and the breadth of information needed to construct high quality indicator variables severely limits the feasibility of original data collection for dissertation research. Regardless of the career stage, secondary use of data is ubiquitous in taxometric research. Indeed, none of the taxometric studies on pedophilia, or other constructs, previously described used prospective data collection.

For taxometric research on pedophilia, existing datasets can be informative if they met certain initial criteria: (a) they sampled adult males convicted of sexual crime; (b) data was

present for at least 300 participants; (c) The dataset contained clinical information relevant to modeling pedophilia (e.g., clinical interview, standardized testing); and (d) other information was available on the associated features of pedophilia (e.g., neurodevelopmental perturbations).

The process of dataset selection revealed an inverse relationship between sample size (b) and detailed clinical information (c and d). Large available datasets, such as the STATIC normative sample ( $N = 8,805$ , Hanson, Thornton, Helmus, & Babchishin, 2016) or a complete provincial sample ( $N = 4,511$ , Hanson, Helmus, Babchishin, & Zabaraukas, 2017), had insufficient information to identify and characterize pedophilia in their samples.

Datasets that had sufficient information for taxometric analyses were potentially smaller (i.e.,  $N < 1,000$ ) due to the fact that they also sampled higher levels of risk that are, similarly, less populated. The breadth of detail sought after in taxometric studies (see Chapter 4) is typically collected as part of a more intensive assessment process—one that is usually triggered by some clinical concerns (i.e., the individual is at a higher risk to reoffend).

Three samples were originally identified in the dissertation proposal for use: one sample from Massachusetts ( $N = 836$ ), one from across Canada ( $N = 407$ ), and one from Québec ( $N = 541$ ). Variables were examined to determine if sufficient information was present to model pedophilia. This included the identification of a putative taxon indicator and three indicators representing physical and emotional attraction to children. The Québec sample had insufficient information concerning pedophilic emotional attraction for use in this dissertation and was subsequently dropped. The process through which decisions from Chapter 4 were implemented in creating indicators for taxometric analysis for the Massachusetts and Canada-wide sample are described in Chapters 8 and 9 respectively.

Taxometric analyses were conducted in the R environment (R Core Team, 2018) using the updated taxometric package developed by Ruscio and Wang (2017). All previous taxometric studies on pedophilia used an earlier version of this package (e.g., Ruscio, 2014). Although the described improvements focus primarily on increased efficiency in computation, the authors have made enough other changes that they strongly recommend against using prior versions.

The final set of analyses in each study concerned the construct validity of the resulting structural model. Dimensional and taxonic models, however, require different methods for testing such relationships. If the construct is taxonic, the analyses are based upon group comparisons. Planned analyses are more complicated if the construct is dimensional. A research program would be required to define a measure of the dimension. Such a program would involve examining the number of dimensions that exist within the construct (e.g., exploratory factor analysis, principal component analysis), identifying variable “discrimination” and “difficulty” (i.e., the use of item response theory to examine how well variables discriminate between levels of the construct), and internal consistency. As both studies found taxa, a dimensional research program is not discussed in this dissertation.

## **CHAPTER 8: STUDY 1, MASSACHUSETTS TREATMENT CENTER**

The first dissertation study on the latent structure of pedophilia used an archival database constructed at the Massachusetts Treatment Center (MTC), located at the Bridgewater Correctional Complex in Bridgewater, Massachusetts. The MTC was established in 1959 under the authority of Massachusetts General Law Chapter 123A for the purpose of providing a secure, centralized facility for the treatment and management of adult males judged to be ‘Sexually Dangerous Persons’ and at high risk of sexual recidivism. Individuals convicted of a sexual offence were typically referred for possible transfer to the MTC by their local prisons and received full evaluations if initial screening suggested reasonable cause for commitment. Those deemed to pose the greatest threat to public safety were subsequently detained indefinitely at the MTC under state civil commitment authority, until such time as they were judged to be no longer sexually dangerous.

The MTC database is well suited for taxometric studies due to the quality of the data sources and the care used to code them. The primary data sources were the clinical records compiled during the 60-day evaluations at the MTC, as well as institutional records accrued for individuals who were subsequently detained at the MTC. Evaluation records included diagnostic assessments and clinical interviews by a psychiatrist, as well as multiple external sources such as police, court, and legal reports, school and employment reports, and past institutionalization records.

Trained research assistants coded individuals evaluated at the MTC between 1959 and 1984 using a comprehensive questionnaire (see Bard et al., 1987 for a description). The questionnaire addressed criminal history, demographic information (e.g., education, employment, medical, and developmental history), and mental health. As well, it included a

number of scales addressing social competence, offence planning, and antisocial behaviour. Variables were coded by multiple research assistants over the years who were blind to research hypotheses, with high interrater reliabilities on all checked variables (nearly all  $r$ 's > .80; Prentky, Knight, Rosenberg, & Lee, 1989). In most cases, the reliability of the ratings was further increased by resolving discrepancies between raters (exceptions will be discussed below). Raters attempted to complete as many questionnaire items on each participant as possible but, given that the archival record sources unavoidably differed in completeness and quality, items were coded as missing if available information was insufficient or ambiguous.

The MTC database has had a prominent role in research on adult males prone to sexual abuse (Knight, 1988). Knight and colleagues (1989) developed the MTC Child Molester Typology, Version 3 (MTC:CM3), a typological classification system for adult males who sexually offend against children based on rational and empirical relations between participants' behaviours, fantasies, and attitudes (Knight, 1989). Researchers have used the MTC:CM3 to classify different samples of individuals who sexually offend against children (Looman, Gauthier, & Boer, 2001), and the different subtypes are associated with distinct psychosocial histories and profiles (Prentky et al., 1989). The validity of the MTC:CM3 remains a topic of scientific inquiry. It is not the only typology referred to by professionals working in the field (e.g., Groth, Burgess, & Holmstrom, 1977; Hazelwood & Douglas, 1980), and Knight continues to explore whether adjustments to this system are justified (Knight & King, 2012). The most significant challenge, however, is that it is not clear that there are actually types to be discovered. The latent structure of constructs that MTC:CM3 measures could be dimensional.

King (2011) used the MTC database in his dissertation to evaluate the latent structure of a neurodevelopmental vulnerability for pedophilia. His indicators were related to

neurodevelopmental functioning (e.g., intelligence, height, scholastic aptitude) rather than sexual attraction. He found evidence for a taxon, CCFIs  $> .60$  that was highly populated by men who have sexually abused a child. These results do not necessarily indicate, however, that sexual attraction to children is taxonic because the taxon was related to neurodevelopmental functioning, not the core feature of pedophilia (sexual attraction to children). King's study, like all previous taxometric studies on pedophilia, also did not include an indicator of emotional attraction to children.

A unique feature of the MTC database is that the emotional attraction to children was explicitly measured in the original study. Knight and colleagues coded the extent to which individuals engaged with children in non-sexual contexts (e.g., scout leaders, teachers). The result was a six-level ordinal variable, "Aim-Inhibited Relationships with Children", which discriminated participants based upon the amount of time, frequency, and context of the interaction with children. The database also included the Structured Risk Assessment–Forensic Version (Thornton & Knight, 2010), a structured rating scale for assessing the risk-relevant propensities of adult males with a history of sexual crime, which has an item measuring emotional congruence with children.

The purpose of the current study was to examine whether pedophilia is best represented by a dimension or a category. Although the MTC dataset has already been taxometrically analyzed on a related question, the construct previously investigated was a neurodevelopmental vulnerability for pedophilia. In contrast, this study explicitly measured pedophilia as sexual and emotional attraction to children.

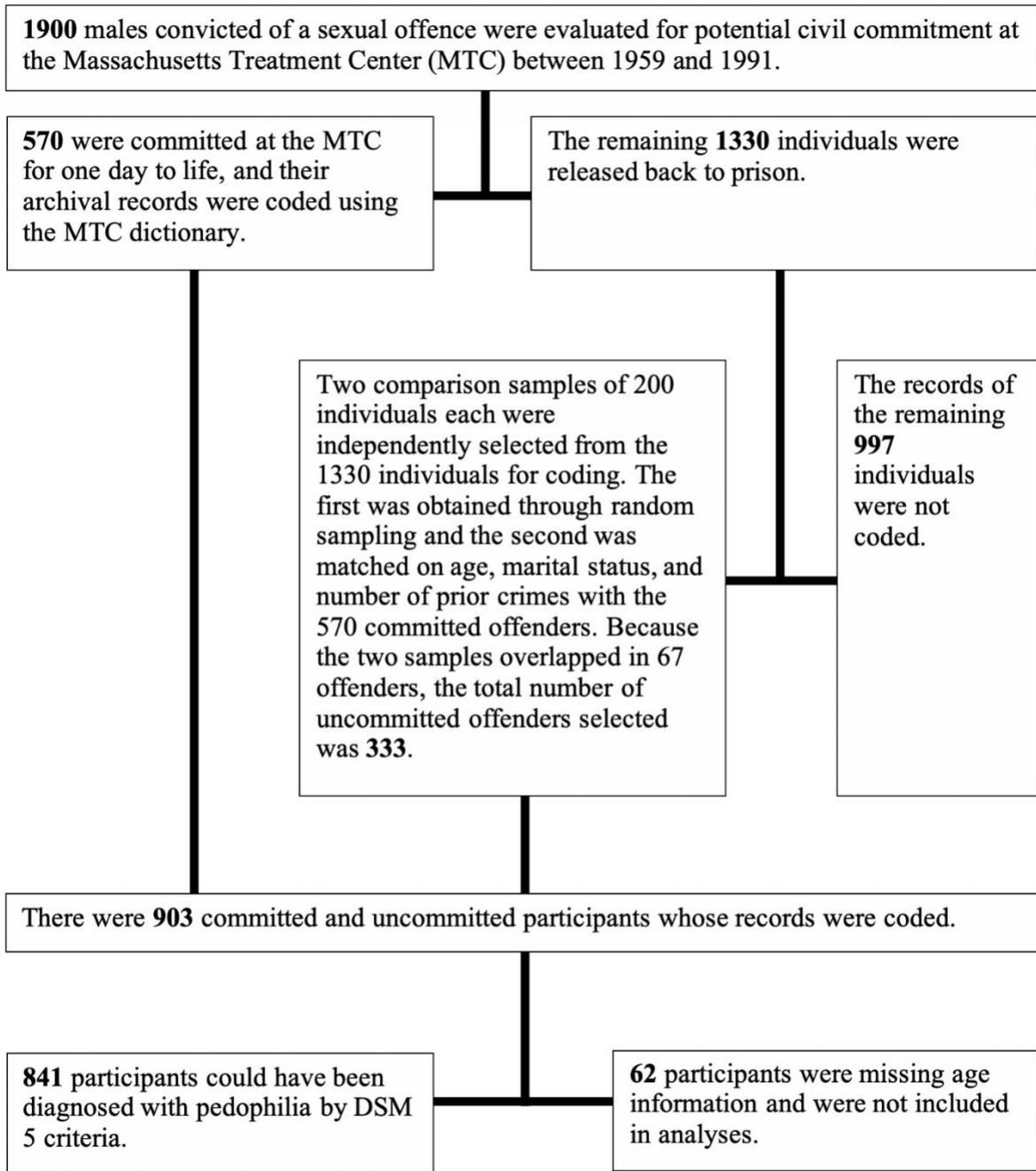
## **Method**

### **Sample**

Figure 8.1 contains a diagram showing the number of participants of the 1,900 adult males referred to the MTC who were selected for coding at each stage. Of the 1,900 individuals evaluated at the MTC, 570 were committed for one day to life. The remaining 1,330 participants were released back to prison. Two comparison samples of 200 individuals each were independently selected from the 1,330 uncommitted individuals for record review and coding. The first sample was obtained through random sampling and the second was matched on age, marital status, and number of prior crimes with the 570 committed individuals. As 67 individuals in the two comparison samples overlapped, the total number of uncommitted individuals selected was 333. Overall, 903 committed and uncommitted participants were coded in the MTC dataset.

Participants' data was included in analyses if they could have been diagnosed with pedophilia at the time of assessment. Inclusion criteria were based on the age cut-off included in DSM 5 (APA, 2013) diagnostic criteria for Pedophilic Disorder. Participants were included if they met the following two criteria: (a) the individual committing the offence was at least 16 years of age at the time of the offence, and (b) if the victim was between 12 and 15 at the time of the offence, there had to be at least a five-year age difference between the victim and the person committing the crime. Offence information was available for up to ten separate offences and up to three different victims within each offence. This meant that information for up to 30 different victims was available for each participant. Of the 903 participants coded in the MTC sample, 841 (93.1% of the full sample) could have been diagnosed with pedophilia based on the above criteria. Note that this proportion included individuals who did not have child victims; although unlikely, it is possible for individuals in this study to report intense, disturbing sexual urges towards children without any official record of them acting on these urges.

Figure 8.1. *Number of Participants Coded at Each Stage of the Study*



## **Putative Taxon Indicator**

A putative taxon indicator was created to separate participants into those who were likely to be pedophilic and those who were not. This step is required prior to taxometric analysis in order to evaluate indicators' validity. Because an appropriate variable did not exist, a coding guide was created for the purpose of this study and the files were reviewed (see Appendix A, "MTC Coding Guide for Pedophilia").

Participants were coded on a three-level ordinal scale as being, 2 "Definitely Pedophilic", 1 "Probably Pedophilic", or 0 "Unlikely to be Pedophilic". Participants were considered to be "Definitely Pedophilic" if there was a clear statement of sexual interest in children. This could have been indicated either by a diagnosis of pedophilia or 'sexual deviant' with a history of offending against children. 'Sexual deviant' was used to describe a wide range of paraphilic behaviour (e.g., homosexuality, sexual sadism) in DSM I (APA, 1952) and DSM II (APA, 1968) before pedophilia was identified as a separate diagnosis in DSM III (APA, 1980).

Participants were considered to be "Probably Pedophilic" if there was strong circumstantial evidence supporting an attraction to children (e.g., a history of offending against multiple victims under the age of 12). Participants were considered "Unlikely to be Pedophilic" if neither of the above two criteria applied. After reviewing the distribution of scores and their correlates, the "Probably Pedophilic" participants were combined with the "Definitely Pedophilic" participants to create a dichotomous taxon indicator.

## **Indicators of Pedophilia**

Three indicators of pedophilia were constructed for the taxometric analyses: (a) a pre-existing screening scale of physical attraction to children based on criminal history; (b) a composite measure of physical attraction to children based on pre-existing interview information

and file review; and (c) a composite measure of emotional attraction to children based on pre-existing interview information and file review. This section describes how variables from the MTC dataset were used to construct these indicators (following the guidelines discussed in Chapter 4). The coding of these variables are summarized below.

**The Revised Screening Scale for Pedophilic Interests (SSPI-2;** Seto et al., 2017). The SSPI-2 is a five-item scale used to assess pedophilic physical attraction based on victim information (Seto et al., 2017). Participants were given a point for each of the following items: any male victim under 15 years old; more than one victim under 15 years old; any victim under 12 years old; any extra-familial victim under 15 years old; and any child pornography offence history. As the SSPI-2 was not previously coded in the MTC database, syntax was used to construct items based upon victim information (i.e., age, gender, and relationship to participant) and charges/convictions for child pornography. Data from participants were included if four out of five items of the items could be coded, and the items were summed to create a total score (no prorating).

**Pedophilic Physical Attraction.** The second indicator was constructed following the guidelines outlined in Chapter 4 to complement the SSPI-2 as an indicator of physical attraction to children that minimally relies on criminal history information. This indicator was a composite of four variables: (a) Proportion of Tanner 1 Victims; (b) Fixation on Children based upon the MTC:CM3; (c) Sexual Violence Risk – 20 (SVR-20; Boer, Hart, Kropp, & Webster, 1997), Item 1 “Sexual Deviation”; and (d) Structured Risk Assessment–Forensic Version (SRA-FV; Thornton & Knight, 2010), Item 1 “Sexual Interest in Children”.

***Proportion of Tanner 1 Victims.*** The proportion of Tanner 1 victims in participants’ overall criminal history was computed following the guidelines described in Chapter 4. The total

number of victims, up to 30, was entered into a linear regression model as a predictor and the total number of victims at Tanner stage 1 was entered as the outcome variable. The standardized residuals were saved as a new variable and rescaled using the cut-offs described in Table 4.3 in Chapter 4.

***Fixation on Children from MTC:CM3.*** Participants' fixation on children was coded as part of the MTC:CM3 typology (Knight et al., 1989). The first classificatory level of MTC:CM3 involves a dichotomous decision about a participant's level of fixation on children—that is, the extent to which children comprised a central focus of the participant's sexual and interpersonal fantasies and cognitions (Knight et al., 1989). This typically was judged indirectly using the participant's history of overt sexual and interpersonal behaviour towards children during his lifetime (see Appendix B, "MTC Axis I (from Knight et al., 1989)" for an explicit description of classificatory criteria). This distinction has demonstrated reasonable reliability in previous research ( $\kappa = .67$ ; Knight et al., 1989). The original intent in this decision was to identify participants who had a sexual attraction to children.

The MTC:CM3 judgments were rescaled into a three-level ordinal variable for the purpose of creating a composite indicator of pedophilic physical attraction (i.e., high fixation, low fixation, no fixation). Participants who scored high on fixation were recoded as 4 "Probably pedophilic" instead of 5 "Definitely pedophilic" because the coding manual (see Appendix B) was not created to be consistent with diagnostic criteria of pedophilia. It is therefore possible that a non-trivial number of participants who were coded as highly fixated may not be pedophilic.

Participants who scored low on fixation were recoded as 1 "Probably not pedophilic". They were not scored 0 "Definitely not pedophilic" because, although it is unlikely these participants had a sexual attraction towards children, a history of offending against children

increases the likelihood of sexual attraction towards children above participants with no such history. Participants without a history of offending against children were coded as 0 “Definitely not pedophilic”, as these participants had minimal likelihood of being physically attracted to children.

*Sexual Deviation from SVR-20.* The third variable was taken from the Sexual Violence Risk – 20 (SVR-20; Boer et al., 1997), a structured series of guidelines for assessing factors deemed by professionals to be relevant to the management of risk for sexual offending. There are 20 items in the SVR-20 and each item is rated on a three-level scale: 2 “Yes, the factor is present”, 1 “Possible evidence”, and 0 “No evidence”. The SVR-20 was coded by two raters for a previous study, but there was no process to resolve differences between ratings. Consequently, the variable used was the average of the scores of the original coders (e.g., if the first coder scored 1 and the second coder scored 0, the value in the analysis would be 0.5). The first item of the SVR-20 is Sexual Deviation.

Sexual deviation is defined in the SVR-20 as, “a relatively stable pattern of sexual arousal to inappropriate stimuli (e.g., age-inappropriate or non-consenting people, animals or inanimate objects) that causes distress or social dysfunction” (Boer et al., 1997, p. 2). The item does not exclusively measure pedophilia. To increase the likelihood of measuring a “sexual deviation” related to children, the variable was rescored so that a value higher than 0 was only allowed if the participant had at least one victim age 10 years or under (i.e., probably Tanner Stage 1).

Table 8.1 below describes how the Sexual Deviation item was rescaled to be consistent with the six-level scaling of Pedophilic Physical Attraction. Participants with little to no evidence of a sexual deviation or who only offended against individuals 11 years of age or older were

considered as not pedophilic. Possible evidence of sexual deviation (i.e., coded as 1) was considered ambiguous and recoded as 2.5. Possible to clear evidence of a sexual deviation was considered to fall between maybe and probably pedophilic. Participants who had clear evidence of sexual deviation, and who had victims under the age of 10, were coded as Definitely Pedophilic.

Table 8.1. *Recoding of Item 1 “Sexual Deviation” from SVR-20*

Description	Original	Recoding
Definitely not pedophilic	0	0
Definitely not pedophilic	0.5	0
Maybe not/Maybe pedophilic, has child victim < 10 years of age	1	2.5
Maybe/Probably pedophilic, has child victim < 10 years of age	1.5	3.5
Definitely pedophilic, has child victim < 10 years of age	2	5

***Sexual Interest in Children from SRA-FV.*** The fourth variable was from the Structured Risk Assessment – Forensic Version (SRA-FV; Thornton & Knight, 2010), an adaptation of an earlier version of the scale that was revised and validated using the MTC dataset. The first SRA-FV item was designed to measure an intense interest in, or preference for, sexual activity with children.

Item scoring rules were written so that self-report could be taken into account when this was available, but the items could also be coded on the basis of the behavioural history information commonly available to the evaluators in the archival files. For example, one configuration that could lead to a positive coding of Sexual Interest in Children is “three or more child victims with sexual offending against them spanning more than 6 months,” but this coding could also be given to the participant if he self-reported being sexually attracted to children. For scoring purposes, a child was defined as a female under the age of 13 and a male under the age

of 14. Similar to the SVR-20, items were coded on a three-level scale ranging from 0 to 2, with the final score being the average of the two ratings. Appendix C, “Structured Risk Assessment - Forensic Version, Item 1 – Sexual Interest in Children (from Boer et al., 1997)” contains detailed scoring information.

Table 8.2 below illustrates how the Sexual Interest in Children item was rescaled to be consistent with the six-level scaling of Pedophilic Sexual Attraction. Participants who had little to no evidence of a sexual interest in children were considered as not pedophilic. Possible evidence of sexual interest in children (i.e., coded as 1) was considered ambiguous and recoded as 2.5. Possible to clear evidence of a sexual interest in children was scored as 4 “Probably Pedophilic”. Participants rated as having a sexual interest in children were considered to be definitely pedophilic.

Table 8.2. *Recoding of Item 1 “Sexual Interest in Children” from SRA-FV*

Description	Original	Recoding
Definitely not pedophilic	0	0
Definitely not pedophilic	0.5	0
Maybe not/Maybe pedophilic	1	2.5
Probably pedophilic	1.5	4
Definitely pedophilic	2	5

**Pedophilic Emotional Attraction.** The third indicator was constructed following the guidelines outlined in Chapter 4 to measure individuals who develop inappropriate emotional attachment to and dependency on children. The indicator was composed of three variables: (a) Aim-Inhibited Relationships with Children; (b) Amount of Contact with Children based upon the MTC:CM3; and (c) the SRA-FV, Item 5 “Emotional Congruence with Children”. The characteristics of each variable are described below.

***Aim-Inhibited Relationships with Children.*** Aim-Inhibited Relationships with Children measured the participant’s interaction with children outside of sexual offending (i.e., non-sexual activities). The duration, frequency, and context of these interactions were evaluated and then used to place the participant in one of six ordinal categories. The following table describes how they were recoded to fit the scaling used in this study.

Table 8.3. *Recoding of Aim-Inhibited Relationships with Children Item*

Description	Original	Recoding
Participant only had adult victims or committed incest offences	-2	0
Insufficient information to make a credible rating	-1	-
Absolutely no contact with children outside of offences	0	0
Infrequent, sporadic contact with children apart from offences	1	0.67
Frequent involvement with children in non-sexual activities (e.g., often spends time with children, perhaps as a summer camp counsellor, babysitter, school bus driver)	2	1.33
Participant spends large amount of time with children in non-sexual activities (e.g., boy scout leader, teacher, day care center worker)	3	2

***Amount of Contact with Children from MTC:CM3.*** The second classificatory level of MTC:CM3 involved a hierarchical series of dichotomous decisions about participants’ relationships with children (Knight et al., 1989). The first decision divided participants into two groups depending on the amount of time they spent with children. For those who were judged to have a high amount of contact with children, a second decision was made about the meaning of that contact: Interpersonal or Narcissistic. The Interpersonal group attempted to establish a relationship (not exclusively sexual) with a child, whereas the Narcissistic group sought contact for predominantly sexual reasons.

For those who had low contact with children, a secondary decision distinguished those who inflicted a low amount of physical injury from those who inflicted high injury. The amount of physical injury was not used in the current study to discriminate emotional attraction to children. Table 8.4 describes how participants' MTC:CM3 Axis II positions were transformed into an ordinal variable, and Appendix D, "MTC Axis II (from Knight et al., 1989)" provides more details on the Axis II decision making process. Scoring rules did not incorporate identification as a child or with the concept of childhood.

Table 8.4. *Recoding of Amount of Contact with Children from MTC:CM3*

Score	Conceptual Meaning	MTC:CM3, Axis II
0	No emotional attraction to children	Low Contact, No Contact
1	Possible emotional attraction to children	Narcissistic
2	Definite emotional attraction to children	Interpersonal

***Emotional Congruence with Children.*** The third variable was from the SRA-FV (Thornton & Knight, 2010) and referred to an Emotional Congruence with Children. Participants received higher scores on this item if they found it easier to relate to children than adults, or if they preferred the company and companionship of children to that of adults. Scoring rules did not specifically incorporate identification as a child or with the concept of childhood.

Item scoring rules were written so that self-report could be taken into account when this was available, but the items could also be coded on the basis of the kind of behavioural history information commonly available to the evaluators in the archival files (see Appendix E, "Structured Risk Assessment - Forensic Version, Item 5 – Emotional Congruence with Children (from Thornton & Knight, 2010)" for scoring details). For scoring purposes, a child was defined as a female under the age of 13 and a male under the age of 14. Similar to the SVR-20, items

were coded on a three-level scale ranging from 0 to 2, with the final score being the average of the two ratings. No recoding of the variable was required.

### **Statistical Analyses**

The following taxometric analyses were used to examine pedophilia's latent structure: Mean-Above-Minus-Below-A-Cut (MAMBAC; Meehl & Yonce, 1994), Maximum Eigenvalue (MAXEIG; Waller & Meehl, 1998) and Latent Mode Factor Analysis (L- Mode; Waller & Meehl, 1998). Results from these separate analyses were integrated and interpreted using the Comparison Curve Fit Index (CCFI; Ruscio et al., 2007). For greater detail on these procedures, please see Chapter 5. Taxometric analyses were conducted in the R environment (R Core Team, 2018) using the taxometric package developed by Ruscio and Wang (2017). All data preparation was conducted in SPSS (IBM Corp., 2017).

### **Examining the Validity of the Resultant Structural Model**

Prior to running analyses, it was decided that if the CCFI indicated a categorical structure, follow-up analyses would focus on examining characteristics that distinguished taxon from complement members. First, to what extent were taxon members actually pedophilic? The following five variables, described previously, were selected as correlates of pedophilia because they have high face validity and research supporting their construct validity: Pedophilia diagnosis, Fixation on Children from MTC:CM3, SSPI-2 total scores, number of victims at each Tanner stage, and Aim-Inhibited Relationships with Children.

The second set of analyses concerned the construct validity of the resulting structural model. These analyses focused on replicating the relationships pedophilia has demonstrated with other constructs in other studies. The original MTC coding guide included a number of relevant clinical variables (e.g., late maturation, paraphilic symptoms) scored on a three-point scale

ranging roughly from 0 “No Problems” to 2 “Clinically Significant Problems”. Candidate variables were also taken from pre-existing risk scales (see Walters, Knight, & Thornton, 2008). See Appendix F, “Descriptions of variables used to examine validity in Chapter 8” for a complete description of variables.

## **Results**

### **Putative Taxon Indicator**

File coding resulted in 706 participants (or 83.9% of the 841 participants) having sufficient information to make judgments of pedophilia diagnosis. Approximately half of the participants had only offended against children 15 or younger (49.4%,  $n = 349$ ), the next largest group offended only against adults (35.8%,  $n = 253$ ), and a minority had offended against both (14.7%,  $n = 104$ ). As noted previously, the few cases coded as 1 “Maybe Pedophilic” ( $n = 49$ ) were regrouped as 2 “Definitely Pedophilic”. The result was 282 participants coded as “Definitely Pedophilic” and 424 participants coded as “Not Pedophilic”.

### **Indicator Construction**

Descriptive information for all candidate variables is in Table 8.5. A detailed psychometric examination of each candidate variable was conducted prior to its inclusion. This included examining the distribution of scores for anomalies (e.g., exaggerated skew, empty cells), and the relationship of the measures to the SSPI-2, a credible, independent indicator of pedophilia. The remainder of this section summarizes the findings. Interested parties can refer to Appendix G, “Characteristics of variables used to create indicators in Chapter 8” for the complete set of tables and figures used in this process.

Table 8.5. *Descriptive Statistics and Validity Estimates for Indicators of Pedophilia*

Indicator	Levels	<i>M</i>	<i>SD</i>	<i>n<sub>b</sub></i>	Skew		Kurtosis		Validity		
					Skew	<i>SE</i>	Kurt.	<i>SE</i>	<i>d</i>	LL	UL
SSPI-2 ( $\alpha = .91$ )	6	1.60	1.61	706	0.38	0.092	-1.38	0.18	2.84	2.63	3.05
Pedophilic Physical Attraction ( $\alpha = .89$ )	Cont. <sup>a</sup>	1.81	1.69	706	0.38	0.092	-1.36	0.18	2.66	2.45	2.86
Proportion of Tanner 1 Victims	5	1.59	1.83	706	0.89	0.092	-0.73	0.18	1.20	1.03	1.36
Fixation on Children	3	1.78	1.87	706	0.28	0.092	-1.84	0.18	2.68	2.48	2.89
Sexual Deviation	4	1.98	2.13	561	0.39	0.10	-1.54	0.21	2.09	1.88	2.31
Sexual Interest in Children	5	2.18	2.05	461	0.23	0.11	-1.50	0.23	1.82	1.60	2.04
Pedophilic Emotional Attraction ( $\alpha = .73$ )	Cont. <sup>a</sup>	0.31	0.47	706	1.56	0.092	1.63	0.18	1.90	1.72	2.08
Aim-Inhibited Relationships with Children	4	0.40	0.55	643	1.21	0.096	0.60	0.19	1.81	1.62	2.00
Contact with Children	3	0.22	0.53	706	2.37	0.092	4.52	0.18	0.99	0.83	1.15
Emotional Congruence with Children	5	0.35	0.66	664	1.64	0.095	1.20	0.19	1.76	1.57	1.94

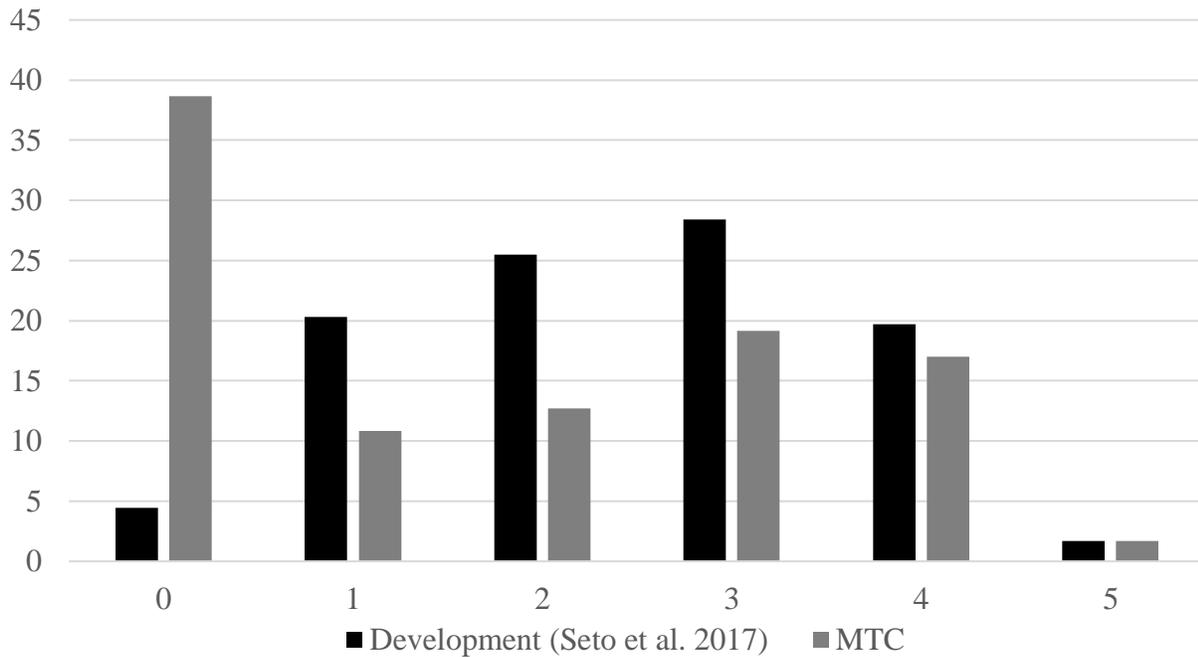
*Note.* The sample size for the ordinal alphas were 768 for SSPI-2, 514 for Pedophilic Sexual Attraction, and 643 for Pedophilic Emotional Attraction.

<sup>a</sup>Continuous variable. <sup>b</sup>Sample size is based upon the number of cases available for taxometric analysis (i.e.,  $n = 706$ ).

