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Pathological Personality Traits and Social Behaviour:
Informant and Within-Person Variability Perspectives

By

Paige B. Lamborn

A Dissertation
Submitted to the Faculty of Graduate Studies
through the Department of Psychology
in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy
at the University of Windsor

Windsor, Ontario, Canada

2021

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Informant and Within-Person Variability Perspectives

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ABSTRACT

The link between personality pathology and social functioning is well established in past research. As such, this study sought to contribute to the literature on the new alternative *DSM-5* model for personality disorders, by examining how the dimensional pathological personality traits embedded within the model (viz. antagonism, disinhibition, negative affectivity, detachment, and psychoticism) relate to patterns in social behaviour, using the interpersonal circumplex as the model of social behaviour. The current study recruited 240 university students ('targets'), who gave ratings of their own personality, nominated informants who provided parallel ratings of the targets' personality, and completed an intensive repeated measures in naturalistic settings (IRM-NS) procedure to measure their social behaviour in naturally-emerging social interactions over a period of 10 days. A total of 147 cases with data from all three study components were gathered, and 204 targets completed the IRM-NS procedure. The relations between personality and social behaviour were examined from two perspectives. The first perspective compared the predictive validity of self- versus informant-reported traits in accounting for general trends in social behaviour. Much of the previous literature has suggested that informant-reports are particularly useful for understanding maladaptive personality traits and their connection to outcomes such as social functioning (e.g., Klein, 2003; Miller et al., 2005; Ready et al., 2002; Ro et al., 2017). A series of partially latent structural equation modelling (SEM) analyses were used to compare the utility of self- and informant-reports in predicting mean-level aggregations of the target's behaviour from the IRM-NS procedure. These analyses showed that across all the personality traits examined, self-reported personality was a superior predictor of social behaviour, compared to informant-

report personality. Moreover, each of the pathological personality traits was associated with a predominant interpersonal theme, and correlational agreement between the target and informants reached only modest levels, with informants reporting that the targets had lower levels of the pathological personality traits than did targets themselves. The second perspective examined how well the pathological personality traits could predict patterns of within-person variability in social behaviour. Within-person variability refers to the range in behaviour an individual exhibits across different interactions and over time; it concerns whether they tend to behave similarly in different interactions or are prone to demonstrating many different interpersonal styles. Past research suggests that higher levels of within-person variability represent dysfunction (Côté et al., 2012; Kopala-Sibley et al., 2013; Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007). Multiple regression analyses were conducted with the pathological personality traits as predictors of various indices of within-person variability. Detachment and antagonism emerged as the most consistent predictors of within-person variability. However, the traits often did not collectively account for more variance than mean-level social behaviour scores, and the traits accounted for only modest amounts of explained variance in the within-person variability scores. This study contributes to the literature through its use of an ecologically valid measure of social behaviour, direct comparison of the validity of self- and informant-reported personality traits, and examination of whether the pathological personality traits are better able to predict within-person variability in social behaviour than the predictors used in past examinations. The limitations of this study and directions for future research are discussed.

Keywords: Pathological personality traits, self-report, informant-report, social behaviour, within-person variability

DEDICATION

To my mother, Kelly Lamborn. None of this would have been possible without you.

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CHAPTER I

GENERAL INTRODUCTION

It is not difficult to imagine how an individual's personality could impact their social behaviour. Someone generally described as 'agreeable' is likely to be pleasant and easy-going when they interact with others. However, replace 'agreeable' with 'antagonistic' or 'manipulative' and the picture soon changes. Maladaptive personality traits and their impact on social functioning are gaining recognition within the broader understanding of mental health. For example, empirical findings indicate that personality plays an important role in the overarching structure of psychopathology (Kotov et al., 2017; Wright & Simms, 2015), and others have asserted that much of psychopathology is expressed within interpersonal relationships (e.g., Hopwood et al., 2013; Seivewright et al., 2004; Sullivan, 1953). Historically, maladaptive personality has been classified through categorical personality disorders, which suggest that personality dysfunction is unique to certain types of people. However, dimensional personality traits have come to the forefront of modern conceptualizations of personality disorders, in new models that assert that these maladaptive traits vary across the entire population. Accordingly, such pathological personality traits play a central role in the alternative model for personality disorders listed in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013)*.

Understanding how the pathological personality traits of the alternative model for personality disorders relate to patterns of social behaviour represents an important test of this new approach, which the American Psychiatric Association regards as an 'emerging model' that requires additional empirical review before full adoption. The connection

between pathological personality traits and social behaviour is multifaceted and should thus be examined from a variety of perspectives. One such perspective concerns whether individuals can accurately and usefully report about their own maladaptive traits. In contrast, an informant rater's external perspective of a target's personality has the potential to enhance the prediction of social behaviour. To date, few studies have directly compared the predictive validity of self- versus informant-reports of the pathological personality traits using an ecologically valid outcome measure. The current study sought to fill that gap. A second perspective aims to understand the pathological personality traits as they relate not only to general trends in social behaviour, but also to the range and variability in behaviour that an individual exhibits within their social environment. As will be shown, excessive intrapersonal variability appears to be a marker of dysfunction, and thus understanding how the traits relate to these markers represents an important investigation of how interpersonal impairment may be manifested. This study uses these two perspectives to examine the relations between the pathological personality traits of the alternative *DSM-5* model for personality disorders and social behaviour.

The current study examined these perspectives by recruiting dyads, wherein one participant served as a target and the other as a nominated informant. Both participants provided information about the target's levels of the pathological personality traits. A 10-day procedure using intensive repeated measures in naturalistic settings (IRM-NS) was used to assess targets' social behaviour; targets described their behaviour in everyday interactions, aligning with methods used in past literature (Moskowitz, 1994). Thus, the current study contributes to the literature in at least three ways. The first is that it contributes to the growing literature on the alternative *DSM-5* model for personality

disorders, by examining their respective connections to an ecologically valid measure of social behaviour. As will be reviewed, the link between personality dysfunction and social behaviour is well established in the broader literature, but few studies have examined the connections between the pathological personality traits of this model and social behaviour in a multifaceted way. This study fills that gap by using two different perspectives to examine those connections. Regarding the first perspective, this study is one of the first to compare the predictive validity of self- versus informant-reports of pathological personality traits, using an ecologically valid and methodologically rigorous measure of social behaviour as the outcome variable. Through the second perspective, the study goes beyond examining stable trends in social behaviour to also investigate the ability of the pathological personality traits to predict indices of instability in social behaviour, which may represent important manifestations of interpersonal impairment.

This chapter outlines the theoretical and methodological foundations for this project, including a review of how personality dysfunction has been conceptualized throughout history, the research findings that support the alternative *DSM-5* model of personality disorder, the interpersonal circumplex model of social behaviour, and the use of intensive repeated measures in naturalistic settings to assess real-world social behaviour. The following two chapters detail information specific to the two perspectives on the relations between personality disorder and social behaviour: first, comparisons of self- versus informant-reports of personality, and second, the relations between personality and indices of within-person variability in social behaviour. The specific hypotheses made regarding each perspective are also outlined in their respective chapter.

History of Personality Disorders

The people of ancient civilizations looked to various sources to explain human behaviour, such as the movement of the stars in Egypt and Babylonia, and the influence of elements such as fire, earth, and water in China (Millon, 2012). In Ancient Greece, Hippocrates outlined four basic temperaments – choleric, melancholic, sanguine, and phlegmatic – which were thought to correspond to an overabundance of yellow bile, black bile, blood, and phlegm in the body, respectively. The Greek physician Galen later elaborated these types to suggest that the choleric temperament is associated with a tendency toward anger, sanguine with optimism, melancholic with sadness, and phlegmatic with apathy. Other premodern theories related to body structure, or proclivities such as activity, sensitivity, and emotionality, before several personality typologies began to emerge around the turn of the 20th century (Millon, 2012).

The transition from ancient conceptualizations of personality variation to modern personality disorder diagnoses was heavily influenced by European perspectives, including the psychiatric, psychoanalytic, and individual difference schools of thought (Fossati, 2011). In the psychiatric literature, theories of personality dysfunction emerged out of conceptualizations of mental illness more generally. For instance, Morel's (1857) degeneration theory, posited that undesirable behaviours, such as alcohol use, left imprints that would be expressed as mental illness in later generations (Berrios, 1993). Similarly, Koch's 1891 definition of 'psychopathic inferiority' attributed abnormal behaviour to neurobiological 'weakness' (Berrios, 1993). Schneider (1923) outlined ten forms of 'psychopathic personalities,' ranging from depressive to explosive, and argued that personality pathology should be considered distinct from more acute forms of

psychopathology (Millon, 2012). Across the 20th century, these models became increasingly complex, with other typologies published by Kahn and Henderson aimed at categorizing presentations in which adequate intellectual abilities were accompanied by anti- or a-social behaviour (Berrios, 1993).

Parallel to these developments was the rise of psychoanalytic theory. Janet (1889) introduced the term ‘psychological automatism’ to describe abnormal behaviour, suggesting that mental functioning can operate outside of conscious control (Fossati, 2011). Freud’s writings, although not specific to personality disorder classification, introduced a developmental perspective and further recognized the influence of the unconscious on behaviour (Fossati, 2011; Millon, 2012). Jung (1921) introduced his personality model, in which the basic dimension of extraversion versus introversion was combined with a second axis encompassing the psychic functions of thinking, feeling, sensation, and intuition (Millon, 2012), to generate identifiable personality types (Berrios, 1993). The primary dimension of extraversion versus introversion features in several theories of personality that emerged following Jung, including Eysenck’s three part model and modern trait approaches like the five factor model (FFM; Costa & McCrae, 1992b; Fossati, 2011). Ego psychology, with its focus on defense mechanisms; the object-relations school, emphasizing the primacy of interpersonal relationships; and attachment theory are all further avenues through which psychodynamic theory has impacted the broader field’s understanding of personality dysfunction (Fossati, 2011).

A focus on psychological measurement also arose at the end of the 19th century, through the contributions of researchers such as Galton and Pavlov (Fossati, 2011). In this context, Eysenck (1947; Eysenck & Eysenck, 1976) elaborated his theory of

personality, which emphasized extraversion, neuroticism, and later psychoticism as basic underlying dimensions, built upon a psychophysiological perspective (Millon, 2012). More recent theories from the individual differences school, such as Gray's reinforcement sensitivity theory, have emphasized reinforcement contingencies and the influence of temperamental behavioural systems such as the approach, avoid, and fight-flight-freeze responses (Fossati, 2011). The focus on individual differences also gave rise to the study of normative personality, most notably through trait-based models. The major contributions of this approach are thus placing personality on a continuum of normal variation, that is grounded in psychobiological factors, and can be studied through scientific methods (Fossati, 2011).

Diagnosis of Personality Disorders

Historical Approaches

Millon (2012) outlined the various conceptualizations of personality disorder across the editions of the *DSM*. The first edition (American Psychiatric Association, 1952) contained prose descriptions of the disorders. Disorders thought to stem from psychogenic causes were termed 'reactions' and divided into psychoses, neuroses, and character disorders. The last category, an early analogue to modern personality disorders, was considered untreatable and primarily related to forensic concerns. The *DSM-II* (American Psychiatric Association, 1968) did not introduce substantial changes to the original *DSM*, aside from new category names. Diagnostic unreliability was thus a major issue with, and source of criticism about, the *DSM* and *DSM-II*, given the vagueness of the definitions. Modern views of the personality disorders began to take shape with the *DSM-III* (American Psychiatric Association, 1980), which included formal inclusion and

exclusion criteria for “as many clinically useful personality syndromes as could be justified” (Millon, 2012, p. 11). *DSM-III* also introduced a multiaxial system of diagnosis, to promote recognition of factors such as personality traits and social functioning within the broader understanding of psychopathology (Millon, 2012). The *DSM-IV* (American Psychiatric Association, 2000) contained largely similar content and structure related to personality disorders, with a focus on behavioural criteria that were to be observed across time and situations prior to diagnosis.

Modern Conceptualizations of Personality Disorders

In previous versions of the *DSM*, as well as in the main section of the current fifth edition, personality disorders are conceptualized as categorical diagnoses that represent distinct clinical entities. That is, each personality disorder subtype is thought to reflect a unique constellation of characteristics exhibited only by specific groups of people, who can be reliably differentiated from those with different personality disorder subtypes and from those who do not have personality disorders. The *DSM-5* currently recognizes 10 specific personality disorder subtypes that represent different patterns of rigid, maladaptive behaviour and inner experience (American Psychiatric Association, 2013). The 10 specific personality disorders are organized into three clusters thought to represent thematic commonalities, although the cluster system has demonstrated poor validity (e.g., Nestadt et al., 2006). Descriptions of the three clusters and a selection of the specific personality disorders within each can be found in Table 1. A nationally representative survey of the categorical personality disorders in the United States suggested prevalence estimates of 5.7% for Cluster A, 1.5% for Cluster B, 6.0% for Cluster C; and 9.1% for any personality disorder (Lenzenweger et al., 2007). To qualify

Table 1*DSM-5 Section II Personality Disorder Clusters with Selected Specific Disorders*

Cluster (cluster description)	Personality Disorder	Key features
A (odd or eccentric)	Schizotypal	Odd thinking, beliefs, or perceptual experiences
	Narcissistic	Grandiosity, entitlement, and lack of empathy for others
B (dramatic, emotional, or erratic)	Antisocial	Violation of and disregard for the rights of others
	Borderline	Instability of relationships, emotion regulation, and identity
C (fearful or anxious)	Avoidant	Social inhibition, hypersensitivity, and feelings of inadequacy
	Obsessive-Compulsive	Scrupulous behaviour in relation to work, finances, and interpersonal relationships

for a personality disorder diagnosis, individuals must exhibit a minimum number out of a set of behavioural criteria across a wide range of situations and over an extended period of time.

This categorical approach to understanding personality disorders has been criticized extensively across the literature (Al-Dajani et al., 2016; Krueger & Eaton, 2010; Morey et al., 2015). These criticisms include the limited support for the purported 10-construct structure (Krueger & Eaton, 2010; Nestadt et al., 2006; Widiger et al., 2005) and evidence of high diagnostic overlap and comorbidity between the categories. For instance, a nationally representative study found that co-occurrence among the personality disorders was extremely high both within and between clusters (Grant et al.,

2005). Evidence of extensive within-subtype heterogeneity has also contributed to criticism. As an example, the diagnostic criteria for borderline personality disorder (BPD) require that individuals exhibit at least five of the nine behavioural characteristics, giving rise to 256 different presentations that would qualify for a diagnosis. One study found that of nearly 1,000 participants with BPD, 136 different combinations of criteria were observed (Johansen et al., 2004). Related to these criticisms is the use of arbitrary diagnostic cut-offs regarding the number of criteria that must be present to qualify for diagnosis (Widiger & Trull, 2007) and overuse of the term ‘personality disorder not otherwise specified,’ a flexible but haphazardly applied category. In a Dutch help-seeking sample, personality disorder not otherwise specified was the second most frequently diagnosed personality disorder, with a prevalence rate of 22% (Verheul et al., 2007). Other criticisms of the system include its poor diagnostic reliability (Clark et al., 1997) and temporal stability (Gunderson et al., 2011; Shea et al., 2002). Taken together, these criticisms indicate that use of the current categorical approach does not sufficiently or accurately describe the range of personality pathology.

Pathological Personality Traits

Given these difficulties, personality researchers have increasingly focused on developing a dimensional trait model of maladaptive personality to account for and extend traditional conceptualizations of personality disorders. These models are typically hierarchical, with more specific facet-level traits loading onto broader trait domains. Across various research groups, support has emerged for models with four to five broad traits at the domain-level, which generally include antagonism, disinhibition, negative emotionality, introversion or detachment, and peculiarity (Krueger & Eaton, 2010). One

early report found that a similar four-factor structure was reproduced across three samples: a clinical group whose primary diagnoses were personality disorders, a general population sample, and a sample of twin pairs (Livesley et al., 1998). Similarly, the results of a meta-analysis supported similar factor structures across personality measures designed for both clinical and nonclinical populations (O'Connor, 2002).

A five-factor dimensional model has also been shown to integrate well with existing models of adult psychopathology, such that a joint factor analysis of acute disorders, dimensional pathological personality traits, and categorical personality disorders folded together to support a five-factor model defined by internalizing, externalizing/disinhibition, psychoticism, antagonism, and detachment factors (Wright & Simms, 2015). Similarly, a consortium of clinical researchers aiming to develop an empirically driven, dimensional classification system of psychopathology called the Hierarchical Taxonomy of Psychopathology, placed a set of factors called 'spectra' at the midlevel of their model, which show strong correspondence with the above-mentioned personality factors (Kotov et al., 2017; Widiger et al., 2019). Specifically, the spectra include detachment, antagonistic externalizing, disinhibited externalizing, thought, and internalizing disorders, with a provisional 6th spectrum of somatoform disorders. Thus, dimensional models of personality pathology are robust across varying sample and measurement strategies, and play an important role in emerging, overarching clinical frameworks.

Alternative DSM-5 Model for Personality Disorders

Section II of the *DSM-5* outlines the diagnostic criteria for formally recognized mental disorders. In contrast, Section III consists of emerging measures and models that

are put forth for additional investigation, but are not recognized as official or stand-alone diagnostic standards (American Psychiatric Association, 2013). In response to advances in research related to dimensional models of personality disorder and the noted criticisms regarding the current categorical system, a dimensional model was originally developed to be the primary diagnostic system for the personality disorders in *DSM-5*. However, this formulation was ultimately not accepted by the American Psychiatric Association Board of Trustees for placement in Section II of the *DSM-5* (Ronningstam et al., 2014; Zachar et al., 2016). As a result, the categorical system from *DSM-IV* was placed unchanged in Section II of the *DSM-5* and the new trait-based model (the ‘alternative *DSM-5* model for personality disorders’) was placed in Section III.

The alternative *DSM-5* model for personality disorders is considered a hybrid model, because it combines aspects of the categorical and dimensional diagnostic systems (Al-Dajani et al., 2016; American Psychiatric Association, 2013). The categorical element reflects that six of the categorical personality disorder subtypes were retained in the new model: antisocial, avoidant, borderline, narcissistic, obsessive-compulsive, and schizotypal, with a flexible trait-specified category to be used when an individual meets the general criteria for a personality disorder but does not align with one of the six recognized subtypes. Thus, diagnostic categories are still utilized under the alternative *DSM-5* model. However, the dimensional aspect of the model is that the descriptive basis of these categorical diagnoses is a set of pathological personality traits, as elaborated below. Thus, a key difference between the categorical and dimensional models of personality disorders is that whereas the traditional personality disorder model posits that the diagnostic categories reflect unique constellations of characteristics exhibited only by

those with personality disorders, the dimensional traits theoretically exist within all people to some extent, but to a greater degree, and in identifiable combinations, within those with diagnosable personality disorders. For instance, an individual could demonstrate high levels of trait disinhibition without qualifying for a personality disorder diagnosis, but if they do so in combination with high levels of negative affectivity and antagonism, this could be indicative of borderline personality disorder (American Psychiatric Association, 2013).

There are two major diagnostic elements in the alternative *DSM-5* model: the individual's personality functioning and their personality style (American Psychiatric Association, 2013; Krueger & Markon, 2014). Personality functioning indexes the level of impairment that is caused by an individual's maladaptive personality style and is conceptualized on a continuum of difficulties in self and interpersonal functioning. These difficulties, which relate to identity, self-direction, empathy, and intimacy, are considered to be common across different personality disorders, although they can vary in their manifestation (Morey et al., 2015). For instance, impairment related to identity development may be expressed as a diminished and unstable self-image for borderline personality disorder, but as an inflated self-image and excessive reliance on others for self-esteem in the case of narcissistic personality disorder (American Psychiatric Association, 2013). In the *DSM-5*, personality functioning is operationalized by a clinician-rated measure called the Levels of Personality Functioning Scale (American Psychiatric Association, 2013). More broadly, impaired personality functioning has been described as the *genus* of personality disorders, such that impairments in interpersonal and identity functioning are common to all personality disorder subtypes (Pincus, 2011).

In contrast, the pathological personality traits are considered to delineate the *species* of personality disorders, describing the unique way in which dysfunction is manifested stylistically (Pincus, 2011). The traits thus represent the descriptive core of the alternative *DSM-5* model (Al-Dajani et al., 2016; American Psychiatric Association, 2013). There are five higher-order trait domains: antagonism, detachment, disinhibition, negative affectivity, and psychoticism, collectively referred to as the pathological personality traits. *Negative affectivity* reflects a general tendency to experience a range of negative emotions, including in behavioural and interpersonal manifestations, at a high frequency and intensity. *Detachment* reflects a pattern of avoidance of interpersonal and emotional experiences, including restrictions in social connection, affective expression, and the ability to experience pleasure. *Antagonism* reflects tendencies to oppose other people, through overly positive self-views; callousness toward, and disregard of, other people; and a sense of entitlement to special treatment. *Disinhibition* reflects impulsive behaviour aimed at immediate gratification at the expense of past learning or future consequences. Finally, *psychoticism* reflects a pattern of odd, eccentric, or unusual behavioural and thought patterns that are culturally incongruent in process and content (American Psychiatric Association, 2013). There are also 25 lower-order trait facets, of which between three and seven load onto each domain, although some facets have been shown to cross-load substantially (Griffin & Samuel, 2014; Watters et al., 2019; Watters & Bagby, 2018). Refer to Table 2 for a summary of the trait domains and facets, and Table 3 for the trait-based conceptualizations of the six categorical personality disorders retained in the alternative *DSM-5* model. A self-report measure called the Personality Inventory for *DSM-5* (PID-5; Krueger et al., 2012) was developed to measure the

Table 2*Pathological Personality Trait Domains and Facets*

Trait domain	Trait facet	Secondary domain loading (if relevant)
Negative affectivity	Emotional lability*	
	Anxiousness*	
	Separation insecurity*	
	Submissiveness	
	Perseveration	
	Hostility	Antagonism
	Restricted affectivity (lack of)	Detachment
Detachment	Withdrawal*	
	Intimacy avoidance*	
	Anhedonia*	
	Depressivity	Negative affectivity
	Suspiciousness	Negative affectivity
Antagonism	Manipulativeness*	
	Deceitfulness*	
	Grandiosity*	
	Attention seeking	
	Callousness	
Disinhibition	Irresponsibility*	
	Impulsivity*	
	Distractibility*	
	Risk-taking	
	Rigid perfectionism (lack of)	
Psychoticism	Unusual beliefs and experiences*	
	Eccentricity*	
	Cognitive and perceptual dysregulation*	

* denotes facets with the highest three loadings for each domain, according to Krueger et al. (2012).

Table 3*Pathological Personality Trait-Based Conceptualization of Personality Disorders*

Personality disorder	Trait facet	Trait domain
Antisocial	Manipulativeness	<i>Antagonism</i>
	Callousness	
	Deceitfulness	<i>Disinhibition</i>
	Hostility	
	Risk taking	
	Impulsivity	
	Irresponsibility	
Avoidant	Anxiousness	<i>Negative affectivity</i>
	Withdrawal	<i>Detachment</i>
	Anhedonia	
	Intimacy avoidance	
Borderline	Emotional lability	<i>Negative affectivity</i>
	Anxiousness	
	Separation insecurity	
	Depressivity	
	Impulsivity	<i>Disinhibition</i>
	Risk taking	
	Hostility	<i>Antagonism</i>
Narcissistic	Grandiosity	<i>Antagonism</i>
	Attention seeking	
Obsessive Compulsive	Rigid perfectionism	<i>Disinhibition (opposite pole)</i>
	Perseveration	<i>Negative affectivity</i>
	Intimacy avoidance	<i>Detachment</i>
	Restricted affectivity	
Schizotypal	Cognitive and perceptual dysregulation	<i>Psychoticism</i>
	Unusual beliefs and experiences	
	Eccentricity	
	Restricted affectivity	<i>Detachment</i>
	Withdrawal	
	Suspiciousness	

pathological personality trait domains and facets.

Investigations with the PID-5 have demonstrated that the pathological personality traits share a substantial amount of variance with measures of the Section II categorical diagnoses, among both normative (Hopwood et al., 2014) and clinical (Yam & Simms, 2014) samples. Personality functioning and style each account for additional variance over the other in predicting corresponding categorical personality disorder subtypes (Hopwood et al., 2014). However, another investigation found that whereas the traits accounted for significant variance over and above clinician-ratings of personality functioning in the prediction of categorical personality disorder diagnoses, the reverse was not true (Morey et al., 2015). As such, the descriptive pathological personality traits of the alternative *DSM-5* model may be particularly important in capturing the traditional personality disorder categories and variation in maladaptive personality more generally.

Relations to Models of Normative Personality

Using a dimensional model for the personality disorders provides increased consistency and correspondence with models of normative personality that have emerged from social and personality psychology like the five factor model (FFM; Costa & McCrae, 1992). Such models posit that much of the variance in normal presentations of personality can be accounted for by a small number of trait domains that vary in level across individuals. The five trait domains of the FFM include (a) *neuroticism*, which captures an individual's propensity to experience negative emotions; (b) *agreeableness*, which reflects friendliness, warmth, and social compliance; (c) *extraversion*, which represents being socially-oriented and gregarious; (d) *openness to experience*, which indicates an orientation toward aesthetics, new experiences, and divergent ideas; and (e)

conscientiousness, which reflects competence, order, dutifulness, and achievement-orientation (Costa & McCrae, 1992b). The FFM, also known as the big five, is one of the most well validated and extensively used models of normative personality (Widiger & Costa, 2012).

The pathological personality trait domains are considered to be maladaptive and extreme variants of the FFM traits, such that antagonism lies in the opposite pole from agreeableness, disinhibition of conscientiousness, detachment of extraversion, with negative affectivity corresponding to neuroticism, and psychoticism to openness to experience (Krueger & Eaton, 2010). There is strong support for the correspondence between these factors, with the exception of a more equivocal link between psychoticism and openness to experience (Al-Dajani et al., 2016; Watters et al., 2019). In one facet-level examination, the FFM openness and PID-5 psychoticism facets aligned with each other (Griffin & Samuel, 2014). Similarly, in a joint factor analysis, a measure of the FFM traits and the PID-5 replicated a five-factor structure as would be expected (Krueger & Markon, 2014). However, a more recent investigation comparing the joint factor analyses of FFM and PID-5 traits found a six factor solution with a separate openness factor in a clinical sample, and a five factor solution without a clear folding of openness with psychoticism in a college sample (Watters et al., 2019). As such, at least four of the five pathological personality traits align with existing, well validated models of normative personality. This alignment allows researchers and clinicians to draw from the extensive literature on the FFM traits in understanding the relevance and correlates of the pathological personality traits.

Personality and Social Behaviour

Personality Disorder Subtypes

Several authors have argued that social interactions represent the most important arena in which personality and associated dysfunction is expressed (Hopwood et al., 2013; Seivewright et al., 2004; Sullivan, 1953). Accordingly, individuals with personality disorders have significantly higher levels of impairment in social relationships than do individuals with major depressive disorder, especially for those with more severe personality disorders, such as borderline and schizotypal (Skodol et al., 2002). Another study showed that individuals with both acute psychopathology and personality disorders had significantly lower scores on social functioning than those with only acute psychopathology, including functioning in close and family relationships (Seivewright et al., 2004). Finally, a recent meta-analysis demonstrated that the personality disorder subtypes have specific, often moderately sized, associations with different forms of social impairment, such that BPD shows the widest range of impairment across parent, family, peer, and romantic relationships; schizotypal, avoidant, and antisocial personality disorders are generally related to peer, parent, and family dysfunction; and obsessive-compulsive and narcissistic personality disorders are inconsistently related to social impairment (Wilson et al., 2017).

Normative Personality

Beyond personality disorder subtypes, literature on the FFM can provide preliminary information about the association between social functioning and personality pathology, given the alignment between the pathological personality traits and the FFM. The FFM traits have shown differential relations to impairment in a clinical sample, with

difficulties in romantic relationships predicted by neuroticism, disagreeableness, and low levels of conscientiousness; occupational impairment by low conscientiousness; and general social impairment by introversion and disagreeableness (Miller et al., 2005). Another investigation showed that neuroticism is linked to broad dysfunction including social impairment, whereas extraversion is negatively associated with social dysfunction (Hopwood, Morey, et al., 2009). Similarly, across both normative and clinical samples, agreeableness and conscientiousness are negatively linked to social impairment, whereas neuroticism and low extraversion are associated with more diffuse impairments beyond just the social domain (Ro & Clark, 2013). Thus, all FFM traits except openness have been linked to social functioning, with neuroticism and low extraversion being especially indicative of social impairment. This is consistent with an early report that showed that neuroticism and extraversion were especially relevant to the categorical personality disorders of *DSM-III* (Wiggins & Pincus, 1989)

Maladaptive Personality

In considering the relations between maladaptive personality and social dysfunction, the distinction between construct and criterion validity is not entirely clear, as pathology is inherent in the traits (Al-Dajani et al., 2016). That is, the pathological personality traits combine elements of both personality style and functioning, as the traits represent extreme or maladaptive variants of normal personality. Accordingly, a recent study examining both elements of the alternative *DSM-5* model found that self-reported traits and impairment had significant overlap, with an average R^2 of .57, although this was dramatically reduced when both elements were reported by informants (Lim et al., 2019). Another study statistically separated the style and impairment elements of similar

maladaptive personality traits and found the stylistic elements significantly improved the prediction of current and prospective dysfunction, over and above a global severity index (Hopwood et al., 2011). As such, despite their significant overlap with personality impairment more generally, pathological traits may be particularly important for understanding how personality affects social behaviour. A study of maladaptive personality traits that were similar to the pathological personality traits of the alternative *DSM-5* model found that the traits were able to predict daily ratings of dysfunction, including social impairment, over and above baseline levels of dysfunction (Calabrese & Simms, 2014). Additionally, a recent longitudinal study of the relation between the PID-5 traits and psychosocial functioning demonstrated that baseline PID-5 scores were robust predictors of later functioning, with the strongest associations between the PID-5 facets and interpersonal problems (Wright, Calabrese, et al., 2015).

Elucidating the connections between the pathological personality traits and patterns in social behaviour – particularly those associated with interpersonal dysfunction – represents an important form of validation for the pathological personality traits and alternative *DSM-5* model. Given the reviewed literature, one would expect the pathological personality traits to be strongly associated with social behaviour, and to each demonstrate unique interpersonal styles that align with the broader research on pathological personality and interpersonal impairment. However, to date, research on this connection has typically assessed general trends in social behaviour and interpersonal impairment using broad questionnaires or measures of global functioning, rather than through ecologically valid measures of how participants behave in real situations. As such, this study seeks to fill this gap in the literature by examining how the pathological

personality traits relate to real-world social behaviour, using multiple methodological perspectives.

Interpersonal Theory and the Interpersonal Circumplex

An especially well validated view of social behaviour comes from interpersonal theory (IPT), first outlined by Sullivan (1953) and later extended into the interpersonal circumplex (Kiesler, 1983; Leary, 1957; Wiggins, 1996). The interpersonal circumplex posits that social behaviour can be described in terms of two uncorrelated dimensions of communion and agency (Wiggins, 1991). Communion involves strivings to be part of a social group, with motivations toward connection and intimacy with others. Agency reflects desire to be a unique and differentiated individual, with orientations toward power and mastery over others (Hopwood et al., 2013; Kiesler, 1983). The two dimensions also feature in several other independently-developed models of behaviour, including Freud's drive model that emphasizes the basic human motivations of sex and aggression (Gifford & O'Connor, 1987). As will be elaborated below, the FFM traits of extraversion and agreeableness sit at a 45° rotation from the primary circumplex axes (Schmidt et al., 1999; Widiger, 2020). The circumplex dimensions are also reminiscent of Eysenck's (1947) early theory of personality which emphasized extraversion and neuroticism as fundamental traits, and Galen's humours, which have been formulated to represent combinations of extraversion and stability (Stelmack & Stalikas, 1991).

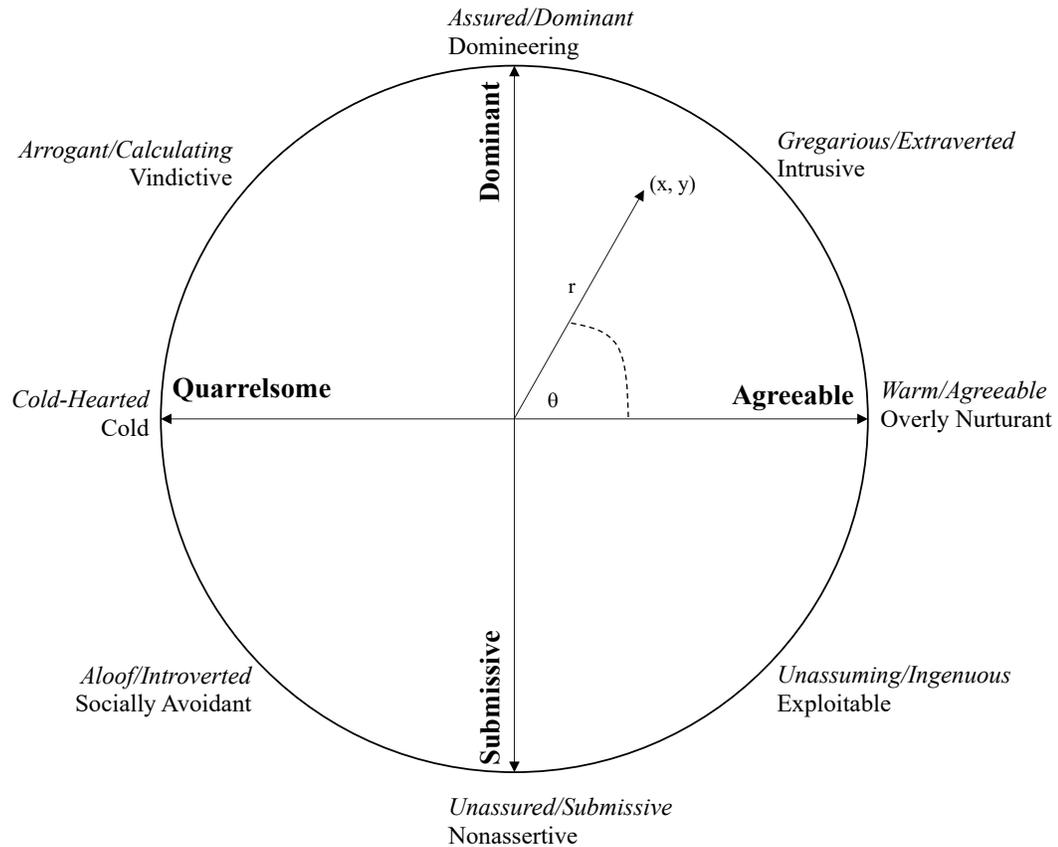
Agency is typically described as a continuum ranging from submissive to dominant behaviour (Hopwood et al., 2013; Moskowitz, 1994; Wiggins, 1991). Differing terminology has been used to refer to the span of the communion dimension. Some investigators define the range as spanning from hostility to friendliness (e.g., Gurtman,

2009), whereas others refer to the poles as cold-heartedness and warm-agreeableness (e.g., Ansell & Pincus, 2004). The terminology used by Moskowitz (1994), wherein communion is defined by the poles of quarrelsome versus agreeable behaviour, will be used herein. Quarrelsomeness is considered by Moskowitz to be a less extreme variant of cold-hearted behaviour, thus reflecting behaviours with a higher base rate in the general population (Moskowitz et al., 2009).

These dimensions intersect to create a circular framework such that social behaviour can be described in terms of both dimensions (refer to Figure 1). The two-dimensional arrangement of the circumplex allows behaviour to be plotted in a Cartesian (x, y) coordinate plane, with agentic behaviour plotted on the vertical plane and communal on the horizontal plane. Thus, plotting a behaviour in terms of both dimensions produces a single vector starting at the origin of the circumplex, which is defined by both its direction and its length (Moskowitz & Zuroff, 2004). The length of the vector is denoted with “r,” represents the distance of the plotted behaviour from the circumplex origin, and provides information about the extremity or intensity of the behaviour. Behaviour that is farther from the origin represents more extreme behaviour. The angular displacement from the horizontal axis, represented with the symbol “ θ ”, indicates the overall style or predominant theme of the behaviour, reflected in the location of the behaviour on the circumplex (Hopwood et al., 2013; Moskowitz & Zuroff, 2004). Behaviour can thus vary in terms of its angular displacement (*viz.* predominant interpersonal theme), vector length (*viz.* extremity), and alignment with the poles of the circumplex (*viz.* specific level of dominant, submissive, agreeable, and quarrelsome behaviour) both across and within individuals.

Figure 1

Interpersonal Circumplex with Various Names for the Poles



Note. Bolded pole names are from Moskowitz (1994). Italicized pole names are those used in the Revised Interpersonal Adjectives Scale by Wiggins, Trapnell, and Phillips (1988). Normal font pole names are from the Inventory of Interpersonal Problems – Circumplex measure by Alden et al. (1990). “r” denotes the length of the vector, and “ θ ” denotes the angular displacement.

Relations to Personality

Various studies have shown that personality disorder features relate meaningfully to the interpersonal circumplex. An early study demonstrated that the *DSM-III*

personality disorder subtypes projected significantly onto the interpersonal circumplex (Wiggins & Pincus, 1989). For instance, schizoid and avoidant disorders were in the quarrelsome-submissive quadrant, whereas antisocial and narcissistic disorders were in the quarrelsome-dominant quadrant. Similarly, self- and informant-ratings of categorical personality disorder criteria have shown substantial overlap with interpersonal difficulties defined in terms of the interpersonal circumplex (Clifton et al., 2005). A more recent meta-analysis of the relations between personality disorders and social behaviour showed that several of the personality disorder subtypes retained for the alternative *DSM-5* model have significant interpersonal themes, with the associations ranging from modest ($\rho = .20$) to large ($\rho \geq .50$; Wilson et al., 2017). For example, avoidant personality was associated with submissive and quarrelsome behaviour, schizotypal personality disorder was linked primarily to quarrelsome behaviour, and BPD correlated with a wide range of interpersonal behaviour.

Moving from personality subtypes to traits, authors have shown that FFM extraversion and agreeableness align with agreeable-dominant behaviour and agreeable-submissive behaviour, respectively (Schmidt et al., 1999; Widiger, 2020). Although the other FFM traits have been conceptualized as primarily intrapersonal, Schmidt et al. (1999) also found neuroticism was experienced interpersonally as quarrelsome and submissive, and openness and conscientiousness were aligned with perceptions of agreeable behaviour. To date, three studies have examined the relations between the pathological personality traits of the alternative *DSM-5* model and social behaviour as defined by the interpersonal circumplex. Wright, Pincus, et al. (2012) found that although most of the traits were linked to general interpersonal distress, specific associations were

found for some trait facets, including antagonistic facets being linked to dominant and quarrelsome social behaviour. In contrast, facets of negative affectivity, such as anxiousness and perseveration, were associated with more diffuse patterns of social impairments. In a clinical sample, negative affectivity demonstrated uniform correlations around the circumplex, whereas antagonism, disinhibition, and psychoticism correlated most strongly with dominant behaviour, and detachment aligned with quarrelsome behaviour (Williams & Simms, 2016). Southard et al. (2015) reported that the PID-5 trait domains generally aligned more with quarrelsome than agreeable behaviour, with negative affectivity, psychoticism, and detachment also aligning with submissiveness. As such, the pathological personality traits have demonstrated meaningful associations with behaviour defined by the interpersonal circumplex, with overall tendencies toward low communion strivings.

Patterns in Social Behaviour

It is important to measure social behaviour in a way that captures both its stability and fluctuations over time. For instance, some authors have argued that although personality pathology may not be as stable as initially thought, the functional impairment of those with personality disorders is the most stable aspect of the syndrome (Gunderson et al., 2011; Skodol et al., 2005). However, a further inference drawn from the interpersonal circumplex is that adaptive interpersonal functioning requires individuals to adjust their behaviour according to what is occurring in the interaction. The circumplex theory outlines general laws of complementarity between partners' respective alignment with the dimensions of the circumplex. These laws dictate *reciprocity* for the agency dimension, such that dominant behaviour in one partner begets submission from the

other, whereas *correspondence* is adaptive for communion such that agreeable behaviour engenders agreeable behaviour from the partner (Kiesler, 1983). Interpersonal behaviour that violates or deviates from these normative patterns are considered signs of maladaptive interpersonal functioning (Hopwood et al., 2013). In order to fully capture the utility of the interpersonal circumplex, social behaviour should be measured in a way that can provide estimates of both stable trends and variability in social behaviour, which could represent violations of the general laws of adaptive social behaviour.

Intensive Repeated Measures in Naturalistic Settings

Intensive repeated measures in naturalistic settings (IRM-NS; Moskowitz et al., 2009; Moskowitz & Sadikaj, 2011) is an umbrella term that refers to a class of assessment tools that emphasize measurement of the same construct at multiple times and in multiple ecologically valid settings. The term *ecological momentary assessment* (Shiffman et al., 2008; Stone & Shiffman, 1994) has also been used to describe this class of tools, but Moskowitz and colleagues (2009) argued that the term is too restrictive to be adequately applied to measures like daily diaries, which may not qualify as ‘momentary.’ These procedures are also called the *experience sampling method* (Csikszentmihalyi & Larson, 1987) or *ambulatory assessment* (Fahrenberg et al., 2007), and these terms are often used interchangeably despite being products of different research traditions (Trull & Ebner-Priemer, 2009). IRM-NS procedures share the following common elements: multiple assessments of the same construct are taken over time, the data are collected in real-world situations, and individuals typically report about their current or near-current experience (Moskowitz et al., 2009; Shiffman et al., 2008; Trull & Ebner-Priemer, 2009).

IRM-NS protocols have been used to measure constructs such as behaviour, mood, and thoughts, and are viewed as particularly important for phenomena that vary over time.

IRM-NS procedures stand in contrast to one-time, retrospective assessment measures like questionnaires or interviews, as well as to ratings or observations made in laboratory situations. There are many biases that can influence retrospective recall (Bradburn et al., 1987), but the use of IRM-NS protocols can limit these biases by measuring individuals' states when they actually occur, rather than having participants give global estimations of their general tendencies or recall their past experiences (Moskowitz et al., 2009). Accordingly, empirical studies have demonstrated that data resulting from IRM-NS procedures have only modest overlap with questionnaire data of the same construct (Fleeson & Gallagher, 2009). Additionally, although the use of laboratory paradigms allow for objectively recording individuals' behaviour in response to situations of interest, it is unlikely that the entire range of situations an individual might encounter or range of behaviours they might exhibit would be adequately represented by such artificial scenarios (Moskowitz et al., 2009). In contrast, IRM-NS allows data to be gathered on behaviour or states as they occur in a participant's everyday life, providing both greater specificity in the behaviours that are sampled, as well as enhanced generalizability to every-day situations.

Depending on the interval between measurements and the duration of the IRM-NS period, a large amount of data can be gathered for each participant. Thus, another benefit of IRM-NS is that the resulting data can be used to examine phenomena at the within-person level, such as the change in an individual's standing on a construct over time, or it can be aggregated into various summary scores and compared between participants.

Some of the challenges that have been identified with IRM-NS include reactivity, wherein the phenomenon under study changes as a result of the repeated attention and measurement; compliance issues; and potentially distinguishing features of the types of individuals who sign up for and complete these rather intensive procedures (Shiffman et al., 2008). This final point could be particularly relevant for studies seeking to examine clinical phenomena wherein the sample may demonstrate dysfunction that would prevent them from volunteering for, or adequately completing, an IRM-NS procedure. However, previous investigations have successfully used IRM-NS with clinical samples, including the measurement of daily social behaviour in a sample of individuals with BPD (Russell et al., 2007), indicating that these designs can be tailored for use with various populations.

An important aspect of any IRM-NS protocol is the sampling method used to initiate the measurements of the phenomena of interest. Different sampling methods exist, including time-contingent designs wherein participants report at fixed intervals, signal-contingent designs wherein participants are prompted to report at randomly selected times, and event-contingent designs wherein participants are instructed to make a report after a pre-specified event has occurred (Moskowitz et al., 2009). Event-contingent designs are best suited for phenomena that have distinct beginnings and endings, which may not align meaningfully with fixed or random intervals (Moskowitz & Sadikaj, 2011). Himmelstein et al. (2019) compared signal and event-contingent designs in an IRM-NS study of social behaviour and found that the designs were largely equivalent in terms of data quality. They found that participants reported more interactions in the event-contingent procedure than the signal-contingent design, with a medium to large effect

size. In terms of response latency, those in the signal-contingent condition responded significantly faster, although the raw difference was only about two minutes. Thus, event-contingent designs appear to be appropriate for use in IRM-NS protocols of social behaviour.