**SSPI-2.** Among the 841 participants who could possibly be diagnosed with pedophilia, approximately 27.5% had male victims younger than 15, 40.5% had more than one victim younger than 15, 49.0% had a victim younger than age 12, and 49.5% had an extrafamilial victim younger than 15. Many participants ( $n = 779$ ) had sufficient information available to code the child pornography offence variable. Of these participants, only 3.9% ( $n = 30$ ) had committed a child pornography offence. The low rate of child pornography offences was not surprising given that the original assessment dates range from the 1959 and 1990; these types of offences did not become a high criminal justice priority until policy and legal changes occurred in the last 10 years (reviewed in Seto, 2013). The internal consistency of the SSPI-2 in this sample was high (*Cronbach's* ordinal  $\alpha = .89$ ,  $n = 768$ ).

Figure 8.2 compares the SSPI-2 score distribution (as a percentage) in the MTC sample to the development sample (Seto et al., 2017). The scores in the validation sample appear to be normally distributed. The SSPI-2 mean in the development sample was 2.47 ( $SD = 1.18$ ,  $n = 950$ ) and the median was 2 (Seto et al., 2017). The SSPI-2 mean in the MTC sample was 1.70 ( $SD = 1.60$ ,  $n = 841$ ) and the median was also 2. The distribution in the MTC sample, however, was bi-modal. This difference can largely be attributed to the development sample being restricted to individuals with at least one child victim, whereas individuals who had sexually offended against adults were included in the MTC sample.

Figure 8.2. Comparison of SSPI-2 Total Score Distributions as a Percentage in the MTC Sample ( $n = 841$ ) to the Development Sample ( $n = 950$ , Seto et al., 2017)



In contrast to the development sample, which had a single peak at the mode (3), the MTC sample was bimodal. The largest mode in the MTC sample was at an SSPI-2 score of 0, representing 38.6% of participants compared to 4.4% of the validation sample. The second mode in the MTC sample occurred at a score of 3 (19.1%). Table 8.6 provides for an examination of the relationship between the putative taxon indicator with SSPI-2 total scores ( $n = 706$ ).

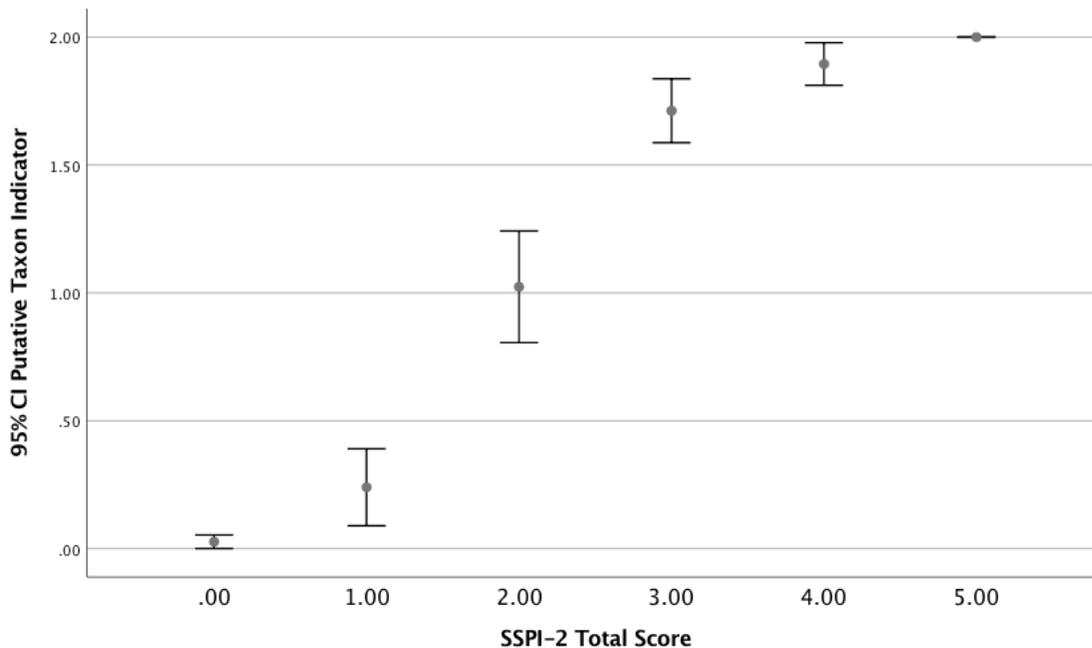
Table 8.6. Relationship Between SSPI-2 Scores and the Putative Taxon Indicator ( $n = 706$ )

Pedophilia	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0 "Not pedophilic"	293	66	41	18	6	0	0.53 (0.93)	0.00	0	424
2 "Pedophilic"	4	9	43	107	108	11	3.20 (0.95)	3.00	4	282
Total	297	75	84	125	114	11	1.60 (1.61)	1.00	0	706

Figure 8.3 graphs the mean scores (and 95% confidence intervals) of the putative taxon indicator for each level of the SSPI-2 ( $n = 706$ ). This figure is an example of a non-linear

relationship between variables, suggestive of a taxon rather than a dimension. Mean differences in pedophilia across different levels of the SSPI-2 were reduced at extreme scores. Participants who had a SSPI-2 score of 3 or higher appeared pedophilic; participants who scored a 0 or 1 were unlikely to be pedophilic. Participants who scored a 2 on the SSPI-2 seemed to be a mix of pedophilic and non-pedophilic.

Figure 8.3. Mean Pedophilia Score by Each Level of the SSPI-2 Total Score ( $n = 706$ )



The overall relationship between SSPI-2 scores and pedophilia diagnosis was large in the MTC sample (Cohen’s  $d = 2.84$ ) and supports its use as an indicator for taxometric analysis. This relationship also supports the SSPI-2’s use as a reference variable to examine the distribution of scores on other variables (see Appendix G for details).

**Pedophilic Physical Attraction.** The descriptive information on all four candidate variables is presented in Table 8.5. These variables had a strong relationship with the putative taxon indicator (i.e., Cohen’s  $d > 1.20$ ). The relationship each variable had with the SSPI-2 appeared more linear than logistic—suggestive of a dimensional interpretation. For example,

Figure 8.4 below displays the mean Sexual Deviation scores for each level of the SSPI-2. There was a relatively large difference in Sexual Deviation scores between scores of 0 and 1 on the SSPI-2, and the overall shape was linear, as mean scores continue to rise on the higher end of the SSPI-2. Readers should remember that examining the bi-variate relationships is a useful heuristic for anticipating latent structure, but does not replace the taxometric procedures themselves.

Figure 8.4. *Mean Sexual Deviation (Recoded) Score by Each Level of the SSPI-2 Total Score (n = 623)*

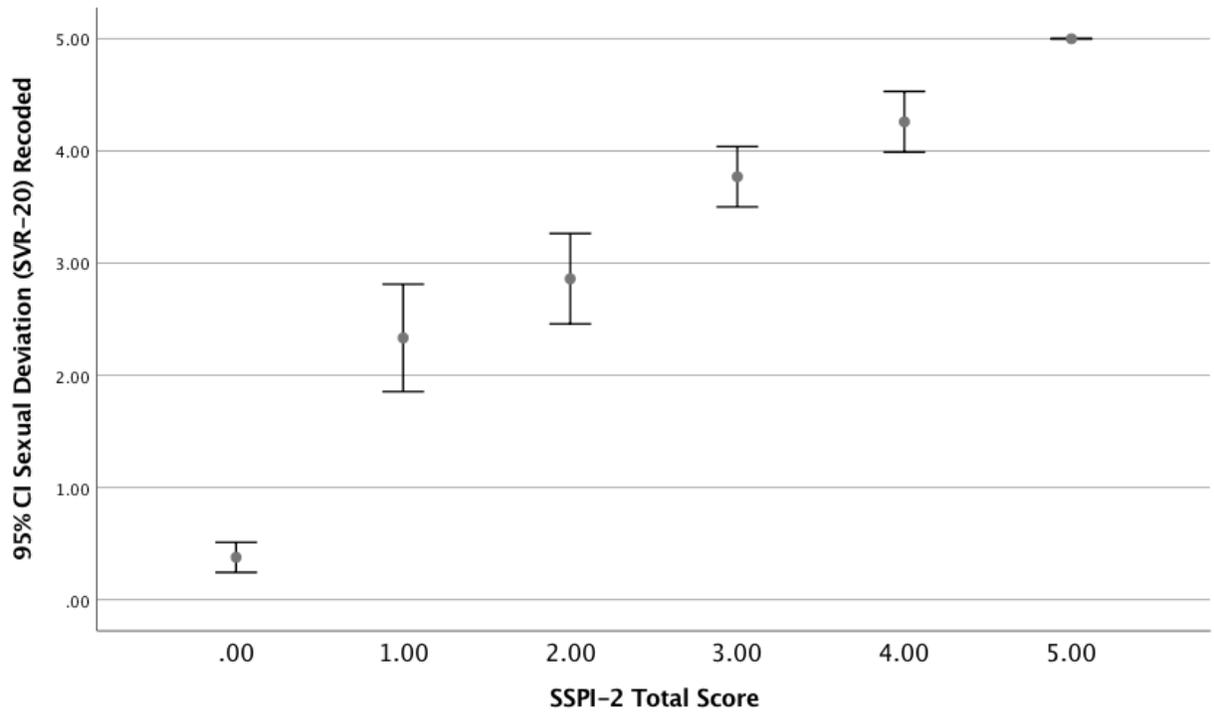


Table 8.7 displays the distribution of scores. The four candidate variables were averaged if individuals had scores on at least two variables to create a continuous measure of pedophilic physical attraction.

Table 8.7. *Distribution of Scores for Variables Comprising Pedophilic Physical Attraction*

Score	Conceptual Meaning	Proportion of Tanner 1 Victims	Fixation (MTC:CM3)	Sexual Deviation (SVR-20)	Sexual Interest in Children (SRA-FV)
0	Definitely not pedophilic	318	432	303	207
1	Probably not pedophilic	218	107	-	-
2	Maybe not pedophilic	59	-	122 (2.5)	153 (2.5)
3	Maybe pedophilic	98 (3.5)	-	34 (3.5)	
4	Probably pedophilic		302		14
5	Definitely pedophilic	148	-	164	140
Total		841	841	623	514

**Pedophilic Emotional Attraction.** Table 8.8 displays the frequency distributions of all three candidate variables. These variables had a relatively weaker relationship with the putative taxon indicator than the variables used to measure Pedophilic Physical Attraction (i.e., Cohen's  $d > 0.99$ , see Table 8.5). The relationship between these variables and the SSPI-2 were mixed, but favoured a categorical interpretation of the data (see Appendix G for details). Aim-Inhibited Relationships with Children could be interpreted as having an overall linear relationship with the SSPI-2, but a closer examination revealed stepwise groupings of scores that were significantly different from each other. Contact with Children had a non-linear shape of mean scores, with a significant jump in scores occurring between SSPI-2 scores of 2 and 3. Emotional Congruence with Children yielded a logistic curve of mean scores, with a significant jump also occurring between SSPI-2 scores of 2 and 3. These variables were averaged if individuals had scores on at least two variables to create a measure of pedophilic emotional attraction. Table 8.8 displays the distribution of scores. The three candidate variables were averaged if individuals had scores on at least two variables to create a continuous measure of pedophilic emotional attraction.

Table 8.8. *Distribution of Scores for Variables Comprising Pedophilic Emotional Attraction*

Score	Conceptual Meaning	Aim-Inhibited Relationships with Children	Contact with Children (MTC:CM3)	Emotional Congruence with Children (SRA-FV)
0	No emotional attraction to children	417	719	535
				12 (Scored as 0.50)
		216 (Scored as 0.67)		
1	Possible emotional attraction to children	-	76	89
		92 (Scored as 1.33)		
				10 (Scored as 1.50)
2	Definite emotional attraction to children	26	41	70
Total		751	836	716

## **Evaluating Indicator Adequacy for use in Taxometric Analyses**

Table 8.5 above contains the descriptive information on the three indicators that were submitted for taxometric analyses ( $n = 706$ ). All indicators' effect sizes (i.e., Cohen's  $d$ ) were larger than the 1.25 cut off required for taxometric analyses (Meehl, 1995). The mean inter-indicator correlation was sufficiently high within the sample ( $r = .70, n = 706$ ). The mean inter-indicator correlation within the putative taxon ( $r = .24$ ) was lower than within the complement ( $r = .49$ ). In terms of skewness, the SSPI-2 and Pedophilic Physical Attraction evidenced less of a positive skew than did Pedophilic Emotional Attraction. Negative kurtosis values in SSPI-2 and Pedophilic Physical Attraction indicated a flatter or platykurtic shape to the distribution. Pedophilic Emotional Attraction had a positive kurtosis value indicating a more pointed or leptokurtic shape to the distribution. These deviations from normality are tolerable in taxometric analyses as the dataset has other strong characteristics (e.g., sample size greater than 300, indicators' effect sizes larger than  $d = 1.25$ ).

## **Taxometric Analyses**

Base rate estimates and comparison curve fit index (CCFI) values are presented in Table 8.9. CCFI values range from 0 (most indicative of dimensional structure) to 1 (most indicative of categorical structure), with values between .45 and .55 considered ambiguous and therefore difficult to interpret (Ruscio et al., 2010, 2018). The CCFI values for all taxometric procedures calculated on the MTC sample were consistent with a categorical structure (i.e.,  $> .55$ ). The categorical interpretation is also supported by the visual inspection of the MAMBAC, MAXEIG, and L-Mode data curves (see Figures 8.5, 8.6, and 8.7 respectively).

Table 8.9. *Comparison Curve Fit Indices (CCFI) and Base Rates (BR) (n = 706)*

MAMBAC		MAXEIG		L-Mode		Average	
CCFI	BR	CCFI	BR	CCFI	BR	CCFI	BR
0.860	0.466	0.737	0.480	0.791	0.486	0.796	0.478

*Note.* MAMBAC: mean-above-minus-below-a-cut; MAXEIG: maximum eigenvalue; L-Mode: latent mode factor analysis; CCFI: Comparison Curve Fit Index; BR: mean taxon base rate.

Figure 8.5. MAMBAC Graphs Comparing the MTC data ( $n = 706$ ) to Simulated Categorical (Left) and Dimensional (Right) Data

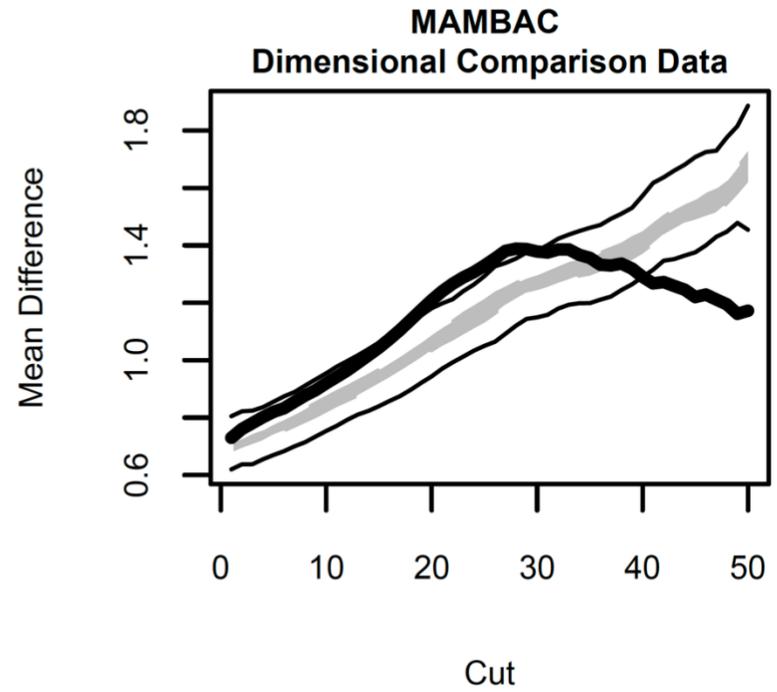
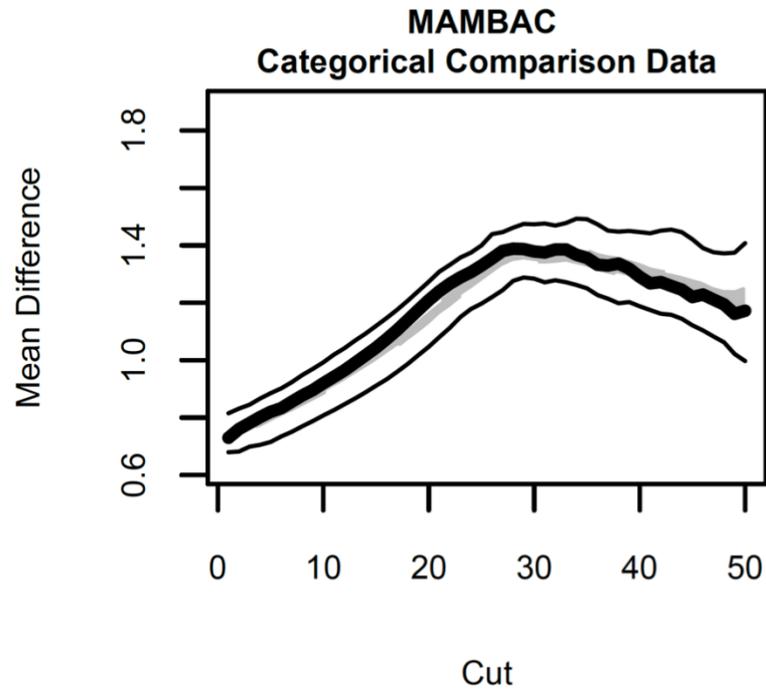


Figure 8.6. MAXEIG Graphs Comparing the MTC data ( $n = 706$ ) to Simulated Categorical (Left) and Dimensional (Right) Data

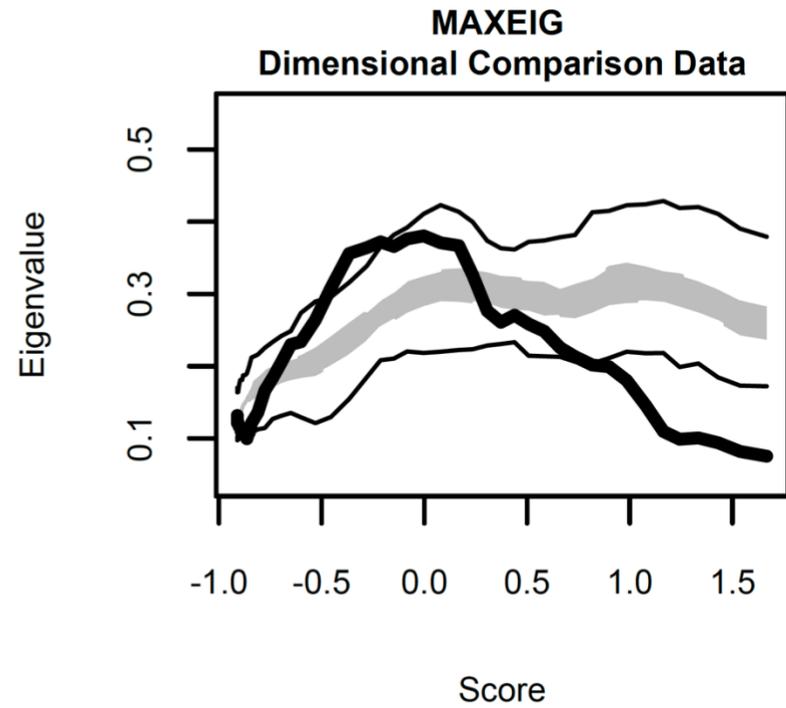
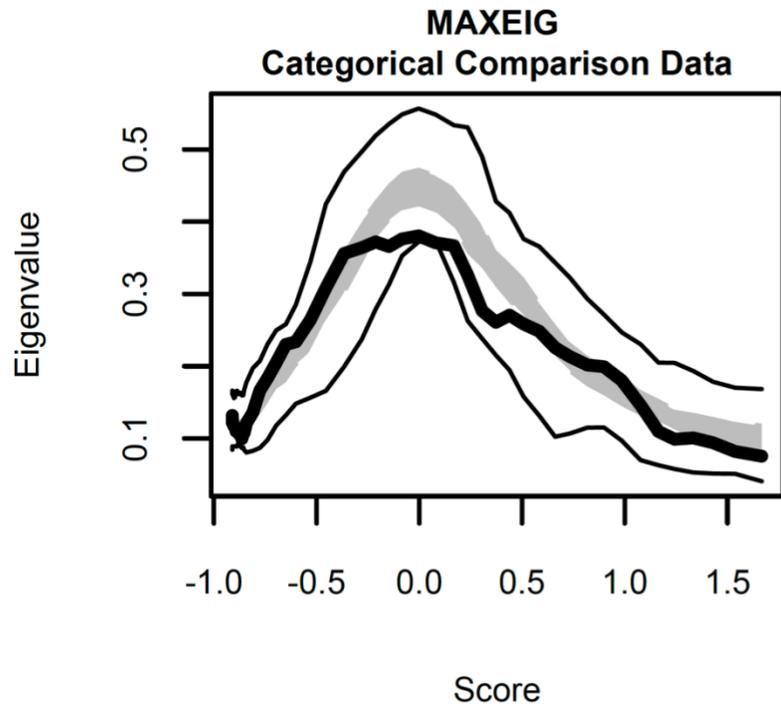
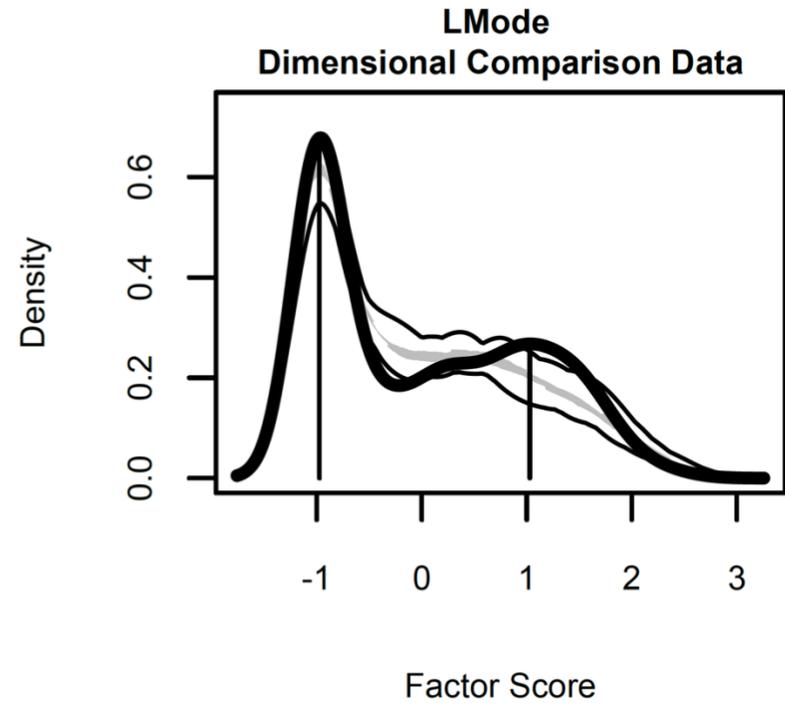
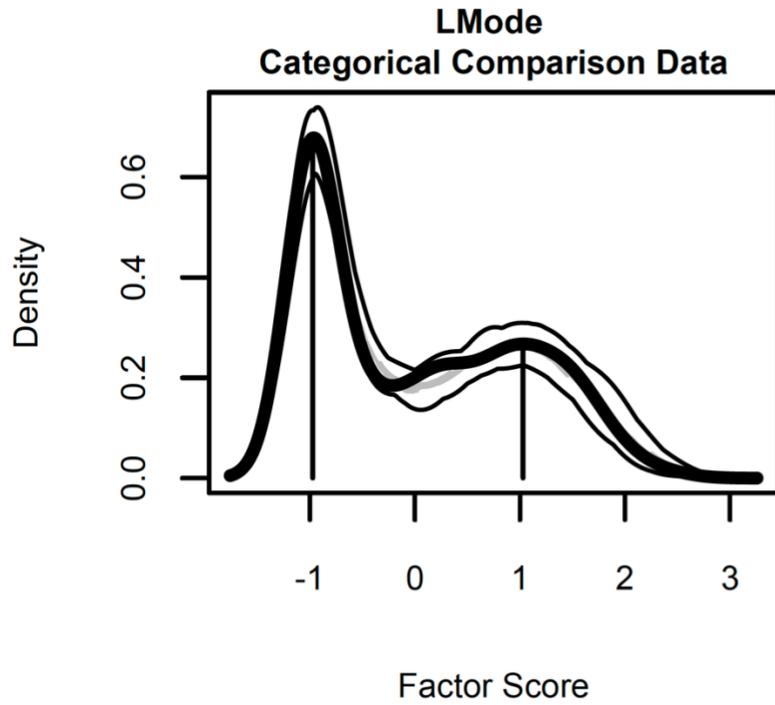


Figure 8.7. L-Mode Graphs Comparing the MTC data ( $n = 706$ ) to Simulated Categorical (Left) and Dimensional (Right) Data



The remaining analyses were completed using the data from participants who could possibly have a diagnosis of pedophilia and who had information on the three indicators ( $n = 836$ ). Five offenders were excluded from the 841-participant dataset due to lack of information on indicators. The *R* software assigns participants to the taxon or complement by sorting all cases on the indicators and grouping a pre-determined percentage of participants into the taxon. The base rate from taxometric analyses was used to classify participants ( $p = .478$ ). Forty-eight percent of the sample with the highest scores across the three indicators were classified as the taxon; the remaining sample was classified as the complement. This method will exaggerate indicator validity by increasing mean differences between groups on the indicators, as well as increasing between-group correlations, and reducing the within-group correlations.

### **Validity of Resultant Structural Model**

The last stage of the study examined differences between the taxon and complement. Because the taxometric indicators were constructed to measure pedophilia, the taxon should represent participants with pedophilia, but this requires verification. Consequently, group differences were examined on commonly used correlates of pedophilia; the results were consistent with the taxon representing pedophilia (see Table 8.10). Almost all participants who had a diagnosis of pedophilia were in the taxon ( $n = 273$ , 96.8% of those with diagnosis). Similarly, almost all participants coded as being highly fixated on children and having low social competence with adults in MTC:CM3 were in the taxon, (94.8%,  $n/N = 181/191$ ). Taxon members were, on average, three points higher on the SSPI-2 than complement members.

Taxon members, as expected, offended against children. On average, taxon members had approximately two Tanner 1 victims, one Tanner 2/3 victim, and no Tanner 5 victims. Complement members had on average one to two Tanner 5 victims. There was no reliable

difference between groups on the number of Tanner 4 victims. Taxon members had three to four victims on average, whereas complement members had two.

Overall, all taxon members had at least one child victim (i.e., person under the age of 16). Not all participants with child victims, however, were in the taxon. Approximately two-thirds of participants with child victims were in the taxon ( $n/N = 399/611$ ), whereas one-third of participants with child victims ( $n/N = 212/611$ ) were in the complement. The complement was split fairly evenly between participants with child victims ( $n = 212$ ) and those with adult victims ( $n = 225$ ).

Time spent with children in non-sexual activities was a distinctive feature of taxon members. Over one-quarter of the taxon had “Frequent” or “Large” involvement in non-sexual activities with children (28.8%,  $n/N = 115/399$ ); less than 1% of the complement did the same (0.69%,  $n/N = 3/437$ ). Almost half the taxon had “Infrequent, or Sporadic” involvement with children (43.8%,  $n/N = 175/399$ ).

The second set of analyses examined the correlates of pedophilia. The taxon was expected to exhibit greater interpersonal deficits and neurodevelopmental perturbations. Risk-relevant factors were also examined; specifically, whether the taxon had more sex-crime specific risk factors than general risk factors.

**Interpersonal deficits.** Taxon members had greater interpersonal difficulties than complement members (see Table 8.11). Both groups had similar numbers of marriages and cohabitations with female partners, but the quality of these relationships differed. Taxon members lacked emotionally intimate relationships with adults. The romantic and non-romantic relationships they had were more problematic than they were for complement members.

Table 8.10. *Group Comparisons on Common Indicators of Pedophilia*

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	399 (47.7)	437 (52.3)	836 (100)			
Pedophilia Diagnosis				<b>195.72</b>	<b>96.55</b>	<b>396.73</b>
Pedophilic	273	9	282			
Non-Pedophilic	54	370	424			
High Fixation on Children/Low Social Competence				<b>41.30</b>	<b>21.59</b>	<b>79.02</b>
HiFixLoSC	181	10	191			
Not HiFixLoSC	160	383	543			
SSPI-2 Total Mean ( <i>SD</i> )	3.1 (0.96)	0.4 (0.7)	1.7 (1.6)	<b>3.21</b>	<b>3.00</b>	<b>3.41</b>
Victim Count Mean ( <i>SD</i> ) by Tanner Stage						
Tanner 1	2.0 (1.7)	0.098 (0.31)	1.0 (1.5)	<b>1.53</b>	<b>1.37</b>	<b>1.68</b>
Tanner 2/3	1.2 (1.7)	0.31 (0.62)	0.72 (1.3)	<b>0.69</b>	<b>0.56</b>	<b>0.83</b>
Tanner 4	0.21 (0.59)	0.28 (0.62)	0.25 (0.61)	-0.12	-0.26	0.015
Tanner 5	0.083 (0.29)	1.4 (1.22)	0.75 (1.1)	<b>-1.41</b>	<b>-1.56</b>	<b>-1.26</b>
Total Victims	3.4 (2.4)	2.0 (1.3)	2.7 (2.0)	<b>0.72</b>	<b>0.58</b>	<b>0.86</b>
Aim-Inhibited Relationships with Children Mean ( <i>SD</i> )	1.1 (0.86)	0.11 (0.35)	0.57 (0.81)	<b>1.50</b>	<b>1.34</b>	<b>1.65</b>
Large Amounts of Times Spent with Children in Non-Sexual Activities (3)	25	1	26			
Frequent Involvement (2)	90	2	92			
Infrequent, Sporadic Contact (1)	175	41	216			
No Contact (0)	109	393	502			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).

Table 8.11. *Group Comparisons Related to Interpersonal Functioning*

Variables	Taxon	Complement	Total	Effect Size ( <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	399 (47.7)	437 (52.3)	836 (100)			
Number of Marriages	0.69 (0.81)	0.61 (0.71)	0.65 (0.76)	0.10	-0.031	0.24
	<i>n</i> 396	435	831			
Number of Female Cohabitations	0.19 (0.54)	0.21 (0.50)	0.20 (0.52)	-0.038	-0.18	0.10
	<i>n</i> 383	405	788			
Peer Relationship Problems <sup>a</sup>	1.4 (0.70)	1.1 (0.78)	1.2 (0.76)	<b>0.47</b>	<b>0.32</b>	<b>0.62</b>
	<i>n</i> 318	356	674			
Lack of Emotionally Intimate Relationships with Adults <sup>b</sup>	1.6 (0.6)	1.5 (0.61)	1.5 (0.58)	<b>0.21</b>	<b>0.038</b>	<b>0.39</b>
	<i>n</i> 263	246	509			
Relationship Problems <sup>c</sup>	1.6 (0.53)	1.5 (0.60)	1.6 (0.56)	<b>0.27</b>	<b>0.092</b>	<b>0.44</b>
	<i>n</i> 261	246	507			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).

<sup>a</sup>Three level ordinal variable ranging from 0 to 2, see Appendix F for details. <sup>b</sup>Item 4 on the SRA-FV. <sup>c</sup>Item 7 on the SVR-20.

**Neurodevelopmental perturbations.** Taxon members exhibited more neurodevelopmental perturbations than complement members, including issues in physiological development, lower cognitive functioning, and poor educational achievement. Findings are summarized in Table 8.12.

Many of the deficits were readily apparent in taxon members' files. Individuals in the taxon were about one-half inch shorter than complement members and their full-scale I.Q.'s were two to three points lower than the complement. A majority of participants whose I.Q. fell into the "Extremely Low" range on the Wechsler Adult Intelligence Scale (WAIS, i.e., < 69) were members of the taxon (78.2%,  $n/N = 61/78$ ).

When mean scores on the coded variables were compared, taxon members were slower to achieve developmental milestones (i.e., "Late Maturation") and more likely to have a physical disability. Taxon members had poor academic achievement. They did not go as far in school as complement members, were more likely to repeat grades, and were more likely to have attended specialized classes.

**Risk-relevant constructs.** Taxon members were more sexually criminal and less generally criminal than complement members (see Table 8.12 and 8.13). Taxon members were significantly higher ( $d = 0.91$ ,  $CI_{95\%} = 0.73, 1.09$ ) on the Persistence/Paraphilia factor from Static-99R/ Static-2002R (Brouillette-Alarie et al., 2016; see Appendix F for details on this variable). This connotes a greater risk for sexual offending overall but does not discriminate between atypical sexual interests and having other issues with sexual self-regulation (e.g., hypersexuality).