The current study used an event-contingent IRM-NS procedure in the measurement of social behaviour as outlined by the interpersonal circumplex, largely following the Social Behaviour Inventory procedure (Moskowitz, 1994; Moskowitz et al., 2009). This method of assessment was chosen for several reasons, many of which relate to the benefits of IRM-NS outlined above. Specifically, taking repeated measurements of an individual's social behaviour in real-world settings and then aggregating these measurements into a summary mean score was expected to provide reliable, valid, and generalizable estimates of that individual's trait levels of social behaviour (Moskowitz et al., 2009; Shiffman et al., 2008). A second consideration was the methodological differences between questionnaire measures and the data resulting from IRM-NS procedure. As will be reviewed below, shared method variance between predictor and outcome variables represents an important challenge in examining the relations of personality traits to estimates of functioning. Fleeson and Gallagher (2010) present compelling evidence regarding the distinctiveness of data gathered through IRM-NS procedures as compared to questionnaires. As such, an IRM-NS procedure was used to limit the amount of shared method variance between the pathological personality traits and social behaviour outcome variables. Finally, as reviewed above, such intensive measurements allow for examinations of within-person phenomena, such as the amount of variability in social behaviour an individual exhibits over time and across different

situations. These indices of within-person variability form the basis of the second major perspective on the relations between personality and social behaviour that was examined in this study.

CHAPTER II
PREDICTIVE VALIDITY OF SELF- VERSUS INFORMANT-REPORTS OF
PERSONALITY

How valid is one's own description of their personality? Many of us can probably think of an example in which another person's perception of themselves does not align with how we view that person. Whose perspective is more useful in knowing how that person will actually behave? On one hand, our internal experiences and thoughts are accessible only to us. On the other, the people who know us well can potentially observe our external behaviour with greater objectivity and distance, which could make their descriptions more accurate to the real world. Do the answers to these questions change if aspects of our personality put us at odds with other people or are otherwise not so flattering to think about? These questions form the basis of the first perspective from which the relations between the pathological personality traits and social behaviour will be examined: comparing the validity of self- versus informant-reports of personality in predicting social behaviour.

The assessment of personality disorders and maladaptive personality traits has traditionally relied primarily on self-reported information from the individual whose personality is in question (Bernstein et al., 1997). Similarly, laypeople generally believe that self-ratings of daily behavioural patterns are more accurate than are ratings from other people (Vazire & Mehl, 2008). These findings suggest a collective belief that the self has privileged information over observers, with greater opportunity to observe oneself and access to private, internal experiences. However, the ability of those with personality impairment to validly report on their own traits and functioning has been

called into question. For instance, concerns have been raised about the influence of factors such as comorbid depressive mood states, traits such as paranoia, and social desirability on reporting (Bernstein et al., 1997). Other authors have questioned whether those with disordered personalities have sufficient insight to understand the interpersonal impact of their behaviour (Cooper et al., 2012). Moreover, empirical research has demonstrated reliable 'blind spots' in self-perception, such that there are elements of an individual's personality that informants agree upon, but of which the individual in question demonstrates no awareness (Gallrein et al., 2016). These concerns align with bodies of literature referred to as interpersonal perception (Kenny, 1991) or person perception (Funder, 1995); both seek to understand the correspondence of, and divergence between, self- and informant-perspectives of attributes such as normative personality. These literatures have given rise to multiple theories about the factors that influence accurate and useful perception of others' personality traits.

Theoretical Perspectives of Informant-Reports of Personality

Funder's (1995) realistic accuracy model (RAM) is rooted in the assumption that personality traits are meaningful constructs that represent real characteristics. This view is contrasted with both the constructivist perspective, which argues that traits are simply social constructions with little objective meaning; and the pragmatist perspective, which argues that traits are solely means to navigate the social environment, rather than useful ends in and of themselves. Funder (1995) argued that assuming that traits are real suggests that (a) evaluating the accuracy of personality judgments requires consideration of a wide range of criteria including consensus among multiple informants, self-informant agreement, and behavioural predictions, and (b) a complex process of

perception must take place for an informant to make an accurate judgment of another person. This process begins with a trait having a behavioural component or effect; information that is *relevant* to the trait must be produced. Next, that behaviour and its trait-relevant information must be *available* to the informant, such that it is not concealed or altered. The behaviour must be *detected* by the informant and *correctly utilized* to make an inference about the trait.

Funder (1995) also discussed the properties of 'good traits,' or those which informants are most likely to perceive correctly. Funder posited that traits that are highly observable (i.e., relevant and available) to the informant through behavioural referents would be more accurately perceived than traits with low visibility. Extraversion is an example of a highly observable trait, whereas neuroticism and openness to experience are less visible. Traits laden with social value are also relevant to accurate perception under the RAM, as targets are more likely to enhance desirable traits and conceal undesirable traits, thus making genuine cues less available to observers. Thus, traits that are less evaluative, such as extraversion, are more likely to be correctly perceived than more evaluative traits, including agreeableness and aspects of openness to experience, like creativity and intellectualism. Through these factors, the RAM seeks to explicate the ways in which informants come to develop accurate knowledge about targets, based on attributes of both the perceiver and the perceived.

More recently, Vazire (2010) put forth the self-other knowledge asymmetry (SOKA) model to explain and predict the situations in which the self may be more knowledgeable than external raters and vice versa. This model builds upon Funder's (1995) RAM, which focuses exclusively on informant-reports, to explain self-informant

differences in knowledge about the target individual. The SOKA model has two main postulates extending from the RAM. The first relates to the observability of the traits and suggests that the target is likely to have *much more* accurate information about internal, unobservable traits such as neuroticism, whereas informants are likely to be *slightly* more accurate for externally observable traits such as extraversion. The second postulate is that traits that are socially evaluative, such as openness to experience, are likely to be more accurately perceived by informants, as targets are motivated to view themselves as higher on socially desirable traits and lower on socially undesirable traits through unconscious self-esteem promoting biases. The SOKA model can thus provide a framework to understand the situations in which informant-reports provide critical information over and above self-reports, including for ratings of pathological personality traits.

Normative Personality

Self-Informant Agreement and Moderators Thereof

Correlations between self- and informant-ratings of normative personality traits tend to be moderate, ranging between .30 and .60 (Connelly & Ones, 2010; Ganellen, 2007; Miller et al., 2005; Ready et al., 2000; Vazire & Carlson, 2010), indicating that the perspectives overlap to some extent, but not so much so that they are redundant with each other. In general, self-other agreement is higher for ratings of personality traits than of affective experiences, as traits have more stable, visible, and easily detected qualities compared to the more private, internal experience of emotions (Watson et al., 2000). Additionally, the results of a recent meta-analysis demonstrated that although self- and informant-reporters do not perfectly coincide, there is no evidence of significant mean

differences between the perspectives on normative personality traits, as the average δ at the trait domain level was $-.038$ (Kim et al., 2019).

There is a general consensus in the literature that highly observable traits yield the highest self-other agreement (Ganellen, 2007), as would be expected by the SOKA model. For instance, Paunonen and Kam (2014) found that roommates' ratings had higher agreement with targets' self-ratings for traits that were more behaviourally-based, compared to those that were attitudinal or belief-based. Indeed, the results of a meta-analysis indicate that consensus among external raters and self-other agreement is highest for extraversion but lower for neuroticism, openness, and agreeableness (Connelly & Ones, 2010). These findings are also largely consistent with hypotheses about the influence of trait evaluativeness. Agreeableness and aspects of openness are considered evaluative traits and accordingly give rise to lower agreement than extraversion. Similarly, informants have been shown to demonstrate more accurate perceptions of targets on evaluative traits such as creativity and intelligence than targets themselves (Vazire, 2010). However, an early study provided evidence of a more prominent self-enhancement bias in individuals with narcissistic traits, suggesting that some individuals are more prone to adjust their behaviour on the basis of trait evaluativeness (John & Robins, 1994). As such, there appears to be stronger evidence for a pervasive influence of trait visibility on self-informant agreement, whereas the proposed mechanism behind the influence of trait evaluativeness (viz. self-protective biases on socially desirable and undesirable traits) may be moderated by other characteristics, such as narcissism.

Beyond qualities of the trait being rated, self-other agreement can also be influenced by qualities of the person giving the informant rating, such as their level of

acquaintanceship with the target. For instance, self-perception aligns more closely with spousal ratings than ratings by friends or roommates (Vazire & Carlson, 2010). Similarly, the level of acquaintance has been shown to predict self-other agreement in ratings of FFM traits (Starzyk et al., 2006). However, the influence of acquaintanceship on self-other agreement appears to interact with the particular trait being rated. For instance, a laboratory study found that self-other agreement increased as external raters had more time to observe their targets, but the effect was only strong for the most visible traits (Blackman & Funder, 1998). In contrast, the results of a meta-analysis indicate that the advantages of relationship intimacy on agreement is particularly pronounced for low visibility traits, including neuroticism and openness (Connelly & Ones, 2010). These results are consistent with other evidence of higher agreement as acquaintanceship increases, particularly for neuroticism (Watson et al., 2000), and suggest that more intimate relationships afford increased access to privileged internal, and possibly socially undesirable, information. Other authors have suggested that whereas acquaintanceship alone does not interact with trait evaluativeness, emotional investment in the relationship may be particularly influential, as intimate partners come to share ego-protecting biases (Vazire, 2010).

Acquaintanceship is related to, but distinct from, trust, which is defined as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another” (Rousseau et al., 1998, p. 395). Trust is a separate dimension from distrust, with the former related to confidence in positive expectations and the latter to confidence in negative expectations (Lewicki et al., 2006). As such, a single relationship can be characterized in terms of both trust and

distrust. Trustworthiness reflects qualities of the person who may be trusted, and generally captures characteristics such as reliability, consistency, loyalty, and authenticity (Govier, 1998). All three concepts have implications for informant knowledge of others. For instance, trust is likely to be critical for informants to gain access to traits of low visibility and high evaluativeness. Violations of trust perpetrated by targets can give rise to informant distrust and provide informants with memorable socially evaluative information, as such violations are unlikely to be forgotten (Govier, 1998). Finally, trustworthiness is most related to the FFM trait of conscientiousness, with consistency and dependability facilitating the development of trust and thus greater vulnerability within relationships.

Taken together, findings from the field of interpersonal perception suggest that the overlap between self and informant ratings of normative personality is generally moderate. Moderator analyses indicate that this agreement varies according to the characteristics of the traits being rated, with trait observability being particularly important. The relationship between the target and informants is also important, with greater acquaintance and trust likely providing access to more privileged traits. Most importantly for the current study, the divergence between self and informant reports of personality leaves open the possibility that each perspective is differentially related to important correlates, including social behaviour. As a function of their access to different information, the relative predictive power of self- versus informant-reports of personality likely varies according to the characteristics of the trait being rated.

Prediction of Behavioural Outcomes

Only a small number of studies have directly compared the predictive validity of self- and informant-reports of normative personality. This may stem, in part, from the difficulty in selecting an appropriate criterion against which to judge self-ratings (Vazire & Carlson, 2010), due to the lack of objective, real-world criteria for outcomes of interest. This relates to the problem of *method variance* in such designs. For instance, using questionnaires to assess both personality and outcome variables introduces a confound to their true association: similarity due the simple fact that both were measured with the same type of assessment tool (Antonakis et al., 2010; Campbell & Fiske, 1956).

Some studies have addressed the problem of method variance by designing experimental laboratory situations wherein behaviour can be independently coded and used as an outcome. However, laboratory studies of the predictive validity of self- versus informant-reports have produced contradictory results. One investigation found that self-reported extraversion had stronger associations with researcher-ratings of daily emotions and agreeable behaviour, such as expressing warmth and being talkative, than informant-reported extraversion did (Spain et al., 2000). In contrast, a comparison of self- and informant-rated FFM traits showed that informant-reports were superior to self-reports in predicting laboratory behaviour coded to represent nervous withdrawal, intellect, domineeringness, and heterosexuality (Kolar et al., 1996). Although the effect was not large, the ratings of a single acquaintance were consistently more predictive than self-ratings.

A non-laboratory study used an Electronically Activated Record (EAR) approach to collect daily recordings of ambient sounds, which were coded into different forms of behaviour and used as a criterion (Vazire & Mehl, 2008). The investigation found that self- and informant-ratings of daily behaviour were approximately equal in their average accuracy, although self-ratings were more accurate for some actions, such as arguing, and informant-ratings were more accurate for others, such as talking one-on-one. The authors concluded that although self- and informant-reports are equally accurate, both provide unique predictive validity. The use of the EAR technique represents one strategy to manage method variance between the predictor and criterion variables that goes beyond artificially created laboratory situations to emphasize external validity and generalizability. Using an aggregated and naturalistic approach is likely to help address the difficulty of method variance and provide an ecologically valid measure of daily tendencies.

Overall, the results of a meta-analysis indicated that informant-reported personality is consistently superior to self-report at predicting outcomes such as academic achievement and job performance, with informant-reported conscientiousness and neuroticism being particularly strong predictors (Connelly & Ones, 2010). The authors report that, for many traits, adding informant-ratings significantly increments the amount of variance in performance that is accounted for, over self-report ratings. Overall, studies of normative personality support the notion that informant- and self-reports each provide incremental information in predicting behavioural outcomes, but it is not yet clear in which situations one source is more useful than the other.

Extension to Pathological Personality Traits

Agreement

Self-informant agreement about personality disorder characteristics is similar to agreement about normative personality, though often with a wider range across facets. Several studies have demonstrated poor agreement between informant and patient interviews of categorical diagnoses (Bernstein et al., 1997; Dreesen et al., 1998; Riso et al., 1994). The results of a meta-analysis revealed that measures of categorical personality disorders demonstrate only modest self-other agreement, with a median kappa of .14 (Klonsky et al., 2002). The same report showed that agreement was equivalent for interview and questionnaire-style measures, but higher for dimensional approaches than categorical personality disorders.

In a sample of individuals with personality disorders, self-informant agreement on questionnaire measures of FFM traits ranged from $r = .23$ (agreeableness) to .71 (openness to experience), whereas agreement on categorical personality disorders reported through interviews ranged from .37 (avoidant) to .69 (antisocial; Miller et al., 2005). In terms of maladaptive personality traits, one study found that self-informant agreement was lowest for constructs such as mistrust, manipulation, and entitlement (Ready et al., 2002). Moreover, agreement fell across a wider range for subscales measuring maladaptive personality (r s ranging from -.02 to .61), than for FFM traits (r s from .27 to .47). An investigation using a different set of maladaptive personality traits showed modest self-informant correlations (r s ranging from .04 to .37), with an average concordance of $r = .21$ (Yalch & Hopwood, 2017).

Evidence regarding agreement between self- and informant-reports of the pathological personality traits measured by the PID-5 has begun to accumulate. In the initial development of the PID-5-Informant Report Form (PID-5-IRF; Markon et al., 2013), correlations between self- and informant-reports of the trait domains ranged between .38 for psychoticism and .62 for disinhibition. A meta-analysis of eight published studies found the highest agreement to be for disinhibition at $r = .53$ and the lowest for psychoticism at .33 (Oltmanns & Oltmanns, in press). However, across recent studies, the relative rankings of the trait domains in terms of self-other agreement have been quite variable. For instance, of five recent studies, two found the highest agreement for detachment, with r s of .45 (Bottesi et al., 2018) and .40 (Lim et al., 2019), whereas two others found the highest agreement for disinhibition with r s of .57 (Carnovale et al., 2019) and .61 (Samuel et al., 2018). Additionally, although one study found the highest agreement for antagonism at .40 (Sleep et al., 2019), two others found that antagonism had the lowest agreement of the five trait domains (Bottesi et al., 2018; Carnovale et al., 2019). Overall, these studies demonstrate that, as with normative personality, the perspectives of self- and informant-raters do not align perfectly, indicating that both may provide useful information about the person being rated.

Uniqueness of Information from Informants

The moderate level of self-informant agreement on maladaptive personality traits raises the question of whether (a) informant-reports simply capture a subset of the useful variance provided by self-reports, or (b) self and informant perspectives each contain unique information. In an investigation of self- and informant-reports of trait facets related to narcissistic personality disorder, Cooper and colleagues (2012) found that

although self-informant agreement was quite low, informants were more sensitive to the presence of narcissism, better able to identify narcissism at lower levels of the latent trait, and more likely to endorse increased levels of narcissism in the target than the individuals themselves. A similar study showed that informant raters of BPD symptoms were more likely to endorse higher levels of symptomology and that their ratings were more strongly related to a general BPD factor than self-reporters (Balsis et al., 2018). Moreover, comparable factor structures have been found for self- and informant-report versions of a measure of normative and maladaptive personality traits, indicating that informant-reports do not appear to sacrifice factor structure complexity, despite theoretically having access to less information than self-reporters (Nuzum et al., 2019).

Other studies have examined whether the perspectives differ in the overall amount of pathology reported. An earlier study showed that informant interviews for categorical personality disorder subtypes yield unique information and often report less pathology than patients (Dreessen et al., 1998). These findings are consistent with those demonstrating that patient interviews typically yield higher overall rates of diagnosis than those of informants, although certain traits such as passive aggressive tendencies are reported at higher rates by informants (Riso et al., 1994). However, a more recent meta-analysis of 17 studies showed that the overall literature is inconclusive regarding whether informants or targets report higher levels of pathology, with some studies showing higher target self-reports, but others higher informant-ratings (Klonsky et al., 2002).

Several recent examinations have compared the mean levels of self- and informant-reported traits on the PID-5 specifically, with inconsistent results. For instance, Sleep et al. (2019) found that targets rated themselves significantly higher on the PID-5

traits than did their informants. Similarly, self-ratings of clients have been found to be higher than those of their therapists, with the largest differences for the facets of psychoticism (Samuel et al., 2018). However, another study found that informants tended to rate their targets slightly higher than targets rated themselves, although the difference was not significant for negative affectivity, psychoticism, and detachment (Carnovale et al., 2019). The mean-level discrepancy between target- and informant-reports increased as the target's underlying level of personality pathology increased, but this interaction was not observed for correlational agreement. Regardless of whether they result in lower overall reported pathology, these findings provide support for the uniqueness and incremental validity of informant-reports of personality, including for maladaptive traits such as narcissism.

Moderators of Agreement

In the initial development of the PID-5-IRF, self-other concordance was highest for domains that are highly observable, such as antagonism and disinhibition (Markon et al., 2013). These results are largely consistent with the meta-analysis reviewed above, which found the highest agreement for disinhibition and detachment (Oltmanns & Oltmanns, in press). In an investigation of a different set of maladaptive traits, Yalch and Hopwood (2017) found that characteristics such as unusual beliefs and experiences, fantasy proneness, and cognitive problems were less visible and less 'rateable' by informants than were other traits, and therefore yielded lower agreement. In contrast, more overt traits such as emotional distress were more easily rated by informants. Another investigation of trait rateability as perceived by participants found that the most difficult traits to rate included mistrust, eccentric perceptions, and entitlement, which had low

self-informant agreement (Ready et al., 2000). Taken together, the evidence suggests that trait visibility is particularly pertinent to the accuracy of informant-ratings of maladaptive personality traits.

However, the influence of trait evaluativeness appears to be less straightforward. One investigation of maladaptive personality traits found that the participant-rated social desirability of the traits was unrelated to self-informant agreement (Ready et al., 2000). Several authors have questioned the relevance of trait evaluativeness in this context, noting that the maladaptive personality traits are all evaluative to some extent (Yalch & Hopwood, 2017). Similarly, others have suggested that what constitutes an evaluative trait may be hard to define in these populations, as someone who displays callousness or lack of empathy may be less likely to bias their displays of undesirable traits, as a direct result of their disregard for others' concerns (Krueger & Markon, 2014). In their discussion of the PID-5-IRF, Markon and colleagues (2013) acknowledge the theoretical relevance of a trait's social desirability to self-other agreement. However, they note that the influence of trait evaluativeness may not be straightforward in the context of these traits, as the socially undesirable nature of traits like antagonism may be overridden by the disregard that highly disagreeable individuals have for conforming to social norms. Still, an empirical study found that self-reports of FFM traits were better able to capture variance in categorical personality disorder scores than informant reports for disorders with low observability and evaluativeness, whereas informant reports were better predictors of externalizing/antagonistic disorders – which are high in both observability and evaluativeness – compared to self-report (Carlson et al., 2013).

Trust, distrust, and trustworthiness are likely to be differentially related to informant perspectives of the pathological personality traits. For instance, negative affectivity reflects sensitive inner experiences that are unlikely to be shared without a basis of trust. However, other traits may cause relationships to be defined by a lack of trust. One of the fundamental ways that interpersonal trust develops is through repeated and multifaceted interactions (Lewicki et al., 2006). However, detachment is defined by a separation from, and lack of interest in, others, thus making relationships unlikely to develop beyond baseline levels of trust. Antagonism is most relevant to the distrust dimension; those high in antagonism lack the consistent goodwill and mutual positive treatment that form the foundation of trust. Moreover, violations of individuals' expectations of goodwill are memorable to them (Govier, 1998), so informants may have retrievable and relevant information about others' antagonism. Conversely, targets' psychoticism may cause them to be distrustful of potential informants, preventing informants from gaining information. Finally, the qualities that form trustworthiness such as dependability, consistency, and reliability (Govier, 1998), seem to be at odds with disinhibition, which reflects impulsivity and gratification-driven behaviour. However, a high level of trait disinhibition could give rise to 'predictable unpredictability,' leading informants to trust that targets will present with characteristic impulsivity or to approach them with a healthy skepticism.

Acquaintanceship is also likely to moderate agreement; one study showed that the kind of relationship between target and informant was related to agreement for nearly two thirds of the traits examined (Yalch & Hopwood, 2017). For instance, romantic partners agreed most with targets for trait relationship insecurity, hostile aggressiveness, and

rudeness; mothers agreed most with targets for cognitive problems and irresponsibility. Taken together, research on moderators of self-other agreement of maladaptive traits indicate an important effect of trait visibility, more varied perspectives regarding trait evaluativeness, and differential effects of acquaintanceship and trust based on the traits being rated. For instance, greater acquaintanceship and trust is likely to provide privileged access to more internal traits such as negative affectivity but may be difficult to build when the target has high levels of antagonism or psychoticism.

Prediction of Social Behaviour

Several investigations have examined the associations between informant-reported maladaptive personality traits and target social functioning, with varying results. In a sample with significant personality pathology, informant-rated FFM traits predicted expert consensus ratings of romantic and social impairment, whereas these outcomes were not significantly related to self-reported personality (Miller et al., 2005). Another study found that trait antagonism was most consistently associated with psychosocial functioning when both were reported by informants, and that informant-rated antagonism was superior to self- and interviewer-ratings in predicting a global functioning composite score that combined functioning scores from all three rating sources (Ro et al., 2017). A third study found that informant-reported personality was a much stronger predictor of target-reported social adjustment at seven years follow-up, than was self-reported personality, and that this result held for both categorical and dimensional personality disorder conceptualizations (Klein, 2003). As a result of these impressive findings, several authors have suggested that informant-reports may be particularly useful in predicting functional impairment, especially in terms of interpersonal sequelae.

Although less dramatic than the findings just reviewed, several studies have demonstrated that whereas self-reported personality significantly predicts outcomes such as global health status and social functioning, informant-reports account for significant additional variance over and above self-ratings of personality (Balsis et al., 2015; Oltmanns et al., 2002; Ready et al., 2002). However, other studies have shown less robust associations. In a Singaporean sample, informant-reported pathological personality traits had lower correlations with self-reported functioning variables than self-reported personality did, which the authors attribute in part to shared method variance (Lim et al., 2019). Although the superiority of informant-reports of personality over self-reports in predicting psychosocial outcomes is not uniform across studies, informant-reports may have differential advantages depending on the traits being rated. For instance, various authors have suggested that informant-reports of personality may hold an advantage for traits that are evaluative and observable (Krueger & Markon, 2014), or externalizing, antagonistic, or marked by a lack of insight (Quilty et al., 2018).

The Current Study

This study sought to compare the utility of self- and informant-reported pathological personality traits in the prediction of real-world social behaviour. This represents an important validation of the alternative *DSM-5* model of personality disorders, as the relation between personality pathology and social functioning is well established across the literature but has not been thoroughly examined using the PID-5 and PID-5-IRF instruments. To date, this study is the first to compare the validity of self- versus informant-reported pathological personality traits in predicting an ecologically valid assessment of social behaviour, using both methodological and statistical controls

on method variance. Reliance on self-reported personality pathology has been questioned, leading to investigations of the incremental validity that informant-reports can offer to clinical and empirical investigations. As reviewed, past research has indicated that self- and informant-reports of personality show modest overlap, with unique information provided by both sources. The current study sought to identify the traits for which informant-reports are most critical, which would carry implications for the optimal use of clinical resources. The current study thus serves as a validation of the alternative *DSM-5* model of personality disorders, but also represents a broader investigation into person perception and the asymmetries in how pathological personality traits are perceived and related to social behaviour.

Hypotheses

The following sections detail hypotheses for each of the pathological personality traits regarding whether informant- or self-report is expected to be superior in predicting social behaviour, as well as the form of social behaviour (i.e., dominant, submissive, quarrelsome, or agreeable) that is expected to be most strongly predicted by that trait. Researchers (Southard et al., 2015; Williams & Simms, 2016; Wright, Pincus, et al., 2012) have found that the PID-5 trait domains are generally well differentiated in terms of their interpersonal themes. As a general hypothesis based on this work, it was expected that each of the personality traits, with the exception of negative affectivity, would have a predominant interpersonal theme, such that it is most strongly associated with one of the four poles of the interpersonal circumplex: dominant, submissive, agreeable, or quarrelsome behaviour (H1). Further, based on Kiesler's (1983) outline of the expected structure of the intercorrelations among the interpersonal circumplex poles, it was

expected that the magnitude of associations between the trait and forms of social behaviour would follow in accordance with the structure of the circumplex model (H2). Specifically, poles that are closer together around the perimeter the circumplex are expected to have more similar coefficients of prediction than poles that are further away. For instance, if a trait is hypothesized to have its strongest association with quarrelsome social behaviour, it is hypothesized that this trait would have a smaller association with dominant and submissive behaviour and a negative association with agreeable behaviour.

Antagonism (Opposite to Agreeableness)

Past studies have demonstrated that social functioning is predicted more strongly by informant-reports of agreeableness than self-reports of agreeableness (Miller et al., 2005; Ready et al., 2002). Moreover, an investigation of categorical personality disorders showed that informant-reported Cluster B personality disorders, which include narcissistic, borderline, antisocial, and histrionic, were more predictive of social functioning than self-reported personality was (Klein, 2003). These findings are relevant because under the alternative *DSM-5* model, trait antagonism is central to the conceptualization of the retained Cluster B personality disorders (narcissistic, borderline, and antisocial; American Psychiatric Association, 2013). Other authors have theorized that informant-reports may be particularly important for antagonistic traits (Quilty et al., 2018). There is some evidence that antagonistic facets such as exhibitionism and entitlement most strongly relate to social functioning when self-reported (Ready et al., 2002). However, it appears that, overall, informant perspectives are particularly important for ratings of antagonism. This aligns with the SOKA model (Vazire, 2010), as antagonism is an observable and highly evaluative trait. The highly evaluative nature of

agreeable behaviour (Connelly & Ones, 2010) may be less relevant in the context of antagonism, given that antagonistic individuals are unlikely to consider the concerns or evaluations of others (Yalch & Hopwood, 2017). Taken together, the SOKA model and empirical literature suggest that informants likely have an advantage regarding antagonistic traits, compared to targets.

Across studies, antagonism has been linked to social behaviour at the dominant pole of the interpersonal circumplex. This is supported by a meta-analysis showing that antisocial, borderline, and narcissistic personality disorders all correlate with dominant behaviour (Wilson et al., 2017). Similarly, FFM agreeableness correlates positively with agreeable and submissive behaviour (Schmidt et al., 1999) and negatively with dominance (Williams & Simms, 2016), suggesting that antagonism aligns primarily with dominant behaviour, or a blend of dominance and quarrelsomeness. Other traits related to antagonism such as callousness, manipulateness, and entitlement have also been shown to correlate with dominant and quarrelsome interpersonal behaviour (Hopwood, Koonce, et al., 2009). An investigation using a brief form of the PID-5 found the correlations between antagonism and social behaviour to cluster around quarrelsome behaviour (Southard et al., 2015). However, examinations using the full PID-5 have shown that antagonism has its strongest link with dominant behaviour (Williams & Simms, 2016; Wright, Pincus, et al., 2012). Taken together, it was hypothesized that, compared to self-reports, informant-reports of antagonism would be stronger predictors of social behaviour overall, and that informant-reported antagonism would predict dominant social behaviour more strongly than it would predict the other forms of social behaviour (H3a).

Disinhibition (Opposite to Conscientiousness)

There is evidence that disinhibition is most accurately reported by informants. For instance, informant-reports are theorized to be particularly important for externalizing traits such as disinhibition (Quilty et al., 2018). Moreover, informant-reported Cluster B traits such as antisocial and borderline characteristics, which include disinhibition under the alternative *DSM-5* model (American Psychiatric Association, 2013), have been shown to be more strongly linked to social behaviour than are self-reported traits (Klein, 2003). In terms of the SOKA model (Vazire, 2010), disinhibition would be an observable trait, and much like antagonism, the evaluativeness of disinhibited behaviour may not be particularly relevant. Thus, the SOKA model and empirical literature suggest that informants have potentially more useful knowledge about targets' trait disinhibition than do targets themselves.

Disinhibition is linked to dominant social behaviour, as well as a blend between dominant and quarrelsome behaviour. One study using an abbreviated form of the PID-5 found disinhibition to correlate predominately with quarrelsome behaviour (Southard et al., 2015). Other findings have linked conscientiousness to agreeable interpersonal behaviour (Schmidt et al., 1999; Williams & Simms, 2016), again suggesting a strong association between disinhibition and quarrelsome behaviour. However, other studies have linked traits such as disinhibition and impulsivity to dominant social behaviour (Hopwood, Koonce, et al., 2009). Similarly, categorical conceptualizations of antisocial and borderline personality disorder, both of which are described by disinhibition under the alternative *DSM-5* model, have been linked to dominant social behaviour (Wilson et al., 2017). Finally, disinhibition as measured by the full PID-5 has been shown to align

most with dominant (Wright, Pincus, et al., 2012) or a mix of dominant and quarrelsome behaviour (Williams & Simms, 2016). Taking these results together, it was hypothesized that informant-reported disinhibition would be a stronger predictor of social behaviour compared to self-reported disinhibition and that informant-reported disinhibition would predict dominant behaviour most strongly out of the four forms of social behaviour (H3b). It was also expected that informant-reported disinhibition would significantly predict quarrelsome behaviour.

Negative Affectivity (Extreme Variant of Neuroticism)

Neuroticism is considered to be fairly low on observability (Connelly & Ones, 2010; Vazire, 2010), relating to primarily inner experiences such as anxiety. However, under the alternative *DSM-5* model formulation, negative affectivity includes more visible and interpersonally-manifested facets such as hostility, emotional lability, and separation anxiety (American Psychiatric Association, 2013), indicating that negative affectivity may be reliably reported by informants. This is consistent with empirical evidence showing that, compared to self-reported traits, social functioning scores were better predicted by informant-reported neuroticism (Miller et al., 2005) and informant-reported negative temperament (Ready et al., 2002).

Negative affectivity has been linked empirically to social behaviour from around the circumplex, suggesting that it is not expressed within one particular interpersonal orientation. Some studies have found specific links, such as neuroticism correlating primarily with quarrelsome and submissive behaviour (Schmidt et al., 1999), and negative affectivity aligning with submissive behaviour (Southard et al., 2015). However, another investigation found that neuroticism had correlations with interpersonal problems

from around the circumplex ranging from $r = .36$ to $.48$ (Williams & Simms, 2016). The same study also examined PID-5 traits, and found negative affectivity also correlated uniformly around the circumplex, with no correlations below $.40$. Similarly, BPD has been shown to correlate with behaviour from around the circumplex (Wilson et al., 2017); out of the three retained personality disorder diagnoses characterized by negative affectivity in the alternative *DSM-5* model, it is most central to the formulation of BPD, as four of the seven relevant trait facets are under the domain of negative affectivity. A final investigation showed that although negative affectivity aligned most with social difficulties at the agreeable pole of the interpersonal circumplex, such as being socially intrusive, overly nurturing, and exploitable, negative affectivity did not show specific associations with any one form of social difficulties (Wright, Pincus, et al., 2012). Taking these results together, it was hypothesized that in the prediction of social behaviour, informant-reported negative affectivity would be superior to self-reported negative affectivity, and that informant-reported negative affectivity would significantly predict all four forms of social behaviour (H3c).

Detachment (Opposite to Extraversion)

Under the SOKA model (Vazire, 2010), detachment could be considered a low-visibility trait, as social withdrawal and isolation are inherent in its formulation (American Psychiatric Association, 2013). This suggests that informants would have fewer opportunities to observe detachment-relevant behaviours, giving targets an advantage in knowing about this trait. Accordingly, one study found that self-reported extraversion and detachment both have stronger associations with social functioning than informant-reports of those traits (Ready et al., 2002). Another investigation demonstrated

that although informant-reported extraversion was superior to self-reported extraversion in predicting social impairment, the self-reports were also significant predictors and the difference between the two sources was not large (Miller et al., 2005). As such, it was expected that self-reported detachment would have stronger associations to social behaviour than informant-reported detachment would.

Detachment has been linked across several studies to quarrelsome interpersonal behaviour. For instance, obsessive-compulsive, avoidant, and schizotypal personality disorders all align most with quarrelsome interpersonal behaviour (Wilson et al., 2017) and include detachment in their formulations under the alternative *DSM-5* model (American Psychiatric Association, 2013). Detachment and related traits such as intimacy problems, restricted expression, and social avoidance have been shown to correlate primarily with quarrelsome behaviour (Hopwood, Koonce, et al., 2009). Detachment, as measured by the PID-5, also shows its strongest association with quarrelsome social behaviour (Williams & Simms, 2016; Wright, Pincus, et al., 2012). Finally, extraversion has been shown to correlate positively with agreeable and dominant behaviour (Schmidt et al., 1999) and negatively with quarrelsome and submissive behaviour (Williams & Simms, 2016). Taken together, it was hypothesized that, compared to informant-reported detachment, self-reported detachment would be a stronger predictor of social behaviour, with self-reported detachment predicting quarrelsomeness more strongly than the other forms of social behaviour (H3d).

Psychoticism (Variant of Openness)

Psychoticism is primarily a low-visibility trait, as it relates to inner experiences such as beliefs and perceptions that may or may not be shared with others (American

Psychiatric Association, 2013). Similarly, openness to experience is categorized as low in observability (Connelly & Ones, 2010; Vazire, 2010). Thus, according to the SOKA model, self-reported psychoticism should be more accurate than informant-reported psychoticism, given the self's greater access to such inner experiences. Empirical evidence supports this prediction, as one study showed that self-reported openness to experience was a superior predictor of social behaviour, as compared to informant-reported openness to experience (Ready et al., 2002).

Psychoticism is empirically related to quarrelsome social behaviour. Schizotypal, the only personality disorder category described by psychoticism, is linked primarily to quarrelsome behaviour (Wilson et al., 2017). This association is further supported by findings that trait suspiciousness and cognitive distortions align with quarrelsome behaviour (Hopwood, Koonce, et al., 2009) and that psychoticism measured with the brief form of the PID-5 correlates most highly with a blend of quarrelsome and submissive behaviour (Southard et al., 2015). Similarly, investigations of the PID-5 and interpersonal circumplex have shown psychoticism to correlate with quarrelsome (Wright, Pincus, et al., 2012) or a blend of dominant and quarrelsome behaviour (Williams & Simms, 2016). Finally, openness to experience empirically aligns positively with agreeable (Schmidt et al., 1999) and negatively with dominant social behaviour (Williams & Simms, 2016). Although not a direct opposite of, or analog to, openness to experience, psychoticism appears to represent a divergent pole from openness, as the unusual beliefs, perceptual dysregulation, and eccentricity of psychoticism are conceptualized as being culture-incongruent (American Psychiatric Association, 2013). As such, the above results indicate that psychoticism aligns primarily with quarrelsome

behaviour. It was thus hypothesized that self-reported psychoticism would predict social behaviour more strongly than informant-reported psychoticism would, and that self-reported psychoticism would predict quarrelsomeness more strongly than it would predict the other forms of social behaviour (H3e).

CHAPTER III

PERSONALITY AND WITHIN-PERSON VARIABILITY IN SOCIAL BEHAVIOUR

Someone's interpersonal style can be described by the stable aspects of their behaviour, such as whether they typically take a more dominant role in interactions or tend to act crotchety and quarrelsome. However, an emerging area of literature recognizes that individuals' behaviour is not entirely stable, but rather fluctuates over time and across situations. Such fluctuations have been examined in terms of the expression of personality traits (Clifton & Kuper, 2011; Edershile et al., 2019; Fleeson & Gallagher, 2009; Robinson, 2009), personality pathology (Wright & Simms, 2016), interpersonal behaviour (Moskowitz & Zuroff, 2004, 2005), perceptions of others' social behaviour (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Erickson et al., 2009), and affect (Kuppens et al., 2007; Trull et al., 2008). Taken together, these studies have revealed that daily expressions of constructs such as personality, affect, and interpersonal behaviour have two major components. The first captures trait-like aspects, which are expected to be stable across time and situations, representing individual or between-person differences. The second reflects intraindividual or within-person variability, which is conceptualized as the range in behaviour an individual exhibits across various settings and over time.

In statistical terms, individuals' general tendencies can be represented with a mean score, whereas their level of within-person variability can be represented by the standard deviation of scores taken over multiple situations. In one early study, repeated measurement of interpersonal behaviour over time demonstrated that although agentic and communal behaviour showed substantial stability over time and context, a large

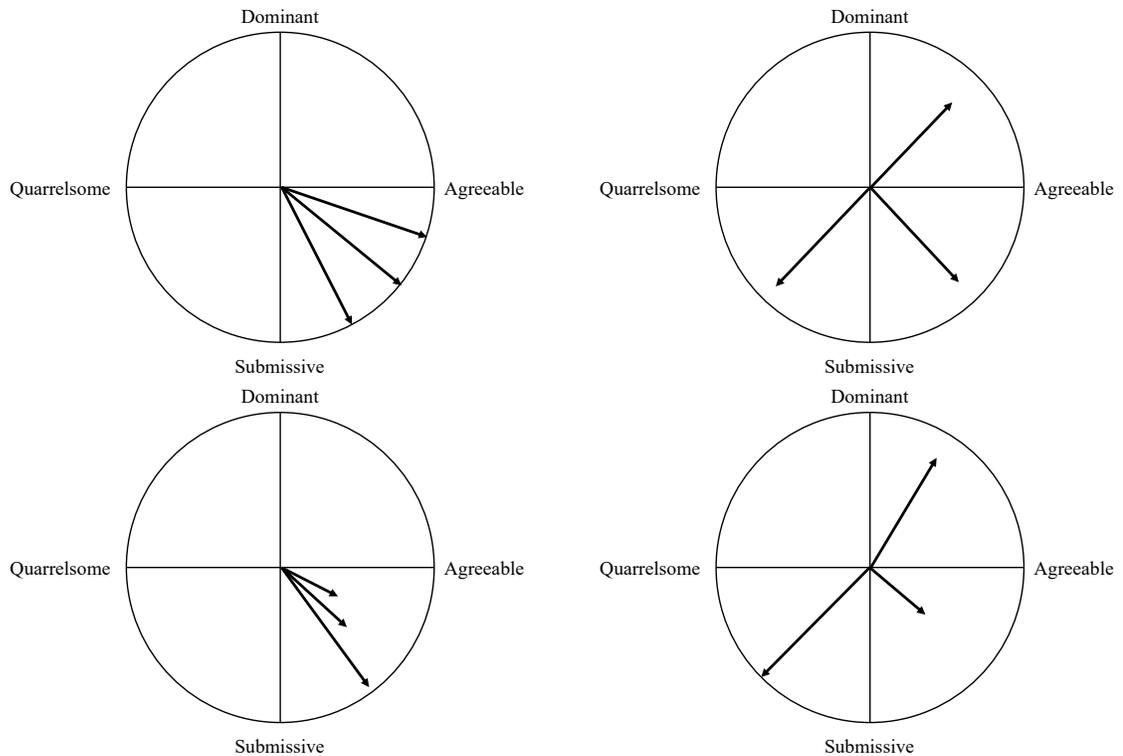
proportion of the variance could also be captured in terms of dynamic variability that was stable over cycles lasting approximately one week (Brown & Moskowitz, 1998). More recently, authors have argued that examining only general individual differences conceals these meaningful cross-situational patterns of variability (Fournier et al., 2008). Indeed, several studies have demonstrated that, for expression of personality traits, within-person variability is greater than between-person variability (Fleeson & Gallagher, 2009; Fleeson & Law, 2015; Hong et al., 2020).

Within-Person Variability and the Interpersonal Circumplex

Innovative techniques that capitalize on the circular structure of the interpersonal circumplex allow within-person variability in social behaviour to be represented in multiple ways. Moskowitz and Zuroff (2004) defined three such constructs – flux, pulse, and spin – to capture variation in interpersonal behaviour. *Flux* scores concern variability in behaviour on only one pole of the circumplex, while ignoring the other three poles. For instance, flux in dominant behaviour is represented by the standard deviation of expressions of dominant behaviour across multiple situations. Thus, four flux scores can be constructed from the interpersonal circumplex: flux in dominant behaviour, flux in submissive behaviour, flux in agreeable behaviour, and flux in quarrelsome behaviour. *Pulse* represents variability in the extremity of behavioural scores (viz. the standard deviation of behaviours' distance from the circumplex origin). *Spin* reflects variability in the individual's predominant interpersonal theme (viz. the standard deviation of the individual's angular coordinate around the quadrants of the circumplex). Refer to Figure 2 for a visual representation of different combinations of pulse and spin. These constructs provide a framework for describing and explaining intraindividual variability in social

Figure 2

Visual Representations of Pulse versus Spin Across Three Interpersonal Interactions



Note. Top left corner: low pulse and low spin. Top right corner: low pulse and high spin. Bottom left corner: high pulse and low spin. Bottom right corner: high pulse and high spin. Figure adapted from Moskowitz, D. S., & Zuroff, D. C. (2004). Flux, pulse, and spin: Dynamic additions to the personality lexicon. *Journal of Personality and Social Psychology*, 86(6), 880–893. © 2004 by the American Psychological Association. Permission is not required for use of fewer than three figures from a journal article, see <https://www.apa.org/about/contact/copyright/>.

behaviour with greater specificity. These patterns of variability do not differ by gender and tend to remain robust when controlling for the mean level of behaviour or score extremeness (Moskowitz & Zuroff, 2005). Flux, pulse, and spin scores also demonstrate moderate to high stability, providing evidence that these indices of within-person variability in social behaviour represent stable individual differences that are distinct from mean-level trends in behaviour (Moskowitz & Zuroff, 2004).

Relation to Social Adjustment

The functional implications of interpersonal flux, pulse, and spin have been examined to determine whether such variability represents adaptive behavioural flexibility or maladaptive processes that could indicate violations of general interpersonal norms such as complementarity. Both laboratory and naturalistic data demonstrate that higher levels of flux in agentic and communal behaviour are related to greater interpersonal distress and lesser demonstration of interpersonal complementarity (Erickson et al., 2009). Flux in agreeable, dominant, and submissive behaviour are also predicted by anxiety symptoms (Rappaport et al., 2014) and self-criticism (Kopala-Sibley et al., 2013). Interpersonal spin appears to be a marker of dysfunction, as it is linked to poorer relationship adjustment with co-workers and more distant social ties (Côté et al., 2012). Further investigation found that the link between spin and co-worker social avoidance was partially accounted for by co-worker negative affect, providing evidence that interpersonal spin is experienced aversively by interaction partners. A recent study demonstrated that individuals with higher levels of spin were more reactive in social situations compared to those with lower spin, such that they reported higher negative affect and greater behavioural reactivity when they perceived the other person to be less affiliative (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020).

In individuals with personality pathology, fluctuations in daily stress are predictive of flux in agentic and communal behaviour (Wright, Hopwood, et al., 2015). Similarly, a normative sample showed that overall social distress was related to flux in both dimensions of the interpersonal circumplex, spin, and greater variability in perceptions of others' social behaviour (Erickson et al., 2009). More broadly, excessive variation in

other domains is also associated with dysfunction, as poorer adjustment has been linked to variability in affect states (Kuppens et al., 2007) and the expression of personality (Clifton & Kuper, 2011). Together, these findings demonstrate that excessive within-person variability, including in social behaviour, are markers for poorer functioning rather than of adaptive flexibility.