Table 8.12. *Group Comparisons Related to Neurodevelopmental Perturbations*

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	399 (47.7)	437 (52.3)	836 (100)			
Physiological						
Height in Inches	68.6 (3.1)	69.3 (3.0)	69.0 (3.0)	<b>-0.24</b>	<b>-0.38</b>	<b>-0.11</b>
<i>n</i>	390	430	820			
Late Maturation <sup>a</sup>	0.14 (0.47)	0.06 (0.31)	0.10 (0.39)	<b>0.20</b>	<b>0.06</b>	<b>0.35</b>
<i>n</i>	356	398	754			
Motor Coordination Problems <sup>a</sup>	0.08 (0.34)	0.04 (0.24)	0.06 (0.29)	0.14	-0.0022	0.28
<i>n</i>	380	415	795			
Sensory Problems <sup>a</sup>	0.24 (0.55)	0.17 (0.47)	0.20 (0.52)	0.14	-0.0026	0.27
<i>n</i>	384	417	801			
Physical Disability <sup>a</sup>	0.35 (0.66)	0.24 (0.56)	0.29 (0.61)	<b>0.18</b>	<b>0.039</b>	<b>0.32</b>
<i>n</i>	369	410	779			
Cognitive						
Full Scale I.Q.	95.1 (15.4)	98.9 (13.6)	97.0 (14.6)	<b>-0.25</b>	<b>-0.42</b>	<b>-0.10</b>
<i>n</i>	305	325	630			
Attentional Problems <sup>a</sup>	0.38 (0.64)	0.33 (0.56)	0.35 (0.60)	0.084	-0.083	0.25
<i>n</i>	256	301	557			
Faulty Judgment <sup>a</sup>	1.3 (0.74)	1.2 (0.72)	1.2 (0.73)	0.027	-0.11	0.17
<i>n</i>	374	403	777			
Learning Disability <sup>a</sup>	0.29 (0.64)	0.21 (0.56)	0.25 (0.60)	0.13	-0.012	0.28
<i>n</i>	341	385	643			
Memory Problems <sup>a</sup>	0.37 (0.62)	0.40 (0.64)	0.38 (0.63)	-0.047	-0.19	0.01
<i>n</i>	335	377	712			
Mental Retardation <sup>a</sup>	0.22 (0.53)	0.05 (0.23)	0.13 (0.41)	<b>0.42</b>	<b>0.28</b>	<b>0.56</b>
<i>n</i>	375	410	785			
Achievement						
Poor Educational Achievement <sup>a</sup>	2.7 (1.0)	2.5 (1.0)	2.6 (1.0)	<b>0.21</b>	<b>0.069</b>	<b>0.34</b>
<i>n</i>	385	430	815			
Earliest Grade Level Repeated	3.4 (2.8)	3.6 (3.0)	3.5 (2.9)	-0.062	-0.27	0.14
<i>n</i>	168	189	357			

Last Grade Level	8.9 (2.4)	9.0 (2.2)	9.0 (2.3)	-0.051	-0.19	0.089
<i>n</i>	363	426	789			
Poor Scholastic Achievement <sup>a</sup>	0.92 (0.79)	0.94 (0.75)	0.93 (0.77)	-0.026	-0.17	0.12
<i>n</i>	355	401	756			
Number of Grades Repeated	1.1 (1.2)	0.95 (1.0)	1.04 (1.1)	<b>0.17</b>	<b>0.02</b>	<b>0.32</b>
<i>n</i>	306	360	666			
Attended Special Classes				<b>1.82</b>	<b>1.32</b>	<b>2.49</b>
Yes	124	92	216			
No	240	324	564			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).  
<sup>a</sup>Three level ordinal variable ranging from 0 to 2, see Appendix F for details.

Table 8.13. *Group Comparisons on Sex-Crime Specific Risk Factors*

Variables	Taxon	Complement	Total	Effect Size ( <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	399 (47.7)	437 (52.3)	836 (100)			
Persistence/Paraphilia <sup>a</sup>	4.2 (2.7)	2.0 (2.1)	3.1 (2.7)	<b>0.91</b>	<b>0.73</b>	<b>1.09</b>
<i>n</i>	265	250	515			
Exhibitionism	0.39 (0.66)	0.17 (0.46)	0.27 (0.57)	<b>0.39</b>	<b>0.25</b>	<b>0.54</b>
<i>n</i>	348	411	759			
Problematic Masturbation	0.24 (0.54)	0.16 (0.48)	0.20 (0.51)	<b>0.16</b>	<b>0.014</b>	<b>0.30</b>
<i>n</i>	340	406	746			
Fetishism	0.07 (0.33)	0.08 (0.36)	0.08 (0.34)	-0.029	-0.11	0.17
<i>n</i>	372	414	786			
Promiscuity	0.38 (0.67)	0.33 (0.59)	0.35 (0.63)	0.079	-0.067	0.22
<i>n</i>	338	383	721			
Transvestism	0.02 (0.15)	0.05 (0.30)	0.04 (0.24)	-0.12	0.013	-0.26
<i>n</i>	395	429	824			
Voyeurism	0.41 (0.68)	0.21 (0.51)	0.30 (0.60)	<b>0.34</b>	<b>0.19</b>	<b>0.49</b>
<i>n</i>	316	396	712			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).

<sup>a</sup>Ordinal variable ranging from 0 to 10; all other variables were three level ordinal variable ranging from 0 to 2. See Appendix F for details.

Analyses on paraphilias or other sexual-regulation problems, as measured through the three-level variables coded from clinical files, did not produce a consistent pattern with taxon membership. Some paraphilias were higher in the taxon than the complement (i.e., exhibitionism, voyeurism), but not all. Sexual self-regulation showed a similarly mixed pattern; problematic masturbation was more common in the taxon than the complement, but promiscuity was not.

In contrast to sex-crime specific risk factors, taxon members were consistently lower on measures of general criminality than complement members (see Table 8.14). Taxon members had lower scores on Youthful Stranger Aggression and General Criminality from Static-99R/Static-2002R (Brouillette-Alarie et al., 2016; see Appendix F for details on these variables). This means that complement members were more likely to be younger, offend against strangers, and have prior non-sexual crimes. Taxon members were approximately two points lower on the PCL-R measure of psychopathy, after prorating for missing variables, and approximately one point lower on both PCL-R factors. Conduct Disorder symptoms and narcissism were more common in the complement, but there were no significant differences in Antisocial Personality Disorder symptoms.

Table 8.14. *Group Comparisons on Common Indicators of General Criminality*

Variables	Taxon	Complement	Total	Effect Size ( <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	399 (47.7)	437 (52.3)	836 (100)			
General Criminality <sup>a</sup>	3.0 (1.8)	3.5 (2.0)	3.2 (1.9)	<b>-0.24</b>	<b>-0.42</b>	<b>-0.069</b>
<i>n</i>	264	251	515			
Youthful Stranger Aggression <sup>a</sup>	2.2 (1.1)	2.7 (1.3)	2.4 (1.2)	<b>-0.42</b>	<b>-0.60</b>	<b>-0.25</b>
<i>n</i>	262	249	511			
PCL-R Total Score (Prorated)	12.8 (5.7)	14.8 (6.9)	13.8 (6.4)	<b>-0.32</b>	<b>-0.50</b>	<b>-0.15</b>
<i>n</i>	261	244	505			
PCL-R Factor 1	4.2 (2.8)	5.1 (3.4)	4.6 (3.1)	<b>-0.32</b>	<b>-0.49</b>	<b>-0.14</b>
<i>n</i>	263	246	509			
PCL-R Factor 2	5.8 (3.3)	6.5 (3.7)	6.2 (3.5)	<b>-0.19</b>	<b>-0.37</b>	<b>-0.019</b>
<i>n</i>	263	246	509			
Antisocial Personality Disorder Symptom Count <sup>b</sup>	1.9 (1.8)	2.0 (2.0)	2.0 (1.9)	-0.078	-0.27	0.11
<i>n</i>	212	204	416			
Conduct Disorder Symptom Count <sup>b</sup>	1.3 (1.6)	1.8 (2.4)	1.6 (2.1)	<b>-0.27</b>	<b>-0.47</b>	<b>-0.08</b>
<i>n</i>	212	204	416			
Narcissistic Symptoms <sup>b</sup>	0.32 (0.58)	0.62 (0.75)	0.47 (0.69)	<b>-0.44</b>	<b>-0.59</b>	<b>-0.30</b>
<i>n</i>	351	370	721			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).

<sup>a</sup>Ordinal variable ranging from 0 to 8. <sup>b</sup>Ordinal variable ranging from 0 to 2.

## Discussion

This taxometric study found evidence to support a categorical latent structure of pedophilia. A multi-method/multi-trait approach was used to create indicators of pedophilia defined as a physical and emotional attraction to children. The distinguishing features of the resultant taxon included (a) a diagnosis of pedophilia, (b) sexual offences against children, and (c) engagement in non-sexual activities with children.

These results are consistent with prior categorical findings of pedophilia. Schmidt and colleagues (2013) found evidence of a taxonic structure when pedophilia was measured by self-report and implicit association tasks amongst a mixed sample of adult males who had sexually offended against adults or children, had non-sexual criminal histories, or who had no criminal histories at all. McPhail and colleagues (2018) also found a taxonic structure using phallometric data from four samples of adult males convicted of sexual offences. Neither of these previous studies, however, included measures of emotional attraction to children.

The concurrent validity of the current study's taxonic structure was examined through common correlates of pedophilia. Almost all participants with pedophilia diagnoses were in the taxon, 98.6% of those so diagnosed. The SSPI-2 also easily distinguished between groups, with taxon members scoring on average three points higher than complement members. Taxon members also had more interpersonal deficits (e.g., lack of healthy adult relationships). This is consistent with the conceptualization of pedophilia as interfering with establishing pair bonds with adults. This impairment is likely related to taxon members' interest in bonding with children, evidenced by their increased involvement in non-sexual activities with children.

Consistent with findings from Cantor and colleagues (2005, 2008), neurodevelopmental perturbations were more evident in the taxon than the complement. Taxon members were notably

about one half-inch shorter than complement members, slower to reach developmental milestones, and scored lower on tests of cognitive ability. Further research is required to better understand the relationship between these findings and the etiology of pedophilia. Future studies have the greatest potential to inform theory development when they examine factors that precede the development of sexual interests. For a review of etiological theories of pedophilia, see Seto (2018a).

Taxon membership was related to some (e.g., exhibitionism, voyeurism, problematic masturbation), but not all, sex-crime specific risk factors (e.g., atypical sexual interests, sexual self-regulation). Future research is required to determine the extent to which these other sex-crime specific risk factors are best represented as a taxon or dimension. It is very likely that low sexual constraint and poor sexual self-regulation fall on a dimension (Hanson, 2010; Graham, Walters, Harris, & Knight, 2015). In contrast, there are some highly correlated clusters of paraphilias which could potentially represent a latent class (e.g., conceptualizing voyeurism and exhibitionism as “Courtship Disorders”, Freund et al., 1997).

In the current study, pedophilia taxon members were consistently lower on measures of general criminality than complement members. Unlike sex-crime specific risk factors, the results were stable whether measured by risk tools, personality measures, or diagnostic symptoms. This is consistent with previous research that adult males who offend against children have lower scores on measures of general criminality (Bard et al., 1987; Brouillette-Alarie & Proulx, 2013) than other individuals with a history of sexual offending, and are relatively more likely to be criminal specialists than generalists (Harris, Mazerolle, & Knight, 2009; Harris, Smallbone, Dennison, & Knight, 2009). Antisociality and rule-breaking are, therefore, not central characteristics of pedophilia.

## **Limitations**

As comprehensive as the MTC dataset was, there were still a number of limitations in the information available. The participants, by virtue of being referred to a high-risk treatment centre, are not representative of adult males convicted of sexual crimes, nor of the population of adult males living with pedophilia. This is indicated by the taxon representing 47.7% of the sample—a high base rate of pedophilia that is common in pre-selected clinical or forensic samples (see Seto, 2008, for comparisons). The restricted range of variance in this sample excludes moderate to lower risk individuals who could have influenced the results by representing a more continuous range of sexual and emotional attraction in children. Barring such a bias, however, the use of a high-risk sample increases the opportunity to study individuals with pedophilia by increasing its base rate.

An over-reliance on criminal history to measure Physical Attraction was also a concern. Criminal history measures would not identify participants who have an atypical attraction to children and who have adult victims. Besides increasing the rate of false negatives, shared measurement variance would artificially increase the bi-variate relationship among criminal history variables. The availability of implicit measures, phallometry, or psychometrically sound self-report measures would have been helpful additions. Their exclusion was not particularly unusual as diagnoses of pedophilia are routinely given in clinical practice without specialized testing.

A final limitation is the lack of prior research to guide the content and scaling of the indicators (as discussed in Chapter 5). Substantial attention was paid in the current study to examining variables for inclusion with the knowledge that some decisions were subjective, given the absence of well-formed measurement models of pedophilia. For example, the measurement

logic of the SSPI-2 is that each one-unit increase is associated with a similar unit increase in pedophilia. This assumption may not be true given that in this study the relationship between SSPI-2 scores and many of the indicators was logarithmic, that is, the units of the SSPI-2 scale were not linearly associated with pedophilia in the MTC dataset. Given the large number of decisions about scaling information in any taxometric study, and the potential for such decisions to influence results, replication in new datasets is important.

### **Next Steps**

To further examine the latent structure of pedophilia, Chapter 9 presents the second taxometric study in this dissertation. The second study's dataset was constructed independently from the MTC dataset, with different decisions concerning the coding of the variables. Although the new dataset extends this program of research by including variables not previously available to model pedophilia (e.g., phallometry), each dataset has its own limitations. For example, in comparison to Study 1, Study 2 had less detailed information about emotional attraction to children. Using a similar methodology to examine pedophilia's latent structure across different datasets, however, increases confidence in the findings.

## **CHAPTER 9: STUDY 2, DYNAMIC PREDICTORS**

The second study on the latent structure of pedophilia used an archival database constructed by researchers at the Department of the Solicitor General Canada (now Public Safety Canada) for a study called “The Dynamic Predictors of Sexual Recidivism” (hereafter referred to as “Dynamic Predictors”; Hanson & Harris, 1998, 2000, 2001). The Dynamic Predictors study involved 409 adult males convicted of sexual offences from all Canadian provincial correctional systems (except Prince Edward Island) and all regions of the Correctional Service of Canada. The number of offenders per province selected for this study roughly approximated the proportion of each province’s population.

The original purpose of the sample was to study dynamic risk factors, using a procedure detailed by Quinsy, Coleman, Jones, and Altrows (1997). Once a recidivist was identified at a site, he was matched with another individual who had a similar offence history and risk level but who had not recidivated (yet). Information was collected at equivalent time periods for the non-recidivists. Such a design can provide information on the stable dynamic factors that distinguish recidivists from non-recidivists, as well as information on the acute factors that immediately precede reoffending.

Data was originally collected by four field researchers in 1997-1998. In order to enhance reliability, the field researchers received a week of group training before data collection began. The project manager also accompanied each researcher during their first week in the field, and re-visited each them for 1-2 weeks during the course of data collection. Periodic teleconferences were also held to resolve ongoing problems and to reduce rater drift. The project received ethics approval from the relevant provincial/regional review boards (14 in total) and from the correctional managers involved.

The study used three sources of information. (1) A standardized coding manual was created to record information available in participants' files. This included basic identifying information, detailed offence histories, and clinical and risk assessment results (e.g., diagnoses, phallometric information). (2) Community supervision officers were interviewed about their experiences with the participants, with specific attention paid to social influences on the participants and problems observed during supervision (e.g., associating with children, sexual fantasies). (3) The officer's supervision notes were coded for the same problems in order to reduce the influence of recall bias from interviews.

The four field researchers were divided between the four provincial/geographical regions (i.e., Western, Ontario, Quebec, Eastern). When a recidivist was identified, the field researcher for that area would travel to the parole office. The interview with the supervision officer would take approximately one hour, during which the researcher would ask about the participant's overall behaviour, and then again specifically at two time points separated by six months. For the recidivists, the most recent date was the month prior to reoffending. For the non-recidivists, the most recent date was the month prior to the research interview. Memory aids (e.g., visual timelines, significant events during that time) were used to help the officers remember details of the two specific time periods. The file coding was based on all available information and typically took three to five hours. In many cases, records needed to be retrieved from archives, distant institutions, or alternate jurisdictions.

Approximately 10% of the cases ( $n=43$ ) were coded separately by two raters in order to estimate reliability. Overall agreement was calculated separately for each of 50 general content areas (e.g., demographics, characteristics of index offence) (18 content areas for file coding; 19 for interview ratings; 13 for case note codes). Each content area typically contained between 5

and 15 items that were either categorical (e.g., any boy victims) or interval (e.g., total number of victims). The percent agreement was used as a convenient measure of rater agreement (Hanson & Harris, 1998). The average percent agreement was 95% for the static file coding, 97% for interview ratings, 94% for supervision case notes.

Like the MTC dataset used in Chapter 8, the detailed clinical and risk information in the Dynamic Predictors dataset makes it well suited for taxometric analyses. Both studies sampled the upper end of the risk distribution, increasing the likelihood participants would have pedophilia. The Dynamic Predictors dataset, however, has two unique features. First, participant information included observations of them while in the community. Participants in the MTC sample were assessed only in an institutional setting. Community supervision provides a good opportunity to view behaviour relevant to pedophilia (e.g., interactions with children). Being in the community did not necessarily mean that participants were at low risk to reoffend. Canada has a different approach to dealing with sexual crime than the United States (e.g., civil commitment), and is more likely than the United States to use community supervision with higher risk individuals. Furthermore, the sampling frame for the Dynamic Predictors study targeted higher risk individuals. Another strength of the Dynamic Predictors dataset was that it had phallometric and diagnostic information available for some participants, complementing a limitation of the MTC dataset.

The purpose of the current study was to further examine the latent structure of pedophilia. Results from taxometric analysis in Chapter 8 support a categorical model. The consistency of that model was tested by using the same general approach to measuring pedophilia in the current study (i.e., physical and emotional attraction to children). As the datasets used in both studies

were built in different countries and for different purposes, replication of a categorical model would provide non-redundant evidence that pedophilia represents a difference in kind.

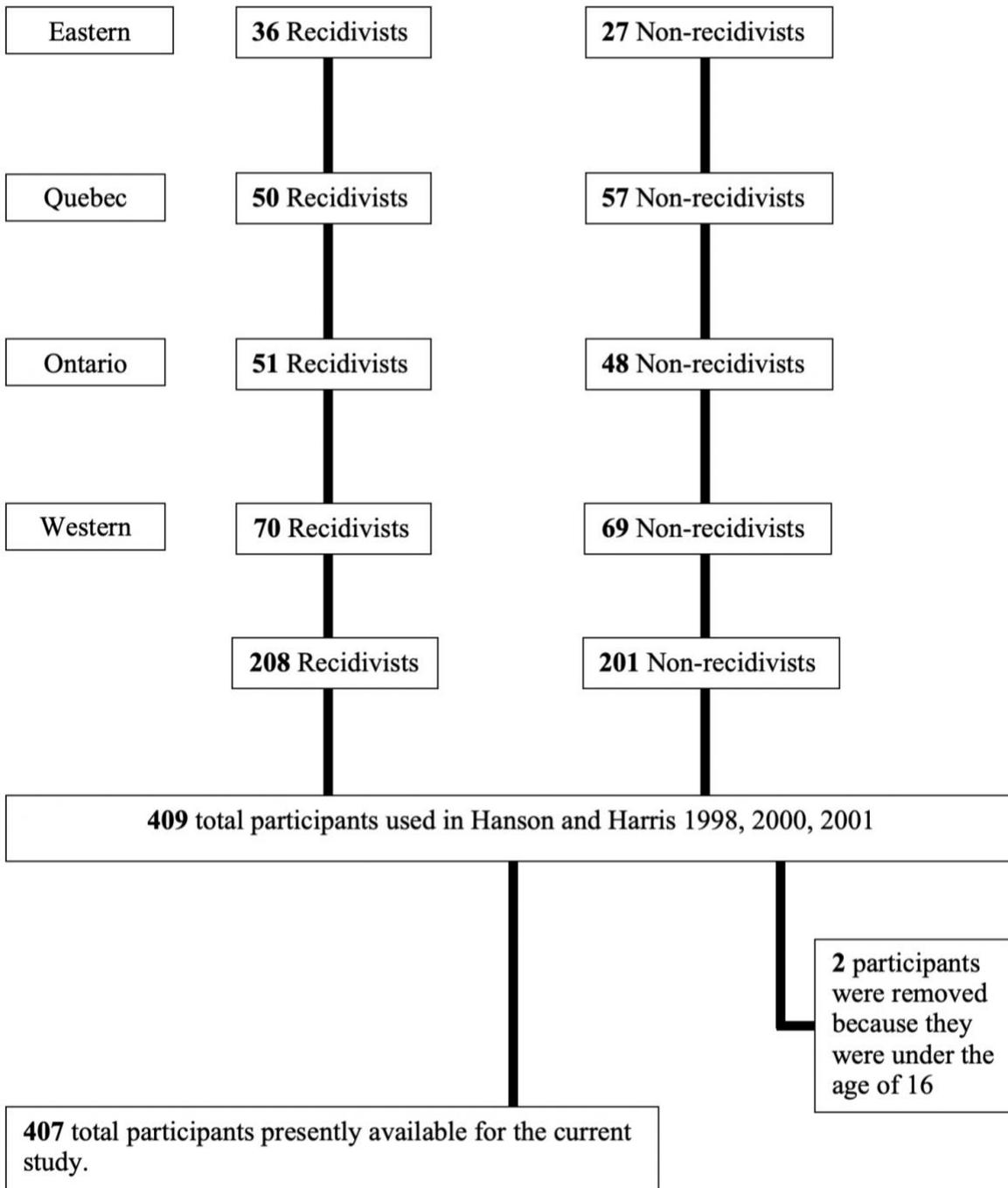
## **Method**

### **Sample**

Participants for the Dynamic Predictors study were selected from all provincial correctional systems (except Prince Edward Island) and all regions of the Correctional Service of Canada. Given the different community supervision agreements across provinces, the participants were supervised by provincial probation officers, provincial parole officers, or federal parole officers (case management officers). In all cases, participants were on supervision at some point between 1992 and 1997. Once a recidivist was located, a non-recidivist was selected from the same geographic region and jurisdiction, and who had a similar criminal history and psychological profile (e.g., schizophrenia, brain injury).

All participants were convicted of a sexual offence involving physical contact with the victim (individuals who engaged in non-contact offences like voyeurism or exhibitionism were excluded) and had served part of their sentence in the community (probation, parole, mandatory supervision and/or statutory release). Men who targeted only their biological or step children were excluded, except when the individuals entered an existing family in order to access victims. Individuals who targeted members of their extended family (e.g., nieces, grandchildren) were included. Of the 409 individuals originally included by Hanson and Harris (2000; 2001), 407 were retained for the current study. Two participants were removed because they were under the age of 16 when they committed their offence and therefore could not have been diagnosed with pedophilic disorder. See Figure 9.1 for a diagram of participant selection.

Figure 9.1. Number of Participants Coded at Each Stage of the Study



## **Putative Taxon Indicator**

A putative taxon indicator was created to separate participants into those who were likely to be pedophilic and those who were not. Unlike the MTC study in which pedophilic status was determined by making an inference from a thorough review of participants' file information, diagnostic information on pedophilia was available in the Dynamic Predictors dataset for 59.0% (n=240) of the sample. In this sub-sample, 166 (40.8% of total sample) participants had the diagnosis of pedophilia and 74 did not. A decision was made to code the remaining 167 participants as not having the diagnosis of pedophilia. Although this decision risks underestimating the prevalence of pedophilia in the sample, it allows for the total sample to be used for analysis.

## **Indicators of Pedophilia**

Three indicators of pedophilia were constructed: (a) a screening scale for pedophilic interests based on offence history; (b) a composite measure of physical attraction to pre-pubescent children based on interview and file review; and (c) a composite measure of emotional attraction to children based on interview and file review. This section describes how the guidelines for constructing indicators described in Chapter 4 were applied to the Dynamic Predictors dataset. The coding of these variables is summarized below.

**The Revised Screening Scale for Pedophilic Interests (SSPI-2, Seto et al., 2017).** The SSPI-2 is a five-item scale used to assess pedophilic sexual interests based on victim information (Seto et al., 2017). Individuals are given a score of one for each of the following criteria that are present in their offence history: a male victim under 15 years old; more than one victim under 15 years old; a victim under 12 years old; an extra-familial victim under 15 years old; and any conviction for a child pornography offence.

As the SSPI-2 was not coded as part of the original development of the Dynamic Predictors database, syntax was used to construct items based upon victim information (i.e., age, gender, and relationship to participant) and charges/convictions for child pornography. Two versions of the child pornography variable were created: one including information from the index and prior offences and a second variable that also included recidivism offences. Nine participants had child pornography at index or prior; that number increased to 24 when recidivism was included. The version of the variable that included recidivism was used in this study to more fully capture participants' behaviours. Data from participants was included if they had at least four out of five items, and then summed to create a total score.

**Pedophilic Physical Attraction.** The second indicator was constructed following the guidelines outlined in Chapter 4 to complement the SSPI-2 as an indicator of physical attraction to children that minimally relies on criminal history information. This indicator was a composite of five variables: (a) Proportion of Tanner 1 victims, (b) Atypical Sexual Fantasies/Urges, (c) Phallometric Evidence of Child Preference, (d) Offence Behaviours Focused on Children, and (e) Pedophilia Diagnosis.

***Proportion of Tanner 1 Victims.*** The proportion of Tanner 1 victims in participants' overall criminal history was computed following the guidelines described in Chapter 4. The total number of victims was entered into a linear regression model as a predictor and the total number of victims at Tanner Stage 1 was entered as the outcome variable. The standardized residuals were saved as a new variable and rescaled using the cut-offs described in Table 4.3 in Chapter 4.

***Atypical Sexual Fantasies/Urges.*** Participants' atypical sexual fantasies/urges were available in the dataset as part of the parole officer interview and the officers' contact notes. Researchers coded the presence of atypical sexual fantasies/urges at two time points for each

information source, resulting in four data points per participant. As there was no *a priori* assertion about the value of information from different time points or sources, a count variable was created ranging from 0 “No mention of Atypical Sexual Fantasies/Urges” to 4 “Always mentions Atypical Sexual Fantasies/Urges”.

This variable was not originally designed to discriminate between the various types of atypical sexual fantasies/urges (e.g., children, feet, pain). Participants could receive higher scores for many reasons, none of them having to do with a physical attraction to children. A possible way to address this was to re-score the variable to 0 for participants who only offended against adults. This would increase the likelihood that the fantasies and urges would be related to children, but would create a new problem. Relying again on victim age would increase the shared variance between this variable and all indicators based on offence history (e.g., the SSPI-2, Proportion of Tanner 1 Victims). For this reason, no recoding occurred.

The relationship between the variable and the scaling of the composite variable is displayed in Table 9.1. No mention of atypical sexual fantasies/urges was given a score of 0 “Definitely not pedophilic”. More mentions resulted in a higher likelihood of pedophilia, but participants could not obtain a score of 5 “Definitely pedophilic”. This was due to the fact that participants could score a 4 for atypical sexual interests that were unrelated to children.

Table 9.1. *Recoding of Atypical Sexual Fantasies/Urges*

Score	Conceptual Meaning	Atypical Sexual Fantasies/Urges
0	Definitely not pedophilic	0 “No mention”
1	Probably not pedophilic	1
2	Maybe not pedophilic	2
3	Maybe pedophilic	3
4	Probably pedophilic	4 “Always mentions”
5	Definitely pedophilic	-

***Phallometric Evidence of Child Preference.*** The third variable was evidence of sexual preference for children as measured by phallometry. Phallometric information was available in 125 participants’ files (30.7% of total). A continuous variable was not available; files indicated if participants exhibited significant arousal to child (boy, girl, or undifferentiated) or adult stimuli. The precise approach to phallometry was not recorded, but likely mirrored Canadian professional practice at that time (i.e., most centers measured penile circumference with a strain gauge, except in the Metropolitan Toronto Region where assessments typically relied upon Kurt Freund’s volumetric procedure). Participants with significant arousal to adults only were scored as a 0. Participants who were scored as having arousal to adults and children were scored as a 3.5. Participants with significant arousal to children only were scored as a 5.

***Offence Behaviour Focused on Children.*** Recent evidence suggests that the type of acts committed during a sexual offence may be useful indicators of physical attraction to children (Lehmann, Goodwill, Hanson, & Dahle, 2014). In the absence of a well-validated tool, an empirically-driven approach was used to create a measure of the density of offence behaviours

with children. The guiding principle was that a physical attraction to children would lead participants to engage in a greater variety of sexual behaviours during their offences.

Eighteen offence behaviours were coded for both child and adult victims when the dataset was created. Male and female child victims were coded separately, resulting in four different versions of each behavioural variable (e.g., adult male [offence behaviour], adult female [offence behaviour] ...). Each variable had three levels: 0 “Not Present”, 1 “Behaviour Occurred on One Occasion”, 2 “Behaviour Occurred on Multiple Occasions”.

Despite evidence that having a male victim increases the likelihood of being pedophilic, the information value of victim sex is unclear. For example, in the original version of the SSPI, the male victim was originally given twice the weight of all items. Further evidence did not support that decision, and the item was weighted equally in the SSPI-2. In this study, a decision was made to collapse variables across genders (i.e., child [offence behaviour], instead of separate variables for male child [offence behaviour] and female child [offence behaviour]). The new variable represented the highest value for either the male or female (child) offence behaviour variable. See Appendix H, “Frequency of Offence Behaviours with Children” for a list of all eighteen offence behaviour variables and frequencies.

Spearman correlations were used to remove variables that were unrelated to the putative taxon indicator (see Appendix I, “Spearman correlations (*rho*) of Offence Behaviours with Children with Putative Taxon Indicator”. Some variables were retained in spite of their poor relationship, because they had strong face validity for relating to pedophilia (e.g., genital contact, anal intercourse). Overall, 10 variables were retained: Genital contact (without intercourse), Made child commit fellatio on him, Committed fellatio on the child, Committed anal intercourse on the child, Kissing the child, Touching the child in a sexual manner over the clothing,

Touching the child in a sexual manner under the clothing, Making the child touch him, Exhibiting himself before the child, Threatening/coercing the child for sexual favours.

The ten variables were summed to create a total score (see Appendix J, “Frequency of raw and rescaled Offence Behaviours variable” for descriptive information on this new variable). Participants who had offence behaviour information but only offended against adults were given a score of 0 ( $n = 102$ ). The total score was divided into the following interpretative ranges:

Table 9.2. *Recoding of Summed Offence Behaviour Variable*

Score	Conceptual Meaning	Behaviour Count
0	Definitely not pedophilic	0 to 1
1	Probably not pedophilic	2 to 3
2	Maybe not pedophilic	-
3	Maybe pedophilic	4 to 5
4	Probably pedophilic	6 to 7
5	Definitely pedophilic	8 and above

***Pedophilia Diagnosis.*** The final variable was whether the file indicated if the participants had a diagnosis of pedophilia. The original version of this variable was used (missing scored as missing), rather than the version used as the putative taxon indicator (missing scored as zero; see above for description). Participants with a diagnosis of pedophilia were recoded as 5 and individuals who were assessed and were determined not to be pedophilic received a score of 0.

***Pedophilic Emotional Attraction.*** The third indicator was constructed following the guidelines outlined in Chapter 4 to measure the emotional attraction men with pedophilia feel towards children. This indicator was a composite of two variables, Grooming Victims and Lifestyle Congruent with Sexual Deviance.

**Grooming Victims.** Grooming referred to establishing relationships with children with the hope/expectation of gaining sexual access. In practice, it was most commonly scored when the perpetrator had a long, non-sexual relationship with an unrelated child prior to any sexual offending. Information on the grooming of children came from three sources: (a) interview responses of the supervising officers, (b) research assistant coding of the officers’ contact notes, and (c) research assistant coding of the participants’ complete file (e.g., presentence reports, reasons for sentencing, psychological assessments).

Sources (a) and (b) were already combined into a single variable in the dataset, similar to Atypical Sexual Fantasies/Urges and Access to Victims. Scores ranged from 0 “No mention of Grooming” to 4 “Always mentions Grooming”. This variable was recoded so that 0 or 1 mention was interpreted as evidence of no emotional attraction to children and 2 to 4 mentions was considered definite evidence of emotional attraction to children. The third source of information was already scaled from 0 “No Grooming” to 2 “Grooming”. As grooming usually refers to behaviour involving children, no additional transformations occurred. The two variables were averaged to create a composite grooming variable. See Table 9.3 below for a summary of variable recoding.

Table 9.3. *Recoding of Variables Related to Grooming Victims*

Score	Conceptual Meaning	Interview/Contact Notes	File Review
0	No emotional attraction	0 or 1 mention	0 No
1	Possible emotional attraction	-	1 Possible
2	Definitely emotional attraction	2 to 4 mentions	2 Yes

**Lifestyle Congruent with Sexual Deviance.** This variable was a single item in the file coding manual: “Is/was the offender[participant]’s lifestyle arranged to facilitate/congruence

with sexual deviance (e.g., works near a school, moves in with single mothers, long walk to night job thru a park, etc.)”. It was an ordinal variable with three levels: 0 “No”, 1 “Maybe/Possibly”, and 2 “Yes”.

Although this variable could include lifestyles congruent with “sexual deviance” other than pedophilia, the training examples focused on children and pedophilic interests; consequently, positive coding on this variable would predominantly identify individuals with lifestyles congruent with pedophilia. Sufficient information was available to score this item on 384 participants (94.3% of total). An additional step was taken to refine the item so that it pertains to pedophilia: participants who did not offend against a victim under the age of 11 years were considered missing ( $n/N = 247/407$  with available data).

### **Statistical Analyses**

The following taxometric analyses were used to examine pedophilia’s latent structure: Mean-Above-Minus-Below-A-Cut (MAMBAC; Meehl & Yonce, 1994), Maximum Eigenvalue (MAXEIG; Waller & Meehl, 1998) and Latent Mode Factor Analysis (L- Mode; Waller & Meehl, 1998). Results from these separate analyses were integrated and interpreted using the Comparison Curve Fit Index (CCFI; Ruscio, Ruscio, & Meron, 2007). For greater detail on these procedures, please see Chapter 5. Taxometric analyses were conducted in the R environment (R Core Team, 2018) using the taxometric package developed by Ruscio and Wang (2017). All data preparation was conducted in SPSS (IBM Corp., 2017).

### **Examining the Validity of The Resultant Structural Model**

Prior to running analyses, follow-up analyses were planned to examine the characteristics that correlated with the latent dimension (if the results were dimensional) or distinguished the taxon from the complement members (if the results supported a taxon; see Chapter 6 for a further

description). Given that the results supported a taxon, the first question was the extent to which taxon members appeared pedophilic. The following variables, some described previously, were selected as correlates of pedophilia because they have high face validity and research supporting their construct validity: Pedophilia Diagnosis, Hebephilia Diagnosis, Phallometric Evidence of Arousal, SSPI-2, Victim Count by Tanner Stage, Grooming Victims, and Lifestyle Congruent with Sexual Deviance.

The second set of analyses concerned the construct validity of the resulting structural model. These analyses focused on replicating the relationships pedophilia has demonstrated with other constructs in other studies. The dataset included a number of relevant variables (e.g., paraphilic disorders, school records) as well as other pre-existing scales (see Hanson & Harris, 1998). See Appendix K, “Descriptions of variables used to examine validity in Chapter 9” for a complete description of variables.

## **Results**

### **Putative Taxon Indicator**

Almost half of the participants had only offended against children 15 or younger (44.7%,  $n = 182$ ), the next largest group offended against adults and children (32.2%,  $n = 131$ ), and the smallest group had only offended against adults (23.1%,  $n = 94$ ). Slightly more than half the sample had diagnostic information on pedophilia (59.0%,  $n/N = 240/407$ ); of these 240 individuals, 166 were diagnosed as pedophilic and 74 were not. This resulted in a base rate of 69.2% ( $n/N = 166/240$ ) among individuals for whom pedophilia was considered in the original data. The 167 participants with missing data were categorized as non-pedophilic, which resulted in a base rate in the total sample of 40.8% ( $n/N = 166/407$ ).

## Indicator Construction

Descriptive information for all candidate variables is presented in Table 9.4. A psychometric examination of each candidate variable was conducted prior to its inclusion. This included examining the distribution of scores for anomalies (e.g., exaggerated skew, empty cells), and the relationship of the measures with the SSPI-2, a credible, independent indicator of pedophilia. The remainder of this section summarizes the findings. Interested parties can refer to Appendix L, “Characteristics of variables used to create indicators in Chapter 9” for the complete set of tables and figures used in this process.

**SSPI-2.** Among the 407 participants in the Dynamic Predictors dataset, approximately 37.3% had boy victims younger than 15, 55.8% had more than one victim younger than 15, 59.7% had a victim younger than age 12, 64.1% had an extrafamilial victim younger than 15, and 5.9% had a child pornography offence at any point in their criminal history (including recidivism). The internal consistency of the SSPI-2 in this sample was high (*Cronbach's* ordinal  $\alpha = .90, n = 407$ ).

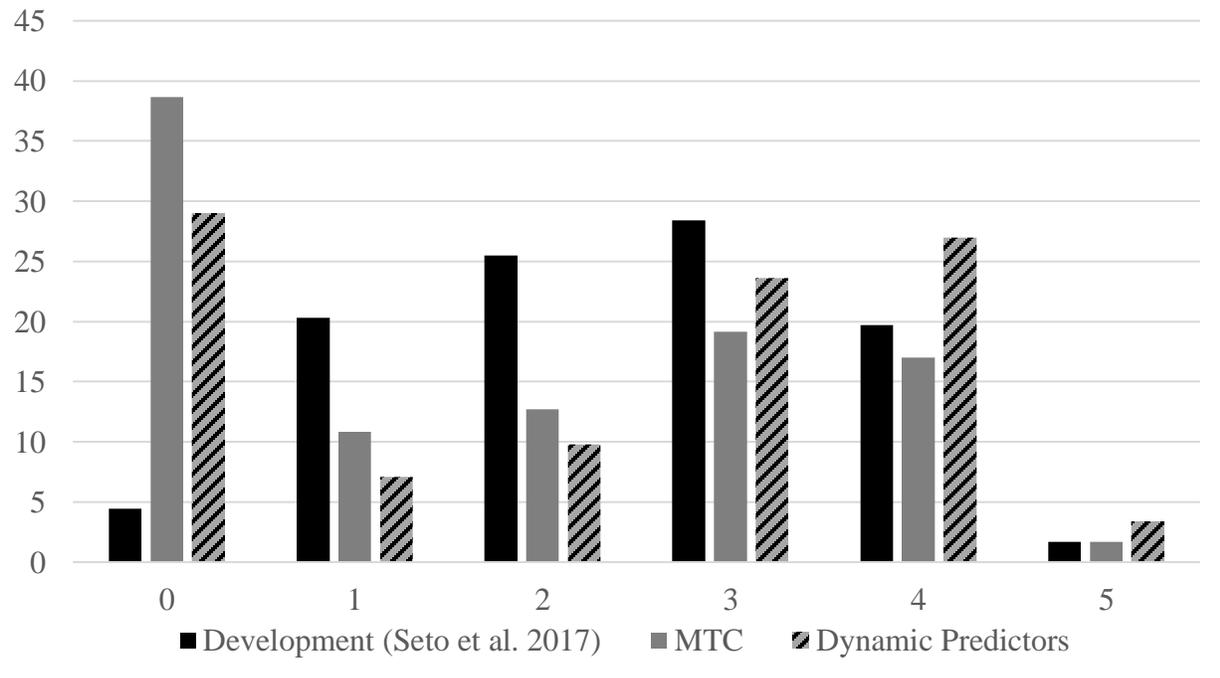
Table 9.4. *Descriptive Statistics and Validity Estimates for Indicators of Pedophilia*

Indicator	Levels	<i>M</i>	<i>SD</i>	<i>n</i> <sub>b</sub>	Skew		Kurtosis		Validity		
					Skew	<i>SE</i>	Kurt.	<i>SE</i>	<i>d</i>	LL	UL
SSPI-2 ( $\alpha = .90$ )	6	2.23	1.68	407	-0.21	0.12	-1.47	0.24	1.50	1.28	1.72
Pedophilic Physical Attraction ( $\alpha = .79$ ) <sup>a</sup>	Cont. <sup>b</sup>	2.12	1.50	407	0.14	0.12	-1.17	0.24	1.47	1.25	1.70
Pedophilic Physical Attraction ( $\alpha = .83$ )	Cont. <sup>b</sup>	2.24	1.58	407	0.03	0.12	-1.34	0.24	2.09	1.85	2.34
Proportion of Tanner 1 Victims	5	1.72	2.24	407	0.71	0.12	-1.41	0.24	1.16	0.95	1.38
Atypical Sexual Fantasies/Urges	5	1.45	1.76	407	0.53	0.12	-1.54	0.24	0.32	0.12	0.52
Phallometric Evidence of Child Preference	3	3.08	1.96	125	-0.72	0.22	-1.04	0.43	1.29	0.90	1.68
Offence Behaviours	5	3.02	2.15	405	-0.47	0.12	-1.55	0.24	1.33	1.11	1.55
Pedophilia Diagnosis	2	3.46	2.31	240	-0.84	0.16	-1.31	0.31	-	-	-
Pedophilic Emotional Attraction	8	0.89	0.64	407	-0.14	0.12	-1.42	0.14	1.24	1.02	1.45
Grooming Victims	4	0.70	0.58	407	0.06	0.12	-1.46	0.24	0.85	0.64	1.06
Lifestyle Congruent with Sexual Deviance	3	1.54	0.71	247	-1.23	0.16	0.06	0.31	0.52	0.26	0.78

<sup>a</sup>Version of indicator without Pedophilia Diagnosis variable. <sup>b</sup>Continuous variable.

Figure 9.2 compares the SSPI-2 score distribution (as a percentage) in the Dynamic Predictors sample to the MTC sample (Chapter 8) and the development sample (Seto et al., 2017). The scores in the validation sample appear to be normally distributed. The SSPI-2 mean in the development sample was 2.47 ( $SD = 1.18$ ,  $n = 950$ ) and the median was 2 (Seto et al., 2017). The SSPI-2 mean in the MTC sample was 1.70 ( $SD = 1.60$ ,  $n = 841$ ) and the median was also 2. The SSPI-2 mean in the Dynamic Predictors sample was 2.23 ( $SD = 1.68$ ,  $n = 407$ ) and the median was 3.

Figure 9.2. Comparison of SSPI-2 Total Score Distributions as a Percentage in the Dynamic Predictor Sample ( $n = 407$ ), MTC Sample ( $n = 841$ , Chapter 8), Development Sample ( $n = 950$ , Seto et al., 2017)



The differences and similarities in the distributions of the SSPI-2 across samples are worth noting. The high SSPI-2 mean score in the Dynamic Predictors samples suggests that participants in the Dynamic Predictors sample have more pedophilic tendencies in their victim selection than the MTC sample. Comparing Dynamic Predictors and the validation sample using mean scores, however, can be misleading because the samples have different distributions. Like

the MTC sample, the Dynamic Predictors sample has a bi-modal distribution, owed to the inclusion of participants who offended against adults. The first mode in both samples is at a score of 0, but second mode in the Dynamic Predictors sample is at a score of 4, compared to a second mode of 3 for the MTC sample. In general, it appears participants in the Dynamic Predictors sample were slightly more pedophilic.

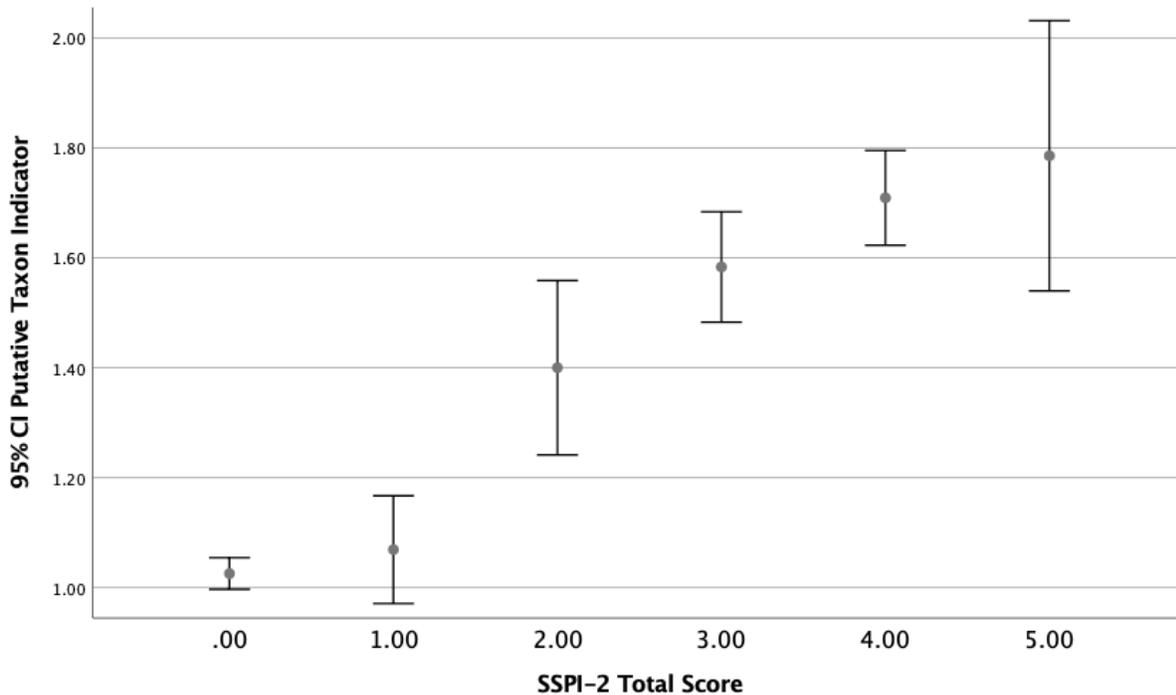
Table 9.5 displays the relationship between the putative taxon indicator with SSPI-2 total scores ( $n = 407$ ).

Table 9.5. *Relationship Between SSPI-2 Scores and the Putative Taxon Indicator ( $n = 407$ )*

Pedophilia	SSPI-2						M ( <i>SD</i> )	<i>Mdn</i>	Mode	Total
	0	1	2	3	4	5				
1 “Not pedophilic”	115	27	24	40	32	3	1.40 (1.48)	1.00	0	241
2 “Pedophilic”	3	2	16	56	78	11	3.43 (0.93)	4.00	4	166
Total	118	29	40	96	110	14	2.23 (1.68)	3.00	0	407

Figure 9.3 graphs the mean scores (and 95% confidence intervals) of the putative taxon indicator for each level of the SSPI-2 ( $n = 407$ ). This figure is an example of a non-linear relationship between variables, suggestive of a taxon rather than a dimension. Mean differences in pedophilia across different levels of the SSPI-2 were reduced at extreme scores. Participants who had a SSPI-2 score of 3 or higher appeared pedophilic; participants who scored a 0 or 1 were unlikely to be pedophilic. Participants who scored a 2 on the SSPI-2 seemed to be a mix of pedophilic and non-pedophilic.

Figure 9.3. Mean Pedophilia Score by Each Level of the SSPI-2 Total Score ( $n = 407$ )



The overall relationship between SSPI-2 scores and pedophilia diagnosis was large in the Dynamic Predictor sample (Cohen's  $d = 1.50$ ) and supports its use as an indicator for taxometric analysis. This relationship also supports the SSPI-2's use as a reference variable to examine the distribution of scores on other variables (see Appendix K, "Characteristics of variables used to create indicators in Chapter 9" for details).

**Pedophilic Physical Attraction.** The descriptive information on all five candidate variables is presented in Table 9.6. The variables had a moderate to strong relationship with the putative taxon indicator. The relationship each variable had with the SSPI-2 appeared more logistic than linear—suggestive of a categorical interpretation of the underlying construct (see Appendix K).

Table 9.6. *Distribution of Scores for Variables Comprising Pedophilic Physical Attraction*

Score	Conceptual Meaning	Proportion of Tanner 1 Victims	Atypical Sexual Fantasies/Urges	Phallometry	Offence Behaviours	Pedophilia Diagnosis
0	Definitely not pedophilic	227	231	33	111	74
1	Probably not pedophilic	44	0	-	28	-
2	Maybe not pedophilic	3	43	-	-	-
3	Maybe pedophilic	11 (3.5)	26	50 (3.5)	47	-
4	Probably pedophilic		107		39	-
5	Definitely pedophilic	122	-	42	180	166
Total		407	407	125	405	240

**Pedophilic Emotional Attraction.** Table 9.7 displays the frequency distributions of both candidate variables. These variables had a somewhat weaker relationship with the putative taxon indicator than the variables used to measure Pedophilic Physical Attraction (see Table 9.4). The relationship between the emotional attraction variables and the SSPI-2 were mixed, but tended to favour a dimensional interpretation of the data (see Appendix L for details).

### **Evaluating Indicator Adequacy for use in Taxometric Analyses**

Table 9.4 above contains the descriptive information on the three indicators that were submitted for taxometric analyses ( $n = 407$ ). The SSPI-2 and Pedophilic Physical Attraction indicators' effect sizes (i.e., Cohen's  $d$ ) were larger than the 1.25 cut off required for taxometric analyses (Meehl, 1995). The effect size for Pedophilic Emotional Attraction fell just below the cut-off ( $d = 1.24$ ). The mean inter-indicator correlation was sufficiently high within the full sample ( $r = .72, n = 407$ ). The mean inter-indicator correlation within the putative taxon ( $r = .35$ ) was lower than within the complement ( $r = .65$ ). All three indicators exhibited very little skew (i.e., all values were close to 0). Negative kurtosis values for all indicators suggested a flatter or platykurtic shape to their distributions. Overall, these deviations from normality are tolerable in taxometric analyses as the dataset has other strong characteristics (e.g., sample size greater than 300, no indicators' effect sizes meaningfully below  $d = 1.25$ ).

Table 9.7. *Distribution of Scores for Variables Comprising Pedophilic Emotional Attraction*

Score	Conceptual Meaning	Grooming Victims	Lifestyle Congruent With Sexual Deviance
0	No emotional attraction to children	130	32
		77 (0.5)	
1	Possible emotional attraction to children	105	49
		95	
2	Definite emotional attraction to children	0	166
Total		407	247

## Taxometric Analyses

Base rate estimates and comparison curve fit index (CCFI) values are presented in Table 9.8. CCFI values range from 0 (indicative of dimensional structure) to 1 (indicative of categorical structure), with values between .45 and .55 considered ambiguous (Ruscio et al., 2010, 2018). In the Dynamic Predictors sample, CCFI values for all taxometric procedures were consistent with a categorical structure (i.e., > .55). The categorical interpretation is also supported by the visual inspection of the MAMBAC, MAXEIG, and L-Mode data curves (see Figures 9.4, 9.5, and 9.6 respectively).

Table 9.8. *Comparison Curve Fit Indices (CCFI) and Base Rates (BR) (n = 407)*

MAMBAC		MAXEIG		L-Mode		Average	
CCFI	BR	CCFI	BR	CCFI	BR	CCFI	BR
0.761	0.538	0.664	0.442	0.713	0.598	0.713	0.526

Note. MAMBAC: mean-above-minus-below-a-cut; MAXEIG: maximum eigenvalue; L-Mode: latent mode factor analysis; CCFI: Comparison Curve Fit Index; BR: mean taxon base rate.

Figure 9.4. MAMBAC Graphs Comparing the Dynamic Predictors Data ( $n = 407$ ) to Simulated Categorical (Left) and Dimensional (Right) Data

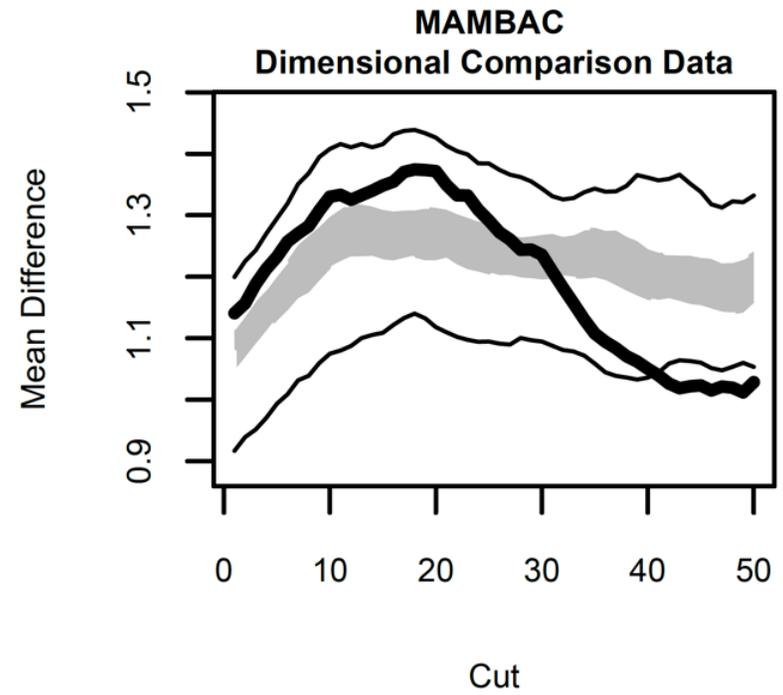
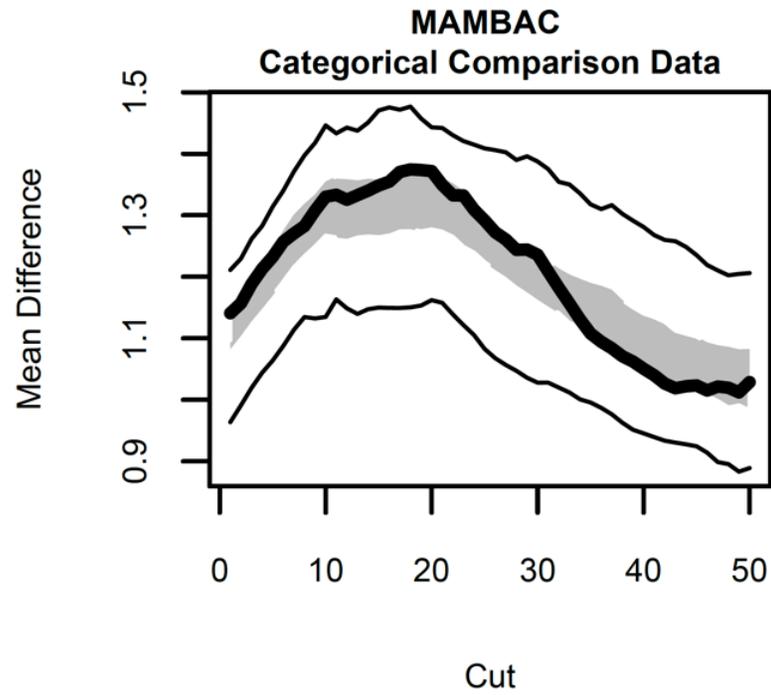


Figure 9.5. MAXEIG Graphs Comparing the Dynamic Predictors Data ( $n = 407$ ) to Simulated Categorical (Left) and Dimensional (Right) Data

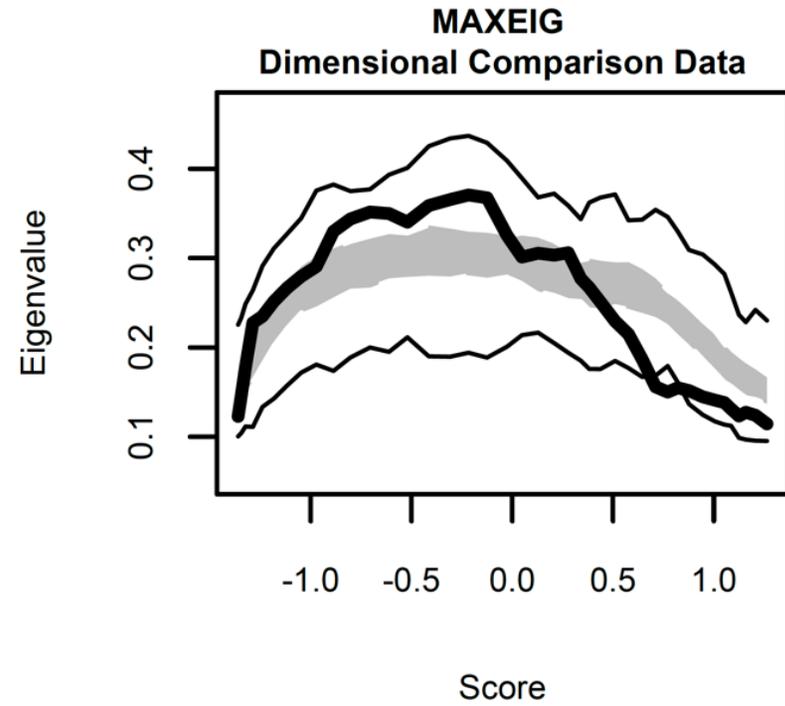
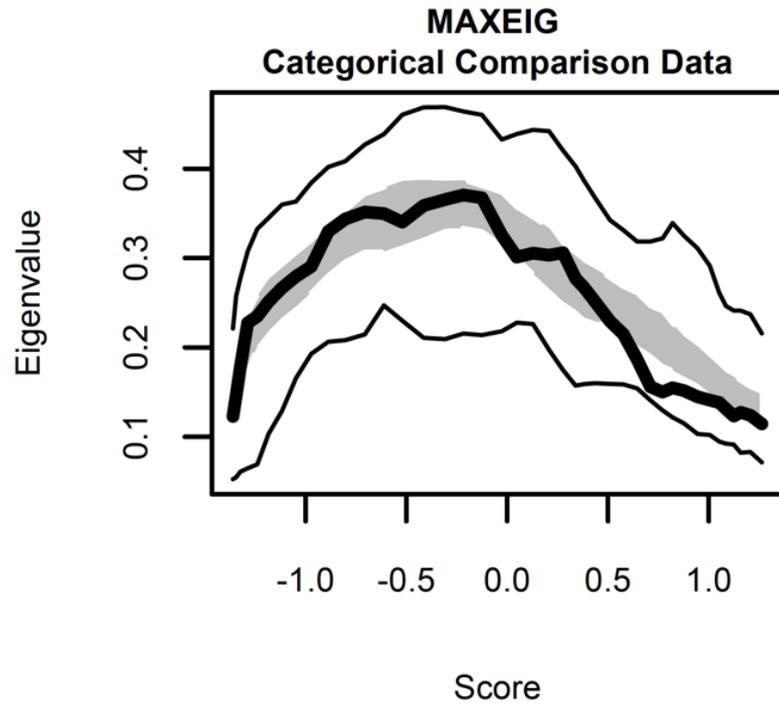
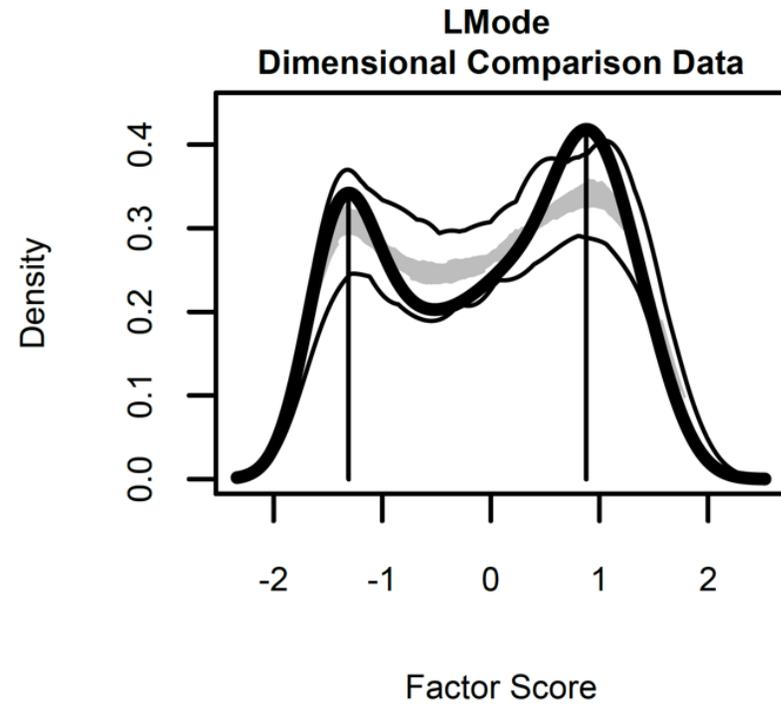
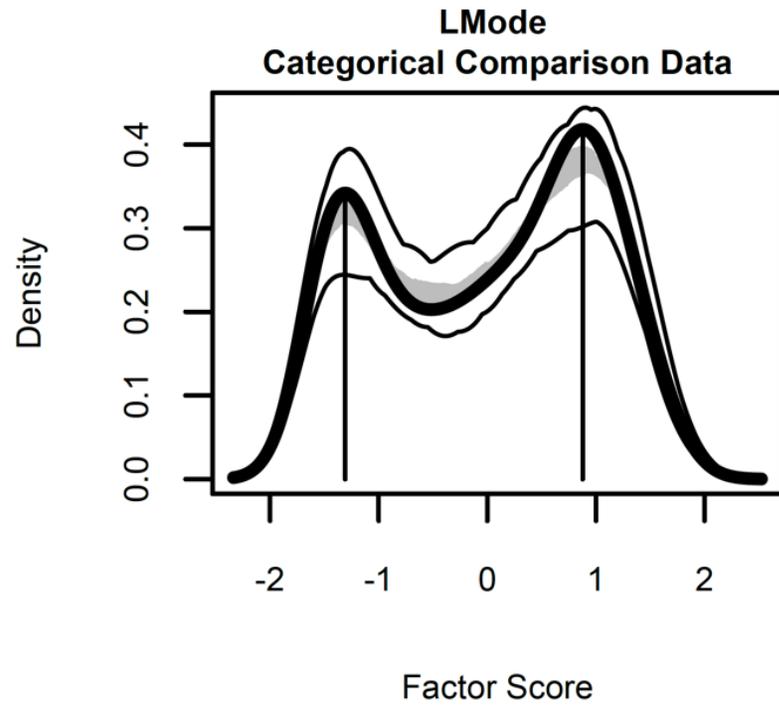


Figure 9.6. L-Mode Graphs Comparing the Dynamic Predictors Data ( $n = 407$ ) to Simulated Categorical (Left) and Dimensional (Right) Data



The average taxon base rate ( $p = .526$ ) was used to classify participants. The *R* software assigns participants to the taxon or complement by sorting all cases on the indicators and grouping a pre-determined percentage of participants into the taxon—in this case, the base rate from taxometric analyses. In this sample, the 52.6% with the highest scores across the three indicators were classified as the taxon; the remaining sample was classified as the complement.

### **Validity of Resultant Structural Model**

The last stage of the study examined differences between the taxon and complement. Because the taxometric indicators were constructed to measure pedophilia, the taxon should represent participants with pedophilia, but this requires verification. Consequently, group differences were examined on commonly used correlates of pedophilia. The results were consistent with the taxon representing pedophilia (see Table 9.9).

All taxon members had offended against children. One-third of taxon members had also offended against adults ( $n/N = 39/214$ , 32.2% of the taxon). Participants who had only offended against adults represented half of the complement ( $n/N = 94/193$ , 48.7% of the complement). Participants who had offended against adults and children represented the next largest group in the complement ( $n/N = 62/193$ , 32.1% of the complement).

Almost all participants who had a diagnosis of pedophilia were in the taxon ( $n/N = 151/166$ , 91.0% of participants with pedophilia). Similarly, the vast majority of participants who were diagnosed with hebephilia were in the taxon ( $n/N = 29/37$ , 78.4% of participants with hebephilia). Note that in both variables, participants with missing information were coded as 0.

Physical attraction to children, based on phallometric assessment, was more common in the taxon than the complement. No significant gender differences emerged amongst children.