Relation to Personality

Past examinations have linked some FFM traits to within-person variability in social behaviour (Moskowitz & Zuroff, 2004, 2005). Specifically, flux in agreeable behaviour was predicted by extraversion, flux in quarrelsome behaviour was predicted by extraversion and disagreeableness, and flux in dominant and submissive behaviour were not reliably predicted by the FFM traits. Pulse showed inconsistent correlations with neuroticism, whereas spin was consistently predicted by low agreeableness and neuroticism. Across multiple other studies, spin was associated with disagreeableness, high neuroticism, and low levels of extraversion (Clegg et al., 2020; Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Côté et al., 2012). Providing further evidence that excessive interpersonal variability is maladaptive, individuals diagnosed with BPD demonstrate greater flux in quarrelsome, dominant, and agreeable behaviour, as well as greater spin, compared to non-BPD controls (Russell et al., 2007). A similar study examining the interactions of a client diagnosed with a personality disorder and their therapist using a joy-stick technique to track the interpersonal circumplex alignment of both participants found that the client demonstrated significantly higher spin than the therapist, which was identified as a dysfunctional pattern (Sadler et al., 2015). Finally, as noted above, flux in dominant, submissive, and agreeable behaviour have been predicted

by internalizing processes such as anxiety symptoms (Rappaport et al., 2014) and self-criticism (Kopala-Sibley et al., 2013).

Despite these findings, it has been noted that mean-level scores of general traits may not reliably relate to measures of within-person variability, even when the measures are of the same domain. For instance, one early study found no systematic relation between variability in interpersonal behaviour and a trait measure of interpersonal circumplex behaviour (Brown & Moskowitz, 1998). Similarly, a measure of interpersonal problems based on the interpersonal circumplex was unable to account for the variability in daily social behaviour (Wright, Hopwood, et al., 2015). Finally, the FFM traits have been found to individually account for no more than 5% of the variance in flux, pulse, and spin scores (Moskowitz & Zuroff, 2005). These findings suggest that within-person variability as a construct remains distinct from mean-level individual differences, such as personality traits or general patterns of social behaviour. Yet, dysfunctional interpersonal styles, such as spin, are consistently predicted by socially maladaptive traits such as neuroticism, disagreeableness, and overall personality pathology. As the pathological personality traits of the alternative *DSM-5* model have not yet been examined in relation to within-person variability in social behaviour, these maladaptive traits may be more strongly associated with patterns of variability than normative traits are, and further examination of this relation can serve as a validation of the model.

The Current Study

Investigations of mean-level social behaviour can describe general trends in interpersonal functioning, but recent work has demonstrated that examining only stable individual differences disregards meaningful nuance in human behaviour (Fournier et al.,

2008). Important variance in social behaviour can be described in terms of an individual's characteristic level of within-person variability (Moskowitz & Zuroff, 2004, 2005). Moreover, unique patterns of intraindividual variability, such as spin in interpersonal behaviour, have consistently been linked to poorer adjustment (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Côté et al., 2012; Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007). The current study seeks to understand the links between the pathological personality traits and these patterns of within-person variability in social behaviour. Understanding these connections can help provide insight into the mechanisms of how personality dysfunction gives rise to social impairment. This portion of the current study also helps to develop a broader understanding of flux, pulse, and spin in interpersonal behaviour, which remain relatively understudied, despite the importance of examining within-person variability in addition to stable trends in behaviour.

Hypotheses

Given that the pathological personality traits have not yet been linked to patterns of within-person variability in social behaviour, hypotheses regarding these associations can build upon previous research examining FFM traits, internalizing processes, and personality disorder categories. Within-person variability, especially spin, has been linked to poorer functioning and adjustment (Côté et al., 2012; Erickson et al., 2009; Kopala-Sibley et al., 2013; Rappaport et al., 2014; Wright, Hopwood, et al., 2015). As the pathological personality traits are all inherently maladaptive, it is unclear how this information can be applied to predictions about the specific associations between the traits and patterns of within-person variability. However, the pathological personality traits may serve as more robust predictors of within-person variability than measures of

normative personality. Most research has only examined the FFM traits of neuroticism, agreeableness, and extraversion (e.g. Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Moskowitz & Zuroff, 2004, 2005), allowing stronger predictions about negative affectivity, antagonism, and detachment than about disinhibition and psychoticism. However, information about disinhibition can be drawn from studies examining intrapersonal variability in those with BPD (e.g., Russell et al., 2007), as disinhibition is theorized to underlie BPD in the alternative *DSM-5* model.

Flux in Submissive Behaviour

One previous study linked higher levels of neuroticism to flux in submissive behaviour (Moskowitz & Zuroff, 2004). However, a later study, using more conservative methods and a larger sample, found that neither neuroticism, nor extraversion or agreeableness, were robust predictors of flux in submissive behaviour (Moskowitz & Zuroff, 2005). Similarly, BPD traits have been found to be unrelated to flux in submissive behaviour (Russell et al., 2007). However, a more recent investigation demonstrated that anxiety symptoms predict flux in submissive behaviour, after controlling for the effect of depression and mean scores in submissive behaviour (Rappaport et al., 2014). Self-criticism also predicts submissive behaviour, over and above FFM traits (Kopala-Sibley et al., 2013). Out of the pathological personality trait domains, anxiety and self-criticism align most strongly with negative affectivity. Thus, it was hypothesized that negative affectivity would predict flux in submissive behaviour (H4a).

Flux in Dominant Behaviour

Early studies demonstrated that flux in dominant behaviour was not readily predicted by neuroticism, extraversion, nor agreeableness (Moskowitz & Zuroff, 2004, 2005). However, a study of individuals with BPD found that they demonstrated greater flux in dominant behaviour than healthy controls (Russell et al., 2007). Under the alternative *DSM-5* model, BPD is characterized primarily by negative affectivity, but also involves the hostility facet of antagonism and the impulsivity and risk-taking facets of disinhibition. More recently, flux in dominant behaviour has also been predicted by anxiety (Rappaport et al., 2014) and self-criticism (Kopala-Sibley et al., 2013), which relate primarily to negative affectivity. Bringing these results together, it was hypothesized that flux in dominant behaviour would be predicted by negative affectivity and disinhibition (H4b).

Flux in Agreeable Behaviour

Flux in agreeable behaviour is consistently predicted by high levels of extraversion (Moskowitz & Zuroff, 2004, 2005), which corresponds to low levels of detachment in terms of the pathological personality traits. Additionally, people with BPD demonstrate high levels of flux in agreeable behaviour (Russell et al., 2007), thus linking negative affectivity and disinhibition to this pattern of intrapersonal variability. Flux in agreeable behaviour has also been linked to self-criticism (Kopala-Sibley et al., 2013) and anxiety symptoms (Rappaport et al., 2014), further supporting the relevance of negative affectivity. As such, it was hypothesized that flux in agreeable behaviour would be predicted by low levels of detachment, negative affectivity, and disinhibition (H4c).

Flux in Quarrelsome Behaviour

There is consistent support for low agreeableness, or antagonism, as a robust predictor of variability in quarrelsome behaviour (Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007). However, other evidence exists that flux in quarrelsome behaviour is also predicted by high levels of extraversion (Moskowitz & Zuroff, 2005) and BPD characteristics (Russell et al., 2007), which primarily include negative affectivity and disinhibition. Other studies have found that flux in quarrelsome behaviour is not significantly predicted by anxiety (Rappaport et al., 2014) or self-criticism (Kopala-Sibley et al., 2013), constructs that are conceptually relevant to negative affectivity. However, this may be due to findings that, in both studies, very little variance was left in flux scores after controlling for the mean level of quarrelsome behaviour. It was hypothesized that flux in quarrelsome behaviour would be predicted by antagonism, low levels of detachment, negative affectivity, and disinhibition (H4d).

Spin

There are consistent findings in the literature linking spin in interpersonal behaviour to higher levels of neuroticism (negative affectivity) and low agreeableness (antagonism; Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Côté et al., 2012; Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007). Spin has also been linked to low levels of extraversion (which corresponds to detachment; Côté et al., 2012). This is further supported by findings that social connectedness has a negative relation with spin (Kopala-Sibley et al., 2013). Spin has also been linked to self-criticism (Kopala-Sibley et al., 2013) and BPD diagnosis (Russell et al., 2007). Spin thus appears to be a

marker of general social dysfunction. It was hypothesized that spin would be predicted by negative affectivity, antagonism, detachment, and disinhibition (H4e).

Pulse

One early study showed that pulse in social behaviour was predicted by neuroticism (Moskowitz & Zuroff, 2004), but this was later contradicted by a more robust study indicating that pulse was not reliably related to neuroticism, extraversion, or agreeableness (Moskowitz & Zuroff, 2005). Moreover, no group differences on pulse were found between those with and without BPD, although individuals with BPD reported more extreme mean-level behaviour (Russell et al., 2007). An unpublished thesis found that detachment was the only PID-5 trait domain to correlate significantly with pulse scores, although the study had a relatively small sample size and apparently used an unvalidated measure of interpersonal circumplex behaviour (Good, 2015). Whereas previous attempts to link personality traits to pulse in social behaviour have been generally unsuccessful, some of the pathological personality traits are theoretically linked to fluctuation in the extremity of behaviour. For instance, disinhibition reflects an orientation toward gaining immediate gratification and is associated with impulsive behaviour (American Psychiatric Association, 2013). As such, high levels of disinhibition may prevent individuals from modulating their actions during social interaction, leading to escalations of behaviour driven by their immediate experiences. Similarly, negative affectivity describes a tendency toward frequent and intense emotional experiences with behavioural and interpersonal manifestations (American Psychiatric Association, 2013). Other authors have also hypothesized that traits such as affective instability may relate to behaviour that varies from situation to situation, including when faced by interpersonal

conflict (Hopwood, Koonce, et al., 2009). However, these predictions are speculative.

Thus, the following research question was explored: do any of the pathological personality traits predict pulse in social behaviour? (RQ1).

CHAPTER IV

METHODS

Participants

Recruitment

Targets. The participants who provided ratings of their own personality, nominated people they know to describe their personality, and completed the IRM-NS procedure will herein be referred to as ‘targets,’ to differentiate them from their nominated ‘informants.’ Targets were recruited from the University of Windsor through the Psychology Participant Pool, which allows undergraduate students enrolled in eligible courses to participate in research studies in exchange for partial course credit. See Appendix A for the participant pool study description. The eligibility criteria for the targets were that they had (a) at least four people who knew them well and gave permission to be nominated as informants, and (b) a smartphone that was compatible with the application (app) used for the IRM-NS procedure. No restrictions were placed on the targets’ gender, age, or history of mental illness, to recruit a diverse sample and maximize the sample’s variability in the pathological personality traits.

Informants. Each target was asked to provide the names and contact information of at least four potential informants. The informants could be friends, family, or someone else who knew the target well; targets were instructed to obtain their informants’ permission to share their contact information. Most targets (76%) nominated four informants, whereas 10% nominated three or fewer and 14% elected to nominate five or six informants. The researcher randomly selected one of the first four informants and contacted them by email to invite them to participate in the study. If the first informant

did not respond or complete the survey within one week, a follow-up email was sent. If the first informant did not respond or initiate the survey within three days of the follow-up email (or otherwise indicated that they were not willing or able to participate), one of the remaining informants were randomly selected and contacted. This procedure continued until an informant completed the survey or all four informants implicitly or explicitly declined.

Randomly selecting the informant from the target's list was utilized as a risk-management strategy, so that the target would not know which informant participated in the study, if any, unless the informant chose to reveal this. The procedure thus distributed any risk of damage to the target-informant relationships across the four potential informants. The inclusion criteria for the informants were that (a) the target thought the informant knew them sufficiently well to be able to describe their personality, and (b) that they had a working email address and Internet access to receive the survey link and complete the survey. Targets and informants were assured that the other person would not see their responses.

Participants

Targets. A total of 243 targets participated in the first study component, an in-person session in a university computer laboratory (lab). Of those, three cases were removed for demonstrating careless responding (more details can be found in the Results section), resulting in a final sample size of 240. The mean target age was 21.5 ($SD = 6.1$), with a range between 17 and 58. Just over 50% of the sample identified as Caucasian or White, followed by Black/African (12.5%), Arabic/Middle Eastern (10.8%), and Indian/South Asian (7.9%). Furthermore, 79% of the sample identified as female, 20% as

male, and the remaining participants were either non-binary, gender queer, or did not answer. Nearly half of the sample were psychology majors, and most were employed part-time. Refer to Table 4 for a detailed of the target sample characteristics, for the full target sample ($n = 240$), those who also completed the IRM-NS procedure ($n = 204$), those with valid informant reports ($n = 171$), and those with data for all three study components ($n = 147$).

Informants. A total of 519 potential informants were initially contacted by email. Of those contacted, 27 emails were unable to be delivered, 346 follow-up emails were sent, and 284 potential informants accessed the online survey. After data cleaning, 171 usable cases remained. Specifically, 19 cases were removed because they did not consent to participate, 75 cases had more than 15% missing data, 5 cases had unacceptably short survey durations, and 14 cases were removed for issues related to linking the target and informant data. A detailed description of the data cleaning process can be found in the Results section. The overall informant response rate was such that 71.3% of targets had a valid informant report. However, out of the 519 potential informants contacted, only 31.8% of those solicitations resulted in a usable informant response.

The mean informant age was 27.9 years ($SD = 13.9$), ranging from 16 to 70. Most informants identified as female (73.1%), whereas 26.3% identified as male. Regarding the informant's relationship to the target, most reported that they were friends with their target (59.1%), followed by parents (15.2%), siblings (9.9%), and romantic partners (7.6%). Sixty percent of the informants were Caucasian, followed by Arabic/Middle Eastern (11.1%) and Black/African (9.4%). See Table 5 for detailed demographic information about the informants.

Table 4*Target Demographic Characteristics by Subsample*

Subsample	Full target sample (<i>n</i> = 240)		Completed IRM-NS (<i>n</i> = 204)	
	<i>M</i> or <i>n</i>	<i>SD</i> or %	<i>M</i> or <i>n</i>	<i>SD</i> or %
Age	21.5	6.1	21.4	6.3
Gender				
Male	47	19.6	37	18.1
Female	189	78.8	164	80.4
Non-binary or gender queer	3	1.3	2	1.0
Did not answer	1	0.4	1	0.5
Ethnicity				
First Nations/Inuit/Metis	3	1.3	3	1.5
Arabic/Middle Eastern	26	10.8	24	11.8
Asian	18	7.5	16	7.8
Black/African	30	12.5	24	11.8
Caucasian	124	51.7	104	51.0
Hispanic/Latino	10	4.2	9	4.4
Indian/South Asian	19	7.9	15	7.4
Other	9	3.8	8	3.9
Prefer not to answer	1	0.4	1	0.5
Major area of study				
Aeronautics	2	0.8	2	0.8
BCN*	18	7.5	16	7.8
Biology	20	8.3	15	7.4
Business	15	6.3	10	4.9
Concurrent Education	2	0.8	2	1.0
Criminology and Sociology	10	4.2	10	4.9
History	2	0.8	2	1.0
Human Kinetics	12	5.0	11	5.4
Liberal Arts or Certification	2	0.8	2	1.0
Undeclared	4	1.7	4	2.0
Nursing	2	0.8	2	1.0
Psychology (no other major)	97	40.4	82	40.2
Psychology (with other major)	21	8.8	19	9.3
Social Work	20	8.3	17	8.3
Other	12	5.0	9	4.4
Did not answer	1	0.4	1	0.5
Employment Status				
Employed full-time	6	2.5	5	2.5
Employed part-time	148	61.7	129	63.2
Unemployed	81	33.8	66	32.4
Prefer not to answer	5	2.1	4	2.0

*Behaviour, Cognition, and Neuroscience

Table 4 (continued)*Target Demographic Characteristics by Subsample*

Subsample	Valid informant report (<i>n</i> = 171)		Informant report and IRM-NS procedure (<i>n</i> = 147)	
	<i>M</i> or <i>n</i>	<i>SD</i> or %	<i>M</i> or <i>n</i>	<i>SD</i> or %
Age	21.5	6.4	21.7	6.5
Gender				
Male	32	18.7	26	17.7
Female	135	78.9	118	80.3
Non-binary or gender queer	3	1.8	2	1.4
Did not answer	1	0.6	1	0.7
Ethnicity				
First Nations/Inuit/Metis	2	1.2	2	1.4
Arabic/Middle Eastern	16	9.4	15	10.2
Asian	14	8.2	13	8.8
Black/African	19	11.1	14	9.5
Caucasian	95	55.6	80	54.4
Hispanic/Latino	9	4.7	7	4.8
Indian/South Asian	11	6.4	11	7.5
Other	6	3.6	5	3.4
Prefer not to answer	0	0	0	0
Major area of study				
Aeronautics	1	0.6	1	0.7
BCN	12	7.0	11	7.5
Biology	12	7.0	9	6.1
Business	11	6.4	8	4.1
Concurrent Education	1	0.6	1	0.7
Criminology and Sociology	8	4.7	8	5.4
History	1	0.6	1	0.7
Human Kinetics	8	4.7	7	4.8
Liberal Arts or Certification	2	1.2	2	1.4
Undeclared	4	2.3	4	2.7
Nursing	1	0.6	1	0.7
Psychology (no other major)	67	39.2	59	40.1
Psychology (with other major)	16	9.4	14	9.5
Social Work	16	9.4	14	9.5
Other	10	5.8	8	5.4
Did not answer	1	0.6	1	0.7
Employment status				
Employed full-time	5	2.9	5	3.4
Employed part-time	103	60.2	88	59.9
Unemployed	62	36.3	53	36.1
Prefer not to answer	1	0.6	1	0.7

Table 5*Informant Demographic Characteristics (N = 171)*

	<i>n</i> or <i>M</i>	% or <i>SD</i>	Range
Age (<i>n</i> = 168)	27.9	13.9	16 – 70
Duration of relationship with target (in years)	10.6	9.7	0 – 56
Gender			
Male	45	26.3	
Female	125	73.1	
Did not answer	1	0.6	
Ethnicity			
First Nations/Inuit/Metis	2	1.2	
Arabic/Middle Eastern	19	11.1	
Asian	13	7.6	
Black/African	16	9.4	
Caucasian/Non-Hispanic	102	59.6	
White/European			
Hispanic/Latino	5	2.9	
Indian/South Asian	8	4.7	
Other	4	2.3	
Prefer not to answer	2	1.2	
Relationship to target (“The target is your...”)			
Friend	101	59.1	
Spouse or dating partner	13	7.6	
Sibling	17	9.9	
Parent	1	0.6	
Child	26	15.2	
Co-worker	1	0.6	
Other	12	7.0	
Highest attained level of education			
Did not finish high school	3	1.8	
High school	86	50.3	
College or trade program	28	16.4	
Undergraduate or Bachelor’s degree	44	25.7	
Master’s degree	6	3.5	
Doctoral degree	1	0.6	
Prefer not to answer	2	1.2	
Did not report	1	0.6	
Employment status			
Employed full-time	46	26.9	
Employed part-time	74	43.3	
Unemployed	41	24.0	
Prefer not to answer	8	4.7	
Did not answer	2	1.2	

Measures

Target Measures

Demographics. Demographic details were gathered with self-report items about the targets' age, gender, ethnicity, major area of study, and employment status (see Appendix B). The targets were also asked to nominate at least four informants (up to six) who knew them well, by providing the informants' names and contact information, as well as the duration and kind of relationship they had with each informant. Targets were also asked to provide their own first name, to be used in the recruitment email to potential informants.

Pathological Personality Traits. The pathological personality traits outlined in the alternative *DSM-5* model were measured using the Personality Inventory for *DSM-5* (PID-5; Krueger et al., 2012). The PID-5 consists of 220 self-descriptive statements, rated on a 4-point Likert-type scale from 0 (*very false or often false*) to 3 (*very true or often true*), and combined using a mean score. Higher scores indicate higher levels of the pathological personality traits. See Appendix C for the full item list. Example items include, "Most of the time I don't see the point in being friendly" and "I often can't control what I think about." The PID-5 has 25 subscales representing the lower-order trait facets, which can be further combined to generate domain-level scores. The original development study found Cronbach's alpha (α) coefficients for the domain scores to range between .84 (disinhibition) and .96 (detachment and psychoticism; Krueger et al., 2012). Review articles have since demonstrated that these values are consistent across studies using the PID-5 (Al-Dajani et al., 2016; Barchi-Ferreira Bel & Osório, 2020). In the current sample of targets, the trait domains had internal reliability estimates ranging

from .91 (Disinhibition) to .95 (Psychoticism). The PID-5 has also shown substantial consistency across time, as would be expected from a trait measure, with all of the trait domains demonstrating very high stability across a period of approximately 18 months (Wright, Calabrese, et al., 2015).

In terms of construct validity, support has been found for the five-domain structure through exploratory factor analyses that compared solutions with one through five factors (Wright, Thomas, et al., 2012). As reviewed above, the PID-5 also captures much of the variance in categorical PD conceptualizations (Hopwood et al., 2014; Yam & Simms, 2014). Concerning predictive validity, the pathological personality traits measured with the PID-5 have associations with psychosocial functioning approximately 18 months later, with higher levels of the traits consistently predicting poorer functioning (Wright, Calabrese, et al., 2015). In a clinical sample, the PID-5 trait domains predicted depression, anxiety, and general symptom severity, as well as externalizing behaviours such as alcohol and drug use (Few et al., 2013). Taken together, these results indicate that the PID-5 has substantial reliability and validity in the assessment of pathological personality traits.

Social Behaviour. Target's naturalistic social behaviour was measured with an IRM-NS procedure using the Social Behaviour Inventory (SBI; Moskowitz, 1994). The SBI consists of 46 items, with four subscales that correspond to the poles of the IPC: dominant, submissive, quarrelsome, and agreeable behaviour (see Appendix D). One item, "I criticized the other(s)," maps onto both dominance and quarrelsomeness, and another, "I went along with the other(s)," contributes to both submissiveness and agreeableness. The 46 items are divided into four parallel forms of the SBI. Two of the

forms have 11 items, as each of those forms has one item that corresponds to two subscales. The other two forms have 12 items each. The items are behavioural in content; individuals complete a form of the SBI after real-life social interactions and are instructed to indicate whether they engaged in each behaviour during the interaction. The three items pertaining to each form of behaviour are summed to create scale scores. Higher scores on the social behaviour subscales indicate that the individual engaged in that type of behaviour to a greater extent. Along with the behavioural self-ratings, individuals were asked to provide basic information about the interaction, such as its setting and duration.

The SBI has been used in several IRM-NS investigations, with accumulated evidence of the measure's reliability and validity. The initial development and validation studies showed moderate to high internal consistency of each subscale and very high stability of the subscales across a period of 20 days (Moskowitz, 1994). These results are consistent with another study demonstrating that the aggregated subscale scores had high stability and that patterns of variability in the SBI scores corresponded to meaningful one-week cycles (Brown & Moskowitz, 1998). Regarding construct validity, the measure was shown to conform to a circumplex structure, although one deviation was found wherein the dominance subscale had nontrivial positive associations with agreeableness and negative associations with quarrelsomeness (whereas the circumplex structure suggests that these poles should be unrelated; Moskowitz, 1994). Further evidence of discriminant and convergent validity was presented in the same study by comparing the SBI scales with trait measures of IPC behaviours. These conformed to theoretical expectations, with higher correlations among corresponding constructs (i.e., SBI dominance and trait dominance) and lower correlations between noncorresponding

constructs (i.e., SBI dominance and trait agreeableness). As reviewed, patterns of within-person variability as measured by the SBI correlate meaningfully with criteria such as relationship adjustment (Côté et al., 2012) and BPD diagnosis (Russell et al., 2007).

Social Desirability. Targets' social desirability bias was measured using the Marlowe-Crowne Social Desirability Scale – Form C (Reynolds, 1982; see Appendix E). The scale is a shortened version of the 33-item Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1960). The M-C SDS was developed to measure participants' tendencies to respond to items in a culturally acceptable manner, using items that do not overlap conceptually with psychopathology. A later investigation used principle factors analysis and examination of the item-total correlations to develop multiple short forms of the M-C SDS, out of which the 13-item Form C was recommended for use (Reynolds, 1982). An example item is, "No matter who I'm talking to, I'm always a good listener." Each item is rated as either true or false, with higher scores indicating a greater tendency to report in a socially desirable way. The scale contains five reverse-coded items and is calculated using a sum score. Form C has shown acceptable reliability, with Kuder-Richardson-20 coefficients of .76 when examined as a subset of the larger M-C SDS (Reynolds, 1982) and .74 when administered alone (Zook & Sipps, 1985). The scale has also demonstrated a retest reliability coefficient of .74 over a period of six weeks (Zook & Sipps, 1985). Form C correlates at $r = .93$ with the full M-C SDS (Reynolds, 1982). Additionally, through moderate associations with the validity scales from the Minnesota Multiphasic Personality Inventory (MMPI; Greene, 1980), Form C has demonstrated convergent and divergent validity (Robinette, 1991). This scale

was included because the PID-5 item content could be susceptible to impression management.

Target Measures – Secondary

The following questionnaires were included in the target survey as supplementary measures, to be used if the IRM-NS procedure did not result in enough usable data. They were not used in any of the subsequent analyses.

Trait Social Behaviour. Self-reported trait-level social behaviour was measured using the International Personality Item Pool – Interpersonal Circumplex scale (IPIP-IPC; Markey & Markey, 2009). The IPIP-IPC has 32 items to assess eight subscales, conforming to the four primary poles of the IPC and four diagonal ‘blends’ of the main poles (see Appendix F). The items consist of short, descriptive phrases (for example, “[I] tolerate a lot from others”), which participants rate on a 5-point Likert scale from 1 (*very inaccurate*) to 5 (*very accurate*). The items are combined using mean scores and higher scores indicate higher levels of each form of social behaviour. The octant have modest α coefficients ranging from .46 to .76 across the three development and original validation studies (Markey & Markey, 2009), but mean interitem correlations of .31 (Yalch et al., 2013), which corresponds to published benchmarks for scale homogeneity (Briggs & Cheek, 1986). In the overall sample of targets, the α estimates ranged from .34 (Unassuming/Ingenuous) to .80 (Gregarious/Extraverted). The original validation studies present findings that the IPIP-IPC conformed to a circumplex structure across three independent samples, aligned appropriately with the FFM traits of extraversion and agreeableness, and converged significantly with the IAS despite taking 70% less time to complete (Markey & Markey, 2009). A later validation study demonstrated that the IPIP-

IPC converged meaningfully with ratings of interpersonal behaviour in a laboratory setting, thus providing evidence of cross-method correspondence (Markey et al., 2013).

Trait Interpersonal Problems. The target's perceptions of their own interpersonal problems were measured with the Inventory of Interpersonal Problems – Personality Disorder Scale (IIP-PD; Pilkonis et al., 1996). The IIP-PD items were drawn from the longer Inventory of Interpersonal Problems, a measure of interpersonal distress in therapy clients (Horowitz et al., 1988). The IIP-PD measures interpersonal problems that are specific to PDs across the following subscales: interpersonal sensitivity (11 items), interpersonal ambivalence (10 items), aggression (7 items), need for social approval (9 items), and lack of sociability (10 items; see Appendix G). An example item is, “I argue with other people too much.” Participants rate how distressing each problem is on a 5-point Likert-type scale from 0 (*not at all*) to 4 (*extremely*), with higher mean scores indicating greater problems. In the overall target sample, α ranged between .84 (interpersonal sensitivity) and .94 (lack of sociability). These values are consistent with the original scale development study which reported α ranging between .83 and .90, and evidence of validity such that IIP-PD ratings distinguish between those with and without clinician-rated PDs (Pilkonis et al., 1996). The construct validity of the IIP-PD is further supported by a confirmatory factor analysis showing acceptable fit indices for a hierarchical model with five lower-order factors and a single higher-order factor across two samples (Stern et al., 2000).

Normative Personality Traits. Normative personality, in the form of FFM or ‘big five’ traits was measured using the Big Five Inventory-44 (BFI-44; John et al., 1991). The BFI-44 has 44 items in the form of short sentences that include prototypical

adjectives and additional clarifying information (see Appendix H). An example item is “[I see myself as someone who] ...makes plans, follows through with them.” Between eight and ten items are averaged for each of five subscales measuring the trait domains of extraversion, agreeableness, neuroticism, conscientiousness, and openness. Individuals rate each item on a 5-point Likert scale, ranging from 1 (*disagree strongly*) to 5 (*agree strongly*), with higher scores indicating higher levels of the trait. The BFI-44 has demonstrated acceptable reliability, with mean subscale α estimates ranging between .83 and .85 across multiple parts of one study (Benet-Martínez & John, 1998) and an average test-retest reliability coefficient of .84 across a period of six to eight weeks (Rammstedt & John, 2007). In the current study, α ranged between .71 (openness to experience) and .89 (extraversion). The BFI-44 shows substantial correspondence with the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992a), a longer and well-validated measure of the FFM traits (Benet-Martínez & John, 1998; John & Srivastava, 1999). The BFI-44 takes approximately five minutes to complete (Rammstedt & John, 2007), making it an efficient measure of normative personality traits that does not sacrifice important psychometric properties.

Informant Measures

Demographics. Informants provided information about their age, gender, ethnicity, education level, and employment status through self-report items (see Appendix I). They were also asked to report on the duration and kind of relationship they have with their target.

Pathological Personality Traits. Informants’ perspectives of the target’s pathological personality traits were measured with the Personality Inventory for *DSM-5* –

Informant Report Form (PID-5-IRF; Markon et al., 2013). The PID-5-IRF was developed by modifying the self-report items of the PID-5 to reflect a third person perspective and has 218 items (see Appendix J). The PID-5-IRF retains the same 25 facet- and five domain-level subscales as the PID-5, using the same 4-point Likert-type scale and mean composite scores. Across multiple validation subsamples, the PID-5-IRF demonstrated adequate reliability with facet-level ω and α coefficients both ranging from .72 to .95 (Markon et al., 2013). A later study found strong α coefficients (from .89 to .97) for the trait domains when examining individuals' reports of their spouses (Jopp & South, 2015). In the current sample of informants ($N = 171$), α estimates ranged between .90 (detachment) and .94 (psychoticism and negative affectivity) for the trait domain scores.

Regarding construct validity, exploratory and confirmatory factor analyses were both found to support the purported five-factor structure (Markon et al., 2013). As reviewed above, the level of self-other agreement using the PID-5 and PID-5-IRF is consistent with the broader literature on self-other agreement (Oltmanns & Oltmanns, in press), although the correlations may be spread across a wider range than that typical of normative personality (Jopp & South, 2015; Markon et al., 2013). Convergent validity was supported through theory-consistent alignments between the PID-5-IRF facets and neuroticism, extraversion, agreeableness, and conscientiousness measured using the informant-report form of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992a). Another investigation found that spousal reports using the PID-5-IRF captured significant variance in four of the six categorical PD diagnoses in the alternative *DSM-5* model, although adding spousal PID-5-IRF reports to self-reported PID-5 scores did not significantly increase the amount of variance explained (Jopp & South, 2015). In

a dyadic design with romantic partners, target self-ratings on the PID-5, targets' ratings of their partners' traits as measured by the PID-5-IRF, and partners' ratings of the target's traits on the PID-5-IRF all contributed to relationship satisfaction, with the pathological personality traits found to be detrimental to relationship health (Decuyper et al., 2018). The PID-5-IRF thus has substantial reliability and validity and conceptual correspondence with the PID-5.

Dyadic Trust. The Dyadic Trust scale (Larzelere & Huston, 1980) was included to measure the informant's level of trust in the target. The Dyadic Trust scale is comprised of eight items, including three reverse scored items. The items were reworded slightly to direct informants to rate their perceptions of their target, rather than their 'partner.' An example item is, "I feel that I can trust them completely." The items are rated on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The items are summed to create a total score, with higher scores indicating greater trust. In the original development study, the Dyadic Trust scale had item-total correlations ranging from .72 to .89 (Larzelere & Huston, 1980), and the current study found an alpha estimate of .86. The original development study also found that dyadic trust was positively associated with participants' self-reported love for their partner, and that the correlation was stronger for couples who had been married longer (Larzelere & Huston, 1980). See Appendix K.

Informant Measures – Secondary

The following questionnaires were included in the informant survey as supplementary measures, to be used if the IRM-NS procedure did not result in enough usable data. They were not used in any of the subsequent analyses. The α estimates for

the current study are from a subset of informant cases ($N = 165$), who had no more than 15% missing data on all scales.

Trait Social Behaviour. Informants' perceptions of the target's trait social behaviour were measured using an informant-report version of the IPIP-IPC (Markey & Markey, 2009), see Appendix L. One previous study used an informant-report version of the IPIP-IPC, in an investigation of relationship patterns among roommates (Ackerman & Corretti, 2015). The investigation found modest α coefficients for the octant scores, which is consistent with those for the self-report form. The current study found α coefficients ranging between .46 and .79 for the informant-report octant scores.

Regarding convergent and divergent validity, the aforementioned investigation found that informant-reported warmth was negatively related to PID-5 detachment and antagonism, and positively associated with perceived responsiveness and closeness in the relationship (Ackerman & Corretti, 2015). In contrast, dominance was positively associated with negative affectivity measured with the PID-5, and generally unrelated to aspects of relatedness.

Trait Interpersonal Problems. Informants reported on the target's interpersonal problems using a modified informant-report version of the IIP-PD (Pilkonis et al., 1996). As reviewed above, the IIP-PD has five subscales posited to delineate the interpersonal problems commonly experienced by those with PDs (see Appendix M). Although a formal informant-report version of the IIP-PD has not previously been published, there is support in the literature for the use of informant-report IIP measures. For instance, self- and informant-ratings on the IIP-64 show moderate correlations, with theory-consistent asymmetries such as greater self-reporting of internalizing problems and under-reporting

of externalizing problems (Hill et al., 1998). Other authors report convergent validity between peer-reported PD traits and IIP ratings (Clifton et al., 2005). In study of caregivers using an informant-report version of the IIP-PD, targets' interpersonal sensitivity and aggression were salient stressors for those supporting loved ones with BPD (Lamborn & Cramer, 2020). Moreover, the informant-report IIP-PD scales were found to have strong internal consistency, with α ranging between .85 and .93. Similarly, the current investigation found α estimates between .89 and .93.

Normative Personality Traits. Informants were asked to report on their own normative personality traits, as well as those of the target, using the BFI-44 (John et al., 1991). As described above, the self-report BFI-44 (see Appendix H) has demonstrated adequate internal consistency and test-retest reliability, as well as evidence of convergent validity through strong associations with other FFM measures. The BFI has also been used in other investigations as an informant-report measure. Across studies, the informant version of the BFI-44 has shown α coefficients that are consistent with, if not higher than, the self-report BFI-44 (DeYoung, 2006; Ready & Clark, 2002). The current investigation found α coefficients ranging between .75 and .86 for the informant-report version. Another investigation found that informant reports on the BFI-44 were correlated with gratitude in theory-consistent ways, with agreeableness and extraversion positively associated with gratitude and neuroticism showing the opposite relation (McCullough et al., 2002). See Appendix N for the informant-report version of the BFI-44.

Procedure

Pilot Study

The study was first piloted using a procedure wherein targets would complete the target questionnaires through an online survey on their own computers, at their convenience. At the end of that survey, they were asked to indicate whether they were interested in completing the IRM-NS procedure, and those who expressed interest were invited to attend an in-person session to be socialized to the IRM-NS procedure. However, this procedure was ineffective for several reasons, including poor data quality from the online survey and difficulty having targets come into the lab after indicating their interest in the IRM-NS procedure. As such, an in-lab methodology (described in detail below) was adopted to utilize the participant pool infrastructure to facilitate participants coming to the lab.

Another procedural aspect that was examined in the pilot phase was the acceptability and feasibility of a 10-day versus 20-day IRM-NS procedure. In the online survey methodology, participants were much more likely to indicate their interest in the 10-day condition (three of six participants, 50%) compared to the 20-day condition (one of seven participants, 14%). As such, although the SBI is typically used within a 20-day IRM-NS duration (e.g., Brown & Moskowitz, 1998; Côté, Moskowitz, & Zuroff, 2012; Moskowitz & Zuroff, 2004, 2005), a 10-day procedure was selected for the purposes of increasing feasibility of the current study. See Appendix O for a detailed description of the methods and findings from the pilot phase.

Target Survey

The first study component was a survey completed by the targets. Targets signed up for a specific timeslot through the participant pool, came to an on-campus computer lab at their designated time, and completed the survey on a lab computer in exchange for partial course credit. These in-lab sessions were conducted in groups of no more than three targets at a time. The study advertisement on the participant pool instructed targets to contact their informants ahead of time, to get their email addresses and permission to share them in the study. The target survey was hosted online by *Qualtrics*. All targets first viewed a consent form (see Appendix P), which clearly outlined the components of the study: (a) the initial survey, (b) nominating four informants, and (c) the option of completing the 10-day IRM-NS procedure for additional compensation. The consent form also clarified that the target would not gain access to their informant's responses or vice versa, to encourage candid responding.

After indicating their consent to participate, targets filled out questions pertaining to their demographic details and then were asked to provide the contact information for up to six informants. The PID-5 appeared after the demographics questionnaire, as the pathological personality traits were of primary interest in this study. The social desirability scale and supplementary measures were presented in a randomized order following the PID-5. Four validity check questions that instructed participants to select a specific response (e.g., "Please select "Sometimes or Somewhat False") were distributed throughout the PID-5 and other questionnaires, to assess targets' effort and attention to detail during the survey. A random code was automatically generated for each target, which was used to link their responses to those of their informant.

At the end of the survey, targets were shown an information page (see Appendix Q). Targets were provided with some basic information about the purpose of the study and were discouraged from discussing the study with their nominated informants, to protect all participants' confidentiality. Targets were also asked to provide their name and University of Windsor email address, which was required to compensate targets through the participant pool system. Finally, Canadian, American, and international online resources for mental health support were listed in case the targets found the study upsetting. Targets received two bonus marks toward an eligible course grade for their participation in the 90-minute in-lab session, in accordance with the participant pool policy. Target compensation was not dependent on informant participation (see Vazire, 2006).

Target IRM-NS Procedure

General IRM-NS procedure. In order to gather an ecologically valid measure of the target's social behaviour, an intensive repeated measures in naturalistic settings (IRM-NS) procedure was used, wherein participants described their behaviour in social interactions that emerged naturally in their lives over a period of 10 days, using the SBI questions. This procedure was carried out using a smartphone (app) called MetricWire (www.metricwire.com), a paid service that facilitates repeated measurement by allowing participants to enter real-time data through their smartphones. The interface of the app was configured so that targets could easily initiate and complete an SBI form following each naturalistic interaction. For each interaction, targets first indicated whether they were (a) back-logging a previous interaction they forgot to report, which prompted them to enter the date and time of the interaction, or (b) reporting on an interaction that had just

occurred (see Kiepek et al., 2018). For each interaction, the SBI included some basic contextual information about the interaction, as well as a randomly selected version of four parallel forms of the behavioural questions. Each form took approximately one minute to complete.

Targets were socialized to the IRM-NS procedure during their in-lab session with the researcher (described in detail below), after completing the survey on the lab computers. They engaged in the IRM-NS procedure for 10 consecutive days, which began the day immediately following the in-lab session, so that the targets could have a period to practice with the app for the rest of the day following the in-lab session. The MetricWire app was configured to send a notification on each of the 10 days, at a random time between 8 AM and 8 PM, to remind participants to record their interactions. After completing the IRM-NS procedure, the targets were awarded a \$20 electronic gift-card to Amazon.ca, in addition to their compensation through the participant pool. This compensation was dependent on their consistent reporting across the full IRM-NS procedure, defined as reporting on more than half of the days. After the procedure, targets were informed that they were free to delete the app from their smartphones.

In-lab Socialization. After completing the survey on the lab computer, targets were given a brief explanation of the IRM-NS procedure to gauge their interest in participating. They were informed that the procedure would involve downloading the free MetricWire app to their smartphone, which they would use to submit short responses describing their everyday social interactions multiple times each day for a period of 10 days. They were also informed about the compensation and that their participation in this second part of the study was completely voluntary. Of the 243 targets who participated in

the in-lab session, 212 (87.2%) agreed to participate in the IRM-NS procedure and 204 (83.9%) had usable data from the procedure. Those who declined to participate were excused from the in-lab session, and those who agreed stayed for approximately 15 more minutes, to learn more about the IRM-NS procedure.

Targets first read an online consent form (hosted on *Qualtrics*; see Appendix R) outlining the IRM-NS procedure. After the targets indicated their consent to participate, the researcher sent them an email containing a link to download the app. The researcher then shared detailed information about the IRM-NS procedure, based on Moskowitz and Sadikaj (2011). This started with the study operational definition of a “social interaction,” as follows: (a) the target was in the company of at least one other person, (b) all individuals involved were reacting and responding to each other, rather than there being a one-way flow of information, such as in a lecture, (c) a minimum duration of five minutes, and (d) the interactions took place in person, over the telephone, or through a video-conferencing system such as Skype or FaceTime. Examples of eligible interactions were provided. Targets were also instructed that changes in the environment (e.g. going from a meeting to lunch with the same person), in the composition of the group (e.g. a new person joining the conversation), or in the tone or activity of the interaction would constitute a new study-defined interaction, as long as each resulting segment was at least five minutes in duration. This information was shared so that targets would know how to decide which interactions were appropriate to describe through the app.

Participants were then informed that they should report up to a maximum of 10 interactions each day, in order to limit the time investment needed for the procedure to approximately 10 minutes per day. They were also informed that there was no minimum

number of interactions required each day, to allow for natural fluctuations in social behaviour. However, targets were told that the consistency of their reporting would be monitored, and that they may be contacted if they did not report any interactions for several days. Targets were also instructed to describe each social interaction as promptly as possible in the app after the interaction finished, and to ideally let no more than 24 hours pass before reporting interactions they forgot or were not able to report immediately. Targets were then assisted in downloading the app and registering in the study. Once downloaded, the researcher guided the targets through the SBI and other questions, to practice describing a social interaction through the app. Targets had opportunities to ask questions, were encouraged to contact the researcher if they had difficulties or questions during the 10-day period, and any barriers to reporting consistently (e.g., target forgetfulness) were problem-solved as much as possible.

Informant Survey

Following each target's in-lab session, the researcher randomly selected one of their nominated informants and contacted them by email, using the target's first name in the subject line. The email contained the following: a short message explaining that they were nominated to participate in a study about the target, a unique ID code used to link the informant and target data, and the direct link to the online informant survey (see Appendix S for a template of the email sent to informants). The informant survey was hosted online by *Qualtrics*. Upon launching the survey, informants were prompted to enter the unique ID code listed in the email, which allowed the researcher to track which targets' informants had consented or declined to participate. Next, the informants were shown a consent form (see Appendix T). After providing consent, informants filled out a

short demographics questionnaire, which was followed by the PID-5-IRF. The Dyadic Trust scale and informant versions of the IPIP-IPC, IIP-PD, and BFI-44 were then presented in a randomized order. The self-report BFI-44 was presented last to avoid confusion, as this was the only measure that informants completed about themselves, rather than about the target.

After completing the questionnaires, informants were shown a final information page (see Appendix U), with additional information about the study, reassurance that the target would not have access to their responses, and a list of resources in case some informants found the survey upsetting. Informants who completed the survey were invited to enter a draw for one of four \$25 gift-cards to Amazon.ca in compensation for their time. They were instructed to send an email to an address created specifically for the informant compensation draw. This procedure kept informants' contact information separate from their survey responses. The targets were not made aware of the compensation offered to the informants when providing their nominations, to avoid targets selecting potential informants based on the compensation, rather than their knowledge of the target.

Data Analysis Plan

Self- Versus Informant-Report

Structural Equation Modelling. Structural equation modelling (SEM) was used to examine the differential ability of self- and informant-reported pathological personality traits to predict overall social behaviour. SEM is a flexible, variance-based technique that allows researchers to represent latent variables as underlying factors of observed variables, and to separately model measurement error (Kline, 2011). This is

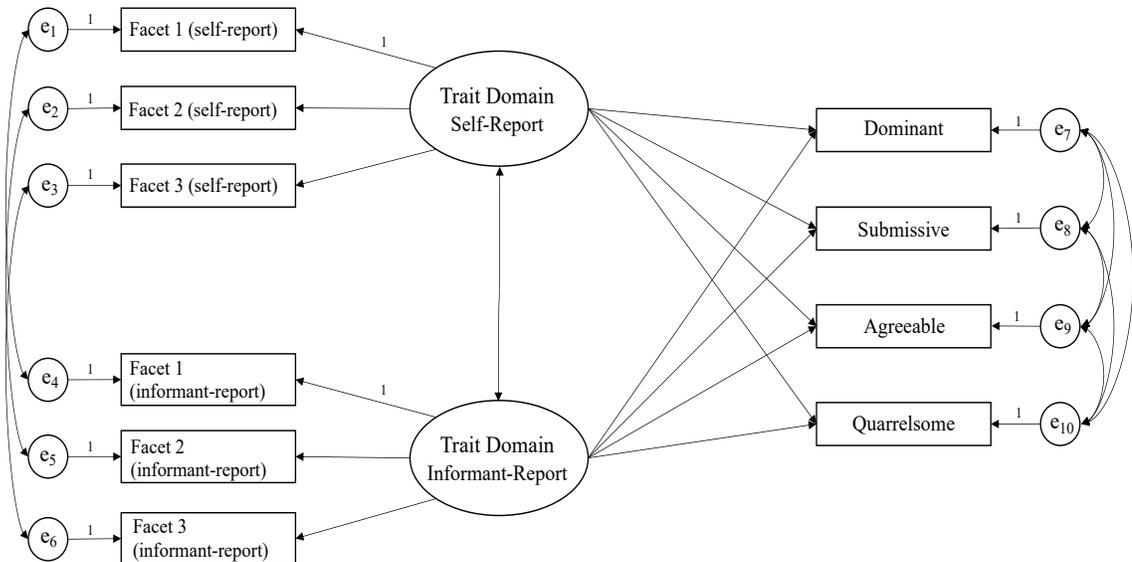
advantageous, as it allows the latent variables, and the relations among them, to be estimated more reliably. The current study examined a series of partially-latent structural equation models, with the PID-5 trait domains modelled as latent variables specified to predict the four forms of social behaviour, which were modelled as nonlatent observed variables. SEM provides a computational advantage in the current study, in that nonindependence between the self- and informant-reports, as well as response bias and method variance across the social behaviour dimensions can be accounted for through correlated error terms, as elaborated below.