Table 9.9. Group Comparisons on Common Indicators of Pedophilia

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	214 (52.6)	193 (47.4)	407 (100)			
Pedophilic Disorder				<b>27.48</b>	<b>15.14</b>	<b>49.86</b>
Pedophilic	151	15	166			
Non-Pedophilic	63	178	241			
Hebephilic Disorder				<b>3.47</b>	<b>1.58</b>	<b>7.64</b>
Hebephilic	29	8	37			
Non-Hebephilic	185	185	370			
Phallometric Evidence of Arousal (Yes/No)						
Child Male	42/172	7/186	49/348	<b>5.80</b>	<b>2.59</b>	<b>12.96</b>
Child Female	37/177	15/178	52/355	<b>2.43</b>	<b>1.30</b>	<b>4.56</b>
Child Undifferentiated	17/197	4/189	21/386	<b>3.73</b>	<b>1.30</b>	<b>10.72</b>
Child Any	69/145	23/170	92/315	<b>3.46</b>	<b>2.06</b>	<b>5.81</b>
Adult Male	17/197	8/185	25/382	1.93	0.83	4.50
Adult Female	23/191	46/147	69/338	<b>0.39</b>	<b>0.23</b>	<b>0.67</b>
Adult Any	34/180	49/144	83/324	<b>0.56</b>	<b>0.34</b>	<b>0.91</b>
SSPI-2 Total Mean ( <i>SD</i> ) ( <i>n</i> = 407)	3.6 (0.68)	0.7 (1.0)	2.2 (1.7)	<b>3.25</b>	<b>2.96</b>	<b>3.55</b>
Victim Count Mean ( <i>SD</i> ) by Tanner Stage ( <i>n</i> = 407)						
Tanner 1	3.0 (2.3)	0.22 (0.49)	1.7 (2.2)	<b>1.63</b>	<b>1.41</b>	<b>1.86</b>
Tanner 2/3	1.4 (2.0)	0.33 (0.64)	0.90 (1.6)	<b>0.74</b>	<b>0.54</b>	<b>0.94</b>
Tanner 4	0.30 (0.78)	0.26 (0.66)	0.28 (0.73)	0.055	-0.14	0.25
Tanner 5	0.20 (0.53)	1.1 (1.5)	0.63 (1.2)	<b>0.83</b>	<b>0.63</b>	<b>1.04</b>
Total Victims	4.9 (2.8)	1.9 (1.8)	3.5 (2.8)	<b>1.24</b>	<b>1.03</b>	<b>1.45</b>
Grooming Victims Mean ( <i>SD</i> , <i>n</i> = 407) <sup>a</sup>	1.0 (0.50)	0.35 (0.45)	0.70 (0.58)	<b>1.38</b>	<b>1.17</b>	<b>1.60</b>
Lifestyle Congruent with Sexual Deviance Mean ( <i>SD</i> ) <sup>a</sup>	1.6 (0.64)	1.0 (0.86)	1.5 (0.71)	<b>0.87</b>	<b>0.53</b>	<b>1.21</b>
	<i>n</i>	206	41	247		

Note. **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios)

<sup>a</sup>Same variable used in Pedophilic Emotional Attraction, see Appendix K for details.

Physical attraction to adults, specifically adult women, was more common in the complement. There were no significant group differences for physical attraction to adult men. Note, that for all phallometric variables, scores of 0 included participants who had positive evidence of no physical attraction and participants whose data was missing.

Taxon members were, on average, three points higher on the SSPI-2 than complement members.

Taxon members, as expected, offended against children. On average, taxon members had approximately three Tanner 1 victims, one Tanner 2/3 victim, and no Tanner 5 victims. Complement members had on average one Tanner 5 victim. There was no reliable difference between groups on the number of Tanner 4 victims. Taxon members had five victims on average, whereas complement members had two.

Taxon members also exhibited a pronounced interest in children outside of their offences. The average taxon member was observed to engage in some degree of victim grooming, whereas the average complement member did not. Taxon members also were more likely to be observed living a lifestyle that facilitates unhealthy sexual behaviours (e.g., moving in with a single mother and her children).

The second set of analyses examined the correlates of pedophilia. The taxon was expected to exhibit greater interpersonal deficits and neurodevelopmental perturbations. Risk-relevant factors were also examined; specifically, the taxon was expected to demonstrate more sex-crime specific risk factors and lower general criminality than the complement.

**Interpersonal deficits.** Taxon members had greater interpersonal difficulties than complement members (see Table 9.10). Taxon members were less likely to get married than complement members but, when they did, they were equally likely to get divorced. They were

Table 9.10. *Group Comparisons Related to Interpersonal Functioning*

Variables		Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
						LL	UL
Total <i>n</i> (%)		214 (52.6)	193 (47.4)	407 (100)			
Married					<b>0.44</b>	<b>0.28</b>	<b>0.69</b>
	Yes	44	72	116			
	No	167	120	287			
Divorced					1.26	0.82	1.91
	Yes	72	56	128			
	No	139	136	275			
General Social Problems Mean ( <i>SD</i> ) <sup>a</sup>		8.1 (4.9)	6.8 (5.2)	7.5 (5.1)	<b>0.27</b>	<b>0.071</b>	<b>0.46</b>
	<i>n</i>	214	193	407			
Loneliness Mean ( <i>SD</i> ) <sup>b</sup>		2.2 (1.7)	1.8 (1.8)	2.0 (1.8)	<b>0.25</b>	<b>0.054</b>	<b>0.44</b>
	<i>n</i>	214	193	407			
Association with “Sex Offenders” Mean ( <i>SD</i> ) <sup>b</sup>		1.7 (1.8)	1.2 (1.7)	1.5 (1.8)	<b>0.32</b>	<b>0.12</b>	<b>0.51</b>
	<i>n</i>	214	193	407			
Seen as problem Mean ( <i>SD</i> ) <sup>b</sup>		0.76 (1.4)	0.23 (0.85)	0.51 (1.22)	<b>0.44</b>	<b>0.25</b>	<b>0.64</b>
	<i>n</i>	214	193	407			

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen’s *d*) or 1 (for Odds Ratios).

<sup>a</sup>Composite variable ranging from 0 to 20, see Appendix K for details. <sup>b</sup>Four level ordinal variable ranging from 0 to 4, see Appendix K for details.

considered by their parole officers to be more lonesome. Taxon members also scored high on a general measure of social isolation and interpersonal conflict (e.g., friends, family, co-workers). This is perhaps why taxon members were more likely than complement members to socialize with other men with sex offence histories, and these relationships were more often viewed by officers as problematic.

**Neurodevelopmental perturbations.** There was mixed evidence for increased neurodevelopmental perturbations in the taxon (see Table 9.11). Cognitive ability, as measured by the Wechsler Adult Intelligence Scale's full-scale I.Q., was generally within the normal range in both groups. Taxon members' scores were, however, 5 points lower than complement members. There were no group differences in rates of neurodevelopmental problems (e.g., brain injury) or academic achievement.

**Risk-relevant constructs.** As expected, taxon members were more sexually criminal and less generally criminal than complement members (see Table 9.12 and Table 9.13). There was moderate overlap between the taxon and sex-crime specific risk factors. Taxon members were significantly higher ( $d = 0.89$ ,  $CI_{95\%} = 0.69, 1.10$ ) on the Persistence/Paraphilia factor from Static-99R/ Static-2002R (from Brouillette-Alarie et al. 2016; see Appendix K for details on this variable). The Persistence/Paraphilia factor connotes overall problems related to sexual offending, and includes both atypical sexual interests and other issues with sexual self-regulation (e.g., hypersexuality).

Analyses on paraphilias or other sexual-regulation problems, as measured through offence characteristics and clinical assessments, did not produce a consistent pattern with taxon members. Some paraphilic behaviours were more common in the taxon (i.e., Toucherism/Frottage), but most were equally present in both groups. The one exception was

Table 9.11. *Group Comparisons Related to Neurodevelopmental Perturbations*

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	214 (52.6)	193 (47.4)	407 (100)			
Neurodevelopmental Problems				1.36	0.60	3.05
	Yes	15	10	25		
	No	199	183	382		
Full Scale I.Q. Mean ( <i>SD</i> )	94.9 (14.4)	99.5 (15.0)	97.0 (14.8)	<b>-0.32</b>	<b>-0.54</b>	<b>-0.096</b>
	<i>n</i>	168	149	317		
Achievement						
Elementary School Maladjustment <sup>a</sup>	2.5 (1.3)	2.6 (1.3)	2.5 (1.3)	-0.016	-0.23	0.20
	<i>n</i>					
Highest Grade Completed	9.8 (3.3)	10.3 (3.0)	10.0 (3.2)	0.13	-0.061	0.33
	<i>n</i>	211	190	401		

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios).

<sup>a</sup>Four level ordinal variable ranging from 1 to 4, see Appendix K for details.

Table 9.12. Group Comparisons on Sex-Crime Specific Risk Factors

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	214 (52.6)	193 (47.4)	407 (100)			
Persistence/Paraphilia Mean ( <i>SD</i> , <i>n</i> = 407) <sup>a</sup>	4.5 (2.5)	2.4 (2.3)	3.5 (2.6)	0.89	0.69	1.10
Offence Characteristics (Yes/No, <i>n</i> = 405)						
Sadism/Masochism	15/199	32/159	47/358	<b>0.38</b>	<b>0.20</b>	<b>0.72</b>
Voyeurism	30/184	31/160	61/344	0.84	0.49	1.45
Toucheurism/Frottage	57/157	31/160	88/317	<b>1.86</b>	<b>1.14</b>	<b>3.03</b>
Obscene phone call	81/133	68/123	149/256	1.10	0.73	1.65
Obsessive masturbation	36/178	16/175	52/353	<b>2.17</b>	<b>1.17</b>	<b>4.03</b>
Fetishism	13/201	7/184	20/385	0.50	0.20	1.27
Any sexual preoccupation	62/152	44/147	106/299	1.36	0.87	2.12
“Lusty Talk” Mean ( <i>SD</i> , <i>n</i> = 407) <sup>b</sup>	0.13 (0.64)	0.39 (1.1)	0.26 (0.91)	<b>-0.28</b>	<b>-0.47</b>	<b>-0.081</b>
Pornography Use Mean ( <i>SD</i> , <i>n</i> = 407) <sup>b</sup>	1.4 (1.8)	0.62 (1.4)	1.0 (1.6)	<b>0.46</b>	<b>0.27</b>	<b>0.66</b>
Sexual Preoccupation Mean ( <i>SD</i> , <i>n</i> = 407) <sup>b</sup>	0.92 (1.6)	0.63 (1.4)	0.78 (1.5)	<b>0.20</b>	<b>0.0062</b>	<b>0.40</b>
Phallometric Activity Preference for Rape/Sadism/Violence (Yes/No)	33/181	28/165	61/346	1.07	0.62	1.84
“Child Molester” Attitudes Mean ( <i>SD</i> ) <sup>c</sup>	5.0 (2.9)	1.5 (2.6)	3.4 (3.3)	<b>1.25</b>	<b>1.04</b>	<b>1.47</b>
<i>n</i>	211	189	400			
“Rapist” Attitudes Mean ( <i>SD</i> , <i>n</i> = 407) <sup>d</sup>	2.9 (3.1)	3.9 (3.3)	3.3 (3.2)	<b>-0.31</b>	<b>-0.51</b>	<b>-0.12</b>

Note. **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen’s *d*) or 1 (for Odds Ratios).

<sup>a</sup>Ordinal variable ranging from 0 to 10. See Appendix K for details. <sup>b</sup>Ordinal variable ranging from 0 to 2. See Appendix K for details. <sup>c</sup>Ordinal variable ranging from 0 to 8. See Appendix K for details. <sup>d</sup>Ordinal variable ranging from 0 to 10. See Appendix K for details.

Table 9.13. *Group Comparisons on Common Indicators of General Criminality*

Variables	Taxon	Complement	Total	Effect Size (OR/ <i>d</i> )	95% CI	
					LL	UL
Total <i>n</i> (%)	214 (52.6)	193 (47.4)	407 (100)			
General Criminality Mean ( <i>SD</i> , <i>n</i> = 407) <sup>a</sup>	3.3 (2.2)	4.2 (2.5)	3.7 (2.4)	<b>-0.34</b>	<b>-0.15</b>	<b>-0.54</b>
Youthful Stranger Aggression Mean ( <i>SD</i> , <i>n</i> = 407) <sup>a</sup>	1.9 (0.94)	2.1 (1.1)	2.0 (1.0)	-0.18	-0.38	0.0095
PCL-R Total Score (Prorated) Mean ( <i>SD</i> )	19.7 (8.4)	20.8 (8.5)	20.2 (8.4)	-0.12	-0.33	0.087
	<i>n</i>					
	182	170	352			
Factor 1	8.8 (4.0)	8.6 (4.0)	8.7 (4.0)	0.043	-0.17	0.25
Facet 1 – Interpersonal	3.2 (2.3)	3.1 (2.4)	3.1 (2.4)	0.017	-0.19	0.23
Facet 2 - Affective	5.6 (2.4)	5.5 (2.4)	5.5 (2.4)	0.044	-0.16	0.25
Factor 2	9.2 (5.3)	10.4 (5.5)	9.8 (5.4)	<b>-0.23</b>	<b>-0.44</b>	<b>-0.023</b>
Facet 3 – Lifestyle	5.2 (3.1)	5.3 (3.2)	5.3 (3.1)	-0.035	-0.24	0.17
Facet 4 – Antisocial	3.9 (2.9)	5.1 (3.1)	4.5 (3.0)	<b>-0.38</b>	<b>-0.59</b>	<b>-0.16</b>
Antisocial Personality Disorder (Yes/No, <i>n</i> = 405)	26/188	50/143	76/331	<b>0.40</b>	<b>0.24</b>	<b>0.67</b>
Conduct Disorder (Yes/No, <i>n</i> = 407)	135/79	125/68	260/147	0.93	0.62	1.39

*Note.* **Bolded** effect sizes have confidence intervals that do not include 0 (for Cohen's *d*) or 1 (for Odds Ratios)

<sup>a</sup>Ordinal variable ranging from 0 to 8. See Appendix K for details.

attraction to violence and lack of consent; fewer taxon members engaged in this type of behaviour, but no significant differences emerged from phallometric assessment.

The taxon did seem more sexually preoccupied overall (e.g., engaging in obsessive masturbation, more frequent use of pornography). The prevalence of sexualized language (i.e., “Lusty Talk”) was higher in the complement.

Compared to the complement, taxon members more frequently endorsed attitudes supportive of sex with children (e.g., “some children are mature enough to enjoy sex with adults”) and endorsed less rape myths about adults (e.g., “many women would secretly like to be raped”). The four “Child molester” statements were considered and, ultimately, not included as indicators or correlates of pedophilia. Their wording does not make it clear if endorsement reflects an attraction to children, or rationalizations by participants who are, in fact, not attracted to children. To the extent that these attitudes reflect problematic thinking around sex with children, they represent relevant treatment targets for taxon members.

In contrast to sex-crime specific risk factors, taxon members were consistently lower on measures of general criminality than complement members (see Table 9.13 above). Taxon members had lower scores on General Criminality, but not Youthful Stranger Aggression, from Static-99R/Static-2002R (from Brouillette-Alarie et al., 2016; see Appendix K for details on these variables). This means that complement members were more likely to have prior non-sexual crimes. Group differences were not observed on the total score of the PCL-R measure of psychopathy or its first factor, measuring interpersonal and affective problems. Complement members were higher on PCL-R Factor 2. Facet-level analyses indicated that this difference was attributable to complement members having relatively high scores on antisociality. Complement

members were more likely to have been diagnosed with Antisocial Personality Disorder, but there were no significant differences in rates of Conduct Disorder diagnosis.

### **Discussion**

The purpose of this study was to examine the latent structure of pedophilia, defined as a physical and emotional attraction to children. Because the measurement models were defined independent of the dataset (i.e., in Chapters 4 and 6), several variables used in Chapter 8 were replicated in Chapter 9 and new variables were integrated into the indicators of pedophilia. Taxometric results indicated the presence of a taxon, characterized by (a) a diagnosis of pedophilia, (b) co-occurring hebephilia, (c) sexual offences against children, and (d) engagement in non-sexual activities with children.

The taxon represented approximately half the sample. Finding a 50% base rate of pedophilia is plausible in a sample of adult males convicted of sexual offences (see Chapter 3 for a discussion), especially when they are pre-selected as higher risk to sexually reoffend. Other decisions made in the construction of the Dynamic Predictors dataset, such as excluding men who committed intrafamilial offences, would also increase the base rate of pedophilia.

The taxon did not simply divide participants based on whether they offended against children or adults. One-third of the taxon had adult victims and half the complement had child victims. Taxon members had higher rates of diagnoses of child-oriented paraphilias (i.e., pedophilia) and were sexually aroused by children according to previous phallometric assessments. The SSPI-2 easily distinguished between groups: taxon members were, on average, three points higher than complement members.

The relationship between the structural model and other constructs was consistent with what we know of pedophilia. Taxon members had interpersonal deficits. They were less likely to

be married, more lonesome, and demonstrated a greater range of general social problems than complement members. This may be why they were more likely to associate with other men with a history of sexual crime.

Fewer neurodevelopmental differences between groups were found than expected. Taxon member did have lower cognitive functioning than complement members, but not on the other indicators available in this dataset. As expected, taxon members had more problems with sexual self-regulation and less problems with antisociality than the complement.

Attitudes supportive of sex with children differentiated taxon and complement members at a level similar to Pedophilic Emotional Attraction (i.e.,  $d = 1.25$ ). The interpretation of such a large effect is unclear. Most models of psychological constructs include attitudes or beliefs as one element. For example, someone high on antisociality is expected to endorse negative attitudes about authority, as well as engage in rule-breaking behaviour. The attitudes measured here could be an intrinsic part of pedophilia, or post-hoc explanations and justifications for their sexual feelings and behaviour.

The current study supported and extended the work in Chapter 8. A limitation in the previous study was that data was collected in an institutional setting; in contrast, participants in the current study were supervised in the community. The Dynamic Predictors dataset also provided new information sources to construct the indicator, Pedophilic Physical Attraction (e.g., phallometry, diagnosis). Utilizing behavioural observations of interpersonal and psychosexual functioning improved confidence that the structural model reflected pedophilia.

### **Limitations**

As comprehensive as the Dynamic Predictors dataset was, there were still a number of limitations in the information available. Less information on emotional attraction to children was

available in the Dynamic Predictors dataset than in the MTC dataset. It was clear that the researchers and officers were thinking about the unhealthy attachments participants could have to children, but the variables did not clearly distinguish this problem from other paraphilic behaviours. The variable created for this study was a plausible measure of emotional attachment to children, but with less precision than that used in the MTC study (Chapter 8). Continuing to find a taxon may indicate that the structural model of pedophilia is robust—detectable even when using sub-optimal indicators.

A second limitation is the higher than desirable rate of missing data in key variables. Diagnostic information was missing for a little less than half of the sample. Phallometric data was also missing for a large portion of the entire sample and, when it was available, it was coded using a nominal scale. This did not allow for the more precise analyses performed, for example, by McPhail and colleagues (2018) in their taxometric study. The degree to which these data imperfections distorted the measures and results is unclear, but some suppositions can be made. It is unlikely the data is missing at random; men who have pedophilia are more likely to have been identified by clinical and correctional staff and received assessments. These limitations would have the effect of under-identifying pedophilia in the sample.

## **Conclusion**

The structural model was taxonic—again. Although the two studies used different samples and (mostly) different measures, the results were consistent. When considered with the other available research, the overall weight of the evidence supports a taxonic model of pedophilia. If true, this would have important consequences for research, policy, and practice. These deeper considerations are the subject of the overall discussion in Chapter 10.

## CHAPTER 10: GENERAL DISCUSSION

The purpose of this dissertation was to evaluate the latent structure of pedophilia, a sexual orientation to children. Two taxometric studies indicated that pedophilia is a category (i.e., a taxon). Further, multiple secondary analyses confirmed that taxon members exhibited features of pedophilia found in research, including neurodevelopmental perturbations, interpersonal deficits, and risk-relevant propensities. These findings contribute to the research program on pedophilia's latent structure and provide compelling evidence for a categorical interpretation of pedophilia in applied practice.

Research programs advance when they produce new models that can account for prior observations or predict new findings. Pedophilia was defined in previous taxometric studies as a physical attraction to children. Although this is a central feature of the construct, pedophilia is arguably more than just physical attraction. Theoretical developments elsewhere suggest that pedophilia is best conceptualized as a sexual orientation (Seto, 2012), reflecting a relatively stable physical *and* emotional attraction to children. Modeling both features in the present taxometric studies represents a logical progression in our understanding.

The taxometric method is a powerful approach to answer questions about latent structure. A set of three pedophilic indicators were constructed in each study, (a) a screening scale for pedophilic interests based on criminal history; (b) a composite measure of physical attraction to pre-pubescent children that relied minimally on criminal history; and (c) a composite measure of emotional attraction to children. Indicators were submitted to a series of parallel, non-redundant analyses that can detect abrupt changes in the relationship between indicators that may reflect a taxonic boundary. Structural results in both studies were well above the threshold used as a cut-off for taxonic interpretation (i.e., comparison curve fit index  $> .55$ ).

### **So... is Pedophilia a Taxon? (The “Easy Problem”)**

The question arises as to whether there is now sufficient evidence to determine whether pedophilia is a taxon among adult males with a history of sexual crime. The vast majority of taxometric studies found that pedophilia was a taxon ( $k/K = 7/9$ , 77.8%). This is unusual in taxometric research, as only a minority of studies on other constructs support a taxonic structure (i.e., between 20-40% of studies, Haslam et al., 2012). It is difficult to determine if the variability in structural models is due to error or to actual differences in the constructs being measured, or sample used.

Although meta-analysis is a popular method for aggregating findings across studies, this would not be an appropriate method to answer the current question. Meta-analysis is a useful tool to investigate whether various (underpowered) studies that use similar measures globally support the same conclusion. It is unlikely that the variability in the structural models of pedophilia is due to sampling error because of the large sample sizes used (Median  $N = 632$ ,  $k = 9$ ). A source of variability between studies, unfortunately, is the different models and measures of pedophilia.

As discussed in Chapter 1, all previous taxometric studies on pedophilia focus on physical attraction to children. It is also unclear whether, between these studies, the indicators are comparable. For example, it is unlikely that the implicit measures used by Schmidt and colleagues (2013) are equivalent to the phallometric measures used by McPhail and colleagues (2018) in terms of measuring the same aspect of the construct, dividing variability into similar units, etc.

A conceptual synthesis of the previous taxometric research is needed. A focus in this review would be explaining why the two largest studies supported a dimensional model (i.e.,  $N = 2,146$  from Mackaronis et al., 2011; 2,227 from Stephens et al., 2018). The answer is not

obvious. There are no variables that clearly differentiate these two studies from other studies that have found a taxon. Mackaronis and Stephens' studies emphasized phallometric data; however, so did the studies by McPhail, which found two taxa. A potential difference is how phallometric data was interpreted. Stephens and colleagues created a pedophilic index by subtracting the maximum sexual arousal score to adult stimuli from the maximum sexual arousal to prepubescent children, whereas McPhail used all stimulus trials as separate indicators. Even though the results are not fully consistent, the overall weight of the evidence points to a taxon. But, to borrow a phrase coined by David Chalmers (1995), the findings from such a review would only answer the "easy problem" of pedophilia's latent structure.

### **The "Hard Problem" of Pedophilia's Latent Structure**

The "hard problem" of pedophilia's latent structure is determining if definitive results from taxometric studies are even possible. What would the ideal taxometric study characteristics be? The ideal taxometric study may not yet be possible because of the paucity of research on the measurement models for the core variables that define pedophilia.

The concept of measurement models was introduced in Chapter 4 to explain the often-overlooked problem of relating a measurement system to the latent construct being measured. Because constructs are unobservable, it is plausible that a measure can distort the construct's distribution (see Grade Point Average example in Chapter 4). For example, penile tumescence is often accorded a 1-to-1 relationship with physical attraction independent of data transformations (e.g., percent full erection, difference scores). Assumptions are required in clinical decision making and this heuristic is defensible in that context. Further justification is required, however, if penile tumescence is treated as a direct analog of physical attraction in taxometric research. Are men with erections twice as big as others when viewing child stimuli really twice as

pedophilic? We do not know. These men could just as easily be  $e^2$ ,  $\sqrt{2}$ , or  $\ln(2)$  more pedophilic.

A plausible method to answer this question is to find a “concatenation” operator that would define the isomorphic relationship between manifest information (e.g., penile tumescence) and latent construct (e.g., pedophilia, Luce & Tukey 1964; Michell, 1990). A program of research would be required to test how at least two natural attributes, A and B, non-interactively relate to a third attribute, C. The attributes of C can be quantified through testing the specific relationships between A and B (e.g., penile tumescence, time spent with children in non-sexual activities) at different levels of C (e.g., pedophilia). The difficulty is that researchers have rarely been able to find concatenation operators for their constructs (Cliff, 1992; Michell, 2009).

An alternative strategy, used in this dissertation, was modeling several variables jointly in cumulative stochastic models (i.e., the presence of each indicator independently increases the likelihood that the construct is present [taxonic model] or contributes probabilistically to relative placement on the latent construct [dimensional model]). The distribution and relationships between variables informed the scaling of each indicator. For example, reconsider the variable distributions below for the Pedophilic Physical Attraction indicator used in Chapter 8 (Table 10.1, reproduced from Table 8.7). The highest level for three out of the four values was populated by approximately 150 individuals. With this level of consistency, we can be relatively confident that around 150 people exist at the most extreme point of the pedophilic physical attraction. The highest level of Fixation, however, had 302 people. This means that the highest level of fixation does not represent the same extreme point that is represented by the other three variables and should, therefore, receive a lower value (i.e., a value of 4 rather than 5)

Table 10.1. *Distribution of Scores for Variables Comprising Pedophilic Physical Attraction*

Score	Conceptual Meaning	Proportion of Tanner 1 Victims	Fixation (MTC:CM3)	Sexual Deviation (SVR-20)	Sexual Interest in Children (SRA-FV)
0	Definitely not pedophilic	318	432	303	207
1	Probably not pedophilic	218	107	-	-
2	Maybe not pedophilic	59	-	122 (2.5)	153 (2.5)
3	Maybe pedophilic	98 (3.5)	-	34 (3.5)	
4	Probably pedophilic		302		14
5	Definitely pedophilic	148	-	164	140
Total		841	841	623	514

As in clinical practice, assumptions about the relationship between measures and the underlying constructs are required for taxometric analysis. Effort was made in this dissertation to be mindful of the assumptions being made and how they could affect structural findings. These decisions are defensible given what we know about pedophilia, but further research on pedophilia's measurement model is required. In the absence of findings that could, but which do not necessarily, shift the structural results in this research program, we must now consider if pedophilia is in fact a qualitatively distinct group and, if so, what implications that may have for research, policy, and practice.

### **Research Implications**

#### **Understanding the Taxon**

This dissertation supported the presence of a dichotomous model of pedophilia. It does not necessarily follow that all taxon members were pedophilic. In both studies, they were not. Some taxon members showed an interest in adults through victim selection, offence behaviour,

or phallometric measurement. If the taxonic boundary is thought to reflect phenotypic differences, then the lack of exclusivity could be ascribed to measurement error. An exclusive pedophilic taxon would emerge with sufficiently valid indicators; however, this is unlikely.

Another possible interpretation of the findings is that the taxonic boundary represents a genotypic distinction relevant to pedophilia (as proposed in Chapter 1). If exposed to the right combination of epigenetic factors, taxon members could develop a sexual orientation to immature persons. This explains the high co-occurrence of pedophilia and hebephilia here, and in other studies (e.g., Stephens, Seto et al., 2017). Distinguishing between pedophilia and hebephilia (also nepiophilia, pedophebephilia) may have limited utility in understanding the underlying mechanisms.

The genotypic model of a pedophilic taxon could alter our understanding of chronophilia (see Table 10.2) and bring it more in line with the latent structure of gender orientation (Norris et al., 2015). Taxon members may be better understood as having the capacity for a sexual orientation towards individuals who have not attained puberty (i.e., Tanner Stages 1 and 2). Variability in maturity interests may exist within the taxon and are still worth investigating, but these differences would be relatively minor when compared to the complement of men sexually attracted to mature adults. Such an approach would explain the large observed overlap between pedophilic and hebephilic behaviours and interests (Blanchard et al., 2012). Although there are distinct patterns of attraction to physically immature persons, these individuals could all share core features that create the possibility of sexual attraction to immature persons, a core feature lacking in most adults. In a similar manner, the taxon of men who have a capacity for a non-heterosexual orientation vary significantly in behaviour and identity (e.g., bi-sexual, pansexual,

males who have sex with males) but share more biological and interpersonal experiences in common when compared to heterosexual males (e.g., Hines, 2011).

Table 10.2. *Possible Revision to Chronophilia Framework*

Group	Term	Focus	Tanner Stage
Taxon	Nepiophilia	Infants and toddlers to age 2	1
	Pedophilia	Prepubescent children, approximately ages 3–10	1
Complement	Hebephilia	Pubescent children, approximately ages 11–14	2 – 3
	Ephebophilia	Adolescent minors, approximately age 15–17	4
	Teleiophilia	Young, sexually mature adults (ages 18 to late 30s)	5
	Mesophilia	Middle-aged adults, peri-menopausal or peri-andropausal, from 40 to late 50s	5
	Gerontophilia	Old adults, from age 60 plus	5

Differences within the taxon may, but are not likely, to reflect a second taxonic boundary as proposed by McPhail and colleagues (2018). In McPhail’s study, participants beyond the first taxon boundary were characterized as having a physical attraction to children while participants beyond the second taxon boundary were characterized as having an *exclusive* physical attraction to children. One concern with the finding of a trichotomus latent structure is the lack of a theoretical model. Taxometric studies have to be firmly rooted in a theoretical understanding of the construct—there must be evidence-based reasons to believe that the construct could be a dimension or a taxon. Arguments were provided in Chapter 1 of how pedophilia could be a dimension (i.e., sexual response gradients) and how it could be a taxon (i.e., sexual orientation). The absence of a similar theoretical basis for a trichotomus structure means that the hypothesis requires stronger theoretical and empirical credentials before ascribing to it high levels of scientific credibility. A trichotomous structure was not expected, nor found, in this dissertation.

Regardless, McPhail and colleagues' findings still support the interpretation of pedophilia as a phenotype and the taxon as the genotype.

Another avenue for future research is evaluating the core and associated features of pedophilia. Emotional attraction to children was presented as a core feature of pedophilia in this dissertation, based on previous models of pedophilia as a sexual orientation, and the empirical co-occurrence of emotional congruence/identification and physical arousal amongst men who sexually offend against children. Whether emotional attraction to children actually is a core feature of pedophilia needs to be further examined in subsequent studies on the construct validity of pedophilia. The inclusion of emotional attraction as a central feature of pedophilia is still a relatively new development (Konrad, Kuhle, Amelung, & Beier, 2018), and it remains uncertain whether it is actually a core feature or a secondary feature linked through their common association with difficulties in adult relationships, loneliness, and social rejection (Hermann, McPhail, Helmus, & Hanson, 2017). Other features (e.g., neurodevelopmental perturbations) may also migrate into the conceptual core of pedophilia if reliable patterns emerge in the data.

### **Identifying the Taxon**

If pedophilia is a taxon, then how should taxon members be identified? One approach is to pursue a program of research whose focus is to identify efficient indicators of the taxon. The unchallenged assumption in such a program would be that that a real discontinuation exists in the distribution of the underlying construct. Instead of using a cumulative stochastic model to stratify individuals on a dimension, what is needed are reliable markers that inform us of individuals who are on either side of a real-in-nature border.

For example, height/weight would not be used to find efficient indicators of biological sex (as presented in Chapter 1). Although it is true that height and weight differ between the

sexes, they are not reliable for individual decision making about a person's sex. Height and weight differences are only indirectly related to sex because the effect is largely driven by the underlying hormonal differences between sexes.

Efficient indicators should have some explanatory relationship with the underlying structure. Continuing with the biological sex example, a chromosomal analysis could be used to determine biological sex. The presence of a Y chromosome is casually determinant of sex. Although reliable and valid, such an approach would be inefficient and impractical for clinical use.

Like items from the SSPI-2, ideal efficient indicators should make use of easily accessible information. A more efficient and reliable way to determine sex is by examining facial features and body shape (reliable and non-intrusive measures for adults) and, if high degrees of certainty are needed, reproductive organs (e.g., ultrasound or visual inspection of babies at birth). An analogue strategy needs to be found for the pedophilic taxon.

The efficient indicators of pedophilia should not be limited to criminal history. Officially sanctioned sexual offences are a reliable, meaningful, and accessible source of information about pedophilia. But pedophilia does not equal child sexual abuse or exploitation. Results from specialized testing, non-criminal behaviour (e.g., time spent with unrelated children), and self-report could all be useful information sources and enable researchers to examine pedophilia in non-correctional samples.

## **Practice Implications**

### **Taxon Validates use of Diagnostic Category**

The Pedophilic Disorder diagnostic criteria in the DSM 5 (APA, 2013) represent an assumption of taxonic structure to the disorder. The taxonic results obtained from this

dissertation support the validity of the DSM-based diagnostic criteria in a general way. Whereas many of the constructs in the DSM are actually dimensional (e.g., anxiety, antisocial personality disorder), they are forced into categorical diagnoses for simplicity. In the case of pedophilia and Pedophilic Disorder, there is no need to artificially force it into a category—in all likelihood, it actually is one.

Identifying the core and associated features of this category is an important direction for future research. It is unlikely that the current DSM diagnostic criteria fully align with the latent taxon. In particular, it may need to include emotional attraction to children. Further research on the associated features of the pedophilic taxon, namely neurodevelopmental perturbations, may also provide further indicators that could be codified in the DSM.

The inconsistent pattern between pedophilia and other paraphilia and issues with sexuality do not, at this time, provide confidence that the pedophilic taxon can inform other paraphilic disorders. Further taxometric research on these other constructs is required. In the absence of this, clinicians should not alter their approach to the assessment and treatment of other sexual problems.

### **Risk Assessment**

The presence of a pedophilic taxon may require a re-evaluation of the way risk is assessed amongst men with a history of sexual crime. Instead of atheoretically counting risk factors, some of these risk factors would instead become efficient indicators (i.e., the risk relevant information in certain risk factors [male victims, young victims] may be fully subsumed by an accurate diagnosis of pedophilia).

It is also possible that category membership interacts with other risk factors, such that certain variables may be more or less important for the taxon or the complement. For example,

marital status may not be a risk factor for men with pedophilia, but it could be for men without pedophilia.

In the absence of evidence-based recommendations, professionals can still integrate the concept of a pedophilic taxon into their risk formulations. Taxon membership is expected to be a relatively stable and enduring feature of the client's risk. The task would be to identify and explore how other risk factors exacerbate or mitigate the risk posed by a client's taxon membership.

**Treatment: “Can a Leopard change its spots?”**

The presence of a taxonic structure has implications for the mutability of the construct. If a construct is dimensional, change would reflect small incremental variation higher or lower on the construct. However, incremental change would not, by definition, sufficiently enable meaningful change in a taxonic construct. This does not mean that change is impossible with taxonic constructs, or always possible for dimensional constructs. Change in a taxonic construct would not be small and incremental, it would be at the quantum level—a reorganization of the person's attributes insofar as they are caused by this construct.

There is very little evidence in the history of sexuality that quantum level change occurs except, perhaps, in the special case of gender dysphoria. Even in this case, however, it is not clear the individuals are fundamentally changing; instead, the individuals are aligning their outward appearance towards something that they felt inside for a long time.

The difficulty of taxon members moving into the complement should inform messaging and psychoeducation within treatment. Clients in the taxon should be made aware of their status and its implications for recovery. Changing how we engage with these clients could be informed by chronic health care models (e.g., Barr et al., 2003). Relevant components are working towards

an acceptance of their condition, collaboratively working with clients to identify reasonable goals, access to integrated health teams that are educated and trained on the specific needs of clients with pedophilia, and community resources and support for long term success and desistance from crime.

### **Policy Implications**

This dissertation, like most research in the field, samples men who have already been identified because of their sexual offending. Working to prevent reoffending is part of tertiary prevention. It is not uncommon for sexual offender public protection policies to prohibit men with adult-only sexual offences from association with children. The presence of a pedophilic taxon supports the creation of correctional policy targeted at men who are, by virtue of their taxon membership, at greater risk to children. Although this dissertation did not directly study cross-over offending, all of the taxon members had at least one child victim.

Secondary prevention efforts focus on men who are at risk of committing a crime. The presence of a pedophilic taxon can make it easier to identify men who are at risk of sexually abusing children due to their status in the taxon. If the construct was dimensional, then a cut-off would still be required to guide prevention. Determining that cut-off would be subject to regional, social, and political biases, in a similar manner as different cut-offs on the PCL-R have been used to define psychopathy in different jurisdictions and settings. In this way, the presence of a pedophilic taxon provides a non-arbitrary guide for intervention.

Taxon members not involved in the criminal justice system could be identified by the use of efficient indicators that do not rely on criminal history. Possible factors that should be researched further are time spent with unrelated children, attitudes about sex with children, viewing time measures, and phallometric evidence. Further research on neurodevelopmental

perturbations may also yield potential indicators. Screening for pedophilia using evidence-based efficient indicators could occur systematically in situations known to interest taxon members (e.g., vulnerable sector check).

There is a growing literature on the prevention of child sexual abuse and exploitation. Most noteworthy is the German program Dunkelfeld (“dark field” in German, referring to undetected sexual offending). Dunkelfeld is unique because it enjoys funding that allows clients outside of the criminal justice system to receive a year-long cognitive behavioural program (similar to many correctional programs) and sex-drive reducing medications (if needed). The emphasis in this initiative is on motivating clients to manage their sexual interests using healthy strategies and decreasing stigma associated with receiving services.

The taxonic model of pedophilia could be misused to increase or perpetuate stigma. Common stereotypes about pedophilic men include that they are dangerous, abnormal, and amoral, based on their willful decision to be sexual attracted to children (e.g., Imhoff, 2015). Public education interventions for mental illness often focus on the dimensional aspect of the constructs to combat negative stereotypes and increase the public’s ability to understand and identify with individuals. Since this strategy is not open to us, additional effort is required when disseminating findings from this program of research to prevent fueling antipathy towards taxon members. The Dunkelfeld project, for example, attempts to reduce stigma by emphasizing that individuals with pedophilia do not choose their sexual orientation; their moral choices concern what they do with it.

### **Limitations**

Beyond the measurement model concerns discussed previously, information was often limited or absent from several key sources. For example, information on use of child sexual

exploitation materials was limited. The frequency in the MTC dataset was surprisingly low in comparison with other indicators of pedophilia. As discussed in Chapter 8, this is likely a cohort effect, reflecting the era in which data was collected (1959 through 1984). This issue was somewhat mitigated in the Dynamic Predictors dataset, particular in the recent (2017) recidivism information.

Missing data is one of several limitations commonly associated with using archival data. Even when relevant indicators are available, it is rare for archival datasets to include established measures of the constructs of interest to the researcher. In the current studies, all of the core constructs had to be created from existing data. The inferences required to reconstruct the SSPI-2 were relatively limited; however, the construction of the other two indicators required many decisions concerning item inclusion and scaling. Although inter-rater reliability for individual variables was high, no similar evaluation was conducted for indicators. It is possible that other researchers, following the same principles set out in Chapter 4, may have made other choices in the scaling and weighting of information.

The relative lack of phallometric data was also a limitation. Phallometry was present in many other taxometric studies on pedophilia, each with its unique way of scaling information. It was not clearly associated with either structural model. Although some information was available in the Dynamic Predictors dataset, raw scores were not available to replicate scaling methods used in previous studies and examine their relationship with structural models.

The SSPI-2's dependence on criminal history data limits its value in detecting the latent structure of pedophilia in datasets that include individuals without a history of sexually offending against children. Participants who have only offended against adults automatically got a score of 0 on the SSPI-2, which created obvious bimodal distributions in the sample in Chapter 8 and

Chapter 9. Such distributions would bias the analyses towards a categorical structure. The alternative would be to restrict the sample to only individuals with a least one child victim, or use revised or analogous measures that could vary for individuals without a history of sexual crimes against children.

The burgeoning understanding of pedophilic emotional attraction limited our ability to model it in the current studies. As discussed in Chapter 1, pedophilic individuals may engage in affective and cognitive identification with children. The current studies were unable to tease these two aspects apart and likely underrepresented the extent to which some participants engaged in cognitive identification with children. Further research, like Hsu and Bailey's (2016) survey work on "autopedophilia" (or sexual arousal when imagining self as a child) and similar cognitive phenomena associated with pedophilia can provide greater clarity on the construct.

More general limitations are associated with the decision to use Meehl's taxometric methodology, such as the assumption of linear relationships between indicators and the inability to include dichotomous or trichotomus indicators. The logic of the procedures forces researchers into a decision between a dimension or two categories. Alternative approaches (e.g., model-based clustering, latent variable mixture modeling) can fit models with multiple categories or even a model with both dimensional and categorical characteristics. Such statistical approaches are expected to become increasingly useful as our knowledge of the measurement of pedophilia increases.

## **Conclusions**

This dissertation was concerned with measuring something that cannot be seen, but is real nonetheless—the sexual attraction some men have to children. A large program of research has been dedicated to measuring pedophilia, and has produced several tools (e.g., SSPI-2,

phallometry) that help professionals detect pedophilia and facilitate further research. As results from these efforts can be used to increase the safety of children, reducing measurement error is a priority. Determining whether pedophilia is best measured along a dimension or in a category therefore has significant importance.

Over the past decade there have been nine taxometric analyses on pedophilia. The most recent additions from this dissertation tilt the evidence in favour of viewing sexual attraction to children as a categorically unique set of psychological processes in men. The precise features of this taxon are not fully known, but plausibly represent a latent capacity to be sexually orientated towards individuals who have not attained puberty. How this capacity manifests may depend on other conditions, such as a development history of being sexually abused as a child, intimacy with children during crucial developmental stages, or lack of intimacy with peers. The nature of contributing factors is an important theme for subsequent research. The current set of studies also suggests that the core features of pedophilia should be considered to include emotional attraction to children along with physical attraction. Like other sexual orientations, individuals with pedophilia can be expected to like, or even ‘fall in love with’, their preferred sexual partners. Given the predictable negative consequences of sexual victimization of children, successful interventions must help such afflicted individuals live happy and productive lives without ever actualizing their deepest sexual desires.

## Appendix A. MTC Coding Guide for Pedophilia

### **Concept**

This variable refers to capturing a diagnosis of pedophilia or sexual preference for pre-pubescent individuals.

### **Coding**

#### ***Explicit statement of sexual preference = 2***

To score a 2, there has to be clear and convincing evidence that the individual has a problematic sexual attraction towards pre-pubescent children. This can be indicated by the following: admission of fantasies/urges towards children, a diagnosis of pedophilia or (“sexual deviant”). Pedophilic behaviour on its own is NOT sufficient for a 2—consider a 1.

#### ***Highly probable; several pieces of evidence = 1***

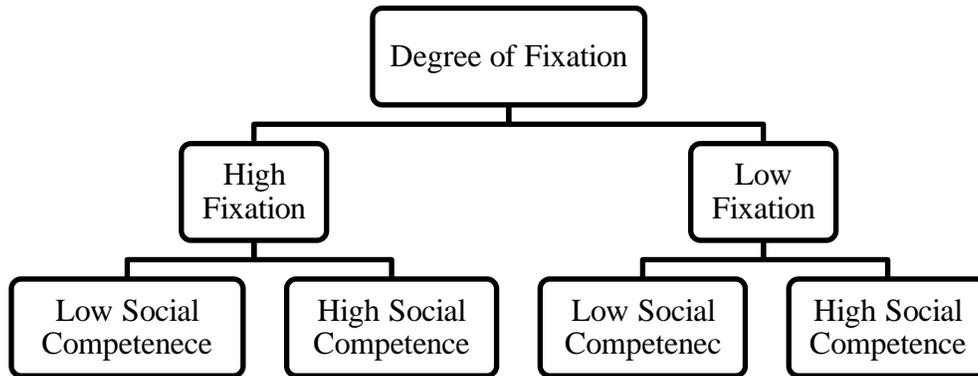
A score of 1 is appropriate in cases where there is circumstantial evidence that the individual is pedophilic and a lack of clear and convincing evidence. Circumstantial evidence could be, for example, a history of multiple sexual offences against children under 12 but no further detail on sexual preference.

#### ***No evidence of pedophilia = 0***

Neither of the two criteria above apply.

**Level of Fixation on Children**

Figure B.1. A Flow Diagram of the Decision Process for Axis I of the MTC:CM3



**Decision 1 - Level of Fixation on Children**

The “level of fixation” decisions attempt to assess the strength of an offender’s pedophilic interest (i.e., the extent to which children are a major focus of the offender’s thought and attention. If unequivocal, direct evidence (e.g., direct report by the offender of the presence, nature, and duration of fantasies about children) is available, indicating that children have been a central focus of the offender’s sexual and interpersonal fantasies and cognition for a protracted period (at least six months), rate the offender as having high fixation.

In the absence of direct evidence about the offender’s fantasies and cognition, the following criteria should be used to guide this decision. Because the clinical files that were our data source lacked the more direct evidence described above, these supplementary criteria were the bases for most of the fixation judgement in the present study (i.e., Knight et al., 1989).

**Low Fixation**

The subject is considered to be “low fixated” if he is over 20 years old and all of his sexual encounters with children (both charged and uncharged) occurred within a six-month period (here “children” would be interpreted to mean youngsters at least 5 years younger than the

offender). If an offender is 20 years older or younger, and all of his offences occurred within a six-month period, he may be “high fixated” if he fits criteria B2 or B3 under “high fixation” or there is evidence of serious deficiencies in his peer relationships in adolescence (as evidenced by lack of age-appropriate acquaintances or of considerable time spent with pre-adolescent children).

### **High Fixation**

An offender is considered high fixated if:

- (A) He does not fit the criteria for “low fixation” and/or
- (B) Any of the following are present:
  - (1) There is evidence of *three or more* sexual encounters with children, and the time period between the first and third encounter was *greater than six months*. These encounters may be with a single victim over many incidents, and should be limited to charged offences.
  - (2) There is evidence that the offender has had enduring relationships with children (*excluding* parental contact). This includes sexual and nonsexual and professional and nonprofessional contact
  - (3) The offender has initiated contact with children in numerous situations over his lifetime.

## Decision 2 - Degree of Social Competence

*Two or more* of the following must be evident for the offender to be rated as having *high* social competence. An offender with one or none of these characteristics should be rated as having low social competence. Rate each as present/absent.

- (1) An offender has had a single job lasting *three or more years*. If the offender has had multiple jobs, any job changes occurring within a three-year time period must either reflect professional advancement or be characteristic of the particular occupation (e.g., construction worker, electrician, plumber).
- (2) The offender has been in a sexual relationship with an adult, involving marriage or cohabitation, for *at least 1 year*.
- (3) There is evidence that the offender has assumed significant responsibility in parenting a child for *3 or more years*.
- (4) The offender has been an active member in an adult-oriented organization (e.g., sports, business, religious [not simply church attendance], etc.). Membership must reflect more than mere attendance: The subject must have actively participated for *1 or more years* with frequent adult interpersonal contacts. Membership or activity in Boy Scout, Cub Scouts, or Little League should not be considered because of the possible sexual motivation on the offender's part, and the child orientation of the groups.
- (5) The offender had a friendship with an adult, not involving marriage or cohabitation, lasting *at least 1 year* and involving active contact and shared activities.

Appendix C. Structured Risk Assessment - Forensic Version,  
Item 1 – Sexual Interest in Children (from Boer et al., 1997)

**Concept**

Sexual Interest in Children refers to an intense interest in or preference for sexual activity with children. Note: “Child” means females aged under 13 or males aged under 14. Adult refers to someone aged at least 18.

**Coding**

***Generally Applies = 2***

Score a 2 if **any** of the following (A, B, C, D, E) are met:

- A. 3 or more child victims with sexual offending against them spanning more than 6 months.
- B. All four of the following are met: (1) male victim under 14, (2) unrelated victim under 14, (3) at least 2 victims under 14, and (4) at least one victim under 11.
- C. Self-report of sexual fantasies about two or more children, spanning more than six months OR self-report of attraction to three or more children, spanning more than six months.
- D. 2 or more child victims with sexual offending against them spanning more than 6 months AND an absence of evidence for a sexual interest in adults.
- E. Found in possession of pornography that depicts boys aged under 14 or girls aged under 13 OR collects pictures or written materials depicting children of this age.

***Partially Applies = 1***

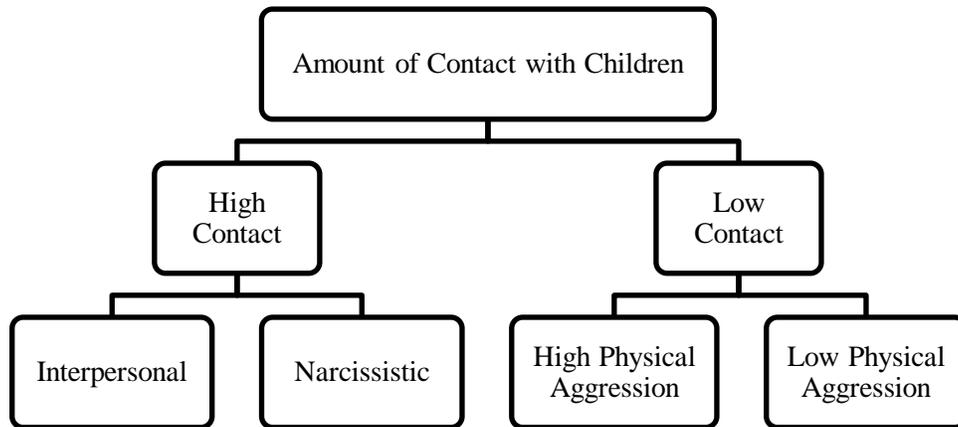
Any child victims or self-report of sexual attraction to children but fails to meet criteria for a 2.

***Does Not Apply = 0***

Does not meet the criteria for a 1 or a 2

Appendix D. MTC Axis II (from Knight et al., 1989)

Figure D.1. *A Flow Diagram of the Decision Process for Axis II of the MTC:CM3*



Axis II consists of three hierarchical sequentially applied decisions. The first decision divides offenders into two subgroups according to the amount of contact they have had with children.

For those judged to have had high contact with children, a second decision is made that distinguished two meanings or motivation for the high contact—Interpersonal or Narcissistic. An Interpersonal offender (Type 1) attempts to establish a relationship (not exclusively sexual) with the child, whereas a Narcissistic offender (Type 2) seeks contact for predominantly sexual reasons.

For those judged to have had low contact, a secondary decision distinguishes those who have had inflicted a low amount of physical injury from high-injury offenders. A tertiary decision then dichotomizes each of the injury groups on the basis of the absence or presence of eroticized (Sadistic) aggression. The combined injury and sadism decisions yield the four types.

## **Decision 1 – Amount of Contact with Children**

A pre-entry distinction is made between those offenders who have spent a substantial amount of their time in close proximity to children (*high contact*) and those offenders who have spent little or no time with children outside of their sexual assaults (*low contact*). Amount of contact is a behavioural measure of the time spent with children. It includes both sexual and nonsexual situations, but excludes the contact that results from parental responsibilities. The contact distinction must be distinguished from the fixation distinction, which attempts to assess the strength of an individual's pedophilic interest (i.e., the extent to which thoughts of children dominate his fantasy life).

### **High Amount of Contact**

For the high-contact offender there should be evidence of regular contact with children in both sexual offence and nonsexual contexts. Evidence of nonsexual contact is usually quite clear, even though this contact may be motivated partly or entirely by the desire to gain access to children for sexual purposes. Such evidence for high contact includes any structured or non-structured involvement in an occupation or recreation that requires contact with children (e.g., school teacher, bus driver, carnival worker, riding stable attendant, news-paper deliverer). Other activities indicating high contact could include: Cub Scout leader, Boy Scout leader, Little League coach, YMCA volunteer, babysitter, and so on. Obviously, this does not mean that all individuals engaged in these occupations or activities should be considered child molesters. These occupational criteria are only intended to help identify the level of contact for those already determined to be child molesters. Other evidence for high contact may include regular visits from neighbourhood children to the offender's home or the offender acting as an adopted father or big brother. In addition, we assume that repeated sexual (non-incestuous) encounters

with the same child imply the development of a relationship that goes beyond sexual involvement. For that reason, when there are three or more sexual encounters with the same victim, the offender is coded as “high contact.”

There are rare instances in which a high amount of contact with children is coupled with aggression that causes considerable physical injury to the victim (e.g., punching, choking, or kicking the victim). In these atypical cases, the amount of aggression takes precedence over the amount of contact, and the individual should be classified as a high physical injury type (either Type 5 or 6) on the “low-contact” side of Axis II. This special assignment is noted by checking the appropriate “keyed factor” on the bottom of the subtype coding sheet.

### **Decision 2 – Meaning of Contact for High-Contact Offenders**

For the “high contact” child molesters a second-level differentiation is made between Type 1 (Interpersonal) and Narcissistic. The distinction focuses on both the motivation (meaning) of the high contact for the offender (either Interpersonal or exclusively sexual) and the nature or aim of the sexual acts in the offence (either non-genital or phallic).

#### **Type 1: Interpersonal**

This type of offender has shown interest in the child as an appropriate companion in a relationship. He has demonstrated some sense of “object relatedness” or Interpersonal involvement and feels that he is giving something to the child. He perceives that the relationship is mutually satisfying, and it benefits the child in some way. If the information permitting such a judgment is unavailable or unclear, use the following criteria.

**Primary Criterion.** The offence behaviour is typically characterized by non-genital, non-orgasmic sexual activities. The sexual acts tended to be limited to fondling, caressing, frottage, or oral sex performed on the victim.

**Secondary Criteria.** An offender is considered more likely to be an interpersonal type if:

- (1) The offender knew the children he assaulted prior to the sexual encounter.
- (2) The relationship with the victim was either long term or there were multiple encounters with the same victim.
- (3) His offences were usually planned and the offending pattern could only rarely be characterized as an impulsive act triggered by circumstances.

**Special Considerations.** Do not consider antisocial behaviour, social inadequacy, adult relationships, or employment stability in making this decision. If the offender has had one phallic sexual episode and it appears to have been experimental or atypical, he still may be subtyped as Interpersonal. Any additional phallic episodes and he must be considered as Narcissistic (Type 2).

## **Type 2: Narcissistic**

This offender has shown evidence that his interests are more self-centered. In his encounters with children his primary aim has been to achieve sexual gratification. There was little or no concern about the needs, comfort, or welfare of the child. If the information permitting such a judgment is unavailable or unclear, use the following criteria.

**Primary criterion.** The sexual acts in the offence were primarily phallic. The offender's aim was to penetrate some orifice and to achieve sexual gratification (e.g., force victim to fellate him). The child was typically used only as a masturbatory object.

**Secondary criteria.** An offender is considered more likely to be a Narcissistic type if:

- (1) His victims were all strangers.
- (2) His offences typically involved only a single encounter with a particular victim.

- (3) The offender tended to be promiscuous (had many different victims) in his sexual assaulting.
- (4) His offences were usually spontaneous and involved little planning. His common pattern of offending could be characterized as impulsive.

**Special considerations.** Do not consider antisocial behaviour, social inadequacy, adult relationships or employment stability in making this decision.

### **Additional Criteria for Differentiating Type 1 from Type 2**

When an offender has engaged in both phallic and non-phallic sexual assaults on children, the following criteria should be used:

- (1) If most of the sexual acts were non-phallic, but there was one experimental or atypical phallic act, the offender should be classified as Interpersonal (Type 1).
- (2) If there were some phallic acts, but the vast majority of sexual acts were non-phallic and the victim was 10 years old or younger, consider evidence of mutuality, duration of the relationship with the offender and victim, and whether the victim was known to the offender. Evidence for “mutuality” is most often found in the victim’s description of the sexual encounter. Statements such as “We kissed each other,” as opposed to “He forced me to kiss him,” suggest mutuality. If these criteria were present, consider the person to be an Interpersonal type.
- (3) If the sexual acts were consistently phallic and the victim was 10 years old or older (to puberty), assign the offender to the “Narcissistic” type.

### **Low Amount of Contact**

The low-contact offender has had little or no contact with children either in his job or in his recreation. His only contact with children has been in the context of a sexual assault. If,

however, he has had three or more sexual encounters with the same victim, the offender should still be coded on the left side of the tree as “high contact.” We assume in this instance that some relationship was necessary to sustain the contact with the victim.

**Decision 2 – Amount of Physical Injury for Low-Contact Offenders**

Offenders who have been classified as having low contact with children are subsequently divided into low or high physical injury subgroups on the basis of the physical injury sustained by their victims.

Appendix E. Structured Risk Assessment - Forensic Version, Item 5 – Emotional Congruence  
with Children (from Thornton & Knight, 2010)

**Concept**

This refers to finding it easier to relate to children under age 14 than to adults, and to preferring the company and companionship of children under age 14 to that of adults to satisfy emotional needs for acceptance, friendship, validation, emotional intimacy, or romantic love.

**Coding**

*Generally Applies = 2* (Score a 2 if BOTH A and B are met.)

- A. As an adult, on at least two separate occasions he made or sought social relationships or friendships with children under age 14 (including spending substantial time in a “kindly” grooming relationship with children prior to offending). Here “grooming” does not include threats or intimidation and there must have been substantially more time in “grooming” than was required to create the opportunity for an offence. The two or more occasions should have involved different children, so that at least two different children were involved.
- B. Difficulty, awkwardness, or avoidance of friendships or romantic relationships with adults.

*Partially Applies = 1*

A applies but B does not (that is, he seeks social relationships with children under age 14 but forms meaningful relationship with adults as well). Note that if B applies but A does not, he gets a 0.

*Does Not Apply = 0*

Appendix F. Descriptions of Variables Used to Examine Validity in Chapter 8

Item	Description	Scores
<b>Common Indicators of Pedophilia (i.e., Table 8.10)</b>		
High Fixation on Children (HiFix) and Low Social Competence (LoSC)	Dichotomous variable from MTC:CM3 created to represent individuals who either (1) have a high fixation on children and low social competence with adults or (2) all others in the sample.	0 All else
		1 HiFix/LoSC
<b>Interpersonal Functioning (i.e., Table 8.11)</b>		
Peer Relationship Problems	File coded variable. This was coded if participants could not develop or keep relationships with people (males or females) or had difficulties with relationships he did have (e.g., unable to make friends).	0 If it is documented or can be reasonably inferred that participant never evidenced ~
		1 The participant had problems with relationships for a brief period of time in his life.
		2 If participant had severe problems with relationships which persisted throughout most of his life.
Lack of Emotionally Intimate Relationships with Adults  (Structured Risk Assessment - Forensic Version, Item 4.)	This refers to the absence of emotionally intimate marital-type relationships. The score assigned depends on the number of continuous years that an emotionally-intimate marital-type relationship has been sustained. Relationships marred by significant distress (e.g., frequent fights) are considered not present. See SRA-FV scoring guide (Thornton & Knight, 2010) for more details.	0 A relationship for at least four years.
		1 A relationship that was “continuous” for at least two but less than four years.
		2 No relationship that lasted at least 24 “continuous” months.
Relationship Problems  (Sexual Violence Risk – 20, Item 7)	“Intimate (sexual) relationships” means marital and common-law relationships established between adults. “Stable” means that the individual’s history is not characterized by multiple relationship breakdowns or serious marital conflict, including spousal violence. See SVR-20 scoring guide (Boer et al., 1997) for more details.	0 (N) No evidence that the individual has failed to establish and maintain stable intimate (sexual) relationships.
		1 (P) Possible/partial evidence.
		2 (Y) Evidence that the individual has failed to establish and maintain stable intimate (sexual) relationships.

Item	Description	Scores
<b>Neurodevelopmental Perturbations (From Table 8.12)</b>		
Height	Participants' actual height in inches as stated on the face sheet of the MTC records at the time of the first commitment.	Inches (rounded to nearest inch)
Late Maturation	Participants hitting developmental milestones later than expected.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 There is an indication that participant exhibited developmental milestones later than normal</p> <p>2 If developmental milestones appeared significantly later (e.g., did not take until age 3), or many milestones appeared late.</p>
Motor Coordination Problems	Lack of fine and gross motor coordination due to neurological disturbance.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Motor coordination problems appear in participant temporarily (e.g., temporary paralysis, slight limp, drunks, Cerebral Palsy, or Parkinson's Disease).</p> <p>2 Motor coordination problems appear in participant on a chronic level (e.g., permanent paralysis, gait problems).</p>
Sensory Problems	Visual/auditory problems including total or partial blindness/deafness or problems that involve other senses (i.e., taste, touch, smell).	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Temporary or minor loss of sight/hearing or other sense (e.g., head trauma, industrial accident).</p> <p>2 Participant is blind/deaf or has serious and/or long-lasting problems with any other senses (e.g., taste, touch, smell).</p>

Item	Description	Scores
Neurodevelopmental Perturbations continued (From Table 9.12)		
Physical Disability	Loss or disturbance of sensory motor integrity/function due to physical disturbance.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Physical Disability is temporary disturbance of sensory motor function (e.g., gait problem, temporary paralysis).</p> <p>2 Physical disability (e.g., permanent loss of a limb(s), gross facial deformity) or if disability was long term or interfered with normal activities.</p>
Full Scale IQ	Highest full-scale IQ score reported on participant at any time during his life. If only qualitative description of report is given, quantification was accomplished values that corresponded approximately to the mid-range IQ value associated with each WAIS interpretative category.	Ordinal Scale.
Attentional Problems	Problems attending to subject matter at hand (especially schoolwork) or was said to be had a short attention span. Poor school grades may be an indication that subject had attention problems.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Participant had attentional problems in school, more than occasionally but not frequently as an adult.</p> <p>2 Participant was consistently and/or frequently unable to attend to work, avocation, or other tasks.</p>
Faulty Judgement	Poor judgment in daily living. Do not consider offences only, as this would apply to all of the participants.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Participant able to understand situations but often acted inappropriately or used poor judgment in situations</p> <p>2 Participants always acted inappropriately in situations requiring judgement and never developed common sense or the ability to correctly evaluate a situation.</p>

Item	Description	Scores
Neurodevelopmental Perturbations continued (From Table 8.12)		
Learning Disability	Special disability such as dyslexia, significant hearing loss, or partial blindness which impaired his ability to learn either in school or outside of school. This variable is coded for reading classes and speech therapy.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Temporary condition 2 Chronic condition
Memory Problems	Problems remembering things, experienced amnesia, or was unable to recall certain life events (not due to lying, especially about offence).	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Experienced amnesia (not due to psychological trauma) over a single event, or was forgetful often but not frequently. 2 Significant memory problem (this includes Alzheimer's disease, Korsakoff Syndrome or senility), or was forgetful frequently
Mental Retardation	I.Q. below 70 or if subject had otherwise been diagnosed as mentally retarded.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Borderline retarded (60-69) 2 Retarded or profoundly retarded (< 60)
Poor Educational Achievement	The following variable is coded to measure the subject's most current achieved level of education. Include education accomplished at the MTC. Higher levels of achievement were given a lower score in order to capture poor educational achievement.	-1 Unclear (coded as missing data) 0 Some post-secondary school education 1 Completed secondary school or GED 2 Some secondary school and/or some GED coursework 3 Participant completed elementary school 4 Some elementary school (code this if participant has completed some but not all elementary school grades; grades 1 through 6)
Earliest Grade Level Repeated	Indicates earliest grade level repeated by participant.	-2 Subject never repeated a grade. -1 Unclear (coded as missing data) 0 Repeated kindergarten # Grade level

Item	Description	Scores
Neurodevelopmental Perturbations continued (From Table 8.12)		
Last Grade Level	Highest grade level completed.	0 – 6 Grammar School 7, 8, 9 Junior High 10, 11, 12 High School 13, 14, 15, 16 College
Poor Scholastic Achievement	Poor scholastic history, was illiterate, or was in special classes due to poor achievement not due to mental disability or retardation.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Attended school and was unable to achieve average grades in class or if participant repeated two grades. 2 Unable to achieved GED level, attended special or ungraded classes or repeated a number of classes (especially if subject repeated the same class more than twice).
Number of Grades Repeated	Indicates the number of times participant repeated grades. Count both the number of different grades repeated as well as the number of times the same grade was repeated. If participant never repeated a grade, code “0”. In any case enter the highest number of repeats that are documented (i.e., “at least...”). Code “-1” if participant was in ungraded classes.	-2 Participant was never in school (Coded as missing data) -1 Unclear, subject in ungraded classes (Coded as missing data) 0 No grade repeated # Count the number of grades repeated
Special Classes	Indicates whether or not participant ever participated in special classes. This variable is intended to look at the effect on the participant of being “set apart or different” in relation to his peers. Thus, it includes attendance at special classes for any reason, including scholastic and/or emotional problems. Special tutoring should also be coded “1” (e.g., foreign language tutoring).	0 No 1 Yes

Item	Description	Scores
<b>Sex-Crime Specific Risk Factors (From Table 8.13)</b>		
Persistence/Paraphilia	Composite variable of four items from Static-99R and Static-2002R items that specifically measure a propensity to engage in sexual crime. Items include, (1) High rate of sexual offending/prior sex offences, (2) Noncontact sex conviction, (3) Male victim, (4) Two or more young victims, one unrelated.	Ordinal scale. Scores range from 0 to 10 with higher value indicating a greater propensity for sexual offending.
Exhibitionism	Indecently exposed himself either by exposing his genitals or publicly masturbating in front of others. Include both charged and uncharged incidents.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Exposed himself a few times (1-4). 2 Participant frequently exposed himself.
Problematic Masturbation	Participants manually stimulated his genitals compulsively.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Masturbated frequently. 2 Masturbated compulsively
Fetishism	Participant substituted a normal sexual object with another object totally unfit for the normal sexual aim: using an abnormal sexual stimulus (e.g., foot fetish) to obtain sexual gratification.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Fetish lasted for a short time only. 2 Fetish persisted for several years or more.
Promiscuity	Participant had many sexual partner, if participant was generally obsessed with sex, or prostituted himself.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Occasional promiscuous behaviour 2 Frequent promiscuous behaviour
Transvestism	Participant dressed in women's clothing.	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 Occasionally only, not long-lasting. 2 Behaviour persisted for many years.
Voyeurism	Excessive sexual stimulation by visual means or if it was his primary means of sexual gratification (e.g., "peeping tom").	0 If it is documented or can be reasonably inferred that participant never evidenced ~ 1 For a short period of time only. 2 For several years.