See Figure 3 for a generic example of the model specifications. Each of the PID-5 trait domains was tested in a separate model. The PID-5 trait domains were modelled as latent variables, with the three highest loading facets that are unique to that domain, as reported by Krueger and colleagues (2012), serving as the indicator variables. The self- and informant-reported trait domains were modelled as separate latent variables. It was expected that the self- and informant-report latent factors would be modestly correlated, given the reviewed literature. As such, the latent variables were allowed to correlate. However, it was also expected that the self- and informant-reported traits would be correlated partly due to method variance, given the similarities between the PID-5 and PID-5-IRF items, as well as the fact that both reports concern the same individual -- the target. To account for this method variance and nonindependence of the self- and informant-report latent variables, the error terms of the self-reported trait facets were allowed to correlate with the corresponding facet reported by the informant.

Scores for dominant, quarrelsome, submissive, and agreeable behaviour were calculated by averaging over each target's responses from the IRM-NS procedure, and

Figure 3

Generic Template of Self- Versus Informant-Report Model Specification



Note. Trait facets were modelled as indicators of their broader trait domain. Corresponding facets between the self- and informant-reports were modelled with correlated error terms (e.g. e_1 with e_4), to account for nonindependence and method variance. The four social behaviour scales were modelled as nonlatent variables. The social behaviour scales were set to correlate with each other, to account for individual differences in the targets' response tendencies. The self-report and informant-report trait domain latent variables were specified to predict each social behaviour scale.

then modelled as observed variables. Because the social behaviour scores were aggregated across several measurements over time and different situations, they were expected to be stable and reliable estimates of the target's trait social behaviour on each IPC pole. To account for individual differences in the targets' overall tendency to endorse the SBI items regardless of their content, the error terms of the four social behaviour scales were allowed to covary. Paths were specified from the self- and informant-report trait domain latent variables to each of the four social behaviour scale variables.

Maximum Likelihood (ML) was used to estimate the models, which provides significance tests of parameter estimates and makes relatively less stringent demands on sample size than other estimation methods (Kline, 2011). It was decided a priori that if multivariate normality was not supported, the Satorra-Bentler correction would be applied (Satorra & Bentler, 1994, 2010). In addition to parameter estimates, which were used to test the hypotheses, indices of model fit were also inspected. Specifically, the Comparative Fit Index (CFI, Bentler, 1990), Root Mean Square Error of Approximation (RMSEA; Steiger & Lind, 1980) and Standardized Root Mean Square Residual (SRMR; Jöreskog & Sörbom, 1986) were used to evaluate model fit. Guidelines for model fit followed Hu and Bentler's (1999) suggestions of $CFI > .95$ and $RMSEA < .06$.

Hypotheses. The pattern of the path strengths was used to examine H1, which posited that each trait domain, except for negative affectivity, would have its strongest association with one of the forms of social behaviour. Similarly, support for H2 was inferred from the pattern of path coefficients, which were expected to follow the structural circumplex pattern, across the four forms of social behaviour, for each of the pathological personality traits. It was expected that H3a would be supported if the path between informant-reported antagonism and dominant social behaviour was the single strongest path of the model. H3b would be supported if the paths from informant-reported disinhibition to dominant and quarrelsome social behaviour were the strongest in that model. Support for H3c would be evident if informant-reported negative affectivity significantly predicted all four forms of social behaviour. H3d would be supported if the path from self-reported detachment to quarrelsome behaviour was the strongest path of

the model. Finally, support for H3e would be evidenced through the path from self-reported psychoticism to quarrelsome social behaviour being the strongest of its model.

Within-Person Variability

Hierarchical Multiple Regression. The ability of the pathological personality traits to predict the various indices of within-person variability were examined using hierarchical multiple regression analyses (MRA). Six hierarchical MRAs were conducted, with spin, pulse, and the four flux scores each serving as outcome variables in separate models. Mean scores for the five self-reported trait domains were calculated using the items from the three highest loading facets for each domain, as reported by Krueger et al. (2012). These trait domain scores were entered as predictor variables. The calculation of flux, pulse, and spin scores followed the procedure outlined by Moskowitz and Zuroff (2004), which is described in detail in the Results section.

Previous research has demonstrated that the effect of mean-level social behaviour must be controlled for when predicting flux and pulse. As such, the mean score for each form of social behaviour was entered in the first step of the regressions in which flux was the dependent variable (e.g., in the regression predicting flux in dominant behaviour, mean-level dominant behaviour was entered in the first step). Similarly, the mean level of the individual's extremeness in social behaviour was entered as a covariate in the analysis for pulse. The pathological personality trait domains were entered as predictors in the second step of the regressions. Spin scores combine aspects of the four IPC poles and thus do not require that the mean-level of social behaviour be accounted for (Moskowitz & Zuroff, 2005), so there was only one level in that analysis, with the five pathological personality traits as predictors.

Hypotheses. The ability of the pathological personality traits to statistically predict the different forms of within-person variability were used to test hypotheses H4a through H4e, as well as to examine RQ1. Negative affectivity was expected to emerge as the only significant predictor of flux in submissive behaviour (H4a). Next, H4b posits that flux in dominant behaviour will be predicted by disinhibition and negative affectivity; this would be supported if those traits emerged as significant predictors. It was hypothesized that flux in agreeable behaviour will be predicted by negative affectivity, disinhibition, and low levels of detachment (H4c). This would be supported if negative affectivity and disinhibition were found to have significant, positive regression coefficients, and detachment emerges with a significant, negative coefficient.

Flux in quarrelsome behaviour was hypothesized to be predicted by antagonism, negative affectivity, disinhibition, and low levels of detachment (H4d). This would be supported if antagonism, detachment (with a negative coefficient), negative affectivity, and disinhibition were found to be significant predictors. Spin is hypothesized to be predicted by negative affectivity, antagonism, detachment, and disinhibition (H4e). This would be supported if those traits emerged as significant predictors of interpersonal spin. Finally, RQ1 was explored by examining which, if any, of the pathological personality traits emerged as significant predictors of pulse.

CHAPTER V

RESULTS

Data Cleaning

Target Data

Of the 243 targets who were run in-lab, all had 3.1% missing data or less. Specifically, 67.1% of the targets had no missing values on any of the questionnaire items, 29.7% had less than 1% missing data, and 2.9% had between 1% and 3.1% missing data. As such, no cases were removed based on their level of missing data. Expectation Maximization (Dempster et al., 1977) was used to handle the missing values on the item-level data. Little's MCAR test was nonsignificant, $\chi^2(30241) = 397.92, p = 1.00$, indicating missing data were distributed at random. The survey duration times that were automatically recorded by the *Qualtrics* system were not used to exclude cases, because the lab computers were typically set up with the survey open for several minutes before the targets arrived for their session. As such, the survey durations are not an accurate or uniform depiction of the targets' time or effort spent completing the survey. However, because the targets could be observed as they completed the survey in the lab, three cases were flagged for careless responding. Specifically, the researcher observed one searching each browser page for the keyword "Please" in order to identify the validity check questions, one failed all of the validity check questions, and the other completed the survey in approximately eight minutes. After these cases were removed, 240 target responses remained. Due to the extremely unequal group sizes, it was not possible to conduct statistical comparisons between these three cases and the remaining participants in terms of demographic characteristics or other variables of interest.

Informant Data

A total of 284 potential informants accessed the online survey. The general a priori strategy used for data cleaning was to maximize the amount of retained data when possible, with an emphasis on retaining cases with usable data from the PID-5-IRF. First, 19 cases were removed because the informant did not progress past the consent form (remaining $N = 265$). Next, missing data were examined within the PID-5-IRF items only, as this questionnaire was of the greatest interest. This approach was taken to avoid removing participants who had usable PID-5-IRF data but did not complete the questionnaires of secondary interest. This investigation revealed that 73 cases had more than 15% missing data in the PID-5-IRF items, and those cases were removed (remaining $N = 192$).

Survey durations were then examined, and 38 cases (19.9%) were found to have survey durations of more than 120 minutes. It is likely that informants with these long durations had started the survey, closed it, and then returned later to finish. As the informants were reporting about trait qualities of the targets, which were unlikely to change meaningfully over the span of the survey completion, these cases were retained. Five cases were found to have durations of 12.5 minutes or less. These cases were removed (remaining $N = 187$). After this procedure, the shortest duration was 18.1 minutes.

Issues related to pairing the target and informant data were then examined. Three cases were removed because the informant entered the generic survey link instead of the Unique ID code used to pair the data, and thus the data could not be connected with the appropriate target case (remaining $N = 184$). Next, 20 cases were identified wherein two

informants had reported for the same target. These cases were examined for their data quality and amount of missing data in the PID-5-IRF and Dyadic Trust scale items. In order to ensure that each target had only one informant report, 10 of these cases were removed (remaining $N = 174$). Specifically, cases with higher data quality were retained ($n = 4$); and when there was no difference in data quantity or quality, the retained case was selected at random ($n = 6$). Finally, one response was removed because it was provided by a participant who had also served as a target (remaining $N = 173$).

As a final preparation for data pairing, missing data were examined in the Dyadic Trust scale, as the other supplemental questionnaires were not used in the analyses below. Two cases were flagged that had more than 15% missing data on the Dyadic Trust scale and these cases were removed. This procedure resulted in 171 usable informant reports. The remaining missing data were handled using Expectation Maximization (Dempster et al., 1977) on the item-level data. The missing data were found to be missing at random, $\chi^2(15105) = 3490.36, p = 1.00$.

A series of independent sample t tests were conducted, comparing the informants who were included in the final dataset versus those who were excluded. Of note, these analyses were conducted on the raw item-level data and thus each comparison excludes cases that had 100% missing data on the outcome variables or relevant scale items. The t tests showed that the informants who were included in the final dataset ($n = 171$) and those who were excluded ($n = 72$) did not significantly differ in their ratings of the target for any of the PID-5-IRF trait domains or facets used in the subsequent analyses ($ps > .08$). The informants who were included ($n = 171$) and excluded ($n = 21$) also did not differ on their level of dyadic trust in the target ($p = .09$). The two groups did differ

significantly on age, $t(202.34) = 2.51, p = .01$, such that those who were included in the final dataset ($n = 168, M = 27.9, SD = 13.92$) were significantly older on average than those who were excluded ($n = 83, M = 23.9, SD = 10.93$). Finally, 73% (125 out of 171) of the final sample self-identified as female, whereas 65% (54 of 83) of those who were excluded from the final sample identified as female.

IRM-NS Data

The original dataset from the IRM-NS procedure had 4,126 responses. First, cases representing responses submitted during the in-lab practice sessions, the out-of-lab practice period, or those submitted by the researcher to demonstrate how to use the app were flagged. Responses from targets who submitted fewer than three genuine responses were also flagged; this was the a priori minimum number of responses required for participants to be retained in the analyses. Based on these procedures, 249 responses were flagged, representing 6% of the overall responses; 3,877 responses remained after their removal.

For each IRM-NS response, targets were required to record the duration of the interaction they were describing. These durations were examined next. A total of 58 responses were identified where the target reported that the interaction lasted less than five minutes. These responses were removed, which resulted in a new total of 3,819 responses. Finally, the number of interactions reported by each target was once again examined, to ensure that each had at least the requisite three interactions after the above responses had been removed. One target was found who only had two remaining responses; both were removed, resulting in a total of 3,817 valid responses from 204

targets. The responses were evenly divided between the four parallel forms of the SBI, ranging from 975 (25.5%) on Form 1 to 939 (24.6%) on Form 4.

As part of the IRM-NS procedure, targets were required to describe the promptness of their reporting by choosing one of the following: “I just had a social interaction” or “Oops, I forgot to report,” the latter to be used when the target was not able to describe the interaction immediately after it occurred. Examination of these data found that 1,025 interactions (26.9%) were described as “Oops, I forgot to report.” Further analysis revealed that 32 targets (15.7%) used this option to describe more than 50% of their interactions, whereas 43 targets (21.1%) reported all their interactions as “I just had a social interaction.” See Table 6 for a detailed description of the interactions measured through the IRM-NS procedure.

Data Preparation and Linkage

Target and Informant Data

After each dataset was cleaned, the target and informant raw item scores were combined into scales. For the target data, mean scores were calculated for the PID-5 trait facets and domains and the other supplementary scales. A total score was calculated for the Social Desirability scale. Mean scores for the PID-5-IRF trait facets and domains were calculated from the informants’ raw ratings, and a total Dyadic Trust scale score was computed by summing the items.

IRM-NS Data

After the IRM-NS responses were cleaned, the individual SBI items were combined to create four scores for each interaction, representing the level of dominant, submissive, agreeable, and quarrelsome behaviour the target exhibited. The scores were created by

Table 6*Characteristics of Interactions Recorded Through IRM-NS Procedure*

	Number of interactions	% of total interactions
Promptness of reporting		
I just had a social interaction	2789	73.1
Oops, I forgot to report!	1025	26.9
Did not report	3	0.1
Location of interaction		
Home	1501	39.3
School	938	24.6
Recreation	348	9.1
Work	325	8.5
Other	705	18.5
More than one other person present?		
No	2178	57.1
Yes*	1639	42.9
Genders represented in interaction		
Male only	1251	32.8
Female only	1825	47.8
Multiple genders present	708	18.5
Non-binary only	7	0.2
Could not be coded	26	0.7
Relationship to person/people interacting with:		
Friend	1268	33.2
Mixed Group*	690	18.1
Parent	494	12.9
Romantic partner	444	11.6
Sibling	203	5.3
Casual acquaintance	196	5.1
Co-worker	135	3.5
Stranger	106	2.8
Supervisor	66	1.7
Supervisee	7	0.2
Other	208	5.4
	<i>M (SD)</i>	Range
Number of interactions per target	18.6 (13.69)	4 – 135
Duration of interaction (in minutes)	38.41 (53.93)	5 – 720

*Values do not match because “Mixed Group” includes only those with different relationships present (e.g., a friend and a sibling) whereas “More than one other person present” could represent groups where the target’s relationship to each individual present is the same (e.g. multiple friends).

calculating the number of items endorsed for each type of behaviour; the scores thus ranged between 0 and 3. These behaviour scores were then aggregated as outlined below, so that each targets' responses from across the 10-day period were summarized into the various scores needed to test the hypotheses. The average number of interactions reported per target through the IRM-NS procedure was 18.6 ($SD = 13.7$) and ranged from 4 to 135.

Self- versus Informant-Report Analyses. In most studies using the SBI, the social behaviour scores are ipsatized, to control for individual differences in the frequency with which individuals endorse the SBI items (e.g., Moskowitz & Zuroff, 2004). However, studies using path modeling with the SBI have found that ipsatized scores result in models that do not converge (Kopala-Sibley et al., 2013; Rappaport et al., 2014). As such, the social behaviour scales were not ipsatized for these analyses. Targets' social behaviour scales in interactions from across the IRM-NS procedure were averaged, generating scores indexing their mean levels of dominant, submissive, agreeable, and quarrelsome behaviour during the 10-day period. Mean scores were then linked with the data from the target and informant surveys, for use in the SEM analyses. The resulting dataset had 154 cases and included data from all three study components.

Within-Person Variability Analyses. Prior to aggregating the target's responses into the within-person variability indices, the interaction-specific social behaviour scales were ipsatized. For each interaction, a mean score was calculated by averaging across the four SBI social behaviour scale scores. This value was then subtracted from the interaction-specific scores for submissive, dominant, agreeable, and quarrelsome behaviour. Next, to facilitate the calculation of pulse and spin scores, the four social

behaviour dimensions were further reduced to the two primary axes of agency and communion. To create an agency score for each interaction, the submissiveness score for that interaction was subtracted from the dominance score. Similarly, the quarrelsomeness score for each interaction was subtracted from the agreeableness score, to create a communion score. The ipsatized interaction-specific social behaviour scale scores were then averaged over each target's reported interactions, generating four mean-level scores for each participant, representing their average level of submissive, dominant, agreeable, and quarrelsome behaviour over the 10-day period. These variables were calculated for use as covariates.

Flux scores were calculated in a similar way, except that instead of averaging, the standard deviations across the targets' responses were calculated. To calculate pulse and spin scores, targets' agency and communion scores were treated as Cartesian coordinates, with agency plotted on the y-axis and communion on the x-axis. These (x, y) coordinates were transformed into polar coordinates of (r, θ), where r is the square root of (agency² + communion²) and θ is expressed in radians. The value of r indicates the distance of the behaviour from the origin, whereas θ determines the location of the behaviour around the circumplex. Mean and standard deviation scores of r, combining across the 10 days of the IRM-NS procedure, were calculated using SPSS. The participant's standard deviation of r was used to represent pulse, thus indexing variability in the extremeness of targets' behaviour. The aggregated mean and standard deviations of θ were calculated in R Studio (R Core Team, 2020) using the "circular" package (Agostinelli & Lund, 2017), which follows the formulas outlined by Mardia (1972), as used by Moskowitz and Zuroff (2004). Spin scores were represented by the standard deviation of θ values, thus

representing variability in the location of targets' behaviour on the circumplex. The resulting variables were then linked with the target survey data, resulting in 204 cases for use in the multiple regression analyses.

Preliminary Analyses

Independent samples *t* tests were conducted comparing the self-reported personality traits of targets who had varying amounts of additional data. Specifically, targets who only completed the target survey were compared to those who also had informant reports, those who also completed the IRM-NS procedure, and those who had both informant reports and IRM-NS data. In the comparison of targets with informant reports ($n = 171$) and those without ($n = 69$), a significant difference was found for negative affectivity. Specifically, targets who had valid informant reports ($M = 1.47, SD = 0.62$) had significantly higher levels of negative affectivity than targets who did not have a valid informant report ($M = 1.27, SD = 0.62$), $t(238) = 2.20, p = .03$. The group comparisons for detachment, antagonism, disinhibition, psychoticism, and social desirability bias did not reveal significant mean differences ($ps > .30$). Similarly, *t* tests comparing targets who completed the IRM-NS procedure ($n = 204$) with those who did not ($n = 36$) did not reveal any significant group differences on any of the PID-5 trait domains or social desirability ($ps > .06$). Finally, *t* tests comparing targets with data from all three components of the study (target survey, informant survey, and IRM-NS procedure, $n = 147$) to those without all three components ($n = 96$) also did not reveal any significant differences ($ps > .10$).

Spearman rank-order correlations were also computed between the self-reported pathological personality trait domains and social desirability bias (see Table 7). This

Table 7*Correlations between Personality Traits and Social Desirability, Dyadic Trust*

Pathological personality traits	Social desirability (self-report)	Dyadic trust (informant report)
Negative affectivity	-.28	-.25
Detachment	-.23	-.30
Antagonism	-.42	-.39
Disinhibition	-.41	-.25
Psychoticism	-.33	-.25

Note. $N = 147$. Correlations concerning social desirability bias were computed with the self-reported pathological personality traits; correlations with dyadic trust were computed using the informant-reported pathological personality traits.

showed that the tendency to respond in a socially desirable way was negatively associated with targets' self-reported levels on all five trait domains, with correlations ranging from $r_s = -.23$ for detachment to $-.42$ for antagonism. As such, targets who demonstrated greater social desirability bias tended to rate themselves lower on the trait domains. Spearman rank-order correlations were also computed between the informant's level of dyadic trust in the target and their ratings of the target on the pathological personality trait domains (see Table 7). These also showed negative correlations, ranging from $-.25$ (negative affectivity, disinhibition, and psychoticism) to $-.39$ (antagonism). Thus, informants who had greater dyadic trust in their target rated them lower on the pathological personality trait domains.

Self- versus Informant-Report*Assumptions*

Prior to testing hypotheses H1 through H3e, the major assumptions of SEM were examined.

Multivariate Normality of Indicator and Outcome Variables. For each model, the distributions of the indicator variables (the self- and informant-reported trait facets) and the social behaviour outcome variables were examined through skewness and kurtosis values, the Shapiro-Wilks test of normality, and scale histograms. Overall, the pathological personality trait facets were positively skewed, indicating that both self and informant reporters tended to endorse lower levels of the trait facets in the targets. This univariate non-normality was consistent with the significant Shapiro-Wilks tests for all trait facets, both self- and informant-reported. Finally, the histograms depicted largely non-normal distributions. Because univariate normality of the indicator variables was not supported, multivariate normality could not be assumed.

The social behaviour scales, which represented the target's average level of each form of social behaviour across the 10-day IRM-NS period, better approximated normal distributions. All skewness and kurtosis values were between -2 and +2, suggesting that they were consistent with a normal distribution (Pituch & Stevens, 2016). The Shapiro-Wilks tests were nonsignificant for submissive behaviour ($p = .79$) and agreeable behaviour ($p = .58$), but significant for the other two forms of social behaviour. The scale histograms indicated that the social behaviour scales largely approximated normal distributions. However, to correct for the non-normal trait facet distributions, the Satorra-Bentler (1994, 2010) correction was used in the model estimation.

Multivariate Outliers. Mahalanobis distance values were used to identify multivariate outliers on the indicator variables and social behaviour scales. The values were generated separately for each model. A cut-off of 29.59 was used, which corresponds to $df = 10$ and $p < .001$. This revealed no outliers for the models pertaining

to negative affectivity and detachment, four outliers for antagonism, two for disinhibition, and two for psychoticism. To investigate the impact of these outliers, the models were tested twice, once with the outliers included in the sample ($N = 154$) and once with them excluded ($N = 147$). The model solutions for negative affectivity, detachment, and psychoticism largely remained the same whether the outliers were included or not. However, the regression paths were somewhat different for the antagonism and disinhibition models. Overall, the interpretability of these latter two models was clearer when the outliers were removed, so those models are reported below. The model solutions for the sample with the outliers included can be found in Appendix V.

Multicollinearity. Tolerance values were examined for each of the models separately, among the trait facet indicators and social behaviour scores. Across all the models tested, the lowest tolerance value was found in the model for antagonism, in which self-reported manipulateness had a tolerance value of .29. However, because all tolerance values were above the cut-off of .10 (Cohen et al., 2003), the assumption of a lack of multicollinearity among the model variables was satisfied.

Sample Size. SEM is regarded as a large-sample technique, given the significant power required to test complex models and generate stable parameter estimates. Kline (2011) indicates that the median sample size in SEM studies is approximately 200, although the appropriateness of this value depends on the distribution of the outcome variables, complexity of the model, and estimation method. The models tested in the current investigation are likely to require a smaller sample size than others because they are only partially latent, and thus have fewer parameters to estimate. As a balance between feasibility and collecting a moderately large sample, 150 cases with complete

data were sought and 147 were gathered for the current analyses. Because this value may be on the lower end of an ideal sample size, significance tests were evaluated starting at $p < .10$.

Descriptive and Agreement Statistics

See Table 8 for descriptive statistics of the model variables, as well as tests of agreement between the self- and informant-raters. Paired samples t tests were used to examine mean differences between self- and informant-reported levels of the trait facets. These showed that the targets rated themselves significantly higher than their informants did for all trait facets, except for intimacy avoidance, a facet of detachment, for which the difference was not significant. Spearman rank-order correlations were also computed between self- and informant-reports for each facet, which ranged from .08 (grandiosity, a facet of antagonism) to .44 (intimacy avoidance and withdrawal, facets of detachment).

To examine whether the informants' ratings differed according to their type of relationship with the target, a binary variable was created by recoding the informants according to how they knew their target. Friends and romantic partners were combined to represent "chosen" informants ($n = 100$) – those who did not have another external factor connecting them to their target, such as being from the same family or workplace. The remaining informants were considered "non-chosen informants" ($n = 47$) and included parents, children, siblings, co-workers, or other family members of the targets. Although the groups were unequal in size, this grouping was used to combine the different types of informants in a meaningful way.

Table 8*Descriptive and Agreement Statistics for SEM Model Variables*

Trait domain Trait facet	α		$M (SD)$		Target-informant agreement	
	Target	Informant	Target	Informant	$t(146)$	r_s
Antagonism						
Manipulativeness	.83	.64	0.81 (.65)	0.59 (.48)	3.66*	.16
Deceitfulness	.86	.78	0.70 (.56)	0.31 (.35)	7.32*	.12
Grandiosity	.78	.79	0.55 (.51)	0.34 (.44)	4.05*	.08
Disinhibition						
Irresponsibility	.71	.67	0.51 (.46)	0.32 (.37)	4.72*	.29
Impulsivity	.87	.79	0.95 (.67)	0.65 (.57)	5.30*	.41
Distractibility	.91	.88	1.28 (.72)	0.61 (.55)	10.75*	.32
Negative affectivity						
Emotional lability	.88	.87	1.45 (.77)	0.82 (.65)	9.02*	.31
Anxiousness	.91	.92	1.84 (.75)	0.97 (.76)	11.82*	.31
Separation insecurity	.83	.86	0.99 (.68)	0.66 (.62)	5.11*	.22
Detachment						
Withdrawal	.91	.88	1.07 (.68)	0.67 (.56)	6.97*	.44
Anhedonia	.88	.78	1.00 (.68)	0.56 (.45)	7.47*	.25
Intimacy avoidance	.85	.75	0.67 (.67)	0.66 (.57)	0.27	.44
Psychoticism						
Unusual beliefs and experiences	.76	.79	0.73 (.56)	0.28 (.40)	9.08*	.28
Eccentricity	.95	.93	1.16 (.78)	0.56 (.56)	8.89*	.32
Cognitive and perceptual dysregulation	.81	.81	0.72 (.50)	0.33 (.36)	8.64*	.19
Social Behaviour			M	SD		
Dominant			1.49	.33		
Quarrelsome			0.62	.36		
Submissive			1.10	.41		
Agreeable			1.90	.38		

* $p < .001$. $N = 147$.

A series of independent samples t tests were conducted comparing chosen and non-chosen informants (see Table 9). These revealed that chosen informants rated the

Table 9*Comparison of Relation Types on Informant Ratings of Personality Traits*

Trait domain Trait facet	Chosen (<i>n</i> = 100)		Non-chosen (<i>n</i> = 47)		<i>t</i> (145)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Antagonism	.42	.35	.32	.33	1.63
Manipulativeness	.62	.48	.51	.49	1.29
Deceitfulness	.35	.37	.23	.29	2.06*
Grandiosity	.35	.45	.31	.42	0.54
Disinhibition	.60	.42	.37	.40	3.18**
Irresponsibility	.37	.39	.22	.29	2.58†*
Impulsivity	.72	.57	.48	.56	2.40*
Distractibility	.71	.57	.41	.47	3.31†**
Negative affectivity	.90	.60	.65	.51	2.47*
Emotional lability	.90	.66	.65	.58	2.17*
Anxiousness	1.05	.76	.80	.72	1.85
Separation insecurity	.74	.66	.48	.50	2.43*
Detachment	.66	.43	.57	.41	1.15
Withdrawal	.71	.57	.58	.52	1.36
Anhedonia	.56	.46	.56	.41	0.07
Intimacy avoidance	.69	.59	.58	.51	1.17
Psychoticism	.50	.40	.22	.29	4.69†****
Unusual beliefs and experiences	.33	.42	.18	.33	2.15*
Eccentricity	.68	.58	.29	.42	4.60†****
Cognitive and perceptual dysregulation	.40	.38	.17	.27	4.37†****
Dyadic trust	48.36	7.22	47.94	8.43	0.31

Note. “Chosen” refers to self-identified friends and spouses/dating partners of the targets. “Non-Chosen” refers to all other categories of informants, including parents, children, siblings, other family members, and co-workers.

**p* < .05

** *p* < .01

*** *p* < .001

† adjusted for unequal group variances

targets significantly higher for the domains of disinhibition, negative affectivity, and psychoticism than the non-chosen informants did. Further examination of the trait facets showed that, compared to non-chosen informants, chosen informants rated their targets as significantly higher on deceitfulness, irresponsibility, impulsivity, distractibility, emotional lability, separation anxiety, unusual beliefs and experiences, eccentricity, and cognitive and perceptual dysregulation. Chosen and non-chosen informants did not significantly differ in their level of dyadic trust in the target. As a final investigation, a series of paired samples *t* tests were used to compare the chosen informants' ratings on these domains and facets to the targets' self-ratings. These demonstrated that the targets still rated themselves as significantly higher than their chosen informants did, for all of the trait domains and facets examined ($ps \leq .003$).

In the overall sample, the following informant-reported pathological personality trait facets emerged as being over-dispersed (i.e., their standard deviations were larger than their means): deceitfulness, grandiosity, irresponsibility, unusual beliefs and experiences, and perceptual dysregulation. This over-dispersion could be due in part to differences in the perspectives of chosen and non-chosen informants, given the differences discussed above. An exception to this interpretation is grandiosity, as the types of informants did not differ significantly in their ratings. Additionally, many of the informant-reported traits remained over-dispersed after chosen and non-chosen informants were separated. Although there were some significant differences between the types of informants, the group sizes were not sufficient to run the proposed SEM models separately for chosen and non-chosen informants, and all informant-reports (except for

intimacy avoidance) remained significantly lower than the targets' self-ratings. As such, the ratings provided by all types of informants were combined in the following analyses.

Preliminary Confirmatory Factor Analyses

Kline (2011) suggests a two-step procedure for examining the results of SEM models. First, the measurement part of the model is examined, which in the current models relates how well the latent trait domains are represented by the trait facets. After the measurement model is adequate, the structural part of the model is examined, which in this case pertains to the paths between the trait domains and the four forms of social behaviour. Two initial confirmatory factor analyses (CFAs) were examined (see Figures 4 and 5). First, the self- and informant-report latent variables were modelled as correlated factors. The second model added correlated error terms between the corresponding self- and informant-reported facets. Adding the error correlations improved the fit of the CFA models, such that all obtained acceptable fit (see Table 10). All indicators had significant loadings on their trait domains. However, there were a few issues with the detachment model. The facet of intimacy avoidance had relatively low loadings of .41 for the self-report latent variable and .47 for the informant-report latent variable. Additionally, the model solution was such that the error correlation between self- and informant-reported withdrawal had the inadmissible value of -2.40. However, this latter error was not present when testing the larger detachment model, so it seems to be idiosyncratic to the smaller CFA model.

Structural Equation Models

A set of five partially-latent structural equation models were used to examine hypotheses H1 through H3e (see Table 11 for fit indices). All models converged

Figure 4

Preliminary CFA model #1

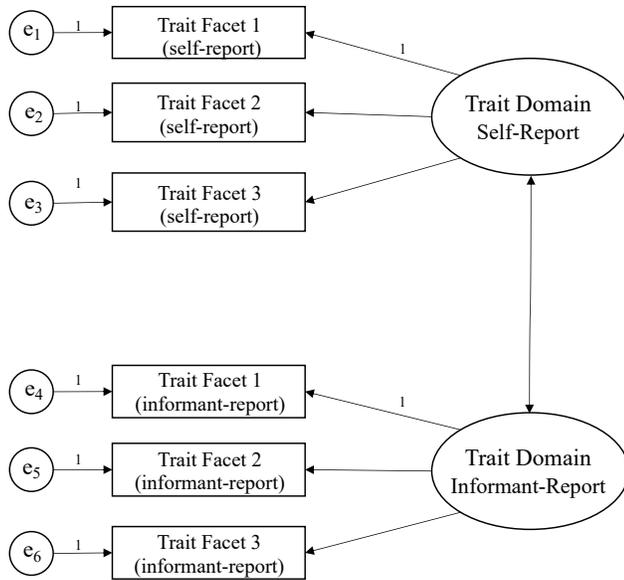


Figure 5

Preliminary CFA model #2

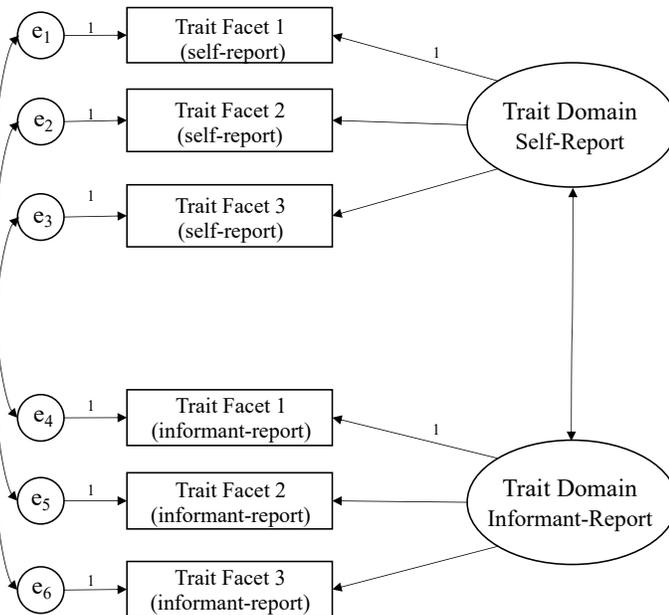


Table 10*Fit Indices for Preliminary CFA Models*

Trait domain (Model*)	χ^2_{SB}	<i>p</i>	CFI	RMSEA	90% CI [LL, UL]	SRMR
Negative affectivity (1)	32.88	< .001	.91	.15	[.10, .20]	.05
Negative affectivity (2)	2.33	.80	1.00	.00	[.00, .07]	.03
Detachment (1)	40.07	< .001	.88	.17	[.01, .22]	.09
Detachment (2)	6.00	.31	1.00	.04	[.00, .12]	.05
Antagonism (1)	7.79	.46	1.00	.00	[.00, .10]	.02
Antagonism (2)	0.45	.99	1.00	.00	[.00, .00]	.01
Disinhibition (1)	20.41	.01	.96	.10	[.05, .16]	.05
Disinhibition (2)	4.62	.46	1.00	.00	[.00, .11]	.03
Psychoticism (1)	13.49	.10	.99	.07	[.00, .13]	.04
Psychoticism (2)	4.18	.52	1.00	.00	[.00, .10]	.03

*Model 1 was specified with two correlated factors ($df = 8$), Model 2 had two correlated factors with correlated error terms ($df = 5$). χ^2_{SB} refers to the Satorra-Bentler adjusted chi-square value.

$N = 147$.

Table 11*Fit Indices for Final SEM Models*

	χ^2_{SB}	<i>p</i>	CFI	RMSEA	90% CI [LL, UL]	SRMR
Negative affectivity	24.11	.29	0.99	.03	[.00, .08]	.04
Detachment	22.09	.39	1.00	.02	[.00, .07]	.05
Antagonism	36.73	.02	0.97	.07	[.03, .11]	.04
Disinhibition	31.29	.07	0.98	.06	[.00, .09]	.05
Psychoticism	19.91	.53	1.00	.00	[.00, .07]	.03

$df = 21$. χ^2_{SB} refers to the Satorra-Bentler adjusted chi-square value. $N = 147$.

successfully. The models largely obtained or exceeded Hu and Bentler's (1999)

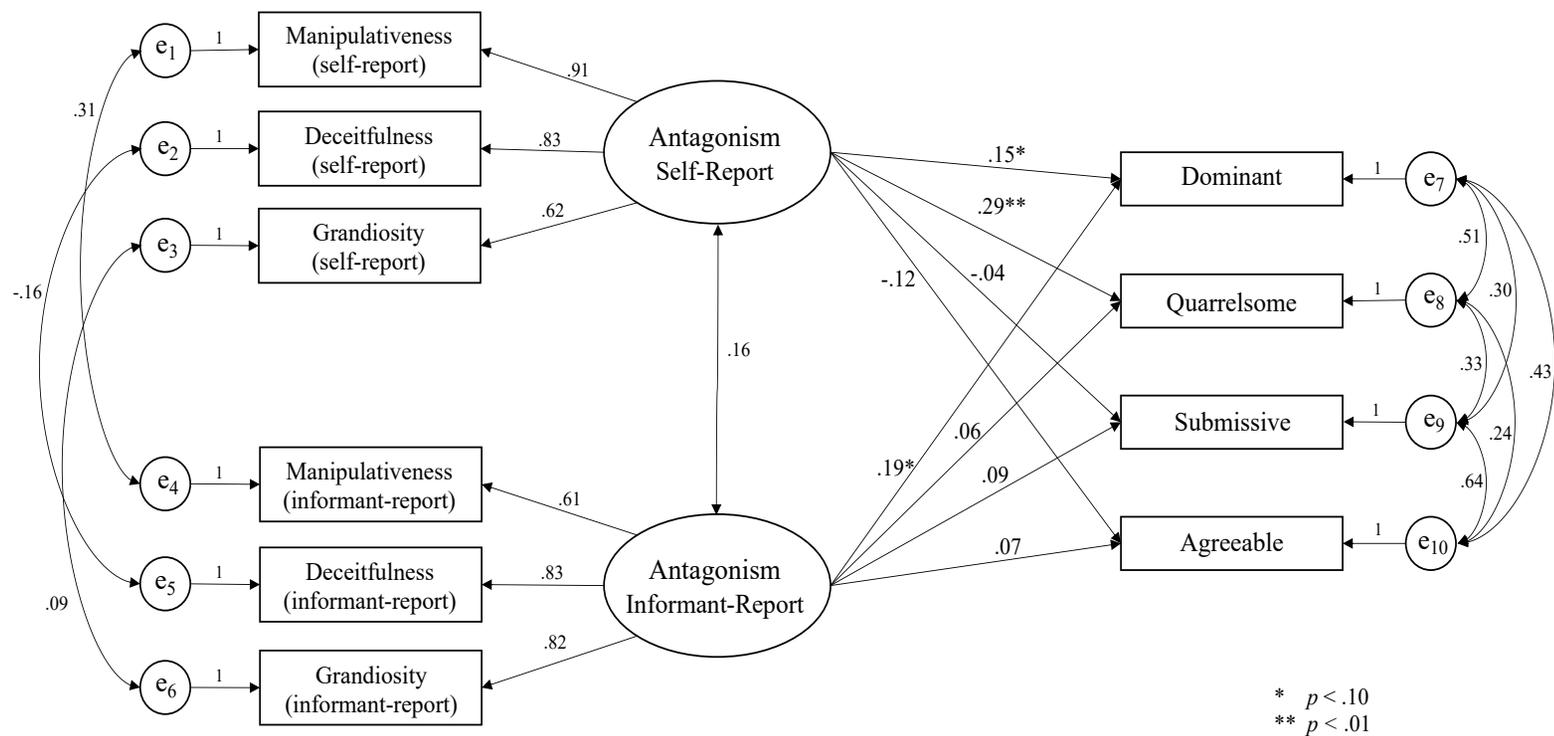
suggestions of CFI > .95 and RMSEA < .06 for acceptable fit indices. See Figures 6

through 10 for the model diagrams. All variable loadings were statistically significant (p

< .001). See Appendix W for the model correlation matrices.

Figure 6

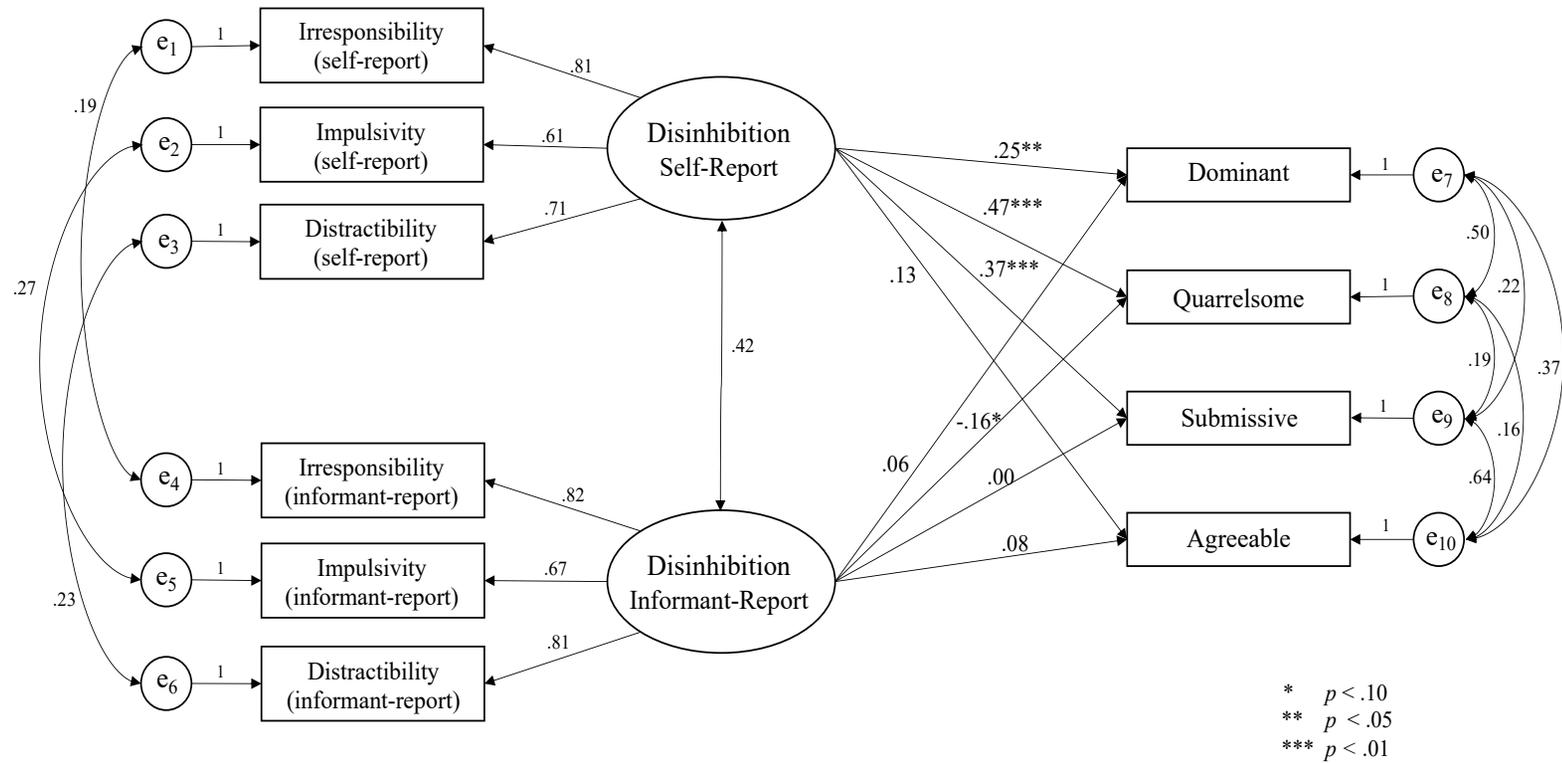
Model Diagram of Antagonism



Note. Standardized parameter estimates are reported. H3a hypothesized that the path from informant-reported antagonism to dominant social behaviour would be the strongest path in the model. H3a was not supported.

Figure 7

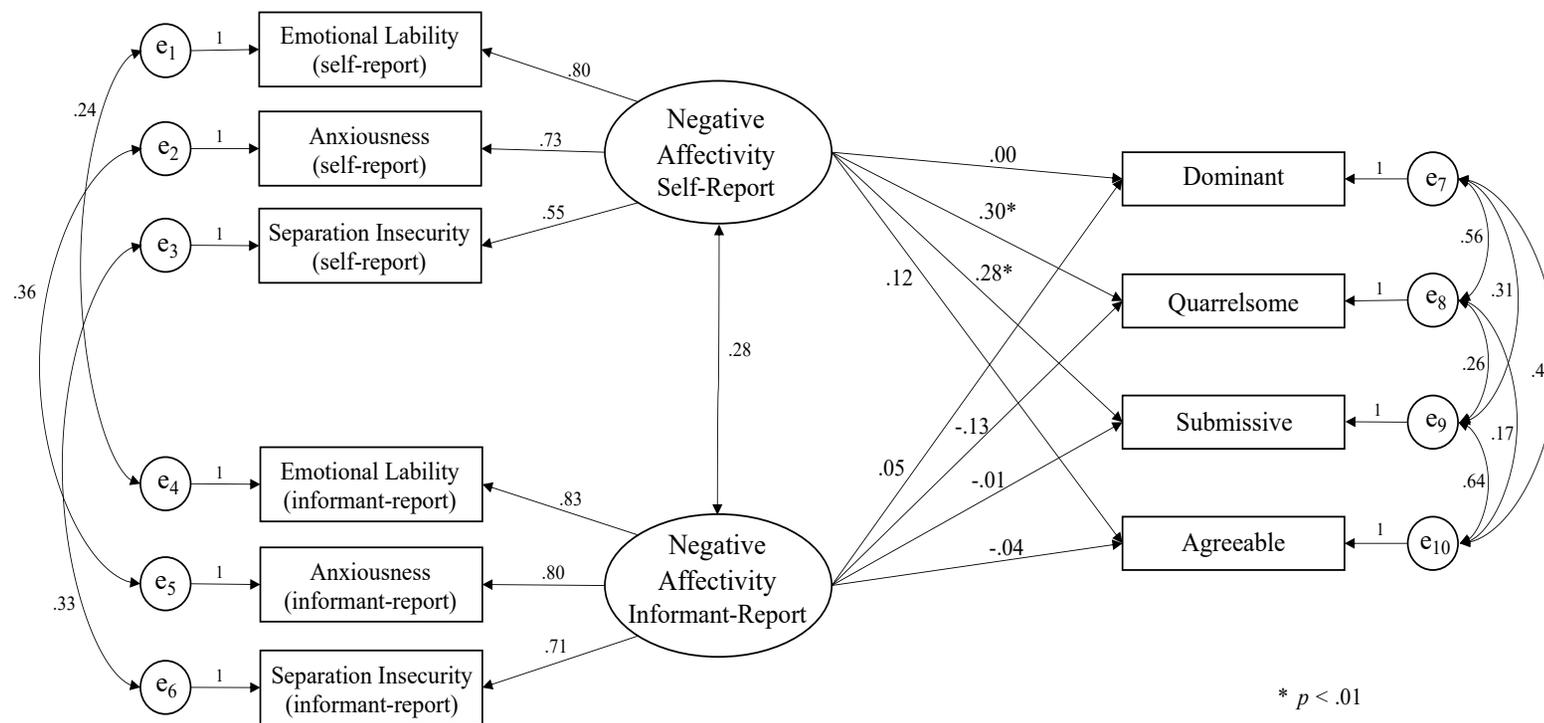
Model Diagram of Disinhibition



Note. Standardized parameter estimates are reported. H3b hypothesized that the paths between informant-reported disinhibition to dominant and quarrelsome social behaviour would be the strongest of the model. H3b was not supported.

Figure 8

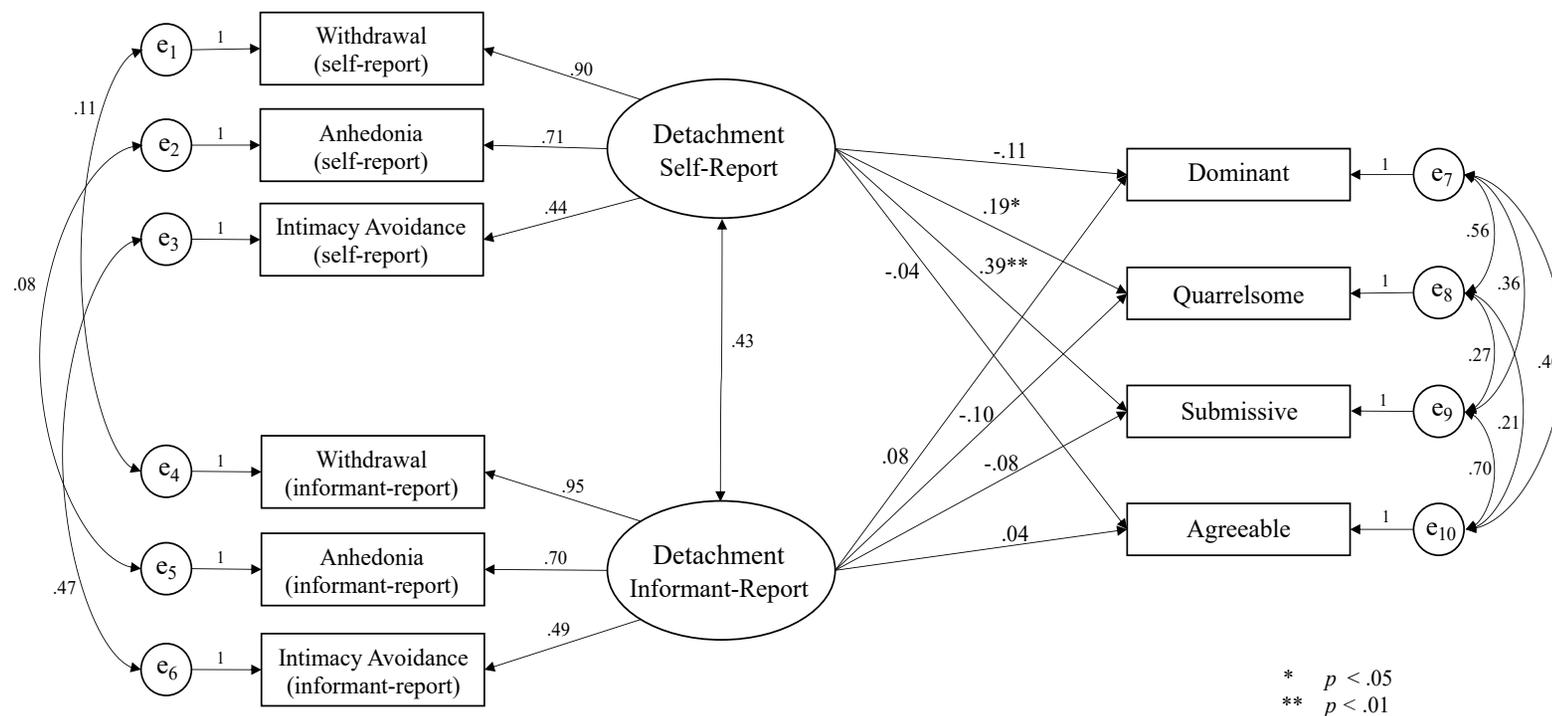
Model Diagram of Negative Affectivity



Note. Standardized parameter estimates are reported. H3c hypothesized that informant-reported negative affectivity would uniformly predict the four forms of social behaviour, with stronger paths than self-reported negative affectivity. H3c was not supported.

Figure 9

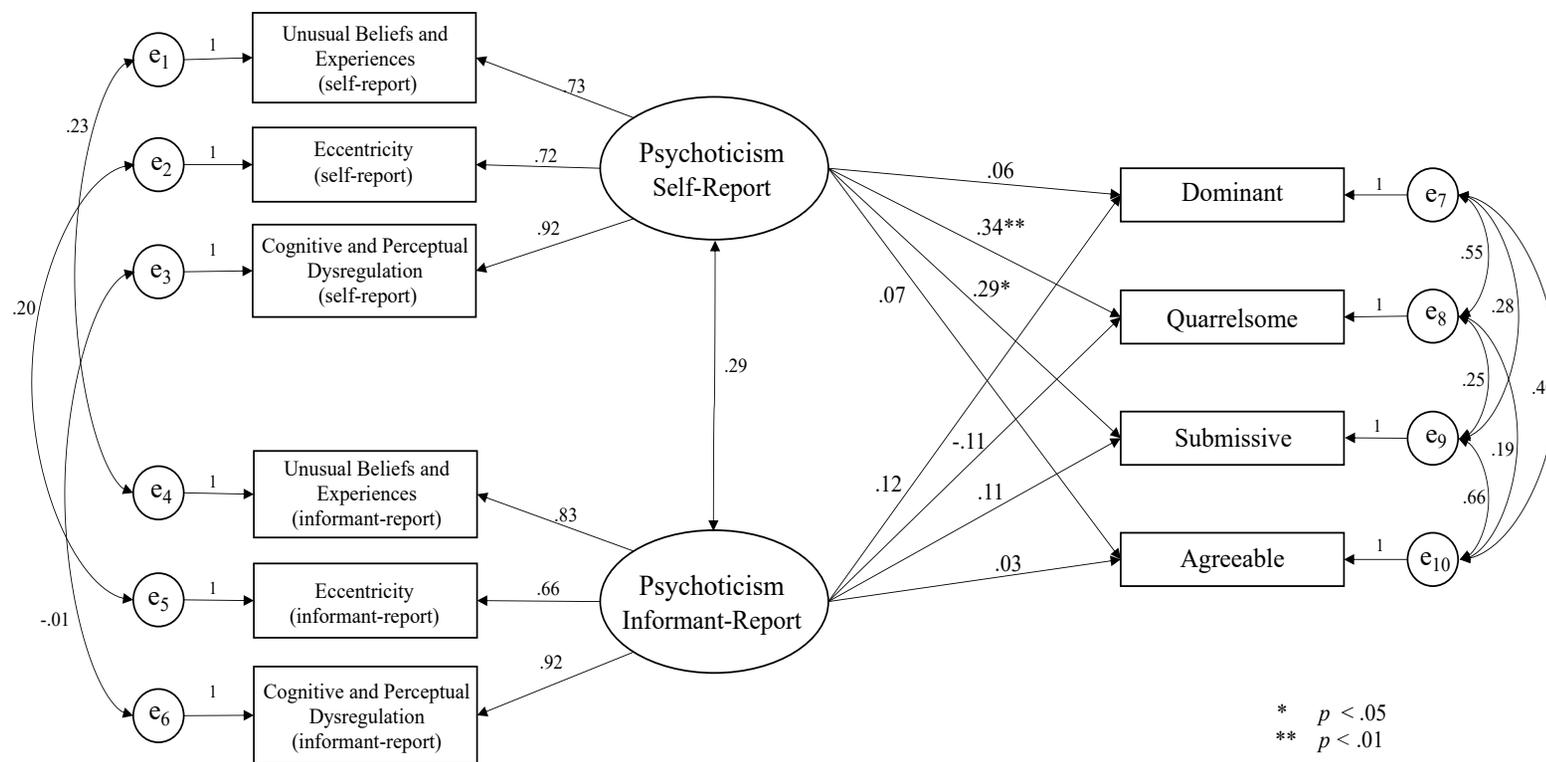
Model Diagram of Detachment



Note. Standardized parameter estimates are reported. H3d hypothesized that the path between self-reported detachment and quarrelsome social behaviour would be the strongest of the model. H3d was partially supported, as this path was significant, although it was not as strong as the path between self-reported detachment and submissive behaviour.

Figure 10

Model Diagram of Psychoticism



Note. Standardized parameter estimates are reported. H3e hypothesized that the path from self-reported psychoticism to quarrelsome social behaviour would be the strongest path of the model. H3e was supported.

Antagonism. The trait facets all had acceptable loadings onto their respective latent variable, ranging from .62 to .91 for self-reported antagonism and .61 to .83 for informant-reported antagonism. Self- and informant-reported antagonism had a modest latent factor correlation of .16. The correlations among the error terms of the trait facets were near-zero (.09) for grandiosity, .31 for manipulateness, and interestingly, -.16 for deceitfulness. The error-term correlations among the social behaviour variables ranged between .24 (quarrelsome and agreeable behaviour) and .64 (submissive and agreeable behaviour). The model paths are discussed below, in the hypothesis testing section.

Disinhibition. The trait facets all had acceptable loadings onto their respective latent variable, ranging from .61 to .81 for self-reported disinhibition and .67 to .82 for informant-report. The latent factors of self- and informant-reported disinhibition were correlated at .42. The error-term correlations among the trait facets ranged between .19 (irresponsibility) and .27 (impulsivity). The error correlations among the social behaviour variables ranged between .19 (quarrelsome and agreeable behaviour) and .64 (submissive and agreeable behaviour). The model paths are discussed below, in the hypothesis testing section.

Negative Affectivity. The trait facet loadings ranged between .55 to .80 for self-reported negative affectivity, and .71 to .83 for informant-report. The latent self- and informant-reported disinhibition factors were correlated at .28. The error correlations among the trait facets ranged between .24 (emotional lability) and .36 (anxiousness). The error correlations among the social behaviour variables ranged between .17 (quarrelsome and agreeable behaviour) and .64 (submissive and agreeable behaviour). The model paths are discussed in the hypothesis testing section.

Detachment. The trait facets had loadings between .44 and .90 for self-reported detachment, and .49 to .95 for informant-report. Self- and informant-reported detachment had a latent factor correlation of .43. The error correlations among the trait facets ranged between .08 (anhedonia) and .47 (intimacy avoidance). The error correlations among the social behaviour variables ranged between .21 (quarrelsome and agreeable behaviour) and .70 (submissive and agreeable behaviour). The model paths are discussed below.

Psychoticism. The trait facet loadings ranged between .72 and .92 for self-reported psychoticism, and .66 to .92 for informant-reported psychoticism. The latent variables for self- and informant-reported psychoticism were correlated at .29. The error correlations among the trait facets ranged between -.01 (cognitive and perceptual dysregulation) and .23 (unusual beliefs and experiences). The error correlations among the social behaviour variables ranged between .19 (quarrelsome and agreeable behaviour) and .66 (submissive and agreeable behaviour). The model paths are discussed below.

Hypothesis Testing

H1 and H2 pertained to the overall pattern of the paths between the pathological personality traits and the social behaviour variables. H1 posited that each of the pathological personality traits, except for negative affectivity, would have a predominant interpersonal theme, such that each would be most strongly related to one form of social behaviour. This hypothesis received moderate support. As will be discussed below, the self-report variables were consistently stronger predictors of social behaviour than the informant-report variables, across all five models. For the self-report latent variables, detachment was most strongly associated with submissive behaviour, whereas antagonism, disinhibition, and psychoticism were all most strongly associated with

quarrelsome behaviour. Self-reported negative affectivity did not show the expected uniform associations across the four forms of social behaviour, and instead most strongly predicted quarrelsome and submissive behaviour. Across the informant-report variables, this pattern was not observed, as many of the path coefficients were near-zero.

H2 posited that the model path coefficients would conform to a circumplex pattern, such that paths to forms of social behaviour that are closer on the perimeter of the circumplex would have more similar coefficients, compared to those that are more distant around the circumplex. As above, this pattern is most clearly demonstrated by the paths from the self-report variables, because the informant-report paths were generally small. For instance, self-reported detachment was most strongly related to submissive behaviour (coefficient = .39). On the circumplex, dominant behaviour is the opposite pole from submissive behaviour, and the path coefficient to dominant behaviour was accordingly negative (-0.11). The two poles that bisect submissive and dominant behaviour – agreeableness and quarrelsomeness – both had path coefficients that fell between these values, -.04 and .19, respectively. A similar pattern is seen in the antagonism model, where the strongest positive path (to quarrelsome behaviour, .29) and the strongest negative path (to agreeable behaviour, -.12) are on opposite sides of the circumplex, with the others falling between these values (.15 for dominant and -.04 for submissive). Although the other models did not demonstrate this pattern as clearly, because all the path coefficients are positive, the relative magnitude of these coefficients generally conform to the circumplex pattern – at least, across the self-reported personality traits.

H3a hypothesized that in the antagonism model, informant-reported antagonism would more strongly predict social behaviour than self-reported antagonism would, and

that this would be most evident for dominant behaviour. This hypothesis received little support. Of the four paths from informant-reported antagonism, the path to dominant social behaviour was the strongest and significant at the $p = .06$ level. However, self-reported antagonism was a better predictor overall, as its path to quarrelsome behaviour was the strongest path of the model ($p = .002$), and it also significantly predicted dominant behaviour ($p = .09$).

H3b posited that informant-reported disinhibition would more strongly predict social behaviour than self-reported disinhibition would, and that informant-reported disinhibition would significantly predict both dominant and quarrelsome behaviour. This hypothesis was not supported. Self-reported disinhibition was a much stronger predictor of social behaviour than informant-reported disinhibition, with significant, positive paths to quarrelsome ($p < .001$), submissive ($p = .002$), and dominant behaviour ($p = .021$). Although informant-reported disinhibition predicted quarrelsome behaviour at $p = .08$, the path coefficient was negative, suggesting that higher informant ratings of disinhibition predicted lower levels of quarrelsome behaviour, contrary to what was expected.

H3c hypothesized that informant-reported negative affectivity would significantly predict all four forms of social behaviour. This hypothesis was not supported. Rather, self-reported negative affectivity significantly predicted quarrelsome ($p = .002$) and submissive behaviour ($p = .002$) but did not significantly predict dominant or agreeable behaviour ($ps \geq .15$). Informant-reported negative affectivity did not significantly predict any of the forms of social behaviour ($ps \geq .11$).

H3d posited that self-reported detachment would predict social behaviour more strongly than informant-reported detachment would, and that it would be most strongly associated with quarrelsome behaviour. This hypothesis was partially supported in two ways. First, self-reported detachment did significantly predict quarrelsome behaviour ($p = .049$), although it had an even stronger path to submissive behaviour ($p < .001$). Second, informant-reported detachment had small, nonsignificant path coefficients to all four forms of social behaviour ($ps \geq .32$), indicating that self-reported detachment was a superior predictor of social behaviour.

H3e hypothesized that self-reported psychoticism would predict social behaviour more strongly than informant-reported psychoticism would, and that it would be most strongly related to quarrelsome behaviour. This hypothesis was supported. Self-reported psychoticism most strongly predicted quarrelsome behaviour ($p < .001$) and also had a significant path to submissive behaviour ($p = .001$). Informant-reported psychoticism did not significantly predict any of the social behaviour variables ($ps \geq .12$).

Within-Person Variability

Assumptions

Prior to testing hypotheses H4a through H4e and RQ1, the assumptions of multiple regression were examined.

Multicollinearity. The PID-5 trait domain scores were examined for multicollinearity. All were found to have tolerance values at or above .50, indicating that multicollinearity among the predictor variables was not a concern.

Outliers and Influential Observations. Univariate outliers were examined on each of the dependent variables separately, using standardized residual scores and a cut-

off value of |3|. Between zero and four potential outliers, for flux in dominant and flux in quarrelsomeness, respectively, were flagged for each analysis. Multivariate outliers on the predictor variables were examined with Mahalanobis Distance, using a cut-off value of 22.46, which corresponds to $p < .001$ and $df = 6$. This flagged one potential outlier. Finally, Cook's distance (using a cut-off of 1.00), was used to identify influential observations, which are cases with extreme values on the predictor and dependent variables. No cases were flagged as influential observations. Cohen et al. (2003) indicate that cases with extreme residual scores, but not extreme influence values, do not greatly affect the calculation of regression coefficients, so no cases were removed.

Linearity. Linearity was examined by creating scatterplots with the residuals from each analysis on the y-axis and each of the predictor variables on the x-axis. In total, 30 graphs were examined (six forms of within-person variability by the five pathological personality traits). Of these, no major issues with linearity were observed, except for in the plots with antagonism, in which the residuals were often clustered around the lower levels of the trait. However, this clustering was not extreme, so the linearity assumption was deemed to be satisfied.

Homoscedasticity. Homoscedasticity was examined by creating scatterplots for each analysis, with the residuals plotted on the y-axis and the predicted values on the x-axis. These plots largely demonstrated a consistent pattern of residuals across the range of the predicted values, although often less so at the more extreme ends of the predicted values. Overall, it appeared that the assumption of homoscedasticity was met.

Normality of Residuals. Skewness and kurtosis values, the Shapiro-Wilks tests of normality, and histogram plots were all examined to determine the distribution of the

residuals. The skewness values were between -2 and $+2$ for all analyses, suggesting that the residuals were normally distributed (Pituch & Stevens, 2016). However, kurtosis values were outside this cut-off for flux in agreeableness and flux in submissiveness. Similarly, the Shapiro-Wilks test was significant for all analyses except for flux in dominance. A review of the histograms showed that each approximated a normal distribution, and thus this assumption was deemed to be met. See Table 12 for descriptive statistics of the model variables.

Hypothesis Testing

It was hypothesized that higher levels of negative affectivity would predict flux in submissive behaviour (H4a). This hypothesis was tested using a hierarchical multiple regression analysis, where targets' ipsatized mean score for submissive behaviour was added in the first step as a covariate, and the pathological personality traits were added in the second step. The initial model resulted in a statistically significant prediction of flux in submissive behaviour, $F(1, 202) = 10.71, p = .001, R^2 = .05$. Adding the pathological personality traits in the second step resulted in an ΔR^2 of $.10, F(6, 197) = 5.92, p < .001, R^2 = .15, AdjR^2 = .13$. In the final model, mean submissive behaviour was a significant predictor of flux in submissive behaviour ($\beta = .18, p = .012$), as was detachment ($\beta = .17, p = .03$). Antagonism was also a near-significant predictor ($\beta = .15, p = .06$). However, as negative affectivity was not a significant predictor, H4a was not supported. See Table 13 for the prediction coefficients from the multiple regressions involving the flux variables.

H4b posited that disinhibition and negative affectivity would predict flux in dominant behaviour. The initial model, with only mean dominant behaviour entered as a predictor, did not result in a significant prediction of flux scores, $F(1, 202) = 0.28, p =$

Table 12*Descriptive Statistics of Multiple Regression Analysis Model Variables*

	<i>M</i>	<i>SD</i>	α
Negative affectivity	1.44	0.62	.93
Detachment	0.92	0.54	.92
Antagonism	0.70	0.52	.92
Disinhibition	0.94	0.51	.91
Psychoticism	0.93	0.57	.94
Flux in submissive behaviour	0.67	0.19	-
Flux in dominant behaviour	0.65	0.14	-
Flux in agreeable behaviour	0.64	0.16	-
Flux in quarrelsome behaviour	0.61	0.19	-
Spin (angular rotation)	0.82	0.28	-
Pulse (vector length)	0.81	0.17	-
Mean submissive behaviour	-0.18	0.28	-
Mean dominant behaviour	0.21	0.24	-
Mean agreeable behaviour	0.62	0.26	-
Mean quarrelsome behaviour	-0.65	0.28	-
Mean angular rotation	1.32	2.11	-
Mean vector length	1.98	0.31	-

$N = 204$

.60. Adding the pathological personality traits resulted in a significant prediction, although the overall model accounted for only 4% of the variance in flux in dominant behaviour, $F(6, 197) = 2.26, p = .039, R^2 = .06 (\Delta R^2 = .06), \text{Adj}R^2 = .04$. There were no significant predictors, although negative affectivity was near-significant ($\beta = .16, p = .07$). As such, H4b was not supported.

H4c outlined that negative affectivity, disinhibition, and low levels of detachment would predict flux in agreeable behaviour. The initial model, with mean agreeable behaviour as the only predictor, significantly predicted flux in agreeable behaviour, $F(1, 202) = 32.51, p < .001, R^2 = .14$. The addition of the pathological personality traits resulted in a significant overall F -test, $F(6, 197) = 7.17, p < .001, R^2 = .18 (\Delta R^2 = .04)$,

Table 13*Prediction Coefficients in Regression Analyses of Flux Variables*

H4a: Flux in submissive behaviour	B	Standard error	β	t	p
Constant	.54	.04	-	14.70	.00
Mean-level submissive behaviour	.12	.05	.18	2.54	.01
Negative affectivity	.03	.03	.11	1.26	.21
Detachment	.06	.03	.17	2.17	.03
Antagonism	.05	.03	.15	1.91	.06
Disinhibition	.03	.03	.07	0.85	.40
Psychoticism	-.01	.03	-.03	-0.36	.72
H4b: Flux in dominant behaviour	B	Standard error	β	t	p
Constant	.55	.03	-	17.83	.00
Mean-level dominant behaviour	.05	.04	.08	1.14	.26
Negative affectivity	.04	.02	.16	1.86	.07
Detachment	.03	.02	.11	1.34	.18
Antagonism	.03	.02	.10	1.29	.20
Disinhibition	.01	.03	.05	0.50	.62
Psychoticism	-.02	.02	-.08	-0.78	.44
H4c: Flux in agreeable	B	Standard error	β	t	p
Constant	.72	.04	-	16.96	.00
Mean-level agreeable behaviour	-.21	.04	-.34	-5.04	.00
Negative affectivity	.01	.02	.02	0.26	.80
Detachment	.06	.02	.21	2.82	.01
Antagonism	.02	.02	.08	1.05	.30
Disinhibition	.00	.03	.01	0.09	.93
Psychoticism	-.03	.03	-.11	-1.21	.23
H4d: Flux in quarrelsome behaviour	B	Standard error	β	t	p
Constant	.70	.05	-	14.18	.00
Mean-level quarrelsome behaviour	.27	.05	.39	5.89	.00
Negative affectivity	-.01	.02	-.02	-0.25	.81
Detachment	.02	.03	.07	0.93	.35
Antagonism	.00	.03	.00	0.02	.98
Disinhibition	.06	.03	.15	1.82	.07
Psychoticism	.02	.03	.07	0.78	.44

Adj R^2 = .15. Together, the predictors accounted for approximately 15% of the explained variance in flux in agreeable behaviour. Mean agreeable behaviour was a significant

predictor ($\beta = -0.34, p < .001$), as was detachment ($\beta = .21, p = .005$). Because detachment had the opposite direction of prediction than what was expected, and negative affectivity and disinhibition were not significant predictors, H4c was not supported.

H4d posited that antagonism, negative affectivity, disinhibition, and low levels of detachment would predict flux in quarrelsome behaviour. Mean quarrelsome behaviour alone significantly predicted flux in quarrelsome behaviour, $F(1, 202) = 44.82, p < .001, R^2 = .18$. Adding the pathological personality traits resulted in a model that accounted for approximately 21% of the variance in flux in quarrelsome behaviour, $F(6, 197) = 9.80, p < .001, R^2 = .23 (\Delta R^2 = .05), AdjR^2 = .21$. Mean quarrelsome behaviour was the only significant predictor of flux in quarrelsome behaviour, $\beta = .39, p < .001$. Disinhibition was the next strongest predictor, $\beta = .15, p = .07$. As such, H4d was not supported.

H4e outlined that negative affectivity, antagonism, detachment, and disinhibition would predict spin. Because there was no mean-level score to enter first, only one model was examined, which resulted in a significant prediction of spin scores, $F(5, 198) = 6.62, p < .001, R^2 = .14, AdjR^2 = .12$. Thus, the pathological personality traits accounted for approximately 12% of the variance in spin scores. See Table 14 for the prediction coefficients for the regression analyses involving spin and pulse scores. Antagonism was a significant predictor of spin scores ($\beta = .27, p < .001$), as was detachment ($\beta = .20, p = .011$). Thus, H4e was partly supported.

Finally, Research Question #1 (RQ1) was: “will any of the pathological personality traits significantly predict pulse scores?” RQ1 was tested with a hierarchical multiple regression, with only mean r scores entered in the first step, which resulted in a nonsignificant model, $F(1, 202) = .001, p = .98$. Adding the pathological personality

Table 14*Prediction Coefficients in Regression Analyses of Spin and Pulse*

H4e: Spin	B	Standard error	β	t	p
Constant	.59	.05	-	11.15	.00
Negative affectivity	.02	.04	.04	0.45	.66
Detachment	.10	.04	.20	2.55	.01
Antagonism	.15	.04	.27	3.61	.00
Disinhibition	.00	.05	.00	0.01	.99
Psychoticism	.01	.05	.02	0.20	.84
RQ1: Pulse	B	Standard error	β	t	p
Constant	.76	.09	-	8.71	.00
Mean vector length	.00	.04	.00	0.02	.98
Negative affectivity	-.01	.03	-.04	-0.49	.62
Detachment	.02	.03	.06	0.71	.48
Antagonism	-.01	.03	-.04	-0.52	.61
Disinhibition	.04	.03	.13	1.45	.15
Psychoticism	.02	.03	.06	0.62	.54

traits did not significantly improve the prediction, $F(6, 197) = 1.03, p = .41, R^2 = .03$, $AdjR^2 = .001$. No predictors were significant.

Further Analyses

To better understand the associations between the personality traits and forms of within-person variability, Spearman's rank correlations were calculated (see Table 15). These results were largely consistent with the above regressions; spin and flux in submissive behaviour had consistent, positive correlations with the pathological personality traits. The other forms of within-person variability had more variable correlations with the personality traits. Additionally, correlations were calculated between the within-person variability scores and their respective mean-level score (see Table 15). These indicated that flux in quarrelsomeness and flux in submissiveness had moderate

Table 15*Correlations between Within-Person Variability and Traits, Mean Behaviour*

	Flux in Dominant	Flux in Quarrelsome	Flux in Submissive	Flux in Agreeable	Pulse	Spin
Negative Affectivity	.18	.19	.28	.14	.09	.18
Detachment	.16	.18	.29	.22	.10	.25
Antagonism	.19	.20	.18	.15	.03	.31
Disinhibition	.19	.30	.24	.14	.19	.22
Psychoticism	.11	.27	.22	.09	.12	.23
Respective mean*	.03	.40	.24	-.40	.04	-

*e.g., for flux in dominant behaviour, the value in this row represents its correlation with mean dominant behaviour

positive correlations with their respective mean-level variables, suggesting that individuals who demonstrate more quarrelsome or submissive behaviour are also likely to demonstrate greater within-person variability on these dimensions. Conversely, flux in agreeableness had a moderate negative correlation with mean agreeable behaviour, suggesting that individuals who demonstrate more agreeable behaviour tend to do so quite consistently. Finally, pulse and flux in dominant behaviour had near-zero bivariate correlations with mean vector length and mean dominant behaviour, respectively.

Refer to Table 16 for a summary of the hypotheses, relevant variables, and outcome of the analyses for each hypothesis tested.

Table 16*Summary of Hypotheses, Relevant Variables, and Outcome*

Hypothesis	Predictors	Criterion Variables	Outcome	
H1 *	Each trait, except negative affectivity, would have a predominant interpersonal theme	Pathological personality traits	Interpersonal circumplex poles (Dominant, quarrelsome, submissive, and agreeable behaviour)	Partial support. Supported for self-reported traits; not for negative affectivity
H2 *	Circumplex structure will emerge in models	Pathological personality traits	Interpersonal circumplex poles	Supported only for self-reported traits
H3a *	Informant-report superior to self-report; most strongly predicts dominant behaviour	Antagonism (self- and informant-reported)	Interpersonal circumplex poles	Not supported
H3b *	Informant-report superior to self-report; most strongly predicts dominant, quarrelsome behaviour	Disinhibition (self- and informant-reported)	Interpersonal circumplex poles	Not supported
H3c *	Informant-report superior to self-report; predicts all four forms of social behaviour	Negative affectivity (self- and informant-reported)	Interpersonal circumplex poles	Not supported
H3d *	Self-report superior to informant-report; most strongly predicts quarrelsome behaviour	Detachment (self- and informant-reported)	Interpersonal circumplex poles	Partially supported (self-report superior, most strongly predicted submissive behaviour)

H3e *	Self-report superior to informant-report; most strongly predicts quarrelsome behaviour	Psychoticism (self- and informant-reported)	Interpersonal circumplex poles	Supported
H4a **	Significant predictor: negative affectivity	Pathological personality traits, mean submissive behaviour	Flux in submissive behaviour	Not supported
H4b **	Significant predictors: negative affectivity, disinhibition	Pathological personality traits, mean dominant behaviour	Flux in dominant behaviour	Not supported
H4c **	Significant predictors: negative affectivity, disinhibition, low detachment	Pathological personality traits, mean agreeable behaviour	Flux in agreeable behaviour	Not supported
H4d **	Significant predictors: negative affectivity, disinhibition, low detachment, antagonism	Pathological personality traits, mean quarrelsome behaviour	Flux in quarrelsome behaviour	Not supported
H4e **	Significant predictors: negative affectivity, disinhibition, detachment, antagonism	Pathological personality traits	Spin	Partially supported (antagonism and detachment only significant predictors)
RQ1 **	Do any of the pathological personality traits significantly predict pulse scores?	Pathological personality traits, mean vector length	Pulse	No

* Analyzed using partially latent structural equation models

** Analyzed using hierarchical multiple regression analyses.

CHAPTER VI

DISCUSSION

The broadest aim of this project was to contribute to the literature about the alternative *DSM-5* model for personality disorders, which is currently regarded as an ‘emerging model’ by the American Psychiatric Association. The model improves on many critical issues related to the categorical approach to conceptualizing personality disorders. Furthermore, adding to the alternative model’s nomological net will hopefully contribute to moving the broader field toward recognizing the value of a dimensional diagnostic system for personality disorders. More specifically, this study sought to examine the relations between social behaviour and the pathological personality traits embedded in the alternative *DSM-5* model. Social impairment is almost ubiquitously associated with personality pathology in the broader literature (Hopwood et al., 2013; Seivewright et al., 2004; Skodol et al., 2002; Wilson et al., 2017), but more research is needed to establish how the pathological personality traits relate to various patterns of social behaviour. Daily social behaviour represents an important arena in which personality is expressed (Hopwood et al., 2013; Sullivan, 1953), and impairment in social relationships constitutes one of the most stable functional morbidities associated with personality disorders (Gunderson et al., 2011; Skodol et al., 2005). Understanding how the stylistic traits of the alternative *DSM-5* model relate to daily patterns in social behaviour as defined by the interpersonal circumplex (Kiesler, 1983; Leary, 1957; Wiggins, 1991) thus offers an important area of validation for this innovative model.

More specific still, the study aimed to examine the associations between the pathological personality traits and social behaviour from two different perspectives. The

first compared the utility of self- versus informant-reported personality traits in predicting stable trends in the targets' social behaviour. To date, this study is the first to contrast the predictive validity of self- and informant-reported pathological personality traits from the alternative *DSM-5* model in this way. The current study also emphasized the ecological validity of the outcome measure, using an intensive repeated measures in natural settings (IRM-NS) design to measure social behaviour. The use of this methodology offers an improvement on past designs in this area, wherein shared method variance is a significant issue. Based on past research connecting the pathological personality traits to the dimensions of the interpersonal circumplex, as well as the SOKA model of interpersonal perception (Vazire, 2010), it was hypothesized that informants would be more valid reporters of antagonism, disinhibition, and negative affectivity compared to self-raters, through stronger connections to how the targets actually behaved in day-to-day interactions; whereas for detachment and psychoticism, self-reports would be better able to predict social behaviour than would informant-reports.

The second perspective concerns the connections between the pathological personality traits and multiple indices of within-person variability in social behaviour. An individual's level of within-person variability concerns the range and fluctuation in behaviour they exhibit over time and in different contexts, and stands in contrast to the stable, dependable, trait-like aspects of their behaviour (Fleeson & Gallagher, 2009; Moskowitz & Zuroff, 2004). The extant literature indicates that excessive variability in social behaviour is a marker of dysfunction (Côté et al., 2012; Erickson et al., 2009; Wright, Hopwood, et al., 2015). Given that the pathological traits represent maladaptive personality characteristics, they were investigated as potentially more robust predictors of

within-person variability in social behaviour, compared to normative personality traits, given the shared element of dysfunction. Specific hypotheses were made for the within-person variability concepts of interpersonal flux, pulse, and spin as outlined by Moskowitz and Zuroff (2004), with the overall expectation that, in most cases, higher levels of the traits would predict higher levels of within-person variability.

In this study, target participants rated their own pathological personality traits, nominated informant raters who provided parallel ratings of the target's traits, and a significant subset of targets completed an IRM-NS procedure to measure their daily social behaviour as it naturally emerged. It is worth noting that the target participants were university students; one major benefit of the dimensional model of personality pathology is that it can account for personality variation in the broader population, rather than suggesting that dysfunction is specific to certain types of people. Given that the traits are thought to vary in level across the general population, the current study provides an examination of the traits in a generally well-functioning sample. Additionally, the study examined daily social behaviour defined in terms of the interpersonal circumplex, which outlines the 'building blocks' of all social interactions, whether adaptive or maladaptive. As such, the current study provides a well-rounded view of how the pathological personality traits relate to daily expressions of mean-level and variability in dominant, submissive, agreeable, and quarrelsome behaviour, within a university sample.

Predictive Validity of Self- versus Informant-Reports of Personality Traits

Major Findings

Agreement. The targets reported themselves to have significantly higher mean levels of the pathological traits than their nominated informants did, for all facets except

intimacy avoidance. Self-informant correlations for the trait facets ranged between .08 (grandiosity, a facet of antagonism) and .44 (intimacy avoidance and withdrawal, facets of detachment). In terms of the trait domains, antagonism had the lowest latent factor correlation between self- and informant-reports, at .16, whereas detachment had the highest self-informant agreement, with a correlation of .43 between the latent factors. There were also significant differences in the ratings given by different types of informants. Specifically, friends and romantic partners rated the targets as significantly higher on various facets of disinhibition, negative affectivity, and psychoticism, compared to family members and co-workers. The largest differences were found within the domain of psychoticism.

Structural Relations. When self-reported, each of the pathological personality traits appeared to have a predominant interpersonal theme. Specifically, detachment most strongly predicted submissive behaviour; antagonism, disinhibition, and psychoticism most strongly predicted quarrelsome behaviour; and negative affectivity had paths of similar strengths to submissive and quarrelsome behaviour. This provided partial support for H1, which posited that each trait, except for negative affectivity, would be most strongly associated with one form of social behaviour. However, contrary to expectations, negative affectivity did not demonstrate uniform correlations with behaviour from around the interpersonal circumplex, and instead demonstrated a predominant interpersonal theme of submissive-quarrelsome behaviour. H2 hypothesized that the model paths would correspond to a circumplex pattern. This was largely supported when examining the self-reported personality traits. The associations of the traits with the four forms of social behaviour largely approximated the circumplex structure, with diminishing

coefficients when moving from the strongest path around the rest of the circumplex. This pattern was most visible for detachment and antagonism, but also held for the other models.

Predictive Validity. Across the five models examined, self-reported personality was a superior predictor of social behaviour, compared to informant-reported personality. Self-reported antagonism significantly predicted quarrelsome behaviour, with a weaker path to dominant behaviour, and higher antagonism levels predicted higher levels of both forms of social behaviour. Higher levels of informant-reported antagonism predicted higher dominant behaviour at a more marginal level; antagonism was the only model where informant-reported personality had a theory-consistent prediction of social behaviour, as will be discussed below. As such, H3a, which posited that informant-reported antagonism would be a stronger predictor of social behaviour than would self-reported antagonism and that informant-reported antagonism would predict dominant social behaviour most strongly out of the four forms of social behaviour, was not supported.

Self-reported disinhibition significantly predicted both quarrelsome and submissive behaviour, and had a weaker, though still significant, path to dominant behaviour. Higher self-reported disinhibition predicted higher levels of the three forms of social behaviour. Informant-reported disinhibition predicted quarrelsome behaviour at a marginally significant level, although the path coefficient was negative, which suggested that higher informant-reported disinhibition predicted lower levels of quarrelsome behaviour. This is inconsistent with both the path from self-reported disinhibition, and what was expected by hypothesis H3b. Additionally, although it was hypothesized that negative affectivity

would significantly predict all four forms of social behaviour, self-reported negative affectivity was found to significantly predict greater quarrelsome and submissive behaviour. Informant-reported negative affectivity did not significantly predict any of the forms of social behaviour, which was counter to H3c.

Self-reported detachment significantly and positively predicted submissive behaviour, with a smaller but still significant positive path to quarrelsome behaviour, whereas informant-reported detachment did not significantly predict any of the forms of social behaviour. This provided partial support for H3d, which posited that self-reported detachment would be a better predictor of social behaviour than informant-reported detachment, but also that informant-reported detachment would most strongly predict quarrelsome behaviour out of the four forms of social behaviour. Finally, self-reported psychoticism significantly predicted quarrelsome and submissive behaviour, whereas informant-reported psychoticism did not significantly predict any of the forms of social behaviour. This provided full support for H3e.

Connections to Past Research

Correlational Agreement. Self- and informant-reports demonstrate moderate correlational agreement on the pathological personality traits. For instance, a recent meta-analysis found the range to be from .33 (psychoticism) to .53 (disinhibition; Oltmanns & Oltmanns, in press). However, the current study found overall agreement to be somewhat lower than these values. Agreement was highest for detachment ($r = .43$), which was closely followed by disinhibition ($r = .42$). These results are consistent with the aforementioned meta-analysis which found that detachment had the second-highest agreement of the trait domains (Oltmanns & Oltmanns, in press). Two other recent

studies also found the highest self-informant agreement for detachment, out of the five trait domains (Bottesi et al., 2018; Lim et al., 2019). Detachment theoretically and empirically aligns as the opposite pole of extraversion (Griffin & Samuel, 2014; Krueger & Markon, 2014; Watters et al., 2019), which is a highly visible trait (Connelly & Ones, 2010). Thus, although detachment involves remaining distant from other people, which could result in lower visibility of the trait, perhaps this tendency to shy away from others was accurately noticed by informant raters, leading to higher agreement.

Self-informant agreement was lowest for antagonism ($r = .16$). The facet of deceitfulness is particularly interesting; in the SEM model, the self- and informant-reported deceitfulness variables had a small negative correlation. This result suggests that as targets self-reported greater deceitfulness, their informants rated them as having lower levels of deceitfulness. Self-other agreement on antagonism as measured by the PID-5 has been mixed in past literature. Specifically, whereas one sample of community adults showed that antagonism had the highest agreement out of the trait domains (Sleep et al., 2019), two others found that it had the lowest agreement of the traits, in samples of Italian community adults (Bottesi et al., 2018) and Canadian community-dwelling adults, many with a history of psychiatric difficulties (Carnovale et al., 2019). Additionally, an earlier study found that out of a set of maladaptive personality traits, self-informant agreement was lowest for constructs such as mistrust, manipulation, and entitlement (Ready, Watson, & Clark, 2002).

Antagonism falls in the pole opposite to agreeableness (American Psychiatric Association, 2013), which is a highly evaluative trait (Connelly & Ones, 2010). Theoretically, this suggests that antagonism would have lower self-other concordance

than less evaluative traits (Funder, 1995; Vazire, 2010). The mixed results regarding self-informant agreement on antagonism across studies suggests that there may be other, unexamined effects occurring. One possible explanation could be that, in the context of typical relationships, informants' reports of targets' antagonism are particularly biased, such that informants are motivated to overlook elements of the targets' antagonism and may report a sunnier view of the targets than even the targets themselves, thus giving rise to lower agreement. Although not specific to antagonism, Leising et al. (2010) refer to a similar phenomenon as a "pal-serving bias" (p. 679) that is especially pronounced for socially evaluative traits. Under Funder's (1995) RAM model of interpersonal perception, this would represent a failure of informants to detect or correctly utilize trait-relevant information in their judgment of the targets' antagonism.

However, Cooper et al. (2012) examined a sample of community adults where the targets and informants had known each other for an average of 30 years, and thus could have developed this bias to protect the relationship. Yet, informants gave higher ratings of the target's narcissism than the targets did themselves, including at lower levels of latent narcissism. Another study found that, for highly narcissistic targets, greater acquaintance (examined both cross-sectionally and as it developed longitudinally) was associated with more negative informant ratings (Carlson et al., 2011). As such, acquaintance with, or liking the target alone does not necessarily engender an overly positive view of the target's antagonistic traits.

Another possibility is that antagonism is manifested differently across the underlying levels of the trait. Antagonism includes attitudinal indicators, like entitlement and grandiosity, which may not be expressed through clear, observable behaviours at

lower levels of the trait. In contrast, at higher, more blatant levels of antagonism, it may become more behavioural in expression, and thus, observable. In contrast to above, under the RAM model (Funder, 1995), this would reflect a failure of correct trait-relevant information being available to informants, which would prevent them from making an accurate judgment. Finally, these elements of bias and trait observability may combine in specific ways across varying levels of antagonism. At low levels of antagonism, less observable attitudinal markers and the informant pal-serving bias may prevail in making informant-reports less relevant, whereas at higher levels of antagonism, more observable, behavioural expressions but greater target self-serving bias may take over, thus making informant-reports particularly useful. However, these explanations remain speculative and require further study.

Mean-Level Agreement. The targets rated themselves significantly higher than their informants did, on all trait facets except for intimacy avoidance. Mean-level differences in the pathological personality traits measured with the PID-5 have also been examined in past studies, with conflicting results. Sleep et al. (2019) found that in a community sample where dyad members were randomly assigned to target and informant roles, targets rated themselves significantly higher on most PID-5 traits. Similarly, Samuel et al. (2018) showed that clients in outpatient individual psychotherapy reported themselves as higher on the PID-5 traits than their therapists did, with a small to medium effect size, and the greatest discrepancy in the domain of psychoticism. Finally, in an investigation that combined PID-5 scores into composites representing the categorical diagnoses retained in the alternative *DSM-5* model, self-reported maladaptive personality

ratings were almost always higher than ratings provided by a marital partner (Ingram & South, 2020)

However, another recent study found that among a community sample with significant psychiatric history, informants tended to rate their targets slightly higher on the PID-5 traits than the targets rated themselves, with the mean-level discrepancy increasing as the target's underlying level of personality pathology increased (Carnovale et al., 2019). An earlier meta-analysis was inconclusive on the issue of mean-level differences between self- and informant-reporters on maladaptive personality traits more generally (Klonsky et al., 2002). Taken together, these results suggest that targets are likely to report themselves to have higher mean levels of the PID-5 traits compared to their informants' ratings, especially at relatively low levels of the traits, but this difference may change direction and increase as the target's overall level of personality pathology increases.