Item	Description	Scores
<b>General Criminality (From Table 8.14)</b>		
Youthful/Stranger Aggression (Brouillette-Alarie et al., 2016)	Composite variable of four items from Static-99R and Static-2002R items that measure a composite of demographics, victim relationship information, and nonsexual violence. Items include, (1) Juvenile sex arrest, (2) Never lived with lover for at least 2 years, (3) Index nonsexual violence, (4) Unrelated/stranger victim.	Ordinal scale. Scores range from 0 to 5 with higher value indicating a higher likelihood of early violent behaviour.
General Criminality (Brouillette-Alarie et al., 2016)	Composite variable of four items from Static-99R and Static-2002R items that measure a propensity to engage in rule-breaking behaviour. Items include, (1) Breach of conditional release, (2) Few years free prior to index, (3) Prior sentencing, (4) Prior nonsexual violence.	Ordinal scale. Scores range from 0 to 8 with higher value indicating a greater propensity for any type of criminal behaviour.
Psychopathy Checklist – Revised (PCL-R; Hare, 2003)	The PCL-R is a 20-item rating measure designed to assess psychopathy. The two factor scores of the PCL-R reflect the interpersonal and affective features (Factor 1) and the socially deviant features (Factor 2) of psychopathy.	Ordinal scale. Each PCL-R item is rated on a 3-level scale (0 = does not apply, 1 = may apply or in some respects applies, 2 = does apply). The total score ranged from 0 to 40, with prorating guidance provided by the scoring manual to when items were missing.
Antisocial Personality Disorder Symptom Count	Count of the seven Antisocial Personality Disorder symptoms as defined by the DSM IV-TR.	Ordinal scale. Each symptom was originally rated on a 2-level scale (0 = no evidence, 1 = evidence). Total score ranged from 0 to 7.
Conduct Disorder Symptom Count	Count of the 15 Conduct Disorder symptoms as defined by the DSM IV-TR.	Ordinal scale. Each symptom was originally rated on a 2-level scale (0 = no evidence, 1 = evidence). Total score ranged from 0 to 15.
Narcissistic Symptoms	Variable intended measure ego-centric behaviour which may have appeared to be pathological in nature and interfered with participants' interpersonal functioning. This behaviour may be expressed as conceit, egotistic behaviour or behaviours such as obsession with self-grooming, body-building, or large amounts of time spent on self-preening.	<p>0 If it is documented or can be reasonably inferred that participant never evidenced ~</p> <p>1 Symptom was present as a brief or slight state</p> <p>2 Symptom has been so prevalent or severe as to constitute a lasting trait/long-term problem</p>

Appendix G. Characteristics of Variables Used to Create Indicators in Chapter 8

This appendix contains the basic description of items and scoring used to construct the indicators in Chapter 8, summarized in Table G.1 below.

Table G.1. *Variables Used to Create Indicators*

SSPI-2	Pedophilic Physical Attraction	Pedophilic Emotional Attraction
	Proportion of Tanner 1 Victims	Aim-Inhibited Relationships with Children
	Fixation on Children	Contact with Children
	Sexual Deviation	Emotional Congruence with Children
	Sexual Interest in Children	

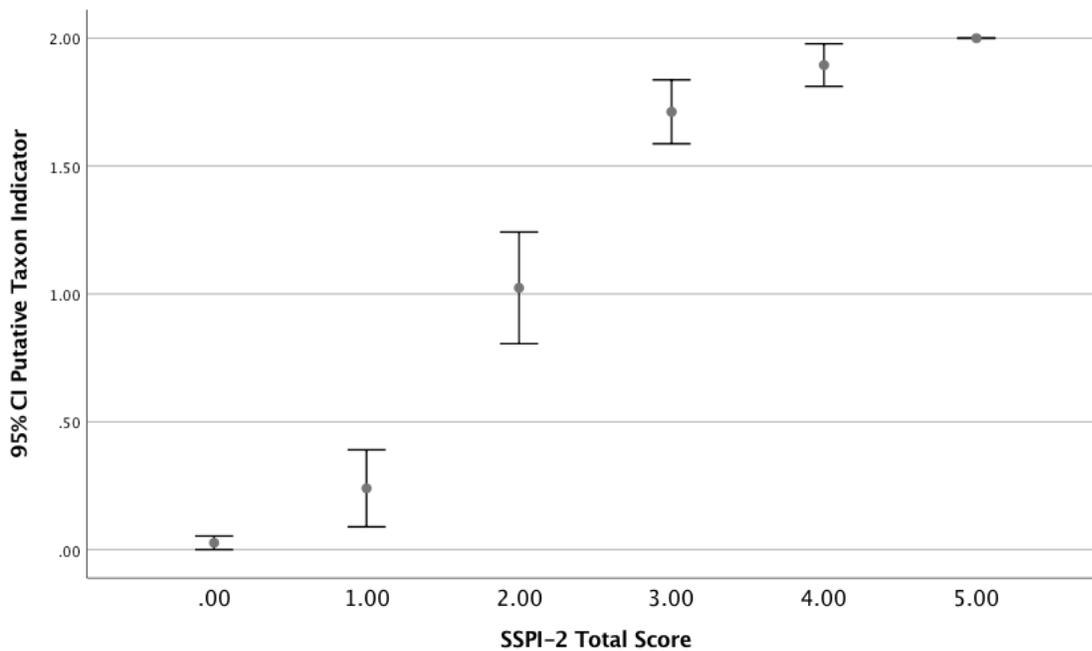
The distribution of scores are also plotted against the different levels of the SSPI-2 to provide an initial understanding of the relationship between variables as being more categorical or dimensional in nature. Distributions that are more dimensional will have a linear shape. Ones that are more categorical will have a stronger logistic shape.

## SSPI-2

Table G.2. Relationship Between SSPI-2 Scores and the Putative Taxon Indicator ( $n = 706$ )

Pedophilia	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0 “Not Pedophilic”	293	66	41	18	6	0	0.53 (0.93)	0.00	0	424
2 “Pedophilic”	4	9	43	107	108	11	3.20 (0.95)	3.00	4	282
Total	297	75	84	125	114	11	1.60 (1.61)	1.00	0	706

Figure G.1. Mean Pedophilia Score by Each Level of the SSPI-2 Total Score ( $n = 706$ )

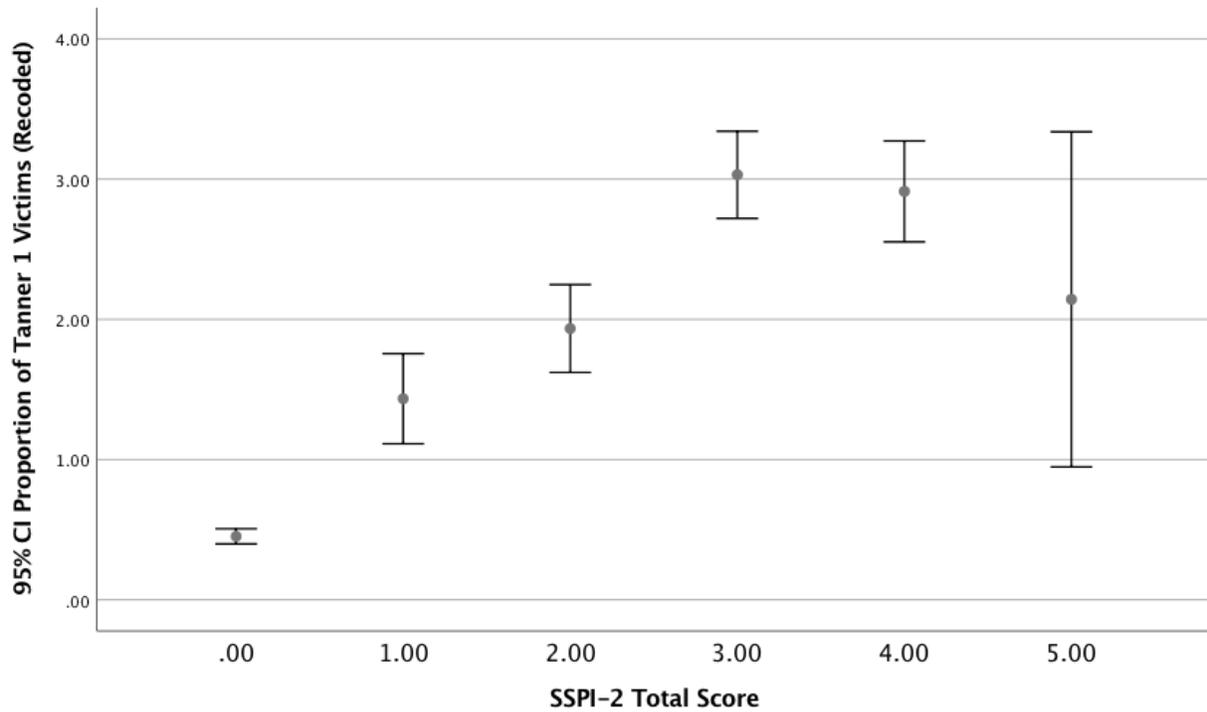


## Proportion of Tanner 1 Victims

Table G.3. *Recoding Tanner 1 Standardized Residuals (n = 841)*

Score	Conceptual Meaning	Standardized Residuals	n (%)
0	Definitely not pedophilic	< - 0.2900	318 (37.8)
1	Probably not pedophilic	- 0.2901 to 0.2900	218 (25.9)
2	Maybe not pedophilic	0.2901 to 0.500	59 (7.0)
3	Maybe pedophilic	(3.5) 0.5001 to 0.9000	98 (11.7)
4	Probably pedophilic		
5	Definitely pedophilic	> 0.9001	148 (17.6)

Figure G.2. *Mean Proportion of Tanner 1 Victims (Recoded) by Each Level of the SSPI-2 Total Score (n = 841)*

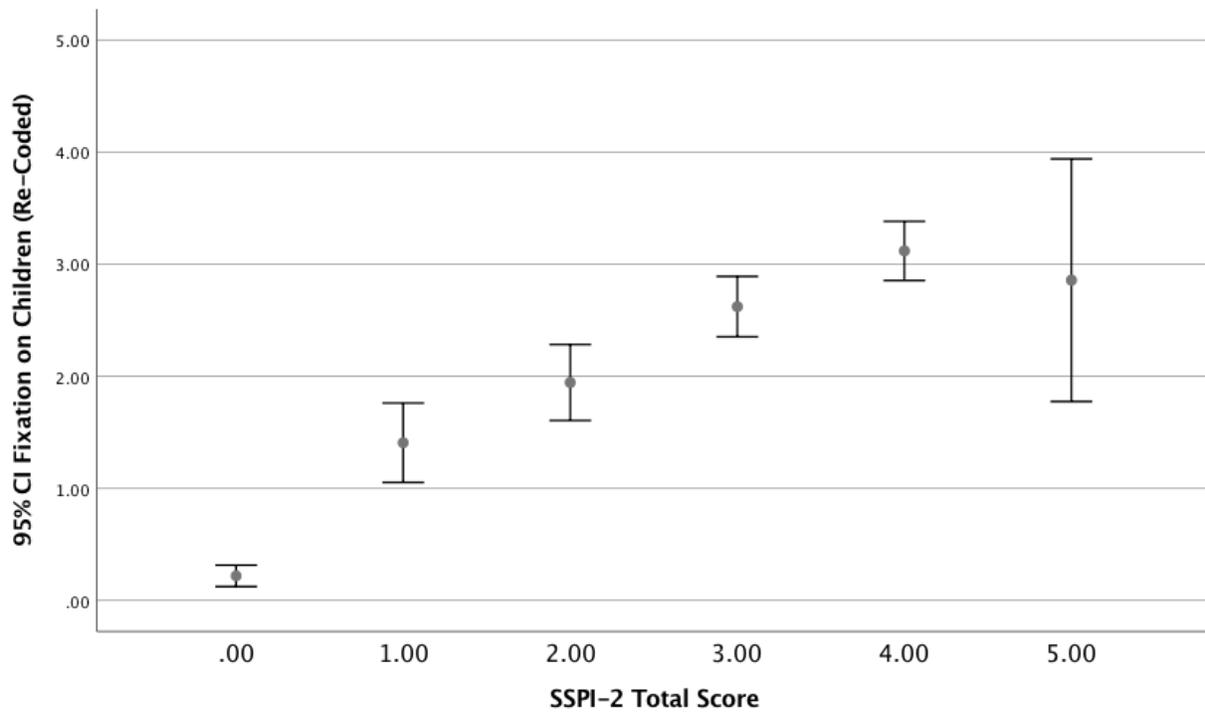


### Fixation on Children from MTC:CM3

Table G.4. Relationship Between Fixation on Children (Recoded) and SSPI-2 Scores (n = 841)

Fixation on Children (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0 "Not Fixated on Children"	302	41	31	30	24	4	0.72 (1.27)	0.00	0	432
1 "Low Fixation on Children"	7	24	32	34	10	0	2.15 (1.08)	2.00	3	107
4 "High Fixation on Children"	16	26	44	97	109	10	2.95 (1.21)	3.00	4	302
<b>Total</b>	<b>325</b>	<b>91</b>	<b>107</b>	<b>161</b>	<b>143</b>	<b>14</b>	<b>1.70 (1.61)</b>	<b>2.00</b>	<b>0</b>	<b>841</b>

Figure G.3. Mean Fixation on Children (Recoded) by Each Level of the SSPI-2 Total Score (n = 841).

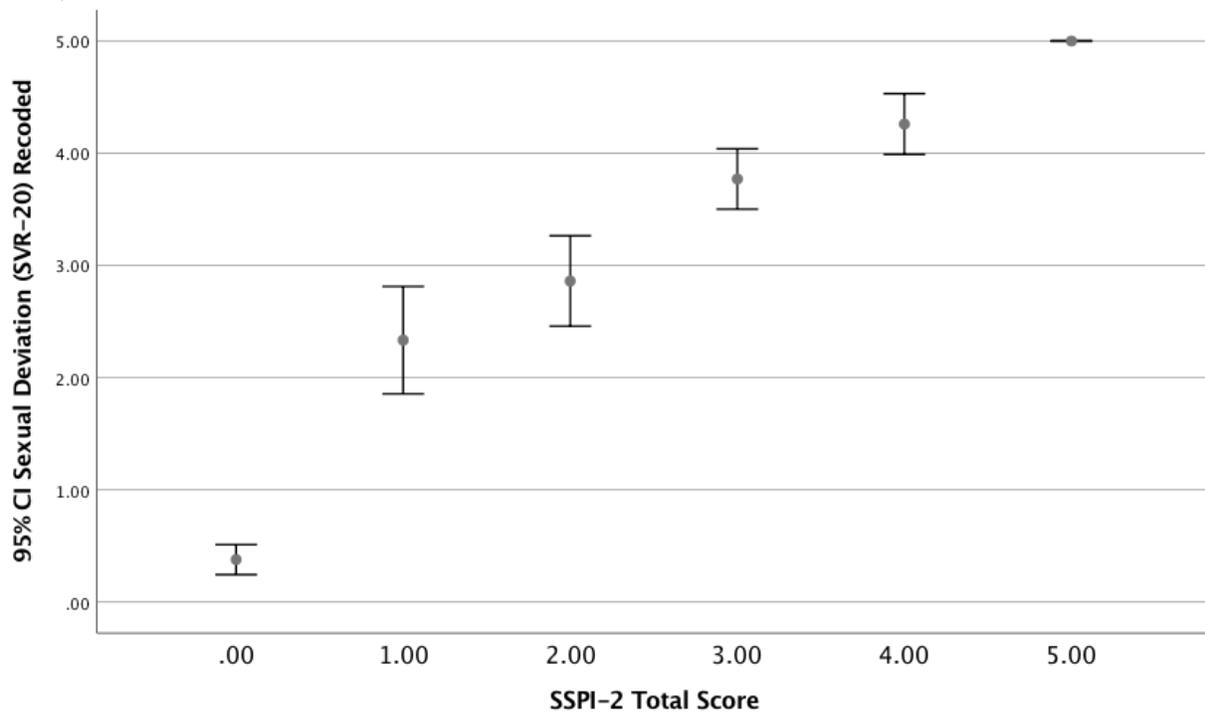


## Sexual Deviation from SVR-20

Table G.5. Relationship Between Sexual Deviation (Recoded) and SSPI-2 Scores (n = 621)

Sexual Deviation (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	259	21	61	6	1	0	0.25 (0.67)	0.00	0	303
2.5	17	21	32	33	19	0	2.14 (1.27)	2.00	3	122
3.5	2	7	6	16	3	0	2.32 (1.09)	3.00	3	34
5	12	14	25	56	54	3	2.82 (1.24)	3.00	3	164
Total	290	63	79	111	77	3	1.41 (1.53)	1.00	0	623

Figure G.4. Mean Sexual Deviation (Recoded) Score by Each Level of the SSPI-2 Total Score (n = 623)

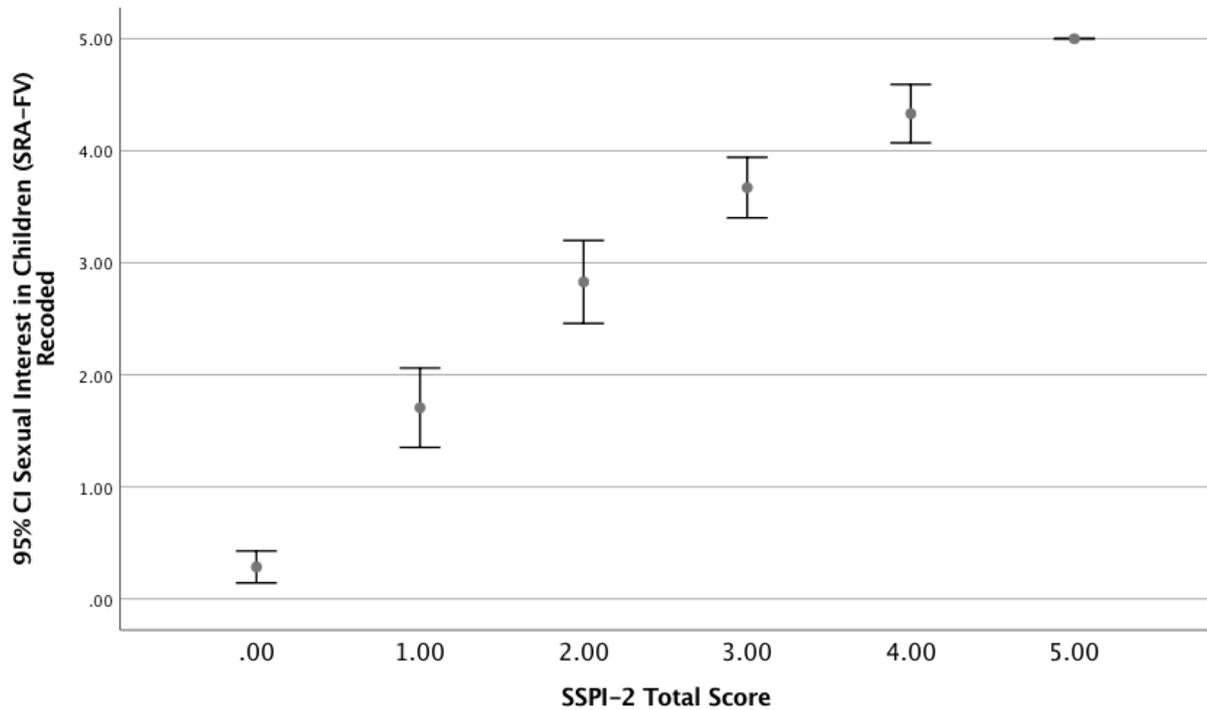


## Sexual Interest in Children from SRA-FV

Table G.6. Relationship Between Sexual Interest in Children (Recoded) and SSPI-2 Scores ( $n = 514$ )

Sexual Interest in Children (Recoded)							SSPI-2			
	0	1	2	3	4	5	M (SD)	Mdn	Mode	Total
0	165	23	13	5	1	0	0.33 (0.74)	0.00	0	207
2.5	11	37	41	47	17	0	2.14 (1.13)	2.00	3	153
4	1	0	4	5	4	0	2.78 (1.12)	3.00	3	14
5	4	3	21	54	55	3	3.16 (0.98)	3.00	4	140
Total	181	63	79	111	77	3	1.71 (1.52)	2.00	0	514

Figure G.5. Mean Sexual Interest in Children (Recoded) by Each Level of the SSPI-2 Total Score ( $n = 621$ )

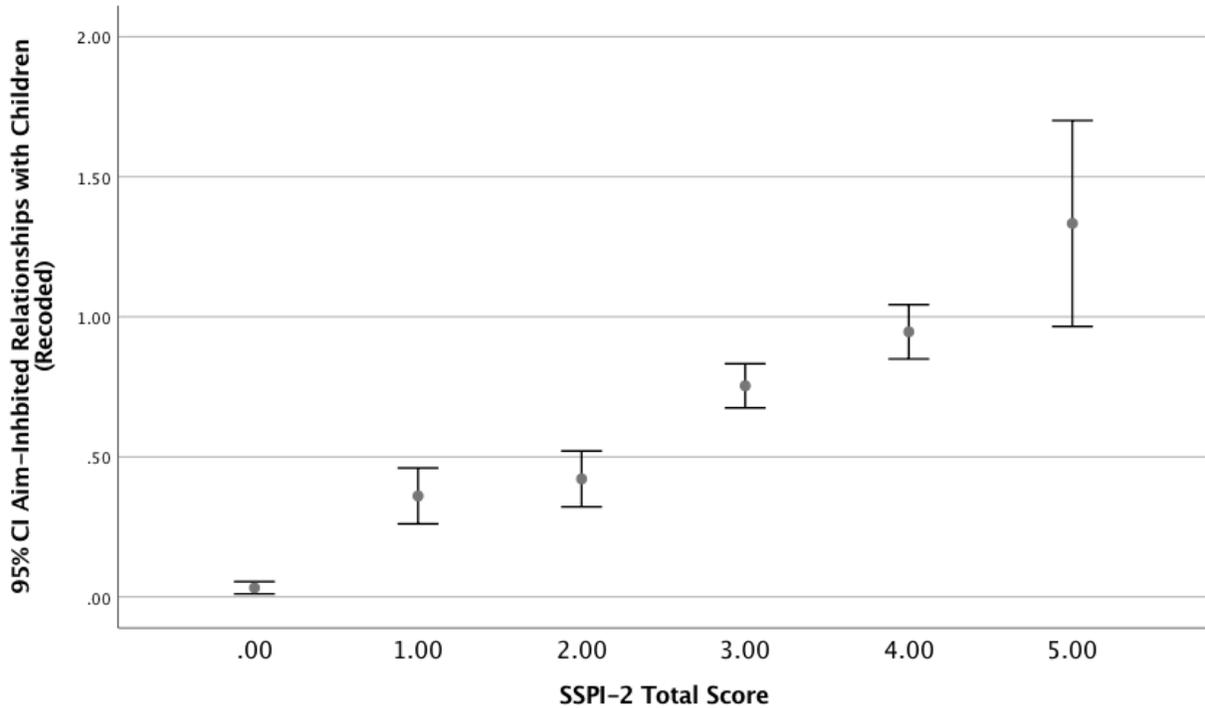


## Aim-Inhibited Relationships with Children

Table G.7. Relationship Between Aim-Inhibited Relationships with Children (Recoded) and SSPI-2 Scores ( $n = 751$ )

Aim-Inhibited Relationships with Children (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	297	40	42	22	15	1	0.61 (1.11)	0.00	0	417
0.67	9	28	36	80	61	2	2.75 (1.15)	3.00	3	216
1.33	0	6	8	32	40	6	3.35 (0.96)	3.50	4	92
2	2	0	1	4	15	4	3.62 (1.27)	4.00	4	26
Total	308	74	87	138	131	13	1.67 (1.63)	1.00	0	751

Figure G.6. Mean Aim-Inhibited Relationships with Children (Recoded) Variable by Each Level of the SSPI-2 Total Score ( $n = 751$ )

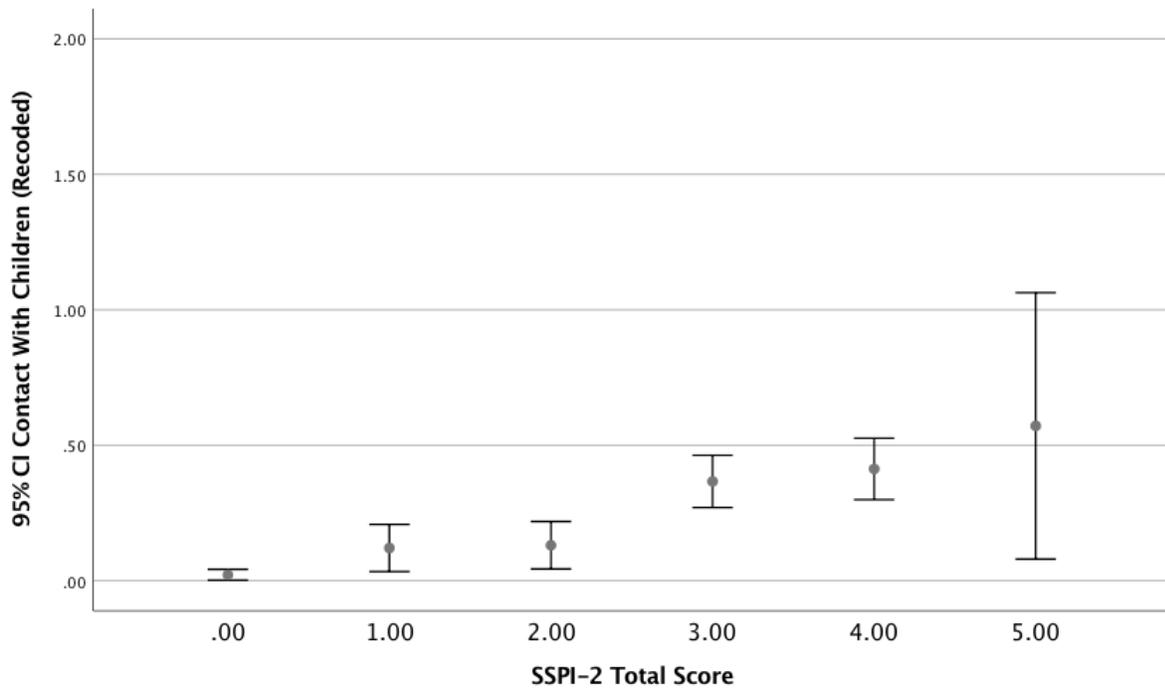


### Contact with Children from MTC:CM3

Table G.8. Relationship Between Contact with Children (Recoded) and SSPI-2 Scores (n = 836)

Contact with Children (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0 "No Emotional Attraction to Children"	315	83	98	114	100	9	1.48 (1.56)	1.00	0	719
1 "Possible Emotional Attraction to Children"	3	5	4	35	27	2	3.10 (1.06)	3.00	3	76
2 "Definite Emotional Attraction to Children"	2	3	5	12	16	3	3.12 (1.25)	3.00	4	41
<b>Total</b>	<b>320</b>	<b>91</b>	<b>107</b>	<b>161</b>	<b>143</b>	<b>14</b>	<b>1.71 (1.61)</b>	<b>2.00</b>	<b>0</b>	<b>836</b>

Figure G.7. Contact with Children (Recoded) Variable by Each Level of the SSPI-2 Total Score (n = 836)

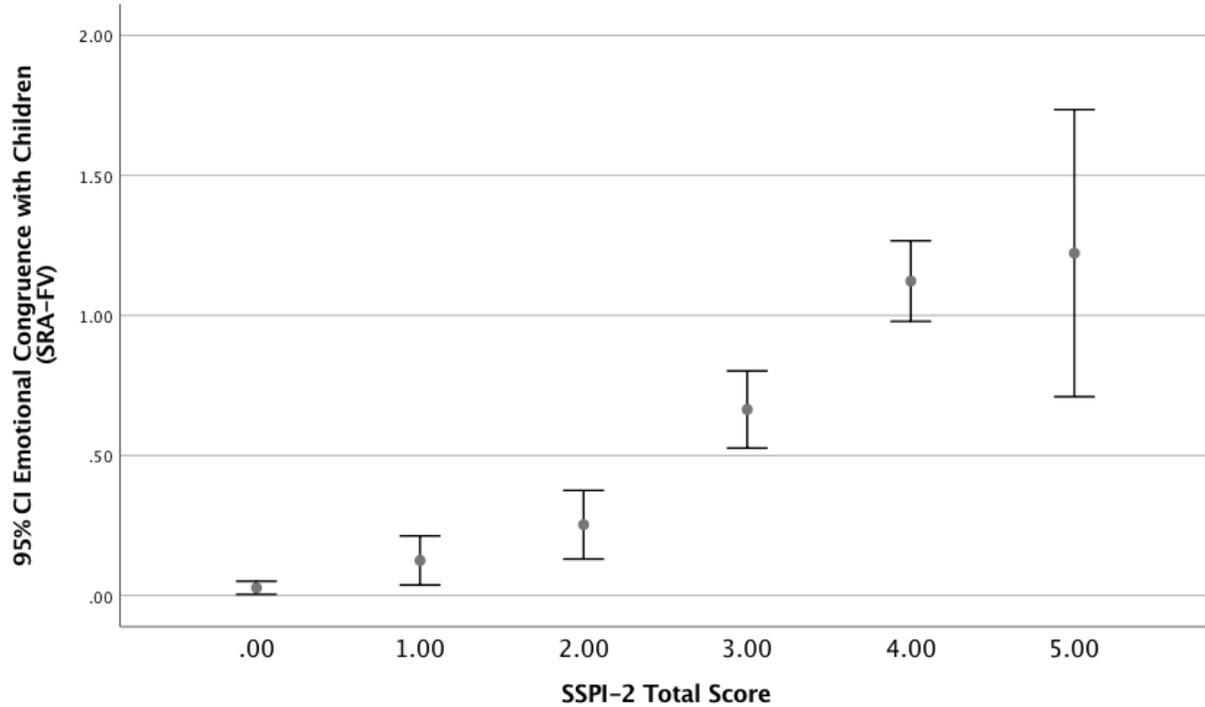


## Emotional Congruence with Children from SRA-FV

Table G.9. Relationship Between Emotional Congruence with Children (Recoded) and SSPI-2 Scores ( $n = 716$ )

Emotional Congruence with Children (Mean)							SSPI-2			
	0	1	2	3	4	5	M (SD)	Mdn	Mode	Total
0	302	71	75	65	21	1	0.94 (1.25)	0.00	0	535
0.5	3	2	1	3	3	0	2.08 (1.62)	2.50	0/3/4	12
1	1	5	6	31	41	5	3.36 (0.98)	4.00	4	89
1.5	0	0	3	3	4	0	3.10 (0.88)	3.00	4	10
2	3	2	6	23	33	3	3.28 (1.08)	4.00	4	70
Total	309	80	91	125	102	9	1.52 (1.57)	1.00	0	716

Figure G.8. Mean Emotional Congruence with Children Score by Each Level of the SSPI-2 Total Score ( $n = 716$ )



Appendix H. Frequency of Offence Behaviours with Children

Variables	Not Present	Occurred Once	Multiple Occasions	Total
	0	1	2	
1 Unnecessary victim injury	5	4	9	18
2 Sexual intercourse	3	30	66	99
3 Genital contact (without intercourse)	1	25	164	190
4 Made child commit fellatio on him	1	20	99	120
5 Committed fellatio on the child	1	21	120	142
6 Committed anal intercourse on the child	4	23	37	64
7 Kissing the child	4	27	73	104
8 Touching the child in a sexual manner over the clothing	0	37	182	219
9 Touching the child in a sexual manner under the clothing	0	38	205	243
10 Making the child touch him	0	31	142	173
11 Exhibiting himself before the child	1	20	116	137
12 Masturbating in front of the victim	3	12	101	116
13 Masturbating the victim	2	14	100	116
14 Threatening/coercing the child for sexual favours	2	28	110	140
15 Trying to degrade the victim	6	15	12	33
16 Using the child for Pornography/Prostitution/Other	4	7	17	28
17 Making the victim masturbate him	0	7	47	54
18 Other	0	13	30	43

Appendix I. Spearman Correlations (*rho*) of Offence Behaviours with Children with Putative Taxon Indicator

Behaviours	Ped	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Pedophilia	1																		
1. Injury	-.28	1																	
2. Sx Inter	-.051	.47	1																
3. Genital Con	.066	.11	.37	1															
4. C Felates	.064	.19	.50	.41	1														
5. Felates C	.26	.087	.31	.46	.64	1													
6. Anal Inter	-.055	.76	.60	.25	.44	.44	1												
7. Kissing	.24	.47	.41	.43	.30	.34	.60	1											
8. Ovr Clothes	.34	.	.32	.52	.46	.34	.30	.38	1										
9. Un Clothes	.23	-.31	.43	.56	.28	.37	.24	.41	.88	1									
10. C Touches	.25	-.35	.23	.40	.51	.59	.33	.32	.68	.59	1								
11. Exhib	.096	.33	.14	.32	.38	.30	.37	.25	.56	.46	.53	1							
12. Masturb	.14	-.06	.25	.32	.16	.29	.28	.46	.44	.44	.31	.68	1						
13. Masturb C	.12	.58	.33	.38	.38	.36	.54	.52	.51	.48	.53	.76	.43	1					
14. Threaten	.23	.36	.39	.41	.41	.36	.29	.27	.60	.42	.44	.42	.49	.45	1				
15. Degrade	-.10	.29	.093	.064	.034	.001	.22	.48	.00	-.063	-.16	.15	.51	.39	.29	1			
16. Porn/Prost	-.005	.88	.57	.38	.39	.10	.66	.40	.25	.20	.22	.30	.27	.64	.57	.54	1		
17. C Mast	.26	.	.66	.54	.56	.80	.	.14	.42	.55	.68	.	-.11	.	.42	-.20	.	1	
18. Other	.19	.	-.14	.056	.67	.20	.29	.085	.36	.34	.42	.	-.19	.47	-.12	.	.61	.33	1

Note. **Bolded** effect sizes have confidence intervals that do not include 0.