There were also mean-level discrepancies between the ratings given by different types of informants. Specifically, friends and romantic partners rated the targets as significantly higher on several trait facets, predominantly relating to disinhibition, negative affectivity, and psychoticism, compared to other types of informants. Although these "chosen" informants' ratings were closer in level to the targets' self-ratings, they all remained significantly lower than targets' self-ratings. Yalch and Hopwood (2017) found differential self-informant correlational agreement according to the types of relationships between the target and informants; for instance, romantic partners had higher agreement with the target on relationship insecurity, compared to other informants, but comparatively lower agreement on anxiousness. More broadly, the results of the current

study appear to align with research showing that higher levels of acquaintance and relational closeness provide access to privileged information about more internal traits (Connelly & Ones, 2010; Starzyk et al., 2006; Watson et al., 2000). This is especially so for the differences observed related to psychoticism and negative affectivity, which are less observable traits.

Predictive Validity. Overall, informant-reported personality demonstrated lower ability to predict mean-level patterns in social behaviour, compared to that of self-reported personality. This result was contrary to three of the five hypotheses about the relative predictive validity of self- and informant-reported personality. The disappointing performance of informant-reported personality may be related to the sample recruited for the current study: university targets with relatively low self- and informant-reported levels of the traits. Past studies that have shown informant-reported personality to be superior to self-reported personality in the prediction of social functioning outcomes are largely concentrated to those using clinical samples (e.g., Klein, 2003; Miller et al., 2005; Ready et al., 2002; Ro et al., 2017). In contrast, other studies using community or undergraduate samples tend to show more modest results for the predictive validity of informant-reported personality. For instance, several such studies have found that informant-reported personality accounts for a small percentage of explained variance in social outcomes -- over and above the prediction by self-reported personality -- but do not necessarily demonstrate unique relations with outcomes (Balsis et al., 2015; Oltmanns et al., 2002). Another college sample showed that self-reported personality had greater associations with functioning than informant-reported personality did, although the functioning variables were self-reported (Lim et al., 2019).

The design used by Lim and colleagues (2019) raises the important issue of method variance. The current study provided a very conservative test of the association between informant-reported personality and social behaviour, due to the controls placed on shared method variance. Methodologically, this was controlled by using different measurement approaches to assess the predictor and criterion variables. Specifically, the pathological personality traits were measured using parallel forms of a questionnaire for the informant and target reports, but social behaviour was measured using an IRM-NS design and the scores thus reflect specific behaviours actually carried out in real-life interactions, as recorded by the targets. Using these different measurement approaches reduces the inflation due to shared method variance; past research has shown that questionnaire and IRM-NS data correlate only as high as $r = .50$ when examining constructs of the same domain, indicating that there are important differences between these two measurement strategies (Fleeson & Gallagher, 2009). As the targets self-reported their social behaviour within the IRM-NS procedure, there is still some shared method variance between self-reported personality and the self-reported social behaviour, due to having the same information source (viz. the target). However, the net result of these efforts is a very conservative test of the predictive power of informant-reported personality on social behaviour.

Considering the rigour of this test, it is worth further considering the models in which informant-reported personality emerged with non-zero prediction paths. The SOKA model suggests that the target is likely to have much more accurate information about internal, unobservable traits like neuroticism, whereas informants have slightly more accuracy for observable traits like extraversion (Vazire, 2010). This postulate is

consistent with antagonism and disinhibition emerging as the only models where informant-reported personality significantly predicted any form of social behaviour – although they were not superior predictors to the self-reported traits, the informant reports were the most useful for the most observable traits. However, informant-reported disinhibition had a negative path toward quarrelsome behaviour, which is somewhat difficult to interpret conceptually. One potential explanation could be that informants expected more disinhibited targets to behave impulsively, which led them to interpret quarrelsome behaviour in a light-hearted way. Overall, informant-reported antagonism appeared to be the most useful of the five informant-reported traits, although it was still not as predictive as self-reported antagonism.

The SOKA model also suggests that socially evaluative traits are likely to be more accurately perceived by informants, due to biases that cloud targets' self-perception (Vazire, 2010). Although all of the pathological personality traits are evaluative to some extent, antagonism uniquely represents tendencies to directly oppose others, through its primary facets of deceitfulness, manipulativeness, and grandiosity (American Psychiatric Association, 2013; Krueger et al., 2012). Thus, whereas traits like negative affectivity and detachment may not be particularly desirable, they may be relatively more so than antagonism. This interpretation is consistent with findings in the current study that, of the five trait domains, self-reported antagonism had the highest negative correlation with targets' social desirability bias, and that informant-reported antagonism had the highest negative association with the informants' rating of dyadic trust in the target. Additionally, antagonism lies in the opposite pole of agreeableness, which is thought to be particularly evaluative (Connelly & Ones, 2010). Accordingly, antagonism was also the trait domain

with the lowest agreement in the current study, and the only model in which informant-reported personality had a conceptually meaningful path to social behaviour. Taken together, it appears that the low self-informant agreement on the target's antagonism provided an opening for both perspectives to give largely nonoverlapping information, and that both were useful to some extent in predicting social behaviour.

Pathological Personality Traits and Within-Person Variability in Social Behaviour

Major Findings

Overall, the models using the pathological personality trait domains to predict within-person variability in social behaviour accounted for only a modest percentage of variance. This ranged from approximately 6% of the variance for the model predicting flux in dominant behaviour to 23% of the variance in flux in quarrelsomeness scores. However, the mean-level scores for social behaviour, which were entered as covariates, sometimes accounted for large amounts of the explained variance. Specifically, for the models predicting flux in quarrelsome behaviour and flux in agreeable behaviour, the mean-level scores accounted for more than half of the explained variance. In contrast, for flux in submissiveness, the overall model accounted for approximately 15% of the variance in flux scores, with the pathological personality traits accounting for 10% of that. Overall, the pathological personality traits made the biggest contributions to predicting flux in submissiveness and spin scores. By far the least predictive model was observed for pulse, which accounted for only 3% of the variance, with no significant predictors.

In terms of the specific predictors of the within-person variability scores, there was little overall support for H4a through H4e. For flux in submissive behaviour, mean-level

submissive behaviour was the strongest predictor, which was followed by detachment. Antagonism also rendered a marginally significant predictive effect. Thus, individuals who demonstrated greater variability in submissive behaviour tended to have higher overall submissive behaviour and higher levels of trait detachment. These results failed to support H4a, which posited that flux in submissive behaviour would be predicted by negative affectivity. Flux in dominant behaviour had no significant predictors; the predictor that was closest to reaching significance was negative affectivity. As such, H4b, which hypothesized that negative affectivity and disinhibition would predict flux in dominant behaviour, was not supported.

Mean-level agreeable behaviour was the strongest predictor of flux in agreeableness, with a negative coefficient, followed by detachment, which had a positive coefficient. These results indicate that individuals who demonstrated higher overall levels of agreeable behaviour tended to do so quite consistently, as they showed less variability in agreeable behaviour. Conversely, individuals who were more detached tended to demonstrate greater variability in their agreeable behaviour. This did not support H4c, which hypothesized that low levels of detachment, and high levels of negative affectivity and disinhibition would predict flux in agreeable behaviour. Regarding flux in quarrelsome behaviour, mean-level quarrelsome behaviour significantly and positively predicted flux, meaning that individuals who demonstrated higher overall quarrelsome behaviour also had more variability on this dimension. Disinhibition was a marginally significant predictor. As such, H4d was not supported as low levels of detachment, but high levels of antagonism, negative affectivity, and disinhibition, were expected to predict flux in quarrelsome behaviour.

Antagonism and detachment both emerged as significant predictors of interpersonal spin, indicating that individuals with higher levels of antagonism and detachment were more likely to display a wide range of behaviour from around the interpersonal circumplex. H4e hypothesized that negative affectivity, detachment, antagonism, and disinhibition would all predict spin scores, so it received partial support. Finally, one research question was put forth (RQ1): “do any of the pathological personality traits significantly predict pulse scores?” Neither mean-level vector length, which represented the target’s mean level of extremeness in their behaviour, nor any of the pathological personality traits predicted pulse scores. This suggests that variability in the extremeness or intensity of social behaviour is not reliably related to any of the major pathological personality traits.

Connections to Past Research

Variance Explained by Models. The proportion of variance explained by the models was largely consistent with past literature in this area. In their seminal study on personality predictors of flux, pulse, and spin scores, Moskowitz and Zuroff (2005) found that normative FFM traits accounted for little variance in pulse and flux in dominance scores, which was consistent with the current study. They also found that sex, neuroticism, extraversion, and agreeableness collectively accounted for 33% of the variance in spin scores, which was primarily driven by high neuroticism and low agreeableness. However, the current study found that the traits accounted for only 12% of the variance in spin scores, with detachment and antagonism emerging as the only significant predictors. In both studies, personality traits collectively accounted for modest amounts of variance across the models predicting within-person variability in social

behaviour, further supporting conclusions that within-person variability in social behaviour is related to, but conceptually distinct from, personality.

Influence of Mean-Level Scores on Prediction. As individual predictors, mean dominant, submissive, and quarrelsome behaviour have each previously been found to significantly predict their respective form of within-person variability (Moskowitz & Zuroff, 2005). In the current study, mean dominant behaviour was not a significant predictor of flux; however, mean submissive, quarrelsome, and agreeable behaviour were, with mean agreeable behaviour and mean quarrelsome behaviour accounting for the majority of explained variance in their respective models. Other studies have found that mean-level quarrelsome behaviour and flux in quarrelsome behaviour appear to overlap to a great extent (Kopala-Sibley et al., 2013; Rappaport et al., 2014), suggesting that flux in quarrelsome behaviour may not provide much more substantive information beyond mean levels of quarrelsome behaviour.

The current study found significant overlap between mean-level and flux scores for both poles of the communion dimension, although with opposite signs. High levels of mean agreeable behaviour were negatively associated with flux in agreeable behaviour, but mean quarrelsome behaviour was positively associated with flux in quarrelsome behaviour. Thus, people who behave in a more agreeable way tend to do so quite consistently, whereas those who have higher levels of quarrelsome behaviour demonstrate greater instability in quarrelsome behaviour. These results are generally consistent with the hypothesis that greater within-person variability is a marker of dysfunction, as higher levels of agreeable behaviour are associated with lower variability and better outcomes on functioning measures (e.g., Ro & Clark, 2013). Additionally,

individuals with higher FFM agreeableness have been shown to have lower levels of interpersonal spin and flux in quarrelsome behaviour (Moskowitz & Zuroff, 2005).

Salient Predictors. Flux in submissive behaviour has not shown consistent relations to the FFM traits in past studies (Moskowitz & Zuroff, 2005). However, out of the four flux scores examined in the current study, flux in submissiveness had the strongest associations with the pathological personality traits. Flux in submissiveness was predicted by detachment and, more marginally, antagonism, and the pathological personality traits accounted for more variance than mean-level submissive behaviour did. Flux in dominant behaviour has also shown little relation to the FFM traits (Moskowitz & Zuroff, 2004, 2005), but it has been shown that individuals with BPD (and thus elevated levels of negative affectivity, disinhibition, and antagonism) show higher levels of flux in dominant behaviour (Russell et al., 2007). In the current study, no significant predictors of flux in dominant behaviour emerged except for a marginal prediction by negative affectivity.

Past studies have shown support for antagonism (Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007), extraversion (Moskowitz & Zuroff, 2005), and elements of negative affectivity and disinhibition (Russell et al., 2007) as predictors of flux in quarrelsome behaviour. However, in the current study, disinhibition was the only pathological personality trait that emerged as a marginally significant predictor of quarrelsome behaviour. Additionally, as noted above, mean-level quarrelsome behaviour has shown to overlap to a great extent with flux in quarrelsome behaviour in past studies (Kopala-Sibley et al., 2013; Rappaport et al., 2014), as it did in the current study. Additionally, there is consistent support for flux in agreeable behaviour being positively predicted by

extraversion (Moskowitz & Zuroff, 2004, 2005) and features relevant to neuroticism like self-criticism, anxiety, and BPD symptoms (Kopala-Sibley et al., 2013; Rappaport et al., 2014; Russell et al., 2007). However, only detachment emerged as a significant predictor in this study, which is not consistent with past results.

No peer-reviewed empirical studies have reliably linked personality features to pulse, or variability in the extremeness of behaviour. Although traits such as disinhibition and negative affectivity may have conceptual links to variability in social behaviour, through unmodulated outbursts or intense emotional experiences, this was not borne out by the current study. Neither mean vector length nor the pathological personality traits were significantly associated with pulse scores, and the overall regression analysis was not significant. Based on these results, it is unclear what exactly pulse scores represent substantively, if anything. In contrast, spin appears to be the most empirically substantiated form of within-person variability in social behaviour. Interpersonal spin shows the most consistent, but also most broad, associations with maladaptive personality features, with several studies supporting neuroticism, low agreeableness, and low extraversion as important predictors (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Côté et al., 2012; Kopala-Sibley et al., 2013; Moskowitz & Zuroff, 2004, 2005; Russell et al., 2007), and some evidence that disinhibition may also be implicated. The current study found that antagonism and detachment emerged as significant predictors, which aligns quite well with this past research. The consistency of these results, especially in contrast to the findings for flux and pulse, suggests that spin is the most reliably substantiated, and thus most meaningful form of within-person variability in social behaviour of those outlined by Moskowitz and Zuroff (2004).

Implications of these Findings. Of the FFM traits, extraversion and low levels of agreeableness have been identified as fairly robust predictors of within-person variability (Côté et al., 2012; Moskowitz & Zuroff, 2005). Accordingly, these traits' maladaptive variants in the alternative *DSM-5* model – detachment and antagonism, respectively – were the most consistent predictors in this study. These results also align with past studies projecting the FFM traits onto the interpersonal circumplex, wherein extraversion and agreeableness are thought to be the most interpersonally-loaded traits of the FFM (Schmidt et al., 1999; Widiger, 2020). Previous studies have consistently linked neuroticism to interpersonal spin (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020; Côté et al., 2012; Moskowitz & Zuroff, 2005), and other studies have shown neuroticism to be particularly important in trait conceptualizations of the categorical personality disorders (Wiggins & Pincus, 1989). However, this study did not find consistent associations between negative affectivity and the indices of within-person variability; negative affectivity showed only a marginal prediction of flux in dominance, which has not been reliably predicted by personality traits in past studies. The current study showed that higher levels of the traits predict higher levels of within-person variability, which provides general support for the interpretation that excessive within-person variability is maladaptive. However, the associations in the current study were no stronger than those found in past literature predicting within-person variability from the normative FFM traits, which dampens this interpretation.

Trait detachment predicted higher scores for flux in submissive behaviour, flux in agreeable behaviour, and spin. Particularly relevant to trait detachment is the finding that variability in the form of spin is consistently associated with social relationships that are

less close (Côté et al., 2012). However, the direction of this association is not yet clear. It is possible that detachment drives the correlation, such that people who are more detached demonstrate greater interpersonal spin, due to poorer understanding of how to navigate the social landscape or simply less interest in doing so. However, recent findings that higher spin is associated with greater emotional and behavioural reactivity to others' perceived behaviour (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020) suggest that individuals with high spin are especially attentive to others' interpersonal behaviour, rather than particularly aloof. As such, another possible interpretation is that higher levels of interpersonal spin beget trait detachment, such that greater variability prevents the development of intimate social relationships. Similarly, variability in submissive and agreeable behaviour could represent placating behaviours that maintain detachment from others. Moskowitz and Zuroff (2005) point to the influence of social threats or punishments as potential drivers of within-person variability in social behaviour. Although they primarily connect this to trait neuroticism, it may also be relevant to presentations involving trait detachment, such as avoidant personality disorder under the alternative *DSM-5* model.

Antagonism was also implicated in spin and, to a lesser extent, flux in submissive behaviour. It seems likely that antagonism and detachment represent two stylistically different interpersonal approaches related to variability in social behaviour, given the conceptual differences between the traits. In the context of antagonism, variability in social behaviour could represent attempts to manipulate or dominate others, rather than reflecting placating behaviours. As mentioned, spin is associated with less close social relationships, but in the context of antagonism, this social distance may reflect the

individual's oppositional tendencies. Similarly, Côté et al. (2012) found that the association between spin and co-worker avoidance was mediated by co-worker negative affect. Moreover, those authors suggest that the lack of consistency in behaviour may cause individuals with higher interpersonal spin to be perceived as less dependable or honest, qualities that are conceptually related to antagonism. Accordingly, targets who were perceived as more antagonistic were trusted less by their informant in the current study.

Alternative DSM-5 Model of Personality Disorders

In the models examining self- versus informant-reported personality traits, the self-reported traits showed theory- and empirically-consistent associations with the circumplex-defined social behaviour. Generally, none of the traits were significantly associated with agreeable behaviour and instead aligned more with quarrelsome behaviour. The exact interpersonal style of each trait varied, with detachment most strongly predicting submissive behaviour, negative affectivity significantly predicting quarrelsome and submissive behaviour, and antagonism, disinhibition, and psychoticism most strongly predicting quarrelsome behaviour. These results are largely consistent with past research linking the pathological personality traits to the interpersonal circumplex dimensions. Those studies have emphasized dominant and quarrelsome behaviour in association with antagonism and disinhibition, and submissive and quarrelsome behaviour with detachment and psychoticism, but more diffuse associations with negative affectivity (Schmidt et al., 1999; Southard et al., 2015; Williams & Simms, 2016; Wright, Pincus, et al., 2012). Overall, these results provide evidence that the stylistic traits of the alternative *DSM-5* model show meaningful associations with real-world social behaviour,

and largely align with oppositional interpersonal tendencies. In turn, these findings are consistent with evidence that individuals with elevated personality pathology tend to have poorer functioning in interpersonal relationships (Hopwood et al., 2011; Skodol et al., 2002; Wilson et al., 2017).

An unexpected finding of the current study was that self-reported personality traits had more predictive validity in accounting for patterns in social behaviour than informant-reported traits did -- across all the trait domains examined. As outlined above, this finding stands in contrast to much of the past literature examining the relative validity of self- and informant-reported maladaptive personality traits. Due to the design of the current study, it should not be assumed that these results would also hold for clinical, or more severely disordered, populations. The finding that self-reported personality traits offer adequate validity in normative populations has implications for future research examining how the stylistic traits operate in less disordered populations; as noted, one of the benefits of a dimensional model is that it can be used to account for personality pathology across a wider range of presentations, not just in those with clinically significant dysfunction. The findings here suggest that, particularly in predictive models, researchers can likely rely on self-reported traits as a valid way to assess the pathological personality traits in university samples. However, because the alternative *DSM-5* model was developed foremost as a clinical tool for the diagnosis of personality disorders, more research is needed to understand the benefit of having multiple perspectives about the target's traits in a clinical context.

Additionally, some of the traits significantly predicted patterns of within-person variability, with detachment and antagonism being the most consistent predictors. None

of the trait formulations for the personality disorders in the alternative *DSM-5* model combine detachment and antagonism (American Psychiatric Association, 2013). As such, there is no single personality disorder that is implicated by these results as being particularly prone to elevated levels of within-person variability in social behaviour. However, either antagonism or detachment are implicated in all the personality disorders retained for the alternative model; antagonism is included in the formulations for antisocial, borderline, and narcissistic personality disorders, whereas detachment is implicated for avoidant, obsessive-compulsive, and schizotypal (American Psychiatric Association, 2013). Thus, within-person variability may be an interpersonal pattern associated with personality dysfunction more generally, rather than being specific to one personality disorder. However, across the models, the traits only accounted for a maximum of 12% of the variance in within-person variability scores, suggesting that the pathological traits alone cannot fully explain patterns in within-person variability in social behaviour.

Limitations

General Limitations

To begin, the results of this study are limited by the sample characteristics. The targets were all relatively high-functioning university students, who had relatively low self- and informant-reported levels of the pathological traits. Additionally, the target sample was predominantly female, which likely affected which of the pathological personality traits were most represented in the sample. Meta-analytic data show that men demonstrate higher levels of narcissism, especially on elements related to exploitativeness, entitlement, and power orientation, with a small but consistent effect

size (Grijalva et al., 2014). Additionally, a large study found mean-level gender differences on several FFM traits, with women scoring higher on neuroticism and agreeableness (Weisberg et al., 2011). Based on these past findings, the current sample may be particularly under-representative of antagonism, but elevated for negative affectivity. Overall, these features of the sample likely resulted in a restricted range of, and limited variance in, the traits, which could attenuate their association with the outcome variables (Goodwin & Leech, 2006).

This study also required more time and effort from the targets than a standard participant pool study, through the in-lab session and IRM-NS procedure. These greater demands may have screened out individuals who were particularly high on the traits. Interestingly, approximately 30% of the targets appeared to have not read the participant pool ad closely, as they had not contacted their potential informants before coming to the lab, despite being instructed to do so. Although those who participated were able to secure permission from their informants prior to starting the session, this may have inadvertently facilitated these individuals coming to the lab, when they might not have otherwise signed up due to the extra requirements. This could have resulted in some individuals who were higher on the traits, or were otherwise unlikely to sign up for the study, electing to participate once the study components and compensation were explained to them more fully than was possible in the participant pool ad.

Another limitation of the current study relates to possible statistical dependence among responses submitted through the IRM-NS procedure. Because the targets were all students of the same university, from a relatively small pool of undergraduate courses, it is theoretically possible that participants who were concurrently completing the IRM-NS

procedure could have interacted with each other, resulting in two IRM-NS responses from separate targets that were linked by the same interaction. Moreover, some known dyads of targets completed the IRM-NS period at the same time as each other (e.g., romantic partners, siblings), because they either attended their in-lab sessions together or nominated each other as potential informants. In the latter case, individuals who were already signed up to participate as targets were not contacted to serve as an informant for another target. Given the overall number of IRM-NS responses, it is likely that any responses linked by the same interaction represent only a small number of the total IRM-NS submissions.

Finally, it is theoretically possible that a small number of participants could have participated both as a target and as someone else's informant, or as an informant for multiple targets. All possible efforts were made to not contact the same informant twice if they were nominated by multiple targets, and to not contact a target if they were nominated to be another target's informant. The researcher searched each potential informant's email address in her 'sent emails' folder before inviting them to participate, and the participant pool ad for the target procedures stated that having participated in the informant survey was an exclusionary criterion. Despite these strategies, one known participant served as an informant early in the data collection period and as a target toward the end of the period; in this case, only the data relating to their participation as a target was retained. However, it is possible that in other cases, a different email address was used for when a participant acted as a target than when they were nominated as an informant, which would not be traceable by the researcher. If this had occurred, such cases would likely represent only a very small number out of the overall sample.

Self- versus Informant-Report

An important limitation of the current study is that the results may be biased from having participants nominate their own informants. One possibility is that requiring targets to nominate at least four potential informants biased the overall sample towards targets who are more agreeable and socially adept, and thus likely lower on the pathological personality traits of interest. For instance, past research has indicated that targets' personality traits are related to the types of informants they nominate, and whether they have informants to report on them at all, such that targets without any informants were higher on trait facets including callousness and grandiosity (Yalch & Hopwood, 2017). These findings indicate that some sampling bias is introduced by allowing targets to nominate their own informants. Of the targets who participated in this study, no mean-level differences were found on any of the self-reported traits between the targets who had valid informant reports and those who did not, except for higher negative affectivity in the targets who had informant reports. However, although there were very few significant differences between the targets with different levels of data within the current study, it remains possible that the overall methodology completely filtered out targets who had higher levels of the traits or no close social contacts who could serve as potential informants.

Another form of bias relating to having targets nominate their own informants pertains to the type of information those informants gave about the target. As noted above, Leising et al. (2010) investigated what they called the "letter of recommendation effect" or "pal-serving bias" among target-nominated informants. They found that target-nominated informants liked the target significantly more than other informants did, that

these informants gave more favorable ratings of the targets on the FFM traits, and that the informant's rating of how much they liked the target was a better predictor of their FFM ratings than was their self-reported level of knowledge about the target. Overall, the authors concluded that target-nominated informants are likely to provide positively biased reports of the target's personality, and that this effect is particularly large for more evaluative traits.

The current study required targets to nominate at least four potential informants and it is not clear what impact this methodology had on this form of informant-report bias. It is possible that having targets nominate more than one informant attenuated this effect, as targets' nominations were not limited to their first choice of informant. However, for most targets, several potential informants were contacted before a valid informant-report was completed, so it is possible that the more neutral informants declined to participate, until an informant who liked the target enough to complete an hour-long survey about them was contacted. Given that the pathological personality traits are all evaluative, the informants consistently reported the targets as having lower levels of the traits than the targets themselves did, and the informants' ratings of the traits were negatively associated with their level of trust in the target, it is likely that this effect biased the results and contributed to the informant-reported traits being less strong predictors than the self-reported traits.

However, the extent of this bias may vary according to the relationship between the target and informant. Additional analyses showed that "chosen" informants (i.e., friends and romantic partners) rated the targets as higher on several of the trait domains and facets, compared to family members and co-workers. Friends and romantic partners are

likely to be especially close with the target, and these results suggest they had access to privileged information about less observable traits like negative affectivity and psychoticism, as would be expected from past literature and theory (Connelly & Ones, 2010; Starzyk et al., 2006; Watson et al., 2000). Because the ratings from chosen informants were more similar to the self-ratings targets provided, though still significantly lower, it appears that the chosen informants provided less biased judgments of the target's personality than the non-chosen informants. In contrast, family members and co-workers may see a more limited or curated version of the target, leading their reports to be based on less information and thus more susceptible to bias. Moreover, the chosen and non-chosen informants did not differ in terms of their dyadic trust in the target, suggesting that dyadic trust may not be an appropriate proxy variable for the level of acquaintance or closeness between the target and informant. Due to the relatively small and unequal group sizes in these comparisons, as well as the fact that the ratings by chosen and non-chosen informants could not be directly compared for the same target, these interpretations should be considered tentative.

Within-Person Variability

Based on the pilot phase, the current study used a shorter IRM-NS period compared to other studies using the SBI, which resulted in fewer reported interactions per target (Brown & Moskowitz, 1998; Côté et al., 2012; Moskowitz & Zuroff, 2004, 2005). Having fewer interactions to pool may have resulted in less reliable estimates of flux, pulse, and spin than other studies. Similarly, past studies using the SBI in IRM-NS designs have shown that participants typically report an average of six to seven interactions per day (e.g., Moskowitz & Zuroff, 2005), compared to 1.9 in the current

study. This difference is likely due in part to the current study recruiting a university sample, compared to the working adults recruited for most other studies conducted by Moskowitz and colleagues. For instance, a recent study using the SBI with university commerce students found that they submitted 2.7 responses per day (Clegg, Moskowitz, Miners, Andrevski, Sadikaj, et al., 2020). University students may prefer communication channels like texting or Snapchat to face-to-face or telephone interactions. For instance, some authors have argued that individuals born in Generation Y (between approximately 1980 and 2000) tend to use more computer-mediated channels, whereas Baby Boomers (approximately 1946 to 1964) prefer in-person communication (Venter, 2017). Communication via text messaging or other apps was not sampled in the current IRM-NS procedure, which may have reduced the number of interactions described each day. In contrast, it is also possible that the university students were simply less faithful and compliant to the procedure in the current study than past samples. Approximately one quarter of the IRM-NS responses were not reported immediately after the interaction occurred, despite targets being instructed to report as promptly as possible. However, of the 212 targets who agreed to participate in the IRM-NS procedure during their in-lab session, 204 (96%) had usable IRM-NS data, which would indicate high overall commitment to the procedure.

Directions for Future Research

Self- versus Informant-Report

Perhaps the most obvious and important direction for future research would be to conduct a similar study with a sample of targets reporting higher levels of the pathological personality traits. The current sample had relatively low self- and informant-

reported levels of the traits, which likely limited the predictive power of the traits in the models that were examined. As noted above, empirical support for the superiority of informant-reports to self-reports in predicting outcomes tends to come from samples with significant pathology. As such, in those samples, informants appear to notice and reliably report about characteristics of the targets that the targets themselves are less able to accurately describe. In contrast, the current study suggests that individuals with relatively low levels of the pathological traits can accurately report on their own traits – as defined by those reports significantly predicting social behaviour – but informant-reports may become particularly useful at greater levels of personality dysfunction.

Another important area of exploration would be whether Leising and colleagues' (2010) findings about the biases related to target-nominated informants would apply in the context of a clinical assessment in which the informant is asked to provide collateral information. Although the informants in the current study appeared to have a more positive view of the targets than even the targets themselves, informants' perspectives may be more critical – and potentially more accurate – regarding the personality of a loved one receiving psychological care. Past studies have addressed the issue of bias associated with target-nominated informants in various ways, including through recruiting dyads from public places and randomly assigning them to target and informant roles (Sleep et al., 2019) or recruiting the informants first and asking them to nominate target participants who were subsequently contacted to complete self-report measures (Leising et al., 2010). However, most studies in this literature use target-nominated informants in their designs, so understanding the boundary conditions of this 'pal-serving bias' would be useful in evaluating the overall literature. This would also help to further

clarify the situations in which greater acquaintance, trust, and closeness in the target-informant relationship affords access to privileged internal information as suggested by past studies (e.g., Connelly & Ones, 2010; Starzyk et al., 2006; Watson et al., 2000), versus those where these elements give rise to the ‘pal-serving bias’ and potentially obscure useful information.

Within-Person Variability

The current study found that whereas trait detachment and antagonism were the most consistent predictors of within-person variability in social behaviour, the traits accounted for only modest amounts of variance and in some cases did not significantly predict within-person variability. One way to conceptualize the models in the current study is that they attempted to predict patterns of instability from stable attributes – the pathological traits. Perhaps a more fruitful avenue of research would be to examine whether variability in the behavioural expression of the pathological personality traits is superior in predicting within-person variability in social behaviour, compared to the individual’s mean-level standing on the trait. Put another way, an investigation of this type would attempt to predict instability in social behaviour from instability in personality expression. Some preliminary findings support this idea, such that among individuals with personality pathology, fluctuations in daily perceived stress significantly predicted instability in dominant and affiliative behaviour, as well as in negative and positive affect, whereas mean perceived stress predicted only fluctuations in dominant and affiliative behaviour (Wright, Hopwood, et al., 2015). Moreover, those authors found that dispositional interpersonal problems were not strongly associated with indices of instability in dominant or affiliative social behaviour. These results provide some

evidence of a stronger link between different forms of instability (e.g., in daily stress and in social behaviour), than between stable attributes and instability.

Research examining within-person variability in personality expression has begun to accumulate in parallel with research on within-person variability in social behaviour. Fleeson and Gallagher (2009) summarized the results of 15 experience-sampling studies examining daily manifestations of FFM traits. They found support for stable trait characteristics, but also large within-person variations in trait expressions, with within-person variability accounting for more variance than between-person variability. Additionally, they found that questionnaire measures of the traits at baseline were significantly correlated with mean-level summaries of *in situ* measurements, but only weakly associated when these responses were aggregated as standard deviations representing within-person variability in FFM trait expression. The finding that baseline measurements of the traits were not strongly associated with within-person variability on the traits is consistent with the current study, in which baseline measures of the pathological personality traits accounted for only modest amounts of variance in within-person variability in social behaviour. This provides further support for examining whether instability in personality expression predicts instability in social behaviour more strongly than do baseline trait measures.

Strengths and Contribution to the Literature

Some of the methodological strengths of this study include that all targets were run in-lab by the same researcher, in small groups of no more than three, and were all given instructions about the IRM-NS procedure in a consistent way. This provides increased assurance that the IRM-NS procedure was completed in a consistent way across targets,

thus allowing between-target comparisons to be relatively free of idiosyncrasies in target reporting. The study was also piloted for acceptability and feasibility of the IRM-NS procedure, which likely contributed to the high agreement and completion rates. Indeed, the current sample size with just under 150 cases with complete data from the target survey, informant survey, and IRM-NS procedure, as well as over 200 targets completing the IRM-NS procedure, is quite substantial given the intensiveness of the study methodology. Throughout the design, significant attention was given to method variance, particularly in the assessment of social behaviour as the criterion variable, which provided a rigorous but ecologically valid test of the models under examination.

One of the foremost substantive contributions of the current study is the connection of the pathological personality traits to a more ecologically valid measure of social behaviour than used in past studies. The use of the interpersonal circumplex model allowed this research to examine the ‘building blocks’ of social behaviour, not necessarily maladaptive interpersonal functioning. This helps to provide a conservative test of the associations between the traits and social behaviour, by attenuating the part of the relationship that could be due to shared dysfunction if interpersonal problems were measured. This study also provides further evidence that there are specific interpersonal styles associated with each trait, whereby individuals with high standings on each trait are more likely to demonstrate consistent forms of interpersonal behaviour across time and situations. This study extends the past literature, which has primarily relied on questionnaire measures of the circumplex behaviour, to examine how the targets reported themselves to behave in real-life social interactions over an extended period of 10 days.

The study also contributes to the literature by using informant reports to compare the validity of raters. As noted above, the current study provides an especially conservative test of the utility of the informant-reports, as the social behaviour outcome variable was reported by the targets. Moreover, the current study is one of the first to date to move beyond examining only self-informant agreement on the traits, to instead contrast the perspectives' relative predictive validity. These results speak, in part, to targets' insight into their own pathological traits and suggest that self-reports have superior utility to informant-reports for individuals with seemingly normal-range personalities, even though the traits being rated are maladaptive. However, as noted, the clinical implications of these results, especially regarding clinical assessment of the traits, remain somewhat unclear and should be the focus of future research.

Finally, this study contributes to the literature through its further examination of multiple indices of within-person variability in social behaviour and their connections to the traits. The current results do not appear to support the notion that the pathological traits predict within-person variability more strongly than do normative personality traits – at least not in a non-clinical sample of university students. However, the results are consistent with past literature demonstrating that trait individual differences are related to, but remain distinct from, indices of within-person variability. Detachment and antagonism were identified as particularly important in understanding multiple indices of within-person variability and each seem to implicate different interpersonal strategies that may motivate or drive these patterns of instability. Finally, these results provide some insight into a possible mechanism behind the interpersonal dysfunction associated with the pathological personality traits; although higher levels of antagonism and detachment

did predict greater variability, these connections alone cannot account for the robust associations between personality pathology and impaired social functioning.

As social functioning is perhaps the most important correlate of personality, the current study provides an important examination of the alternative *DSM-5* model of personality disorders, by examining how the stylistic traits embedded in the model relate to both global patterns and variability in real-world social behaviour. The first perspective examined in this study demonstrated that, in a sample of university students with relatively low reported levels of the traits, individuals were able to validly report on their own pathological personality traits, such that the self-reported traits were superior predictors of participants' social behaviour over a 10-day period, compared to informant-reported personality. This stands in contrast to much of the literature on self- versus informant-reports of personality and suggests that an external rater's perspective may not be necessary to understand the interpersonal impact of an individual's pathological personality traits when those traits are at relatively low levels. In the second perspective, higher levels of antagonism and detachment were associated with a greater tendency to behave very differently across social interactions. However, the pathological personality traits did not show particularly strong overlap with any of the forms of within-person variability in social behaviour examined, suggesting that stable personality traits alone do not account for these often-dysfunctional patterns. By exploring how the stylistic traits of the alternative *DSM-5* model operate in a normative sample, by whom they are most validly reported, and how they relate to patterns in social behaviour, the current study extends our understanding of the still-debated alternative *DSM-5* model and contributes

further evidence of its utility in understanding the real-world outcomes of personality dysfunction.

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APPENDICES

Appendix A: Participant Pool Study Description

Title: Personality and Daily Social Behaviour

Researchers: Paige Lamborn and Dr. Kenneth Cramer

Duration: 90 minutes

Credits: 2

Description: In this study you will be asked to attend one in-lab session and, if interested, submit short responses on your smartphone describing your social interactions for the 10 days following the meeting. In the lab, you will first describe your personality and social behaviour through a series of questionnaire measures. You will also be asked to nominate at least four people who know you well, whom we will contact and invite to participate in a separate part of this study. If you are interested in participating in the second part of the study, you will then meet with the researcher to download a free app onto your smartphone and discuss the 10-day procedure. The in-lab component will take no more than 90 minutes of your time, and is worth 2.0 bonus points if you are registered in the pool and you are registered in one or more eligible psychology courses. Additional compensation will be awarded to those who successfully submit responses through their smartphone throughout the 10-day period.

Eligibility: Must own a smartphone; Must not have participated in the studies “Perspectives on Personality and Social Behaviour” or “Personality and Social Behaviour”

Preparation: Get permission from, and the email addresses of, four people who know you well to describe your personality in a separate survey; Bring your smartphone to the lab.

Appendix B: Target Demographic Questionnaire

1. How old are you (in years)?
2. What is your gender?
3. What is your ethnicity?
 - a. First Nations/Inuit/Metis
 - b. Arabic/Middle Eastern
 - c. Asian
 - d. Black/African
 - e. Caucasian/non-Hispanic White/European
 - f. Hispanic/Latino
 - g. Indian/South Asian
 - h. Other (please describe):
 - i. Prefer not to answer
4. What is your highest completed level of education?
5. What is your employment status?
 - a. Employed full-time
 - b. Employed part-time
 - c. Unemployed
 - d. Prefer not to answer
6. Your first name:
7. We are interested in how other people perceive your personality. Please provide the names and contact information of four people who know you well and would probably be willing to complete an online survey about their perceptions of you. They could be friends, romantic partners, family members, or other people you think know your personality well and with whom you have interacted with a lot. We will randomly select one of the people you list and contact them after you finish this survey.

- a. Person #1:
 - a. First name:
 - b. Email address:
 - c. Please describe your relationship to this person. They are your...
 - i. Friend
 - ii. Spouse or dating partner
 - iii. Sibling
 - iv. Parent
 - v. Child
 - vi. Co-worker
 - vii. Other (please specify):
 - d. How long have you known this person (in years)?
- b. Person #2
 - a. First name:
 - b. Email address:
 - c. Please describe your relationship to this person. They are your...
 - i. Friend
 - ii. Spouse or dating partner
 - iii. Sibling
 - iv. Parent
 - v. Child
 - vi. Co-worker

- vi. Co-worker
 - vii. Other (please specify):
 - d. How long have you known this person (in years)?
 - e. Person #5 (optional)
 - a. First name:
 - b. Email address:
 - c. Please describe your relationship to this person. They are your...
 - i. Friend
 - ii. Spouse or dating partner
 - iii. Sibling
 - iv. Parent
 - v. Child
 - vi. Co-worker
 - vii. Other (please specify):
 - d. How long have you known this person (in years)?
 - f. Person #6 (optional)
 - a. First name:
 - b. Email address:
 - c. Please describe your relationship to this person. They are your...
 - i. Friend
 - ii. Spouse or dating partner
 - iii. Sibling
 - iv. Parent

- v. Child
 - vi. Co-worker
 - vii. Other (please specify):
- d. How long have you known this person (in years)?

Appendix C: Personality Inventory for DSM-5 (PID-5)

Instructions: This is a list of things different people might say about themselves. We are interested in how you would describe yourself. There are no “right” or “wrong” answers. So you can describe yourself as honestly as possible, we will keep your responses confidential. We’d like you to take your time and read each statement carefully, selecting the response that best describes you.

		Very False or Often False	Sometimes or Somewhat False	Sometimes or Somewhat True	Very True or Often True
1.	I don’t get as much pleasure out of things as others seem to	0	1	2	3
2.	Plenty of people are out to get me	0	1	2	3
3.	People would describe me as reckless	0	1	2	3
4.	I feel like I act totally on impulse	0	1	2	3
5.	I often have ideas that are too unusual to explain to anyone	0	1	2	3
6.	I lose track of conversations because other things catch my attention	0	1	2	3
7.	I avoid risky situations	0	1	2	3
8.	When it comes to my emotions, people tell me I’m a “cold fish”	0	1	2	3
9.	I change what I do depending on what others want	0	1	2	3

10.	I prefer not to get too close to people	0	1	2	3
11.	I often get into physical fights	0	1	2	3
12.	I dread being without someone to love me	0	1	2	3
13.	Being rude and unfriendly is just a part of who I am	0	1	2	3
14.	I do things to make sure people notice me	0	1	2	3
15.	I usually do what others think I should do	0	1	2	3
16.	I usually do things on impulse without thinking about what might happen as a result	0	1	2	3
17.	Even though I know better, I can't stop making rash decisions	0	1	2	3
18.	My emotions sometimes change for no good reason.	0	1	2	3
19.	I really don't care if I make other people suffer	0	1	2	3
20.	I keep to myself	0	1	2	3
21.	I often say things that others find odd or strange	0	1	2	3
22.	I always do things on the spur of the moment	0	1	2	3
23.	Nothing seems to interest me very much	0	1	2	3
24.	Other people seem to think my behaviour is weird	0	1	2	3

25.	People have told me that I think about things in a really strange way	0	1	2	3
26.	I almost never enjoy life	0	1	2	3
27.	I often feel like nothing I do really matters	0	1	2	3
28.	I snap at people when they do little things that irritate me	0	1	2	3
29.	I can't concentrate on anything	0	1	2	3
30.	I'm an energetic person	0	1	2	3
31.	Others see me as irresponsible	0	1	2	3
32.	I can be mean when I need to be	0	1	2	3
33.	My thoughts often go off in odd or unusual directions	0	1	2	3
34.	I've been told that I spend too much time making sure things are exactly in place	0	1	2	3
35.	I avoid risky sports and activities	0	1	2	3
36.	I can have trouble telling the difference between dreams and waking life	0	1	2	3
37.	Sometimes I get this weird feeling that parts of my body feel like they're dead or not really me	0	1	2	3
38.	I am easily angered	0	1	2	3

39.	I have no limits when it comes to doing dangerous things	0	1	2	3
40.	To be honest, I'm just more important than other people	0	1	2	3
41.	I make up stories about things that happened that are totally untrue	0	1	2	3
42.	People often talk about me doing things I don't remember at all	0	1	2	3
43.	I do things so that people just have to admire me	0	1	2	3
44.	It's weird, but sometimes ordinary objects seem to be a different shape than usual	0	1	2	3
45.	I don't have very long-lasting emotional reactions to things	0	1	2	3
46.	It is hard for me to stop an activity, even when it's time to do so	0	1	2	3
47.	I'm not good at planning ahead	0	1	2	3
48.	I do a lot of things that others consider risky	0	1	2	3
49.	People tell me that I focus too much on minor details	0	1	2	3
50.	I worry a lot about being alone	0	1	2	3
51.	I've missed out on things because I was busy trying to get something I was doing exactly right	0	1	2	3

52.	My thoughts often don't make sense to others	0	1	2	3
53.	I often make up things about myself to help me get what I want	0	1	2	3
54.	It doesn't really bother me to see other people get hurt	0	1	2	3
55.	People often look at me as if I'd said something really weird	0	1	2	3
56.	People don't realize that I'm flattering them to get something	0	1	2	3
57.	I'd rather be in a bad relationship than be alone	0	1	2	3
58.	I usually think before I act	0	1	2	3
59.	I often see vivid dream-like images when I'm falling asleep or waking up	0	1	2	3
60.	I keep approaching things the same way, even when it isn't working	0	1	2	3
61.	I'm very dissatisfied with myself	0	1	2	3
62.	I have much stronger emotional reactions than almost everyone else	0	1	2	3
63.	I do what other people tell me to do	0	1	2	3
64.	I can't stand being left alone, even for a few hours	0	1	2	3

65.	I have outstanding qualities that few others possess	0	1	2	3
66.	The future looks really hopeless to me	0	1	2	3
67.	I like to take risks	0	1	2	3
68.	I can't achieve goals because other things capture my attention	0	1	2	3
69.	When I want to do something, I don't let the possibility that it might be risky stop me	0	1	2	3
70.	Others seem to think I'm quite odd or unusual	0	1	2	3
71.	My thoughts are strange and unpredictable	0	1	2	3
72.	I don't care about other people's feelings	0	1	2	3
73.	You need to step on some toes to get what you want in life	0	1	2	3
74.	I love getting the attention of other people	0	1	2	3
75.	I go out of my way to avoid any kind of group activity	0	1	2	3
76.	I can be sneaky if it means getting what I want	0	1	2	3
77.	Sometimes when I look at a familiar object, it's somehow like I'm seeing it for the first time	0	1	2	3
78.	It is hard for me to shift from one activity to another	0	1	2	3

79.	I worry a lot about terrible things that might happen	0	1	2	3
80.	I have trouble changing how I'm doing something even if what I'm doing isn't going well	0	1	2	3
81.	The world would be better off if I were dead	0	1	2	3
82.	I keep my distance from people	0	1	2	3
83.	I often can't control what I think about	0	1	2	3
84.	I don't get emotional	0	1	2	3
85.	I resent being told what to do, even by people in charge	0	1	2	3
86.	I'm so ashamed by how I've let people down in lots of little ways	0	1	2	3
87.	I avoid anything that might be even a little bit dangerous	0	1	2	3
88.	I have trouble pursuing specific goals even for short periods of time	0	1	2	3
89.	I prefer to keep romance out of my life	0	1	2	3
90.	I would never harm another person	0	1	2	3
91.	I don't show emotions strongly	0	1	2	3
92.	I have a very short temper	0	1	2	3

93.	I often worry that something bad will happen due to mistakes I made in the past	0	1	2	3
94.	I have some unusual abilities, like sometimes knowing exactly what someone is thinking	0	1	2	3
95.	I get very nervous when I think about the future	0	1	2	3
96.	I rarely worry about things	0	1	2	3
97.	I enjoy being in love	0	1	2	3
98.	I prefer to play it safe rather than take unnecessary chances	0	1	2	3
99.	I sometimes have heard things that others couldn't hear	0	1	2	3
100.	I get fixated on certain things and can't stop	0	1	2	3
101.	People tell me it's difficult to know what I'm feeling	0	1	2	3
102.	I am a highly emotional person	0	1	2	3
103.	Others would take advantage of me if they could	0	1	2	3
104.	I often feel like a failure	0	1	2	3
105.	If something I do isn't absolutely perfect, it's simply not acceptable	0	1	2	3
106.	I often have unusual experiences, such as sensing	0	1	2	3

the presence of someone
who isn't actually there

107.	I'm good at making people do what I want them to do	0	1	2	3
108.	I break off relationships if they start to get close	0	1	2	3
109.	I'm always worrying about something	0	1	2	3
110.	I worry about almost everything	0	1	2	3
111.	I like standing out in a crowd	0	1	2	3
112.	I don't mind a little risk now and then	0	1	2	3
113.	My behaviour is often bold and grabs peoples' attention	0	1	2	3
114.	I am better than almost everyone else	0	1	2	3
115.	People complain about my need to have everything all arranged	0	1	2	3
116.	I always make sure I get back at people who wrong me	0	1	2	3
117.	I'm always on my guard for someone trying to trick or harm me	0	1	2	3
118.	I have trouble keeping my mind focused on what needs to be done	0	1	2	3
119.	I talk about suicide a lot	0	1	2	3

120.	I'm just not very interested in having sexual relationships	0	1	2	3
121.	I get stuck on things a lot	0	1	2	3
122.	I get emotional easily, often for very little reason	0	1	2	3
123.	Even though it drives other people crazy, I insist on absolute perfection in everything I do	0	1	2	3
124.	I almost never feel happy about my day-to-day activities	0	1	2	3
125.	Sweet-talking others helps me get what I want	0	1	2	3
126.	Sometimes you need to exaggerate to get ahead	0	1	2	3
127.	I fear being alone in life more than anything else	0	1	2	3
128.	I get stuck on one way of doing things, even when it's clear it won't work	0	1	2	3
129.	I'm often pretty careless with my own and others' things	0	1	2	3
130.	I am a very anxious person	0	1	2	3
131.	People are basically trustworthy	0	1	2	3
132.	I am easily distracted	0	1	2	3
133.	It seems like I'm always getting a "raw deal" from others	0	1	2	3

134.	I don't hesitate to cheat if it gets me ahead	0	1	2	3
135.	I check things several times to make sure they are perfect	0	1	2	3
136.	I don't like spending time with others	0	1	2	3
137.	I feel compelled to go on with things even when it makes little sense to do so	0	1	2	3
138.	I never know where my emotions will go from moment to moment	0	1	2	3
139.	I have seen things that weren't really there	0	1	2	3
140.	It is important to me that things are done in a certain way	0	1	2	3
141.	I always expect the worst to happen	0	1	2	3
142.	I try to tell the truth even when it's hard	0	1	2	3
143.	I believe that some people can move things with their minds	0	1	2	3
144.	I can't focus on things for very long	0	1	2	3
145.	I steer clear of romantic relationships	0	1	2	3
146.	I'm not interested in making friends	0	1	2	3
147.	I say as little as possible when dealing with people	0	1	2	3

148.	I'm useless as a person	0	1	2	3
149.	I'll do just about anything to keep someone from abandoning me	0	1	2	3
150.	Sometimes I can influence other people just by sending my thoughts to them	0	1	2	3
151.	Life looks pretty bleak to me	0	1	2	3
152.	I think about things in odd ways that don't make sense to most people	0	1	2	3
153.	I don't care if my actions hurt others	0	1	2	3
154.	Sometimes I feel "controlled" by thoughts that belong to someone else.	0	1	2	3
155.	I really live life to the fullest	0	1	2	3
156.	I make promises that I don't really intend to keep	0	1	2	3
157.	Nothing seems to make me feel good	0	1	2	3
158.	I get irritated easily by all sorts of things	0	1	2	3
159.	I do what I want regardless of how unsafe it might be	0	1	2	3
160.	I often forget to pay my bills	0	1	2	3
161.	I don't like to get too close to people	0	1	2	3
162.	I'm good at conning people	0	1	2	3

163.	Everything seems pointless to me	0	1	2	3
164.	I never take risks	0	1	2	3
165.	I get emotional over every little thing	0	1	2	3
166.	It's no big deal if I hurt other peoples' feelings	0	1	2	3
167.	I never show emotions to others	0	1	2	3
168.	I often feel just miserable	0	1	2	3
169.	I have no worth as a person	0	1	2	3
170.	I am usually pretty hostile	0	1	2	3
171.	I've skipped town to avoid responsibilities	0	1	2	3
172.	I've been told more than once that I have a number of odd quirks or habits	0	1	2	3
173.	I like being a person who gets noticed	0	1	2	3
174.	I'm always fearful or on edge about bad things that might happen	0	1	2	3
175.	I never want to be alone	0	1	2	3
176.	I keep trying to make things perfect, even when I've gotten them as good as they're likely to get	0	1	2	3
177.	I rarely feel that people I know are trying to take advantage of me	0	1	2	3

178.	I know I'll commit suicide sooner or later	0	1	2	3
179.	I've achieved far more than almost anyone I know	0	1	2	3
180.	I can certainly turn on the charm if I need to get my way	0	1	2	3
181.	My emotions are unpredictable	0	1	2	3
182.	I don't deal with people unless I have to	0	1	2	3
183.	I don't care about other peoples' problems	0	1	2	3
184.	I don't react much to things that seem to make others emotional	0	1	2	3
185.	I have several habits that others find eccentric or strange	0	1	2	3
186.	I avoid social events	0	1	2	3
187.	I deserve special treatment	0	1	2	3
188.	It makes me really angry when people insult me in even a minor way	0	1	2	3
189.	I rarely get enthusiastic about anything	0	1	2	3
190.	I suspect that even my so-called "friends" betray me a lot	0	1	2	3
191.	I crave attention	0	1	2	3

192.	Sometimes I think someone else is removing thoughts from my head	0	1	2	3
193.	I have periods in which I feel disconnected from the world or from myself	0	1	2	3
194.	I often see unusual connections between things that most people miss	0	1	2	3
195.	I don't think about getting hurt when I'm doing things that might be dangerous	0	1	2	3
196.	I simply won't put up with things being out of their proper places	0	1	2	3
197.	I often have to deal with people who are less important than me	0	1	2	3
198.	I sometimes hit people to remind them who's in charge	0	1	2	3
199.	I get pulled off-task by even minor distractions	0	1	2	3
200.	I enjoy making people in control look stupid	0	1	2	3
201.	I just skip appointments or meetings if I'm not in the mood	0	1	2	3
202.	I try to do what others want me to do	0	1	2	3
203.	I prefer being alone to having a close romantic partner	0	1	2	3
204.	I am very impulsive	0	1	2	3

205.	I often have thoughts that make sense to me but that other people say are strange	0	1	2	3
206.	I use people to get what I want	0	1	2	3
207.	I don't see the point in feeling guilty about things I've done that have hurt other people	0	1	2	3
208.	Most of the time I don't see the point in being friendly	0	1	2	3
209.	I've had some really weird experiences that are very difficult to explain	0	1	2	3
210.	I follow through on commitments	0	1	2	3
211.	I like to draw attention to myself	0	1	2	3
212.	I feel guilty much of the time	0	1	2	3
213.	I often "zone out" and then suddenly come to and realize that a lot of time has passed	0	1	2	3
214.	Lying comes easily to me	0	1	2	3
215.	I hate to take chances	0	1	2	3
216.	I'm nasty and short to anybody who deserves it	0	1	2	3
217.	Things around me often feel unreal, or more real than usual	0	1	2	3

218.	I'll stretch the truth if it's to my advantage	0	1	2	3
219.	It is easy for me to take advantage of others	0	1	2	3
220.	I have a strict way of doing things	0	1	2	3

Appendix D: Social Behaviour Inventory

For every interaction:

Please provide the following information about the interaction you are reporting on:

1. Select one of the following:
 - a. I just had a social interaction
 - b. Oops, I forgot to report!
Enter the date of the interaction:
Enter the time of the interaction:
2. How long was the interaction in minutes?
3. Where did the interaction occur?
 - a. Home
 - b. Work
 - c. Recreation
 - d. Other
4. Was more than one person present?
 - a. Yes
 - b. No
5. Who was present? (select all that apply):
 - a. Friend
 - b. Casual Acquaintance
 - c. Romantic Partner
 - d. Parent
 - e. Sibling
 - f. Supervisor

- g. Co-worker
- h. Supervisee

6. What gender was/were the people you interacted with? (select all that apply):

- a. Male
- b. Female
- c. Other

One form per interaction:

Form 1

Did you do any of the following acts?

<i>Scale</i>	#		Yes	No
A	1	I listened attentively to the other		
D	2	I tried to get the other(s) to do something else		
S	3	I let other(s) make plans or decisions		
S	4	I did not say how I felt		
Q	5	I confronted the other(s) about something I did not like		
A	6	I expressed affection with words or gestures		
D	7	I spoke in a clear firm voice		
Q	8	I withheld useful information		
A	9	I compromised about a decision		
D	10	I took the lead in planning/organizing a project or activity		
S	11	I avoided taking the lead or being responsible		

Q 12 I ignored the other(s) comments

Form 2

Did you do any of the following acts?

<i>Scale</i>	#		Yes	No
Q/D	1	I criticized the other(s)		
A	2	I smiled and laughed with other(s)		
S	3	I spoke softly		
Q	4	I made a sarcastic comment		
D	5	I expressed an opinion		
A	6	I complimented or praised the other person		
S	7	I did not express disagreement when I thought it		
Q	8	I gave incorrect information		
D	9	I got immediately to the point		
A	10	I made a concession to avoid unpleasantness		
S	11	I did not state my own views		

Form 3

Did you do any of the following acts?

<i>Scale</i>	#		Yes	No
S	1	I waited for the other person to talk or act first		
Q	2	I stated strongly that I did not like or that I would not do something		
D	3	I assigned someone to a task		
A	4	I exchanged pleasantries		

- S 5 I did not say what was on my mind
- Q 6 I did not respond to the other(s) questions or comments
- D 7 I made a suggestion
- A 8 I showed sympathy
- S 9 I did not say what I wanted directly
- Q 10 I discredited what someone said
- D 11 I asked the other(s) to do something
- A 12 I spoke favorably of someone who was not present

Form 4

Did you do any of the following acts?

<i>Scale</i>	#		Yes	No
Q	1	I showed impatience		
D	2	I asked for a volunteer		
S/A	3	I went along with the other(s)		
Q	4	I raised my voice		
D	5	I gave information		
A	6	I expressed reassurance		
S	7	I gave in		
Q	8	I demanded that the other(s) do what I wanted		
D	9	I set goals for the other(s) or for us		
A	10	I pointed out to the other(s) where there was agreement		

S 11 I spoke only when I was spoken to

Appendix E: Marlowe-Crowne Social Desirability Scale – Form C

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to your personally.

- | | | | |
|-----|--|------|-------|
| 1. | It is sometimes hard for me to go on with my work if I am not encouraged. | True | False |
| 2. | I sometimes feel resentful when I don't get my way. | True | False |
| 3. | On a few occasions, I have given up doing something because I thought too little of my ability. | True | False |
| 4. | There have been times when I felt like rebelling against people in authority even though I knew they were right. | True | False |
| 5. | No matter who I'm talking to, I'm always a good listener. | True | False |
| 6. | There have been occasions when I took advantage of someone. | True | False |
| 7. | I'm always willing to admit when I make a mistake. | True | False |
| 8. | I sometimes try to get even rather than forgive and forget. | True | False |
| 9. | I am always courteous, even to people who are disagreeable. | True | False |
| 10. | I have never been irked when people expressed ideas very different from my own. | True | False |
| 11. | There have been times when I was quite jealous of the good fortune of others. | True | False |
| 12. | I am sometimes irritated by people who ask favors of me. | True | False |

13. I have never deliberately said something that hurt someone's feelings.

True

False

Appendix F: International Personality Item Pool – Interpersonal Circumplex (IPIP-IPC)

On this page, there are phrases describing peoples’ behaviours. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same gender as you are, and roughly your same age. Please read each statement carefully, and then select the answer that corresponds to your response using the scale below.

		Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
I...						
1.	am quiet around strangers.	1	2	3	4	5
2.	speak softly.	1	2	3	4	5
3.	tolerate a lot from others.	1	2	3	4	5
4.	am interested in people.	1	2	3	4	5
5.	feel comfortable around people.	1	2	3	4	5
6.	demand to be the center of attention	1	2	3	4	5
7.	cut others to pieces.	1	2	3	4	5
8.	believe people should fend for themselves.	1	2	3	4	5
9.	am a very private person.	1	2	3	4	5

10.	let others finish what they are saying.	1	2	3	4	5
11.	take things as they come.	1	2	3	4	5
12.	reassure others.	1	2	3	4	5
13.	start conversations.	1	2	3	4	5
14.	do most of the talking.	1	2	3	4	5
15.	contradict others.	1	2	3	4	5
16.	don't fall for sob stories.	1	2	3	4	5
17.	don't talk a lot.	1	2	3	4	5
18.	seldom toot my own horn.	1	2	3	4	5
19.	think of others first.	1	2	3	4	5
20.	inquire about others' well-being.	1	2	3	4	5
21.	talk to a lot of different people at parties.	1	2	3	4	5
22.	speak loudly.	1	2	3	4	5
23.	snap at people.	1	2	3	4	5
24.	don't put a lot of thought into things.	1	2	3	4	5
25.	have little to say.	1	2	3	4	5

26.	dislike being the center of attention.	1	2	3	4	5
27.	seldom stretch the truth.	1	2	3	4	5
28.	get along well with others.	1	2	3	4	5
29.	love large parties.	1	2	3	4	5
30.	demand attention.	1	2	3	4	5
31.	have a sharp tongue.	1	2	3	4	5
32.	am not interested in other people's problems.	1	2	3	4	5

Appendix G: Inventory of Interpersonal Problems – Personality Disorder Scales

(IIP-PD)

Consider each problem you may have and rate how distressing that problem has been.

		Not at all	A little bit	Moderately	Quite a bit	Extremely
<i>Interpersonal Sensitivity</i>						
1.	I am too sensitive to rejection	0	1	2	3	4
2.	I am too sensitive to criticism	0	1	2	3	4
3.	It is hard for me to ignore criticism from other people	0	1	2	3	4
4.	I feel too anxious when I am involved with another person	0	1	2	3	4
5.	I feel attacked by other people too much	0	1	2	3	4
6.	It is hard for me to get over the feeling of loss after a relationship has ended	0	1	2	3	4
7.	I am too envious and jealous of other people	0	1	2	3	4
8.	It is hard for me to trust other people	0	1	2	3	4
9.	It is hard for me to feel like a separate person when I am in a relationship	0	1	2	3	4
10.	I am too easily bothered by other	0	1	2	3	4

people making
demands of me

- | | | | | | | |
|-----|---|---|---|---|---|---|
| 11. | I tell personal things to other people too much | 0 | 1 | 2 | 3 | 4 |
|-----|---|---|---|---|---|---|

Interpersonal Ambivalence

- | | | | | | | |
|-----|---|---|---|---|---|---|
| 12. | It is hard for me to take instructions from people who have authority over me | 0 | 1 | 2 | 3 | 4 |
| 13. | It is hard for me to accept another person's authority over me | 0 | 1 | 2 | 3 | 4 |
| 14. | It is hard for me to get along with people who have authority over me | 0 | 1 | 2 | 3 | 4 |
| 15. | It is hard for me to be supportive of another person's goals in life | 0 | 1 | 2 | 3 | 4 |
| 16. | It is hard for me to really care about other people's problems | 0 | 1 | 2 | 3 | 4 |
| 17. | It is hard to feel good about another person's happiness | 0 | 1 | 2 | 3 | 4 |
| 18. | It is hard for me to put somebody else's needs before my own | 0 | 1 | 2 | 3 | 4 |
| 19. | It is hard for me to do what another person wants me to do | 0 | 1 | 2 | 3 | 4 |

20. It is hard for me to maintain a working relationship with someone I don't like 0 1 2 3 4

21. I feel competitive even when the situation does not call for it 0 1 2 3 4

Aggression

22. I argue with other people too much 0 1 2 3 4

23. I lose my temper too easily 0 1 2 3 4

24. I fight with other people too much 0 1 2 3 4

25. I am too aggressive toward other people 0 1 2 3 4

26. I get irritated or annoyed too easily 0 1 2 3 4

27. I criticize other people too much 0 1 2 3 4

28. I want to get revenge against people too much 0 1 2 3 4

Need for Social Approval

29. I try to please other people too much 0 1 2 3 4

30. I worry too much about disappointing other people 0 1 2 3 4

31. It is hard for me to say "no" to other people 0 1 2 3 4

32.	I am influenced too much by another person's thoughts and feelings	0	1	2	3	4
33.	I worry too much about other people's reactions to me	0	1	2	3	4
34.	I am affected by another person's moods too much	0	1	2	3	4
35.	It is hard for me to be assertive without worrying about hurting the other person's feelings	0	1	2	3	4
36.	It is hard for me to make reasonable demands of other people	0	1	2	3	4
37.	It is hard for me to be assertive with another person	0	1	2	3	4
<i>Lack of Sociability</i>						
38.	It is hard for me to socialize with other people	0	1	2	3	4
39.	It is hard for me to feel comfortable around other people	0	1	2	3	4
40.	It is hard for me to join in on groups	0	1	2	3	4
41.	It is hard for me to be self-confident when I am with other people	0	1	2	3	4

42.	It is hard for me to introduce myself to new people	0	1	2	3	4
43.	It is hard for me to ask other people to get together socially with me	0	1	2	3	4
44.	It is hard for me to express my feelings to other people directly	0	1	2	3	4
45.	I am too afraid of other people	0	1	2	3	4
46.	I feel embarrassed in front of other people too much	0	1	2	3	4
47.	It is hard for me to set goals for myself without other people's advice	0	1	2	3	4

Appendix H: Big Five Inventory (BFI-44)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please indicate the extent to which you agree or disagree with each statement.

I see myself as someone who...

	Disagree Strongly	Disagree a Little	Neither Disagree nor Agree	Agree a Little	Agree Strongly
1. ...is talkative	1	2	3	4	5
2. ...tends to find fault with others	1	2	3	4	5
3. ...does a thorough job	1	2	3	4	5
4. ...is depressed, blue	1	2	3	4	5
5. ...is original, comes up with new ideas	1	2	3	4	5
6. ...is reserved	1	2	3	4	5
7. ...is helpful and unselfish with others	1	2	3	4	5
8. ...can be somewhat careless	1	2	3	4	5
9. ...is relaxed, handles stress well	1	2	3	4	5
10. ...is curious about many different things	1	2	3	4	5
11. ...is full of energy	1	2	3	4	5
12. ...starts quarrels with others	1	2	3	4	5
13. ...is a reliable worker	1	2	3	4	5
14. ...can be tense	1	2	3	4	5

15.	...is ingenious, a deep thinker	1	2	3	4	5
16.	...generates a lot of enthusiasm	1	2	3	4	5
17.	...has a forgiving nature	1	2	3	4	5
18.	...tends to be disorganized	1	2	3	4	5
19.	...worries a lot	1	2	3	4	5
20.	...has an active imagination	1	2	3	4	5
21.	...tends to be quiet	1	2	3	4	5
22.	...is generally trusting	1	2	3	4	5
23.	...tends to be lazy	1	2	3	4	5
24.	...is emotionally stable, not easily upset	1	2	3	4	5
25.	...is inventive	1	2	3	4	5
26.	...has an assertive personality	1	2	3	4	5
27.	...can be cold and aloof	1	2	3	4	5
28.	...perseveres until the task is finished	1	2	3	4	5
29.	...can be moody	1	2	3	4	5
30.	...values artistic, aesthetic experiences	1	2	3	4	5
31.	...is sometimes shy, inhibited	1	2	3	4	5
32.	...is considerate and kind to almost everyone	1	2	3	4	5

33.	...does things efficiently	1	2	3	4	5
34.	...remains calm in tense situations	1	2	3	4	5
35.	...prefers work that is routine	1	2	3	4	5
36.	...is outgoing, sociable	1	2	3	4	5
37.	...is sometimes rude to others	1	2	3	4	5
38.	...makes plans and follows through with them	1	2	3	4	5
39.	...gets nervous easily	1	2	3	4	5
40.	...likes to reflect, play with ideas	1	2	3	4	5
41.	...has few artistic interests	1	2	3	4	5
42.	...likes to cooperate with others	1	2	3	4	5
43.	...is easily distracted	1	2	3	4	5
44.	...is sophisticated in art, music, or literature	1	2	3	4	5

Appendix I: Informant Demographics Questionnaire

Preliminary question:

Please paste the unique ID provided in the email you received with the survey link:

1. How old are you (in years)?
2. What is your gender?
3. What is your ethnicity?
 - a. First Nations/Inuit/Metis
 - b. Arabic/Middle Eastern
 - c. Asian
 - d. Black/African
 - e. Caucasian/non-Hispanic White/European
 - f. Hispanic/Latino
 - g. Indian/South Asian
 - h. Other (please describe):
 - i. Prefer not to answer
4. What is your highest completed level of education?
 - a. Did not finish high school
 - b. High school
 - c. College or trade program
 - d. Undergraduate university (Bachelor's) degree
 - e. Master's degree
 - f. Doctoral degree

g. Prefer not to answer

5. What is your employment status?

a. Employed full-time

b. Employed part-time

c. Unemployed

d. Prefer not to answer

6. What is your relationship with the person who nominated you for this study? They are your...

i. Friend

ii. Spouse or dating partner

iii. Sibling

iv. Parent

v. Child

vi. Co-worker

vii. Other (please specify):

7. How long have you known that person (in years)?

Appendix J: Personality Inventory for DSM-5 – Informant Report Form (PID-5-IRF)

Instructions: This is a list of things different people might say about others. We are interested in how you would describe the person who nominated you for this study. There are no right or wrong answers. So you can describe them as honestly as possible, we will keep your responses confidential. We’d like you to take your time and read each statement carefully, selecting the response that best describes them.

	Please Rate how true or false each of the following statements are of the person you are rating. That person...	Very False or Often False	Sometimes or Somewhat False	Sometimes or Somewhat True	Very True or Often True
1.	...doesn't get as much pleasure out of things as others seem to	0	1	2	3
2.	...believes people are out to get them	0	1	2	3
3.	...is reckless	0	1	2	3
4.	...acts totally on impulse	0	1	2	3
5.	...often has unusual ideas	0	1	2	3
6.	...loses track of conversations because other things catch their attention	0	1	2	3
7.	...avoids risky situations	0	1	2	3
8.	...can be a "cold fish" when it comes to their emotions	0	1	2	3
9.	...changes what they do depending on what others want	0	1	2	3
10.	...prefers not to get too close to people	0	1	2	3

11.	...often gets into physical fights	0	1	2	3
12.	...dreads being without someone to love them	0	1	2	3
13.	...is rude and unfriendly	0	1	2	3
14.	...does things to make sure people notice them	0	1	2	3
15.	...usually does what others think they should do	0	1	2	3
16.	...usually does things on impulse without thinking about what might happen as a result	0	1	2	3
17.	...can't stop making rash decisions even though they know better	0	1	2	3
18.	...changes in emotion for no good reason	0	1	2	3
19.	...really doesn't care if they make other people suffer	0	1	2	3
20.	...keeps to themselves	0	1	2	3
21.	...often says things that are odd or strange	0	1	2	3
22.	...always does things on the spur of the moment	0	1	2	3
23.	...is not very interested in anything	0	1	2	3
24.	...behaves in a weird way	0	1	2	3
25.	...thinks about things in a really strange way	0	1	2	3

26.	...almost never enjoys life	0	1	2	3
27.	...often feels like nothing they do really matters	0	1	2	3
28.	...snaps at people over little things that irritate them	0	1	2	3
29.	...can't concentrate on anything	0	1	2	3
30.	...is an energetic person	0	1	2	3
31.	...is irresponsible	0	1	2	3
32.	...can be mean	0	1	2	3
33.	...has thoughts that often go off in odd or unusual directions	0	1	2	3
34.	...spends too much time making sure things are exactly in place	0	1	2	3
35.	...avoids risky sports and activities	0	1	2	3
36.	...seems to have trouble telling the difference between dreams and waking life	0	1	2	3
37.	...talks about weird sensations (like feeling that parts of their body feel like they're dead or not really them)	0	1	2	3
38.	...is easily angered	0	1	2	3
39.	...has no limits when it comes to doing dangerous things	0	1	2	3

40.	...thinks they are just more important than other people	0	1	2	3
41.	...makes up stories about things that happened that are totally untrue	0	1	2	3
42.	...claims strange problems with memory that are difficult to explain	0	1	2	3
43.	...does things just to make people admire them	0	1	2	3
44.	...reports seeing weird things (like ordinary objects changing shapes)	0	1	2	3
45.	...doesn't have very long-lasting emotional reactions to things	0	1	2	3
46.	...finds it hard to stop an activity, even when it's time to do so	0	1	2	3
47.	...is not good at planning ahead	0	1	2	3
48.	...does a lot of things that others consider risky	0	1	2	3
49.	...focuses too much on minor details	0	1	2	3
50.	...worries a lot about being alone	0	1	2	3
51.	...has missed out on things because they were busy trying to get something they were doing exactly right	0	1	2	3

52.	...often has thoughts that don't make sense	0	1	2	3
53.	...often makes up things about themselves to help them get what they want	0	1	2	3
54.	...is not really bothered to see other people get hurt	0	1	2	3
55.	...often says really weird things	0	1	2	3
56.	...often flatters people in order to get something	0	1	2	3
57.	...would rather be in a bad relationship than be alone	0	1	2	3
58.	...usually thinks before they act	0	1	2	3
59.	...often talks about seeing vivid images (like dreams spilling into waking life)	0	1	2	3
60.	...keeps approaching things the same way, even when it isn't working	0	1	2	3
61.	...is very dissatisfied with themselves	0	1	2	3
62.	...has much stronger emotional reactions than almost everyone else	0	1	2	3
63.	...does what other people tell them to do	0	1	2	3
64.	...can't stand being left alone, even for a few hours	0	1	2	3
65.	...thinks too highly of themselves	0	1	2	3

66.	...sees the future as really hopeless	0	1	2	3
67.	...likes to take risks	0	1	2	3
68.	...can't achieve goals because other things capture their attention	0	1	2	3
69.	...doesn't let something being risky stop them from doing it	0	1	2	3
70.	...is quite odd or unusual	0	1	2	3
71.	...has strange and unpredictable thoughts	0	1	2	3
72.	...doesn't care about other people's feelings	0	1	2	3
73.	...disregards others to get what they want	0	1	2	3
74.	...loves getting the attention of other people	0	1	2	3
75.	...goes out of their way to avoid any kind of group activity	0	1	2	3
76.	...can be sneaky if it means getting what they want	0	1	2	3
77.	...often seems to see things as unfamiliar or strange	0	1	2	3
78.	...finds it hard to shift from one activity to another	0	1	2	3
79.	...worries a lot about terrible things that might happen	0	1	2	3

80.	...has trouble changing how they are doing something even if what they are doing isn't going well	0	1	2	3
81.	...thinks the world would be better off if they were dead	0	1	2	3
82.	...keeps their distance from people	0	1	2	3
83.	...often can't seem to control what they think about	0	1	2	3
84.	...doesn't get emotional	0	1	2	3
85.	...resents being told what to do, even by people in charge	0	1	2	3
86.	...often seems ashamed about little things	0	1	2	3
87.	...avoids anything that might be even a little bit dangerous	0	1	2	3
88.	...has trouble pursuing specific goals even for short periods of time	0	1	2	3
89.	...prefers to keep romance out of their life	0	1	2	3
90.	...would never harm another person	0	1	2	3
91.	...doesn't show emotions strongly	0	1	2	3
92.	...has a very short temper	0	1	2	3

93.	...often worries that something bad will happen due to mistakes they made in the past	0	1	2	3
94.	...thinks they have unusual abilities (like sometimes knowing exactly what someone is thinking)	0	1	2	3
95.	...is very nervous about the future	0	1	2	3
96.	...enjoys being in love	0	1	2	3
97.	...prefers to play it safe rather than take unnecessary chances	0	1	2	3
98.	...sometimes hears things that aren't really there	0	1	2	3
99.	...gets fixated on certain things and can't stop	0	1	2	3
100.	...is difficult to read emotionally	0	1	2	3
101.	...is a highly emotional person	0	1	2	3
102.	...worries about others taking advantage of them	0	1	2	3
103.	...often feels like a failure	0	1	2	3
104.	...finds it simply not acceptable if they do not do something absolutely perfectly	0	1	2	3
105.	...often has unusual experiences, such as sensing the presence of	0	1	2	3

	someone who isn't actually there				
106.	...is good at making people do what they want them to do	0	1	2	3
107.	...breaks off relationships if they start to get close	0	1	2	3
108.	...is always worrying about something	0	1	2	3
109.	...worries about almost everything	0	1	2	3
110.	...likes to stand out in a crowd	0	1	2	3
111.	...doesn't mind a little risk now and then	0	1	2	3
112.	...often displays bold behaviour that grabs peoples' attention	0	1	2	3
113.	...thinks they are better than almost everyone else	0	1	2	3
114.	...has a need to have everything all arranged	0	1	2	3
115.	...always makes sure they get back at people who wrong them	0	1	2	3
116.	...is always on his/her guard for someone trying to trick or harm them	0	1	2	3
117.	...has trouble keeping their mind focused on what needs to be done	0	1	2	3
118.	...talks about suicide a lot	0	1	2	3

119.	...is just not very interested in having sexual relationships	0	1	2	3
120.	...gets stuck on things a lot	0	1	2	3
121.	...gets emotional easily, often for very little reason	0	1	2	3
122.	...insists on absolute perfection in everything they do even though it drives other people crazy	0	1	2	3
123.	...almost never feels happy about their day-to-day activities	0	1	2	3
124.	...finds sweet-talking others helps them get what they want	0	1	2	3
125.	...sometimes exaggerates or lies about themselves to get ahead	0	1	2	3
126.	...fears being alone in life more than anything else	0	1	2	3
127.	...gets stuck on one way of doing things, even when it's clear it won't work	0	1	2	3
128.	...is often pretty careless with their own and others' things	0	1	2	3
129.	...is a very anxious person	0	1	2	3
130.	...thinks people are basically trustworthy	0	1	2	3
131.	...is easily distracted	0	1	2	3

132.	...often thinks they are being mistreated	0	1	2	3
133.	...doesn't hesitate to cheat if it gets them ahead	0	1	2	3
134.	...checks things several times to make sure they are perfect	0	1	2	3
135.	...doesn't like spending time with others	0	1	2	3
136.	...feels compelled to go on with things even when it makes little sense to do so	0	1	2	3
137.	...has emotions that can change from moment to moment	0	1	2	3
138.	...has seen things that weren't really there	0	1	2	3
139.	...believes it is important that things are done in a certain way	0	1	2	3
140.	...always expects the worst to happen	0	1	2	3
141.	...tries to tell the truth even when it's hard	0	1	2	3
142.	...believes that some people can move things with their minds	0	1	2	3
143.	...can't focus on things for very long	0	1	2	3
144.	...steers clear of romantic relationships	0	1	2	3
145.	...is not interested in making friends	0	1	2	3

146.	...says as little as possible when dealing with people	0	1	2	3
147.	...thinks they are useless as a person	0	1	2	3
148.	...will do just about anything to keep someone from abandoning them	0	1	2	3
149.	...thinks they can influence people by literally sending their thoughts to them	0	1	2	3
150.	...thinks that life looks pretty bleak	0	1	2	3
151.	...thinks about things in odd ways that don't make sense to most people	0	1	2	3
152.	...doesn't care if their actions hurt others	0	1	2	3
153.	...sometimes thinks their thoughts are being "controlled" by someone else	0	1	2	3
154.	...really lives life to the fullest	0	1	2	3
155.	...seems to make promises that they don't intend to keep	0	1	2	3
156.	...does not seem to feel good about anything	0	1	2	3
157.	...gets irritated easily by all sorts of things	0	1	2	3

158.	...does what they want regardless of how unsafe it might be	0	1	2	3
159.	...often forgets to pay their bills	0	1	2	3
160.	...doesn't like to get too close to people	0	1	2	3
161.	...is good at conning people	0	1	2	3
162.	...finds everything pointless	0	1	2	3
163.	...never takes risks	0	1	2	3
164.	...gets emotional over every little thing	0	1	2	3
165.	...believes it is no big deal if they hurt other peoples' feelings	0	1	2	3
166.	...never shows emotions to others	0	1	2	3
167.	...often feels just miserable	0	1	2	3
168.	...feels worthless as a person	0	1	2	3
169.	...is usually pretty hostile	0	1	2	3
170.	...has skipped town to avoid responsibilities	0	1	2	3
171.	...has a number of odd quirks or habits	0	1	2	3
172.	...likes being a person who gets noticed	0	1	2	3

173.	...is always fearful or on edge about bad things that might happen	0	1	2	3
174.	...never wants to be alone	0	1	2	3
175.	...keeps trying to make things perfect, even when they have gotten them as good as they're likely to get	0	1	2	3
176.	...mentions that they will commit suicide sooner or later	0	1	2	3
177.	...exaggerates their own achievements	0	1	2	3
178.	...can certainly turn on the charm if they need to get their way	0	1	2	3
179.	...has unpredictable emotions	0	1	2	3
180.	...doesn't deal with people unless they have to	0	1	2	3
181.	...doesn't care about other peoples' problems	0	1	2	3
182.	...doesn't react much to things that seem to make others emotional	0	1	2	3
183.	...has several habits that are eccentric or strange	0	1	2	3
184.	...avoids social events	0	1	2	3
185.	...thinks they deserve special treatment	0	1	2	3

186.	...is really angry when people insult them in even a minor way	0	1	2	3
187.	...rarely gets enthusiastic about anything	0	1	2	3
188.	...suspects that their friends betray them a lot	0	1	2	3
189.	...craves attention	0	1	2	3
190.	...sometimes thinks someone else is removing thoughts from their head	0	1	2	3
191.	...has periods in which they feel disconnected from the world or from themselves	0	1	2	3
192.	...often makes unusual connections between things	0	1	2	3
193.	...doesn't think about getting hurt when they are doing things that might be dangerous	0	1	2	3
194.	...simply won't put up with things being out of their proper places	0	1	2	3
195.	...often "looks down" on others	0	1	2	3
196.	...sometimes hits people	0	1	2	3
197.	...gets pulled off-task by even minor distractions	0	1	2	3
198.	...enjoys making people in control look stupid	0	1	2	3

199.	...just skips appointments or meetings if they are not in the mood	0	1	2	3
200.	...tries to do what others want them to do	0	1	2	3
201.	...prefers being alone to having a close romantic partner	0	1	2	3
202.	...is very impulsive	0	1	2	3
203.	...often has thoughts that make sense to them but that other people say are strange	0	1	2	3
204.	...uses people to get what they want	0	1	2	3
205.	...doesn't feel guilty about things they have done that have hurt other people	0	1	2	3
206.	...is not friendly most of the time	0	1	2	3
207.	...talks about really weird experiences that are difficult for them to explain	0	1	2	3
208.	...follows through on commitments	0	1	2	3
209.	...likes to draw attention to themselves	0	1	2	3
210.	...feels guilty much of the time	0	1	2	3
211.	...often "zones out" for periods of time	0	1	2	3
212.	...lies easily	0	1	2	3

213.	...hates to take chances	0	1	2	3
214.	...can be nasty and short with others	0	1	2	3
215.	...talks about feeling like things are unreal, or more real than usual	0	1	2	3
216.	...will stretch the truth if it's to their advantage	0	1	2	3
217.	...finds it is easy to take advantage of others	0	1	2	3
218.	...has a strict way of doing things	0	1	2	3

Appendix K: Dyadic Trust Scale

Please indicate to what extent you agree that each statement describes your perceptions of the person who nominated you for this study:

		Strongly disagree						Strongly agree
		1	2	3	4	5	6	7
1*	They are primarily interested in their own welfare.	1	2	3	4	5	6	7
2*	There are times when they cannot be trusted.	1	2	3	4	5	6	7
3	They are perfectly honest and truthful with me.	1	2	3	4	5	6	7
4	I feel that I can trust them completely.	1	2	3	4	5	6	7
5	They are truly sincere in their promises.	1	2	3	4	5	6	7
6*	I feel that they do not show me enough consideration.	1	2	3	4	5	6	7
7	They treat me fairly and justly.	1	2	3	4	5	6	7
8	I feel that they can be counted on to help me.	1	2	3	4	5	6	7

*reverse coded

Appendix L: International Personality Item Pool – Interpersonal Circumplex

(Informant)

On this page, there are phrases describing peoples' behaviours. Please use the rating scale below to describe how accurately each statement describes the person who nominated you for this study. Describe them as they generally are now, not as they may wish to be in the future. Describe them as you honestly see them, in relation to other people you know of the same gender as they are, and roughly their same age. Please read each statement carefully, and then select the answer that corresponds to your response using the scale below.

		Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
	They...					
1.	are quiet around strangers.	1	2	3	4	5
2.	speak softly.	1	2	3	4	5
3.	tolerate a lot from others.	1	2	3	4	5
4.	are interested in people.	1	2	3	4	5
5.	feel comfortable around people.	1	2	3	4	5
6.	demand to be the center of attention	1	2	3	4	5
7.	cut others to pieces.	1	2	3	4	5
8.	believe people should fend for themselves.	1	2	3	4	5
9.	are a very private person.	1	2	3	4	5

10.	let others finish what they are saying.	1	2	3	4	5
11.	take things as they come.	1	2	3	4	5
12.	reassure others.	1	2	3	4	5
13.	start conversations.	1	2	3	4	5
14.	do most of the talking.	1	2	3	4	5
15.	contradict others.	1	2	3	4	5
16.	don't fall for sob stories.	1	2	3	4	5
17.	don't talk a lot.	1	2	3	4	5
18.	seldom toot their own horn.	1	2	3	4	5
19.	think of others first.	1	2	3	4	5
20.	inquire about others' well-being.	1	2	3	4	5
21.	talk to a lot of different people at parties.	1	2	3	4	5
22.	speak loudly.	1	2	3	4	5
23.	snap at people.	1	2	3	4	5
24.	don't put a lot of thought into things.	1	2	3	4	5
25.	have little to say.	1	2	3	4	5

26.	dislike being the center of attention.	1	2	3	4	5
27.	seldom stretch the truth.	1	2	3	4	5
28.	get along well with others.	1	2	3	4	5
29.	love large parties.	1	2	3	4	5
30.	demand attention.	1	2	3	4	5
31.	have a sharp tongue.	1	2	3	4	5
32.	are not interested in other people's problems.	1	2	3	4	5

Appendix M: Inventory of Interpersonal Problems – Personality Disorder

(Informant)

Consider each problem your loved one may have and rate how distressing that problem has been to them.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Your loved one is too sensitive to rejection	0	1	2	3	4
2. Your loved one is too sensitive to criticism	0	1	2	3	4
3. It is hard for your loved one to ignore criticism from other people	0	1	2	3	4
4. Your loved one feels too anxious when they are involved with another person	0	1	2	3	4
5. Your loved one feels attacked by other people too much	0	1	2	3	4
6. It is hard for your loved one to get over the feeling of loss after a relationship has ended	0	1	2	3	4
7. Your loved one is too envious and jealous of other people	0	1	2	3	4
8. It is hard for your loved one to trust other people	0	1	2	3	4
9. It is hard for your loved one to feel like a separate person when they are in a relationship	0	1	2	3	4

10. Your loved one is too easily bothered by other people making demands of them	0	1	2	3	4
11. Your loved one tells personal things to other people too much	0	1	2	3	4
12. It is hard for your loved one to take instructions from people who have authority over them	0	1	2	3	4
13. It is hard for your loved one to accept another person's authority over them	0	1	2	3	4
14. It is hard for your loved one to get along with people who have authority over them	0	1	2	3	4
15. It is hard for your loved one to be supportive of another person's goals in life	0	1	2	3	4
16. It is hard for your loved one to really care about other people's problems	0	1	2	3	4
17. It is hard for your loved one to feel good about another person's happiness	0	1	2	3	4
18. It is hard for your loved one to put somebody else's needs before their own	0	1	2	3	4
19. It is hard for your loved one to do what another person wants them to do	0	1	2	3	4

20. It is hard for your loved one to maintain a working relationship with someone they don't like	0	1	2	3	4
21. Your loved one feels competitive even when the situation does not call for it	0	1	2	3	4
22. Your loved one argues with other people too much	0	1	2	3	4
23. Your loved one loses their temper too easily	0	1	2	3	4
24. Your loved one fights with other people too much	0	1	2	3	4
25. Your loved one is too aggressive toward other people	0	1	2	3	4
26. Your loved one gets irritated or annoyed too easily	0	1	2	3	4
27. Your loved one criticizes other people too much	0	1	2	3	4
28. Your loved one wants to get revenge against people too much	0	1	2	3	4
29. Your loved one tries to please other people too much	0	1	2	3	4
30. Your loved one worries too much about disappointing other people	0	1	2	3	4

31. It is hard for your loved one to say “no” to other people	0	1	2	3	4
32. Your loved one is influenced too much by another person’s thoughts and feelings	0	1	2	3	4
33. Your loved one worries too much about other people’s reactions to them	0	1	2	3	4
34. Your loved one is affected by another person’s moods too much	0	1	2	3	4
35. It is hard for your loved one to be assertive without worrying about hurting the other person’s feelings	0	1	2	3	4
36. It is hard for your loved one to make reasonable demands of other people	0	1	2	3	4
37. It is hard for your loved one to be assertive with another person	0	1	2	3	4
38. It is hard for your loved one to socialize with other people	0	1	2	3	4
39. It is hard for your loved one to feel comfortable around other people	0	1	2	3	4
40. It is hard for your loved one to join in on groups	0	1	2	3	4

41. It is hard for your loved one to be self-confident when they are with other people	0	1	2	3	4
42. It is hard for your loved one to introduce themselves to new people	0	1	2	3	4
43. It is hard for your loved one to ask people to get together socially with them	0	1	2	3	4
44. It is hard for your loved one to express their feelings to other people directly	0	1	2	3	4
45. Your loved one is too afraid of other people	0	1	2	3	4
46. Your loved one feels embarrassed in front of other people too much	0	1	2	3	4
47. It is hard for your loved one to set goals for themselves without other people's advice	0	1	2	3	4

Appendix N: Big Five Inventory (Informant)

Here are a number of characteristics that may or may not apply to the person who nominated you for this study. For example, do you agree that they are someone who likes to spend time with others? Please indicate the extent to which you agree or disagree with each statement.

I see them as someone who...