“.” Indicates that too few cases were present to compute a stable effect size.

Appendix J. Frequency of Raw and Rescaled Offence Behaviours Variable

Raw Score	Frequency	Rescaled Score ( <i>n</i> )
0	102	
1	9	0 (111)
2	19	
3	9	1 (28)
4	35	
5	12	3 (47)
6	25	
7	14	4 (39)
8	24	
9	13	
10	26	
11	11	
12	28	
13	7	
14	28	5 (180)
15	6	
16	18	
17	2	
18	8	
19	1	
20	8	
Total	405	405

Appendix K. Descriptions of Variables Used to Examine Validity in Chapter 9.

Item	Description	Scores	
<b>Common Indicators of Pedophilia (i.e., Table 9.9)</b>			
Phallometric Evidence of Arousal	Dichotomous variable based on evidence of arousal to children (male, female, undifferentiated, any) or adults (male, female, any). Categories are not mutually exclusive; any positive indications available in files were coded. Criteria used for interpretation not given.	No	No evidence of arousal or testing not completed.
		Yes	Evidence participant showed arousal to age/gender category.
<b>Interpersonal Functioning (i.e., Table 9.10)</b>			
General Social Problems  (from Hanson & Harris, 1998)	Composite variable of general measure of social isolation and interpersonal conflict taken from interview of officers and case notes. Items include, (1) social isolation, (2) withdrawal, (3) conflicts/rejected by family, (4) negative conflicts with others (workers/friends), (5) rejected by community.	0-20	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”. Items were summed to create a total score
Loneliness	Single variable describing evidence that participant experienced or reported loneliness as a problem taken from interview of officers and case notes.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.
Association with “Sex Offenders”	Single variable describing evidence that participant had a habit of associating with other men with a history of sexual crime taken from interview of officers and case notes.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.
Association with “Sex Offenders” Seen as problem	For all those who received a positive coding for “Association with “Sex Offenders” did the supervision officer also view the relationship as a risk-relevant problem.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.

Item	Description	Scores
Neurodevelopmental Perturbations (From Table 9.11)		
Full Scale IQ	Highest full-scale IQ score reported on participant at any time during his life. If only qualitative description of report is given, quantification was accomplished values that corresponded approximately to the mid-range IQ value associated with each WAIS interpretative category.	Ordinal Scale.
Elementary School Maladjustment	Degree of elementary school maladjustment as observed in file coding.	1 No problems 2 Slight (Minor discipline or attendance problems) 3 Moderate 4 Severe (Serious discipline or attendance problems)

Item	Description	Scores	
<b>Sex-Crime Specific Risk Factors (From Table 9.12)</b>			
Persistence/Paraphilia (Brouillette-Alarie et al., 2016)	Composite variable of four items from Static-99R and Static-2002R items that specifically measure a propensity to engage in sexual crime. Items include, (1) High rate of sexual offending/prior sex offences, (2) Noncontact sex conviction, (3) Male victim, (4) Two or more young victims, one unrelated.	Ordinal scale. Scores range from 0 to 10 with higher value indicating a greater propensity for sexual offending.	
Offence Characteristics	Participants has a history of engaging in any of the following characteristics during their index or prior offences as indicated by file information.	No	No evidence of engaging in the behaviour.
		Yes	Indication of behavioural pattern at some point.
“Lusty Talk”	Single variable describing evidence that participant had a habit of focusing on sex in his conversations from interview of officers and case notes.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.
Pornography Use	Single variable describing evidence that participant had a habit of using pornography (e.g., catalogues, baby magazines) from interview of officers and case notes.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.
Sexual Preoccupation	Single variable describing evidence that participant had a preoccupation with sex taken from interview of officers and case notes.	0-4	Each item ranged from 0 “No mention at any time point” to 4 “Mentions at every time point”.

Item	Description	Scores
<b>Sex-Crime Specific Risk Factors continued (From Table 9.12)</b>		
<p>“Child Molester” Attitudes</p> <p>(from Hanson &amp; Harris, 1998)</p>	<p>Composite variable of attitudes supportive of sex with children taken from interview of officers and case notes. Statements included:</p> <ol style="list-style-type: none"> <li>(1) some children are mature enough to enjoy sex with</li> <li>(2) adults some children like to sexually tease him</li> <li>(3) a child who does not resist sexual touching really feels OK about being touched</li> <li>(4) some children are so willing to have sex that it is difficult to stay away from them</li> </ol>	<p>0-8</p> <p>Each item ranged from 0 “No mention at any time point” to 2 “Mentions at every time point”. Items were summed to create a total score</p>
<p>“Rapist” Attitudes</p> <p>(from Hanson &amp; Harris, 1998)</p>	<p>Composite variable of attitudes supportive of non-consensual sex with adult women taken from interview of officers and case notes. Statements included:</p> <ol style="list-style-type: none"> <li>(1) many women would secretly like to be raped</li> <li>(2) when women go around wearing short skirts or tight tops they are asking for trouble</li> <li>(3) a lot of times when women say “no” they are just playing hard to get and really mean “yes”</li> <li>(4) that women are playing with him sexually</li> <li>(5) that some rape victims deserve what they get</li> </ol>	<p>0-10</p> <p>Each item ranged from 0 “No mention at any time point” to 2 “Mentions at every time point”. Items were summed to create a total score</p>

Item	Description	Scores
<b>General Criminality (From Table 9.13)</b>		
General Criminality (Brouillette-Alarie et al., 2016)	Composite variable of four items from Static-99R and Static-2002R items that measure a propensity to engage in rule-breaking behaviour. Items include, (1) Breach of conditional release, (2) Few years free prior to index, (3) Prior sentencing, (4) Prior nonsexual violence.	Ordinal scale. Scores range from 0 to 8 with higher value indicating a greater propensity for any type of criminal behaviour.
Youthful/Stranger Aggression (Brouillette-Alarie et al., 2016)	Composite variable of four items from Static-99R and Static-2002R items that measure a composite of demographics, victim relationship information, and nonsexual violence. Items include, (1) Juvenile sex arrest, (2) Never lived with lover for at least 2 years, (3) Index nonsexual violence, (4) Unrelated/stranger victim.	Ordinal scale. Scores range from 0 to 5 with higher value indicating a higher likelihood of early violent behaviour.
Psychopathy Checklist – Revised (PCL-R; Hare, 2003)	The PCL-R is a 20-item rating measure designed to assess psychopathy. The two factor scores of the PCL-R reflect the interpersonal and affective features (Factor 1) and the socially deviant features (Factor 2) of psychopathy.	Ordinal scale. Each PCL-R item is rated on a 3-level scale (0 = does not apply, 1 = may apply or in some respects applies, 2 = does apply). The total score ranged from 0 to 40, with prorating guidance provided by the scoring manual to when items were missing.

Appendix L. Characteristics of variables used to create indicators in Chapter 9

This appendix contains the basic description of items and scoring used to construct the indicators in Chapter 9, summarized in Table L.1 below.

Table L.1. *Variables Used to Create Indicators*

SSPI-2	Pedophilic Physical Attraction	Pedophilic Emotional Attraction
	Proportion of Tanner 1 Victims	Grooming Victims
	Atypical Sexual Fantasies/Urges	Lifestyle Congruent with Sexual Deviance
	Phallometric Evidence of Child Preference	
	Offence Behaviours	
	Pedophilia Diagnosis	

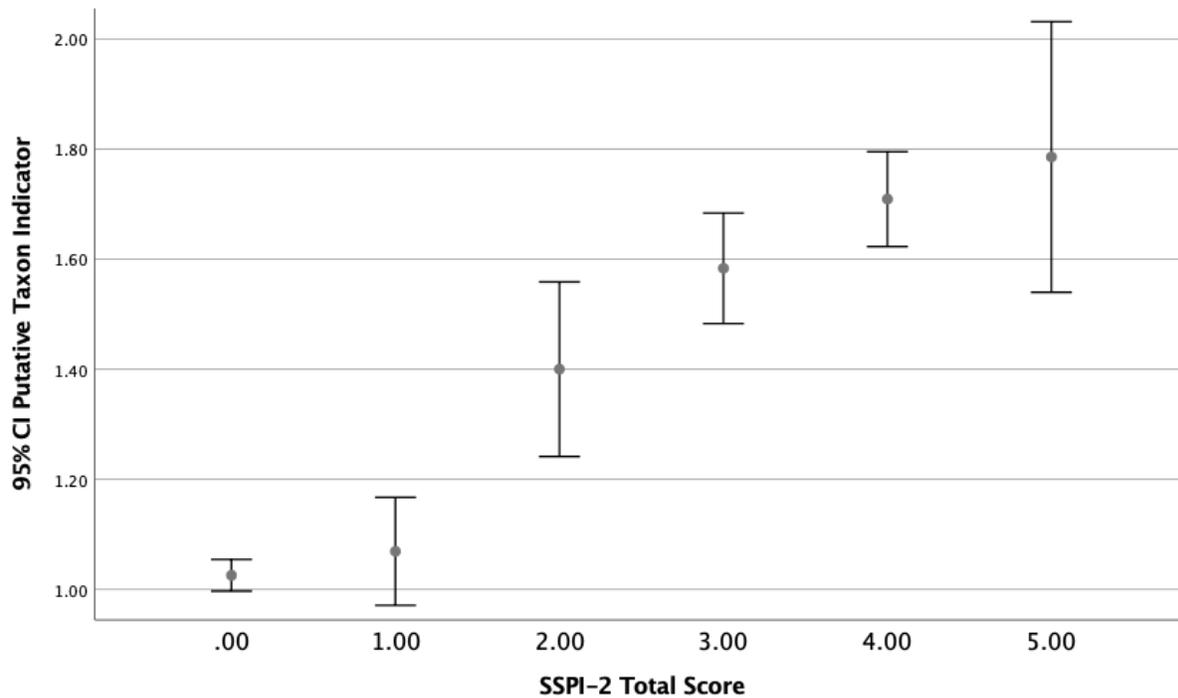
The distribution of scores are also plotted against the different levels of the SSPI-2 to provide an initial understanding of the relationship between variables as being more categorical or dimensional in nature. Distributions that are more dimensional will have a linear shape. Ones that are more categorical will have a stronger logistic shape.

## SSPI-2

Table L.2. *Relationship Between SSPI-2 Scores and the Putative Taxon Indicator (n = 407)*

Pedophilia	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
1 “Not Pedophilic”	115	27	24	40	32	3	1.40 (1.48)	1.00	0	241
2 “Pedophilic”	3	2	16	56	78	11	3.43 (0.93)	4.00	4	166
Total	118	29	40	96	110	14	2.23 (1.68)	3.00	0	407

Figure L.1. *Mean Pedophilia Score by Each Level of the SSPI-2 Total Score (n = 407)*

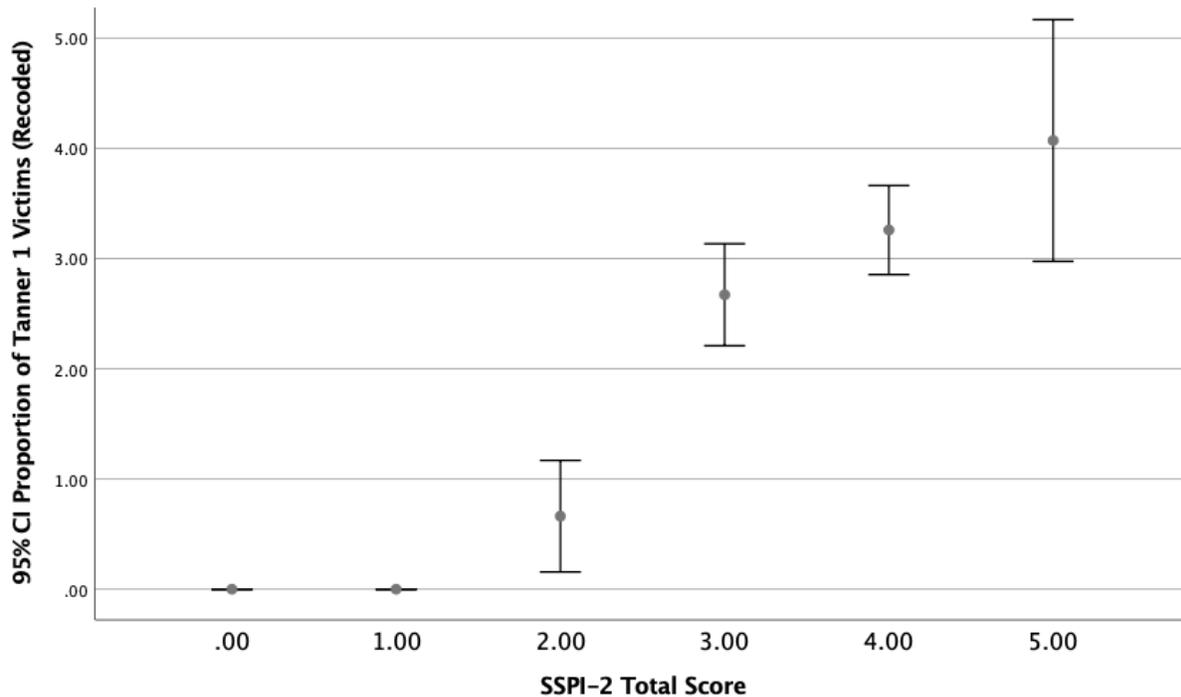


## Proportion of Tanner 1 Victims

Table L.3. *Recoding Tanner 1 Standardized Residuals (n = 407)*

Score	Conceptual Meaning	Standardized Residuals	n (%)
0	Definitely not pedophilic	< - 0.2900	227 (55.8)
1	Probably not pedophilic	- 0.2901 to 0.2900	44 (10.8)
2	Maybe not pedophilic	0.2901 to 0.500	3 (0.7)
3	Maybe pedophilic	(3.5) 0.5001 to 0.9000	11 (2.7)
4	Probably pedophilic		
5	Definitely pedophilic	> 0.9001	122 (30.0)

Figure L.2. *Mean Proportion of Tanner 1 Victims (Recoded) by Each Level of the SSPI-2 Total Score (n = 407)*

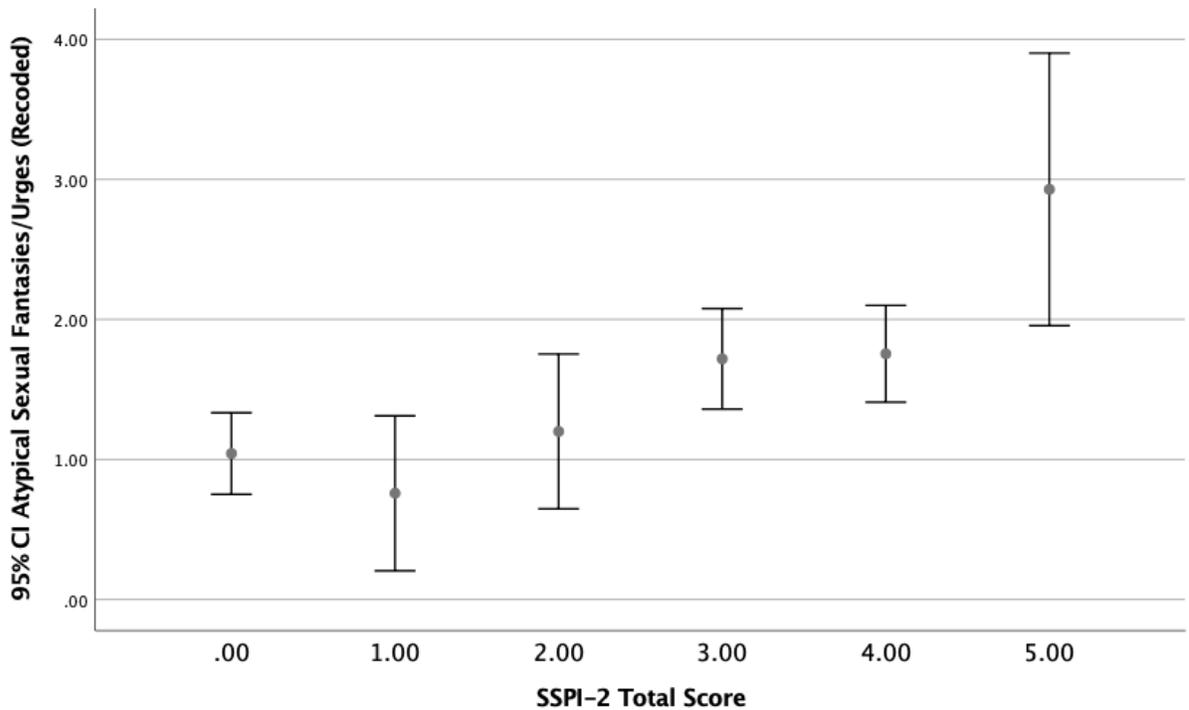


## Atypical Sexual Fantasies/Urges

Table L.4. *Relationship Between Atypical Sexual Fantasies/Urges (Recoded) and SSPI-2 Scores (n = 407)*

Atypical Sexual Fantasies/Urges (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	80	22	26	46	54	3	1.92 (1.65)	2.00	0	231
1	0	0	0	0	0	0	-	-	-	0
2	11	3	3	13	12	1	2.35 (1.63)	3.00	3	43
3	7	0	2	9	7	1	2.46 (1.65)	3.00	3	26
4	20	4	9	28	37	9	2.79 (1.61)	3.00	4	107
Total	118	29	40	96	110	14	2.23 (1.68)	3.00	0	407

Figure L.3. *Mean Atypical Sexual Fantasies/Urges (Recoded) by Each Level of the SSPI-2 Total Score (n = 407)*

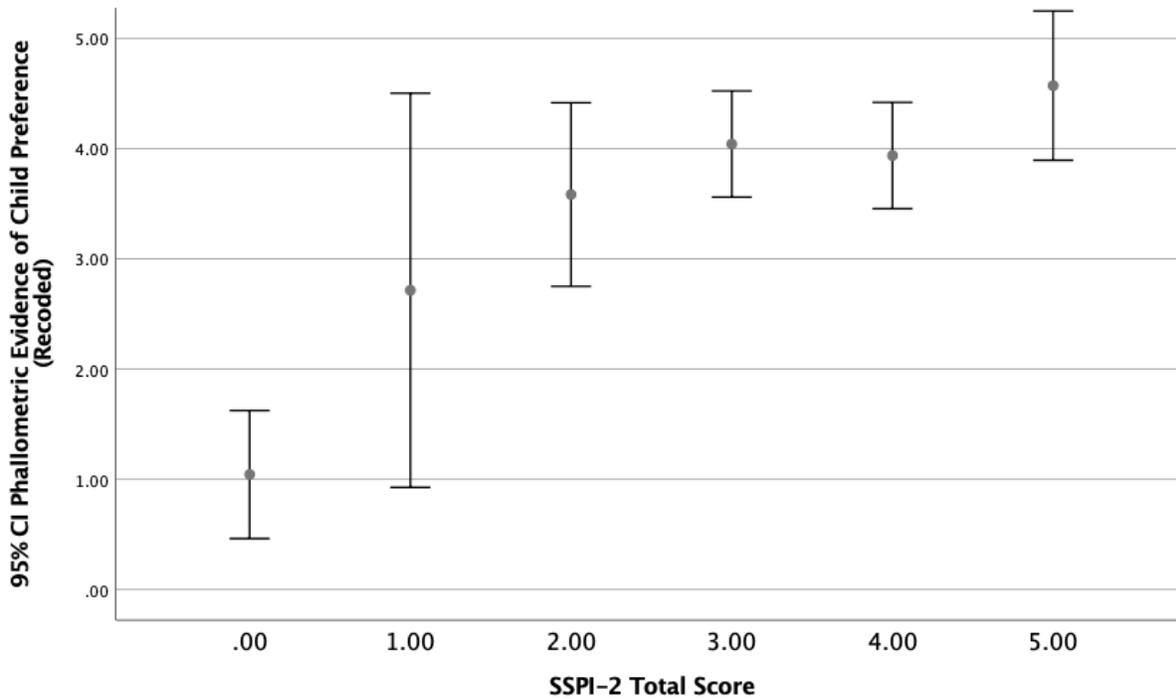


## Phallometric Evidence of Child Preference

Table L.5. *Relationship Between Phallometric Evidence of Child Preference (Recoded) and SSPI-2 Scores (n = 125)*

Phallometric Evidence of Child Preference (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	25	2	1	1	4	0	0.70 (1.40)	0.00	0	33
3.5	9	4	8	12	15	2	2.52 (1.54)	3.00	4	50
5	1	1	3	11	21	5	3.55 (1.04)	4.00	4	42
Total	35	7	12	24	40	7	2.38 (1.74)	3.00	4	125

Figure L.4. *Mean Phallometric Evidence of Child Preference (Recoded) by Each Level of the SSPI-2 Total Score (n = 125)*

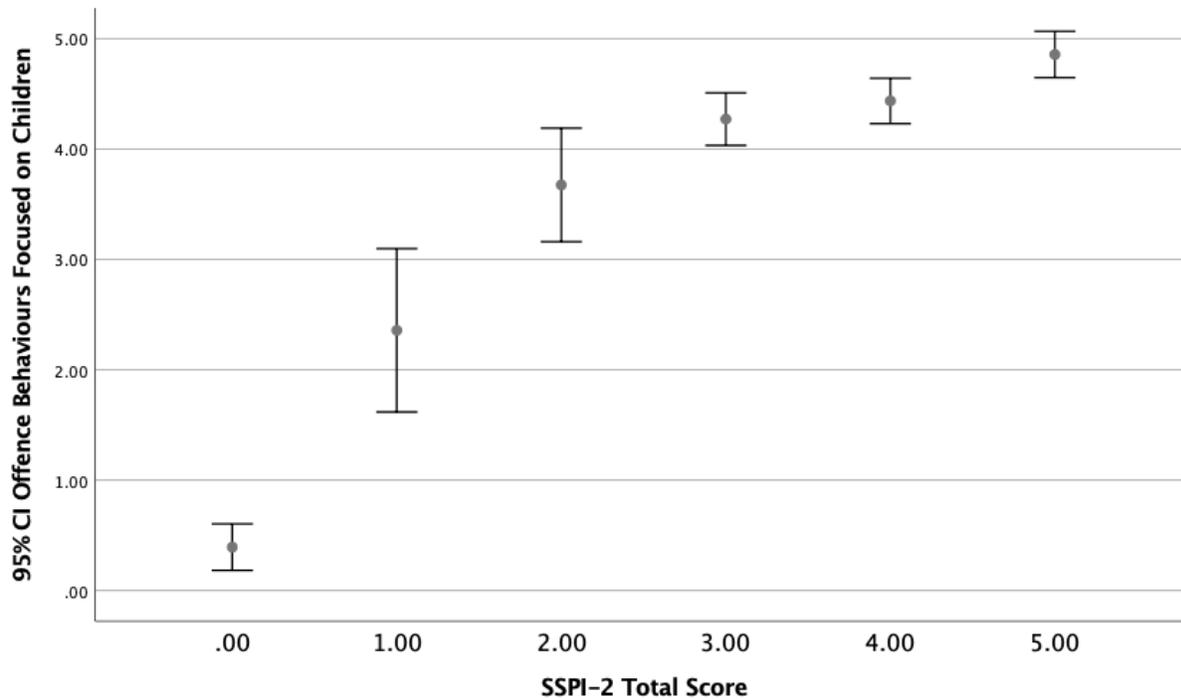


## Offence Behaviours Focused on Children

Table L.6. *Relationship Between Offence Behaviours Focused on Children and SSPI-2 Scores (n = 405)*

Offence Behaviours Focused on Children	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	101	5	3	1	1	0	0.16 (0.60)	0.00	0	111
1	6	9	3	5	5	0	1.78 (1.45)	1.00	1	28
3	3	6	11	16	11	0	2.55 (1.18)	3.00	3	47
4	4	1	4	13	13	2	3.02 (1.33)	3.00	4	39
5	3	7	19	61	78	12	3.33 (1.00)	3.50	4	180
Total	117	28	40	96	110	14	2.24 (1.68)	3.00	0	405

Figure L.5. *Mean Offence Behaviours Focused on Children by Each Level of the SSPI-2 Total Score (n = 405)*

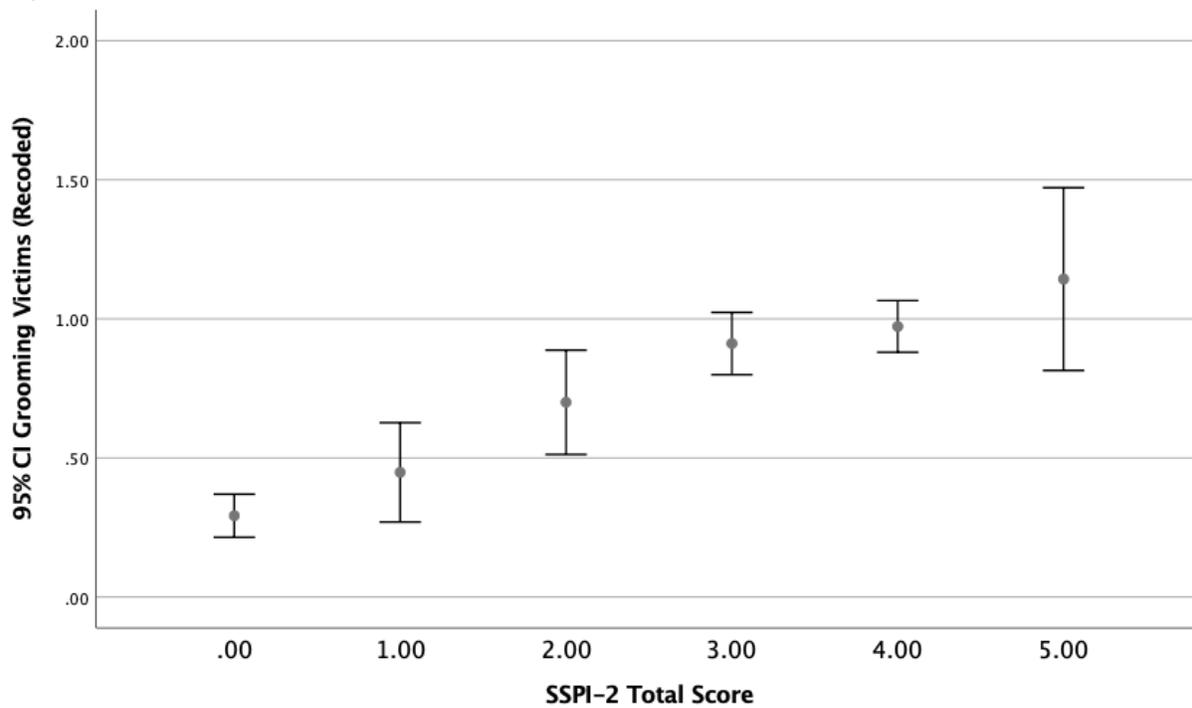


## Grooming Victims

Table L.7. *Relationship Between Grooming Victims (Recoded) and SSPI-2 Scores (n = 407)*

Grooming Victims (Recoded)	SSPI-2						SSPI-2			
	0	1	2	3	4	5	M (SD)	Mdn	Mode	Total
0.0	72	13	13	17	13	2	1.17 (1.52)	0.00	0	130
0.5	28	7	7	17	17	1	1.88 (1.67)	2.00	0	77
1.0	13	8	11	28	43	2	2.82 (1.41)	3.00	4	105
1.5	5	1	9	34	37	9	3.30 (1.14)	3.00	4	95
Total	118	29	40	96	110	14	2.23 (1.68)	3.00	0	407

Figure L.6. *Mean Grooming Victims (Recoded) by Each Level of the SSPI-2 Total Score (n = 407)*

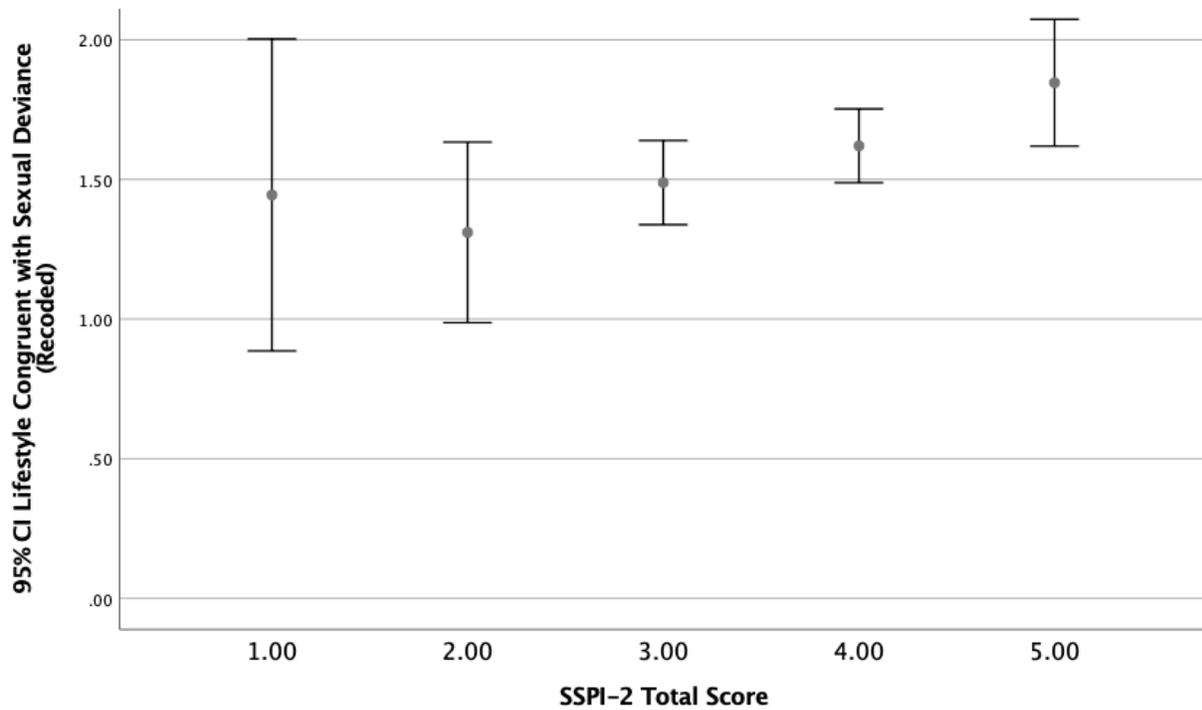


## Lifestyle Congruent with Sexual Deviance

Table L.8. *Relationship Between Lifestyle Congruent with Sexual Deviance (Recoded) and SSPI-2 Scores (n = 247)*

Lifestyle Congruent with Sexual Deviance (Recoded)	SSPI-2						M (SD)	Mdn	Mode	Total
	0	1	2	3	4	5				
0	0	1	7	11	13	0	3.12 (0.87)	3.00	4	32
1	0	3	6	23	15	2	3.13 (0.91)	3.00	3	49
2	0	5	16	54	80	11	3.46 (0.87)	4.00	4	166
Total	0	9	29	88	108	13	3.35 (0.89)	3.00	4	247

Figure L.7. *Mean Lifestyle Congruent with Sexual Deviance (Recoded) by Each Level of the SSPI-2 Total Score (n = 247)*



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