	Disagree Strongly	Disagree a Little	Neither Disagree nor Agree	Agree a Little	Agree Strongly
1. ...is talkative	1	2	3	4	5
2. ...tends to find fault with others	1	2	3	4	5
3. ...does a thorough job	1	2	3	4	5
4. ...is depressed, blue	1	2	3	4	5
5. ...is original, comes up with new ideas	1	2	3	4	5
6. ...is reserved	1	2	3	4	5
7. ...is helpful and unselfish with others	1	2	3	4	5
8. ...can be somewhat careless	1	2	3	4	5
9. ...is relaxed, handles stress well	1	2	3	4	5
10. ...is curious about many different things	1	2	3	4	5
11. ...is full of energy	1	2	3	4	5
12. ...starts quarrels with others	1	2	3	4	5
13. ...is a reliable worker	1	2	3	4	5
14. ...can be tense	1	2	3	4	5

15.	...is ingenious, a deep thinker	1	2	3	4	5
16.	...generates a lot of enthusiasm	1	2	3	4	5
17.	...has a forgiving nature	1	2	3	4	5
18.	...tends to be disorganized	1	2	3	4	5
19.	...worries a lot	1	2	3	4	5
20.	...has an active imagination	1	2	3	4	5
21.	...tends to be quiet	1	2	3	4	5
22.	...is generally trusting	1	2	3	4	5
23.	...tends to be lazy	1	2	3	4	5
24.	...is emotionally stable, not easily upset	1	2	3	4	5
25.	...is inventive	1	2	3	4	5
26.	...has an assertive personality	1	2	3	4	5
27.	...can be cold and aloof	1	2	3	4	5
28.	...perseveres until the task is finished	1	2	3	4	5
29.	...can be moody	1	2	3	4	5
30.	...values artistic, aesthetic experiences	1	2	3	4	5
31.	...is sometimes shy, inhibited	1	2	3	4	5
32.	...is considerate and kind to almost everyone	1	2	3	4	5

33.	...does things efficiently	1	2	3	4	5
34.	...remains calm in tense situations	1	2	3	4	5
35.	...prefers work that is routine	1	2	3	4	5
36.	...is outgoing, sociable	1	2	3	4	5
37.	...is sometimes rude to others	1	2	3	4	5
38.	...makes plans and follows through with them	1	2	3	4	5
39.	...gets nervous easily	1	2	3	4	5
40.	...likes to reflect, play with ideas	1	2	3	4	5
41.	...has few artistic interests	1	2	3	4	5
42.	...likes to cooperate with others	1	2	3	4	5
43.	...is easily distracted	1	2	3	4	5
44.	...is sophisticated in art, music, or literature	1	2	3	4	5

Appendix O: Detailed Description of Pilot Phase

Dissertation Pilot Results and Plan for Full Launch

This document provides an update about the pilot for Paige Lamborn's dissertation and outlines the resultant changes to the study as originally proposed. This pilot had two phases; each will be discussed, followed by an outline of the plan for the launch of the full study.

Pilot Phase 1 (March 19 – April 3)

Method. The first pilot phase went forward with the project as originally proposed, with a few immediate changes following the proposal meeting. First, all participants who completed the IRM-NS procedure were offered compensation individually, instead of using a draw as originally proposed. Second, it was investigated whether a 10-day IRM-NS procedure would be more feasible than the original 20-day condition. Finally, targets were instructed to report on a maximum of 10 interactions each day, so that the maximum daily time required for the IRM-NS procedure would be approximately 10 minutes. These changes were designed to decrease the burden on participants and increase their participation incentive. Targets were recruited through the participant pool during the final two weeks of the 2019 winter term. The target survey was completed online, during which the targets each nominated four informants. Two additional, optional slots were also added to allow the targets to nominate up to six informants. At the end of the survey, the targets were randomly assigned to view an end-of-study information page advertising either a 10- or 20-day IRM-NS condition, compensated with a \$10 or \$20 gift-card, respectively.

Results. Twenty-five timeslots were posted on the participant pool website, and all were filled (although only 13 participants completed the survey). Of those 13 responses, the data quality was variable. One response was completed in 7 minutes, whereas most others averaged 30 minutes, and two showed a “straight line” response pattern for parts of the survey, in which they selected the same response for every item. However, all 13 participants passed the validity check questions, which instructed them to select a specific response. The data were collected at the end of the winter semester, which may have inadvertently selected participants lower on conscientiousness and agreeableness personality traits, leading to poorer data quality.

Regarding the informant nominations, most targets nominated four informants, and none utilized the two optional slots. There were some idiosyncrasies in these nominations. One participant entered their own email address as the contact email for each of their informants; another gave only one nomination whose purported email address was not valid. Of the 11 targets who provided viable informant information, 5 informants completed the survey (45% completion rate; 38% out of the full sample). The number of potential informants who were contacted before one completed the survey ranged between one and three. Several informants completed the survey shortly after receiving a reminder email, suggesting that this is a helpful part of the procedure.

Regarding the IRM-NS procedure, only one of the seven participants who viewed information about the 20-day procedure indicated their interest in it. In contrast, 50% of those assigned to view the 10-day procedure identified as being interested in receiving more information about the procedure. When these 3 participants were contacted by email to schedule a meeting to discuss the IRM-NS procedure, only one responded and

agreed on a meeting time; however, that participant failed to appear twice. These findings show that a 10-day IRM-NS procedure is more feasible and acceptable to participants than the 20-day duration, and participants may be even more likely to participate if they are offered higher compensation. The findings also determined that the procedure of emailing participants who indicate their interest in the IRM-NS procedure is cumbersome and that this transition between study components would be a challenging piece of the original design.

Pilot Phase 2 (May 6 – May 21)

Method. To address the difficulties identified in the first phase of the pilot, the project was tested as an in-lab study. Specifically, targets signed up for a 1.5-hour in-person timeslot on the participant pool website. They first completed the target survey on a computer in the lab, and were then invited to participate in the 10-day IRM-NS procedure. Those who were interested in participating then discussed the app and procedure with the researcher. Thus, two of the targets' study components -- completing the target survey and meeting with the researcher -- were completed in one session. The IRM-NS procedure then ran for 10 consecutive days, starting the day after the in-lab session. Targets were instructed to bring to the lab their smartphone and a list of informants who gave consent for their information to be shared. Targets received 2 bonus points for the in-lab session, and an additional \$20 gift-card after they successfully completed the IRM-NS procedure.

Results. In the first week of the second pilot phase, 12 slots were posted, eight people signed up, and all attended their sessions. The second and third weeks were slower, with one sign-up each, but a no-show for the second week. The surveys

completed in the lab had more reasonable durations than those in the first pilot phase, as most participants completed the task in 20 to 30 minutes. One participant had a “straight-line” response pattern, but seemed to adjust this after being reminded to read the items carefully. All participants passed the validity check items. Most targets nominated four informants; one target only nominated two, and two targets used at least one of the optional additional slots. So far, informant responses have been received for 6 of the 8 targets, giving a response rate of 75%. These were the first and second informants contacted for each target; the full informant recruitment procedure takes approximately 40 days to exhaust all possible informants, so the informant response rate for the second phase may increase. The in-lab set up also allowed the researcher to check with participants that they had garnered consent from their informants, which may have improved the informant response rate. It is also likely that the targets in this second pilot phase were generally more agreeable and conscientious people, given that they completed the study in the first week of intersession.

The second pilot phase was designed to address difficulties getting interested targets into the lab to train them in the IRM-NS procedure. This seems to have been successful, as 100% of the in-lab participants agreed to participate in the IRM-NS procedure; 7 of the 8 successfully completed the procedure by consistently reporting across the full 10 days. To account for natural fluctuations in social behaviour, targets were not automatically considered to have withdrawn from the study if they did not report on any interactions for a day. However, the compliance of those who failed to report interactions on five or more days of the IRM-NS procedure was examined; one target was contacted to inquire whether the app was working appropriately for them and

they reported that they had forgotten to submit responses. Another target expressed concern during the in-lab session that they would not have any substantial social interactions over the 10 days, due to living in a different city from their family and friends, and reported only two interactions over the 10 days.

The targets reported an average of 1-2 responses per day, with a range of 8 to 16 total responses over the 10-day period (excluding the outlier of only 2 responses). One issue that arose during the dissertation proposal meeting was the minimum number of responses that would be required for a case to be retained for analysis. Past researchers have used arbitrary cut-offs of at least 25 responses over a 7-day procedure, in which participants were specifically instructed to report at least 5 forms per day (Erickson, Newman, & Pincus, 2009). However, participants may not naturally engage in this many substantial interactions, and automatically discounting these cases may diminish the ecological validity of the procedure. Additionally, setting a threshold too high might inadvertently remove targets who are higher on traits like detachment or psychoticism, who may be insufficiently sampled through the in-lab study. These considerations must be balanced with the need for an adequate amount of data for reliability and generalizability. Rappaport et al. (2014) reported data with between 3 and 242 total responses over 21 days. For the purposes of this study, 3 responses over the 10-day period will be used as the minimum baseline for cases to be included in the analyses.

Full Study Launch

Methods. Two methods of data collection are planned for the full study launch. The first is an in-lab set-up, consistent with the second phase of the pilot. This method will be used to gather data from the three study components: the target survey, informant

survey, and IRM-NS procedure. Up to 160 targets in the lab may be required to arrive at 80 cases with complete data from all three components. This estimation accounts for a 50% informant response rate. The second pilot phase demonstrated that there is a higher likelihood of having targets successfully complete the survey, in-lab meeting, and IRM-NS procedure if the first two components are combined into one session. The in-lab set-up is likely to inadvertently sample individuals who are lower on the pathological personality traits being studied. The in-lab design also trades-off between a more methodologically rigorous design, but will return a smaller overall sample requiring a smaller statistical model be analyzed.

Note. A second data collection procedure was proposed in this document, wherein participants would complete the target survey online and would *not* be offered participation in the IRM-NS procedure. The resulting data would be used to supplement the in-lab cases and would be analyzed through a series of SEM models using only questionnaire data. However, over the course of the data collection period, the informant response rate was much higher than what was expected following the pilot phase and the in-lab procedure generated sufficient data to go through with the original data analysis plan. As such, this secondary methodology was not used and all targets were run in-lab.

Appendix P: Target Consent Form



CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Personality and Daily Social Behaviour Part 1**

You are asked to participate in a research study conducted by **Paige Lamborn** and **Dr. Kenneth Cramer** from the Psychology Department at the University of Windsor. The results of the study will be used for Paige Lamborn's doctoral dissertation.

If you have any questions or concerns about the research, please contact Dr. Kenneth Cramer (Faculty Supervisor) at 1-519-253-3000 ext. XXXX or XXXXXX@uwindsor.ca, or Paige Lamborn (Student Investigator) at XXXXXX@uwindsor.ca.

PURPOSE OF THE STUDY

The purpose of the study is to examine the relations between personality traits and aspects of social behaviour. The study seeks to understand how people's perceptions of their own personality traits compare to those of people around them, and how those perspectives are related to social behaviour. We also seek to understand how personality traits relate to different patterns of social behaviour.

PROCEDURES

If you volunteer to participate in this study, you will first be asked to come to a psychology laboratory and complete a survey on a lab computer. It is expected that the survey will take approximately 1 hour to complete. In the survey, you will be asked to describe your personality and social behaviour through a series of questionnaire measures. You will also be asked to get permission from and nominate at least four people who know you well, whom we will contact and invite participate in a separate survey. **Please get permission from your nominees prior to launching this study.** After completing the questionnaires, you will be asked whether you are interested in participating in the second part of this study, which involves entering short responses on your smartphone over a period of 10 days in exchange for a \$20 Amazon.ca gift-card. If you are interested in participating, you will then meet with the researcher for approximately 30 minutes to discuss these procedures.

POTENTIAL RISKS AND DISCOMFORTS

Some of the items in the questionnaires ask about sensitive information, such as experiences of anxiety and depression, or thoughts of suicide. As such, some people may find these questions uncomfortable to answer. Additionally, some participants may find certain questions to be phrased in an insensitive or biased manner. However, this is not the intention of the researchers, as the questions have been selected from standardized measures.

By inviting people you know to provide information about their perceptions of you, it is possible that your relationship with them may change as a result of participating in this research.

To manage these risks, you are permitted to skip any questionnaire items that you do not wish to answer and you may withdraw from the study at any time by exiting out of the web browser. Additionally, we have provided a list of resources at the end of the survey that you can access if you feel distressed by the questions. To manage any risk to your relationships, we will keep your responses confidential from the people you nominate and will also keep their responses confidential from you. That is, you will not be able to see your nominees' responses, and they will not be able to see yours. Additionally, we will ask you to nominate at least four people and will randomly select only one of those people to participate. You will not be told which person participates in the study.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

One potential benefit of this study is that you may gain a better understanding of yourself through answering the self-report questions. Another possible benefit of this study is that the field of psychology may gain a better understanding of how personality traits are related to social behaviour. However, it is possible that you may not gain immediate benefit from participating.

COMPENSATION FOR PARTICIPATION

After coming to the lab, you will be compensated for your time with partial course credit, in accordance with the University of Windsor Psychology Participant Pool policy. This study will take no more than 90 minutes of your time and is worth 2 bonus points if you are registered in the pool and you are registered in one or more eligible psychology courses. **However, if you withdraw/close the survey browser before the survey is completed, you will not be eligible for compensation.** Additionally, validity checks have been distributed throughout the survey; if you fail more than half of the checks, you will forfeit your compensation.

CONFIDENTIALITY

This study involves a confidential in-lab survey and meeting with the researcher. We need to collect your name and email address in order to credit you on the University of Windsor Psychology Participant Pool. As such, your survey responses will not be anonymous. However, your identity and participation in this research will be kept confidential by the researchers. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Partial responses will be retained, even if you withdraw from the survey. Results from this study will only be reported publicly as statistical summaries, so it will not be possible for others to identify you or the people you nominate to describe your personality. Your survey responses will not be made available to the people you nominate, and their responses will be kept confidential from you as well.

On-line survey responses will be housed on the secure Qualtrics server. Downloaded data from the survey will be stored on the password-protected computers of the investigators.

PARTICIPATION AND WITHDRAWAL

You may withdraw from the survey at any time by simply closing the web browser. If you complete partial survey data, the data up to the point of exiting the survey will be retained for analysis. If you withdraw/close the survey browser before the survey is completed, you will not be eligible for compensation.

The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

If you are interested in receiving a copy of the research findings, you are welcome to email Paige Lamborn at lamborn@uwindsor.ca. The results will also be made available on the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb

Date when results are available: September 2021

SUBSEQUENT USE OF DATA

These data will be used in Paige Lamborn's doctoral dissertation. They may be used in subsequent studies, in publications, and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

By clicking the button reading "I consent to participate" you are agreeing to the following statement:

I understand the information provided for the study "**Personality and Daily Social Behaviour Part 1**" as described herein. I agree to participate in this study.

Please print a copy of this form for your records.

<I consent to participate>

<I do not consent to participate>

Appendix Q: Target End-of-Survey Instruction Page

Thank you for participating in the first part of our study, **Personality and Daily Social Behaviour Part 1!** This research is aimed at better understanding a set of personality traits that are thought to be central to personality functioning. To gain this understanding, we seek to compare people's perceptions of their own personality to the views of their loved ones and examine how these perspectives relate to different aspects of social behaviour. We recommend that you do not discuss your participation in this study with the people you nominated earlier, to maintain privacy and confidentiality.

Get your points

To receive partial course credit through the Psychology Participant Pool, please enter the following information:

Full name (Firstname Lastname): <textbox>

UWindsor email address: <textbox>

Before you go

If you have any questions about this research, please feel free to email lamborn@uwindsor.ca. If you feel that you need extra support, please see the links below and look for organizations in your area:

University of Windsor and Windsor, Ontario resources:

<http://www.uwindsor.ca/studentcounselling/304/contact-us>

<https://windsorsex.cmha.ca/mental-health/suicide-prevention/mental-health-resources/>

Canadian resources:

<http://www.cmha.ca/get-involved/find-your-cmha/>

<http://www.ementalhealth.ca>

International or online:

<http://psychcentral.com/resources/>

<http://www.centreforglobalmentalhealth.org/global-mental-health-websites>

Appendix R: IRM-NS Consent Form



CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Personality and Daily Social Behaviour Part 2**

You are asked to participate in a research study conducted by **Paige Lamborn** and **Dr. Kenneth Cramer** from the Psychology Department at the University of Windsor. The results of the study will be used for Paige Lamborn's doctoral dissertation.

If you have any questions or concerns about the research, please contact Dr. Kenneth Cramer (Faculty Supervisor) at 1-519-253-3000 ext. XXXX or XXXXX@uwindsor.ca, or Paige Lamborn (Student Investigator) at XXXXX@uwindsor.ca

PURPOSE OF THE STUDY

The purpose of the study is to examine the relations between personality traits and aspects of social behaviour. The study seeks to understand how people's perceptions of their own personality traits compare to those of people around them, and how those perspectives are related to social behaviour. We also seek to understand how personality traits relate to different patterns of social behaviour.

PROCEDURES

If you volunteer to participate in this study, you will be asked to meet with the student investigator for no more than 30 minutes on the University of Windsor campus to discuss the procedures, download a free app onto your smartphone, and enter short responses through the app describing up to 10 of your daily social interactions each day, for a period of 10 days. It is expected that each short response will take you no more than one minute to enter after each social interaction. Thus, the procedures will take a maximum of 10 minutes per day, and a maximum of 100 minutes over the 10-day period. Daily reminders will appear as push notifications on your smartphone for the full 10-day period. After the 10 days you will be contacted by email to award your compensation.

POTENTIAL RISKS AND DISCOMFORTS

You may find it cumbersome to describe your social interactions for a period of 10 days. However, given the nature of the research it is expected that any risks will be minimal.

To manage these risks, you are permitted to skip or delay describing your interactions and behaviour therein, although we encourage you to describe up to 10 interactions per day, and as promptly as you are able. You can also withdraw from the study at any time by emailing the researcher to indicate your desire to do so.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

One potential benefit of this study is that you may gain a better understanding of your behaviours across social interactions by reporting on your daily patterns. Another possible benefit of this study is that the field of psychology may gain a better understanding of how personality traits are related to social behaviour. However, it is possible that you may not gain immediate benefit from participating.

COMPENSATION FOR PARTICIPATION

After submitting responses for the full 10-day period, you will be awarded a \$20 CAD electronic gift card to Amazon.ca in exchange for your time. However, if you withdraw from the study before the 10-day period is

completed, you will not be eligible for compensation. You may also be ineligible for compensation if your response patterns are deemed to reflect a lack of compliance with the study procedures.

CONFIDENTIALITY

Because the researcher will meet with you in person about this part of the study, your identity is not anonymous to the researchers. However, your identity and participation in this research will be kept confidential by the researchers. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Partial responses will be retained, even if you withdraw from the study. Results from this study will only be reported publicly as statistical summaries, so it will not be possible for others to identify you.

On-line survey responses will be housed on the secure MetricWire server. Downloaded data will be stored on the password-protected computers of the investigators.

PARTICIPATION AND WITHDRAWAL

You may withdraw from the survey at any time by emailing the researcher to request to be removed from the study. If you provide partial survey data, the data up to the point of exiting the study will be retained for analysis.

The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

If you are interested in receiving a copy of the research findings, you are welcome to email Paige Lamborn at lamborn@uwindsor.ca. The results will also be made available on the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb
Date when results are available: September 2021

SUBSEQUENT USE OF DATA

These data will be used in Paige Lamborn's doctoral dissertation. They may be used in subsequent studies, in publications, and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

By entering your full name and clicking the button reading "I consent to participate" you are agreeing to the following statement:

I understand the information provided for the study **Personality and Daily Social Behaviour Part 2** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

<text box>

<I consent to participate>

<I do not consent to participate>

Appendix S: Template of Researcher Email to Informant

Subject line: [Target's name] invited you to participate in an online survey!

Hi [Informant's first name],

You were nominated by [target's first name] to participate in an online survey, during which you will be asked to describe [target's first name]'s personality and other characteristics. Your responses on the survey will be kept confidential and will not be shared with [target's first name]. It is anticipated that it will take approximately 1 hour to complete the survey. After entering your responses, you will be invited to enter a draw for one of four \$25 gift cards to Amazon.ca, in exchange for your time. This study has been reviewed by and received clearance from the University of Windsor Research Ethics Board.

Here is the link to the online survey: [informant survey link]

Please copy this Unique ID code and paste it where prompted in the survey: [code]

If you have any questions, please do not hesitate to respond to this email and ask. If you are not interested in participating, we respectfully ask that you respond to this email to let us know within one week of receiving this email.

Best wishes,
Paige Lamborn (Primary Researcher)

Appendix T: Informant Consent Form



University
of Windsor

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: **Perspectives on Personality and Social Behaviour**

You are asked to participate in a research study conducted by **Paige Lamborn** and **Dr. Kenneth Cramer** from the Psychology Department at the University of Windsor. The results of the study will be used for Paige Lamborn's doctoral dissertation.

If you have any questions or concerns about the research, please contact Dr. Kenneth Cramer (Faculty Supervisor) at 1-519-253-3000 ext. XXXX or XXXXX@uwindsor.ca, or Paige Lamborn (Student Investigator) at XXXXX@uwindsor.ca

PURPOSE OF THE STUDY

The purpose of the study is to examine the relations between personality traits and aspects of social behaviour. The study seeks to understand how people's perceptions of their own personality traits compare to those of people around them, and how those perspectives are related to social behaviour. We also seek to understand how personality traits relate to different patterns of social behaviour.

PROCEDURES

If you volunteer to participate in this study, you will be asked to participate in a one-time online survey. It is expected that the survey will take approximately 1 hour to complete. In the survey, you will be asked to describe the person who nominated you to participate in this study, through a series of questionnaires about their personality, social behaviour, and other characteristics. You will also be asked to provide some basic information about yourself and your personality.

POTENTIAL RISKS AND DISCOMFORTS

Some of the items in the questionnaires ask about sensitive information and perceptions, including those about your nominator's experience of anxiety and depression, or thoughts of suicide. As such, some people may find these questions uncomfortable to answer. Additionally, some participants may find certain questions to be phrased in an insensitive or biased manner. However, this is not the intention of the researchers, as the questions have been selected from standardized measures. By describing your perceptions of the person who nominated you, it is possible that your relationship with them may change as a result of participating in this research.

To manage these risks, you are permitted to skip any questionnaire items that you do not wish to answer and you may withdraw from the study at any time by exiting out of the web browser. Additionally, we have provided a list of resources at the end of the survey that you can access if you feel distressed by the questions. To manage any risk to your relationship, we will keep your responses confidential from the person who nominated you and will also keep their responses confidential from you. That is, you will not be able to see their responses, and they will not be able to see yours. Additionally, the person who nominated you will not know that you have participated in this research, as you were randomly selected out of a list of nominees that they provided. Whether you tell them that you have participated is entirely up to you.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

One potential benefit of this study is that you may gain a better understanding of the person who nominated you, as well as your relationship with them, by describing your perceptions. Another potential benefit of this study is that the field of psychology may gain a better understanding of how personality traits are related to social behaviour. However, it is possible you may not gain immediate benefit from participating.

COMPENSATION FOR PARTICIPATION

After completing the survey, you will be invited to enter a draw for one of four (4) \$25 CAD gift cards to Amazon.ca. However, if you withdraw/close the survey browser before the survey is completed, you will not be eligible for compensation.

CONFIDENTIALITY

Because the person who nominated you provided your contact information and the researchers contacted you to invite you to participate in this research, your identity is not anonymous to the researchers. However, your identity and participation in this research will be kept confidential by the researchers. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Partial responses will be retained, even if you withdraw from the survey. Results from this study will only be reported publicly as statistical summaries, so it will not be possible for others to identify you. Your survey responses will not be made available to the person who nominated you and their responses will be kept confidential from you as well.

On-line survey responses will be housed on the secure Qualtrics server. Downloaded data from the survey will be stored on the password-protected computers of the investigators.

PARTICIPATION AND WITHDRAWAL

You may withdraw from the survey at any time by simply closing the web browser. If you complete partial survey data, the data up to the point of exiting the survey will be retained for analysis. If you withdraw/close the survey browser before the survey is completed, you will not be eligible for compensation.

The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

If you are interested in receiving a copy of the research findings, you are welcome to email Paige Lamborn at lamborn@uwindsor.ca. The results will also be made available on the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb

Date when results are available: September 2021

SUBSEQUENT USE OF DATA

These data will be used in Paige Lamborn's doctoral dissertation. They may be used in subsequent studies, in publications, and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

By clicking the button reading "I consent to participate" you are agreeing to the following statement:

I understand the information provided for the study "**Perspectives on Personality and Social Behaviour**" as described herein. I agree to participate in this study.

Please print a copy of this form for your records.

<I consent to participate> <I do not consent to participate>

Appendix U: Informant End-of-Survey Information Page

Thank you for participating in our study, Personality and Social Behaviour! This research is aimed at better understanding a set of personality traits that are thought to be central to personality functioning. To gain this understanding, we seek to compare people's perceptions of their own personality to the views of their loved ones, and examine how these perspectives relate to different aspects of social behaviour. We will keep your responses on and participation in this survey confidential; we recommend that you do not discuss your participation in this study with the person who nominate you, to maintain privacy and confidentiality.

Enter the draw:

We encourage you to enter the draw for one of four \$25 gift-cards to Amazon.com, offered as compensation for your time. To enter, send an email to the address below with your full name. We will make the draw and email the winners in Fall 2020. Be sure to adjust your email settings so that our email doesn't get stuck in your spam filter!
Email address: *perspectivesdraw@uwindsor.com*

Before you go

If you have any questions about this research, please feel free to email lamborn@uwindsor.ca. If you feel that you need extra support, please see the links below and look for organizations in your area:

University of Windsor and Windsor, Ontario resources:

<http://www.uwindsor.ca/studentcounselling/304/contact-us>

<https://windsorsex.cmha.ca/mental-health/suicide-prevention/mental-health-resources/>

Canadian resources:

<http://www.cmha.ca/get-involved/find-your-cmha/>

<http://www.ementalhealth.ca>

International or online:

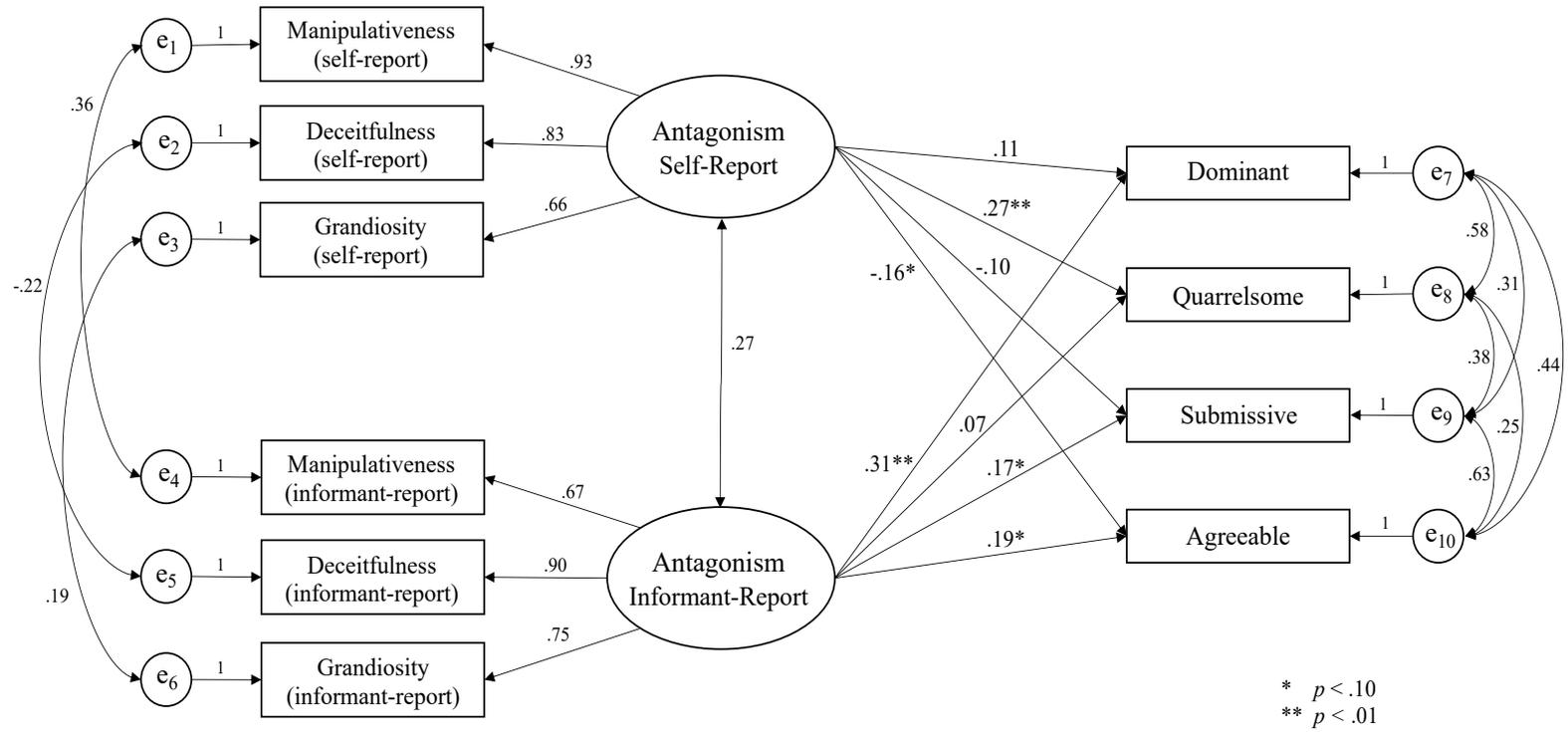
<http://psychcentral.com/resources/>

<http://www.centreforglobalmentalhealth.org/global-mental-health-websites>

Appendix V: SEM Model Diagrams with Outliers Left in Sample

Figure V1

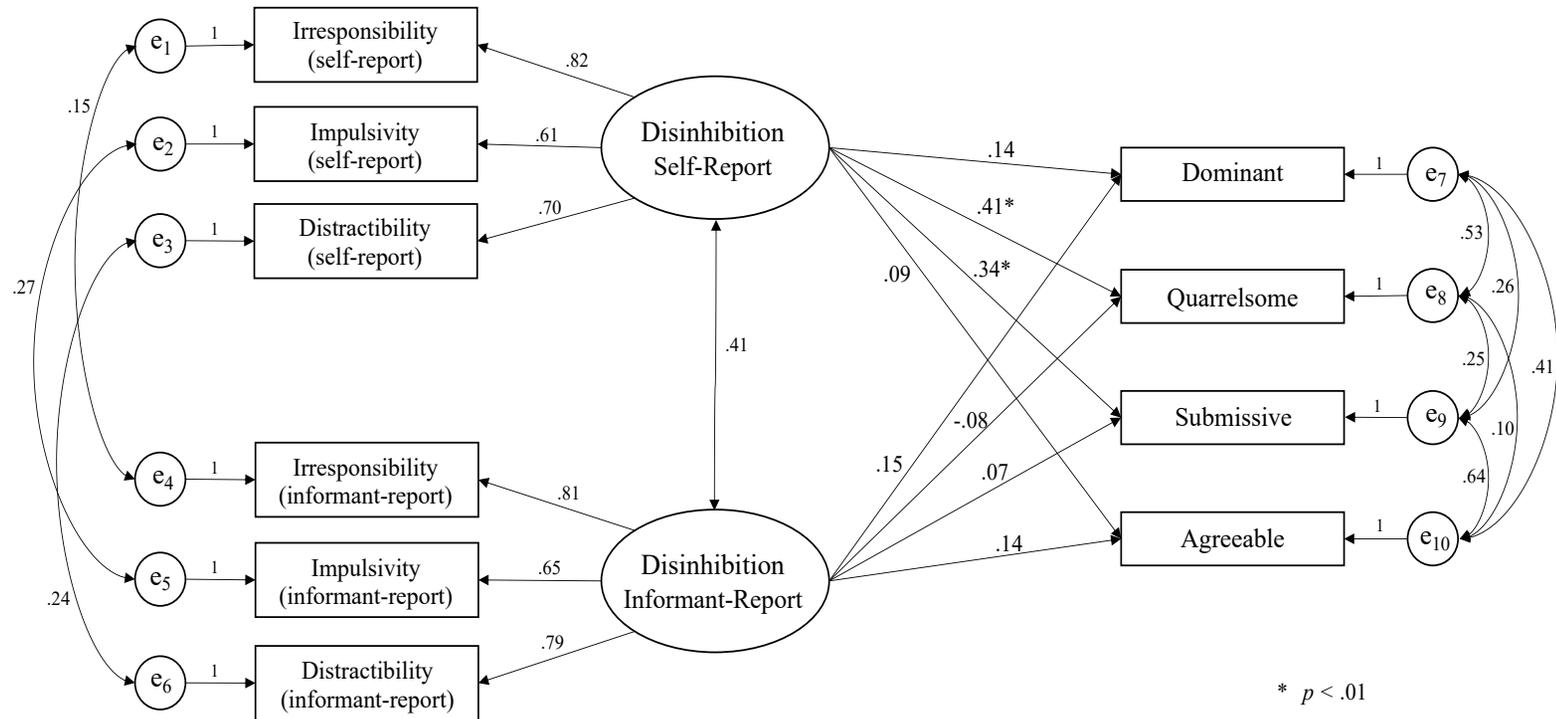
Model Diagram of Antagonism (N = 154)



Note. Standardized parameter estimates are reported.

Figure V2

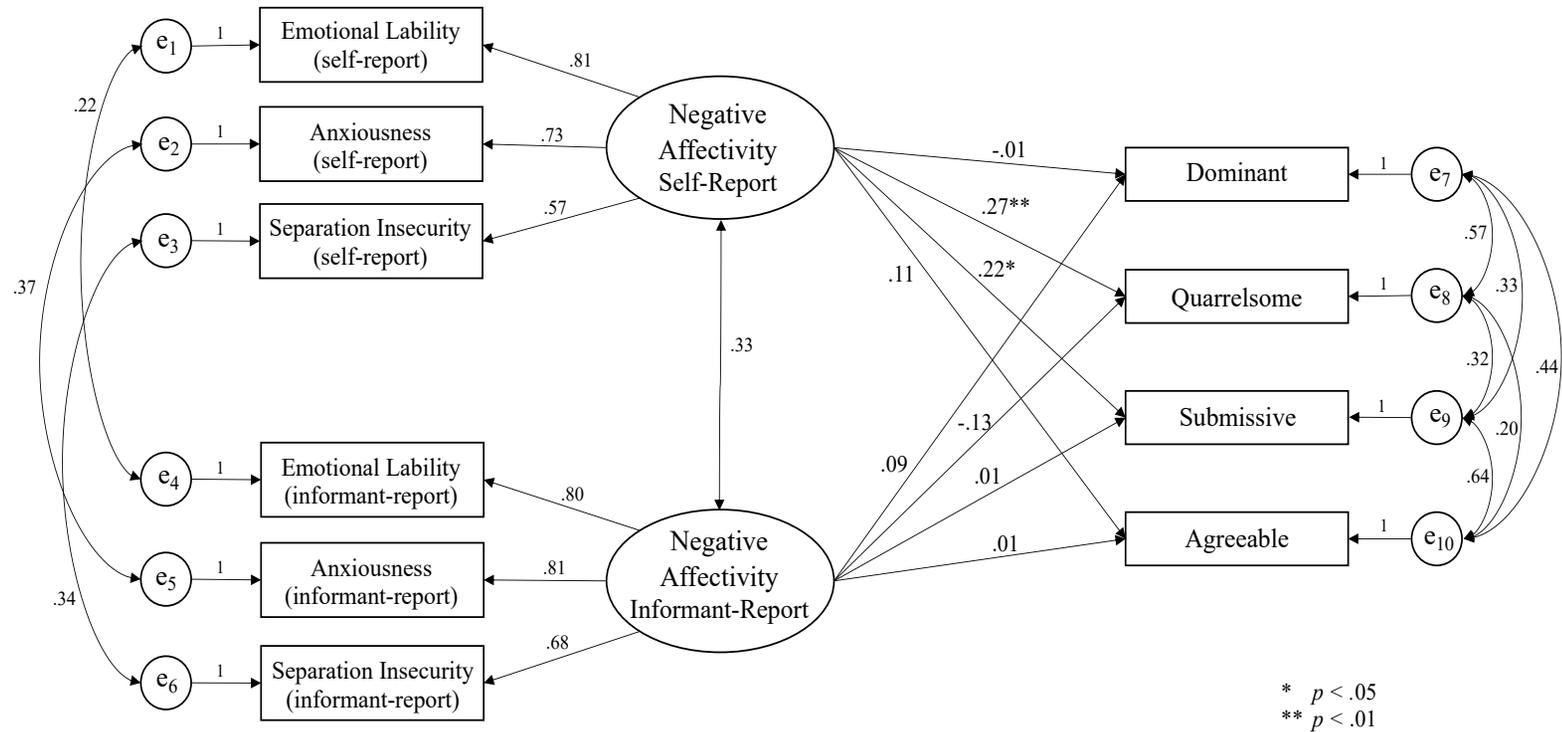
Model Diagram of Disinhibition (N = 154)



Note. Standardized parameter estimates are reported.

Figure V3

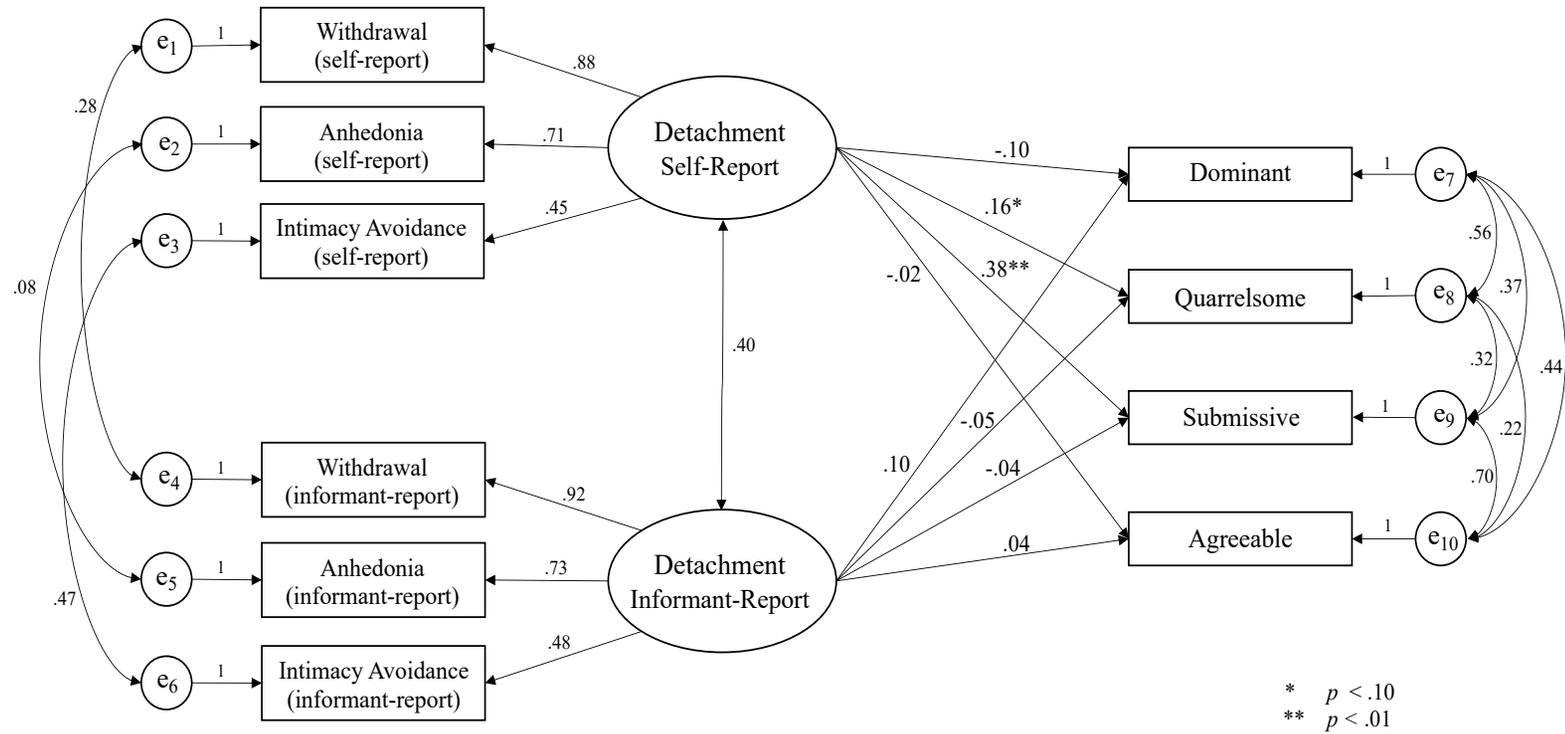
Model Diagram of Negative Affectivity (N = 154)



Note. Standardized parameter estimates are reported.

Figure V4

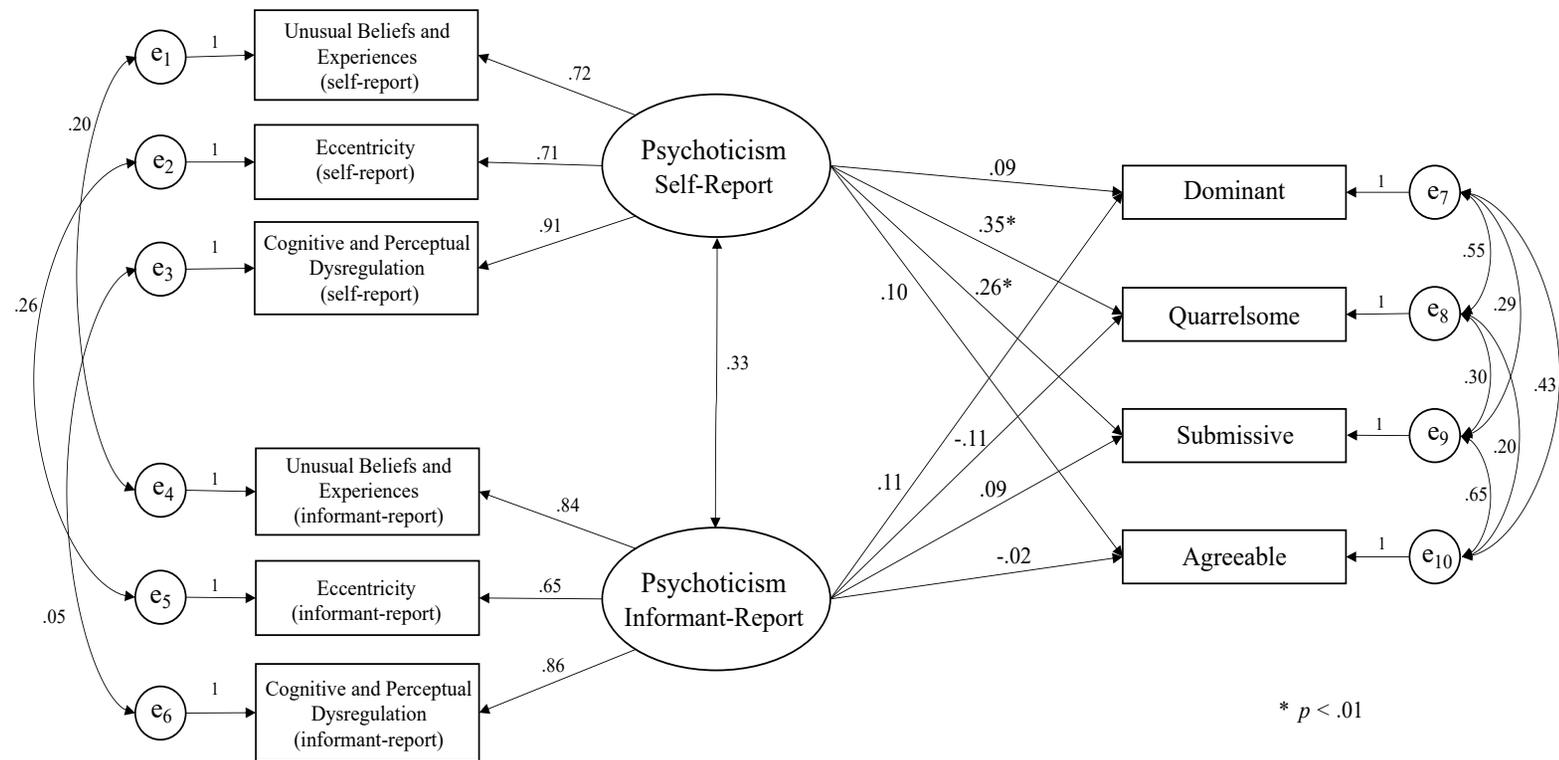
Model Diagram of Detachment (N = 154)



Note. Standardized parameter estimates are reported.

Figure V5

Model Diagram of Psychoticism (N = 154)



Note. Standardized parameter estimates are reported.

Appendix W: Correlation Matrices for SEM models

Table W1

Pearson Correlation Coefficient Matrix for Antagonism Model (N = 147)

		1	2	3	4	5	6	7	8	9	10
1	Manipulativeness (S)	-	.76	.57	.18	.13	.12	.16	.26	-.05	-.08
2	Deceitfulness (S)		-	.50	.07	.07	.11	.13	.26	.01	-.14
3	Grandiosity (S)			-	.02	.05	.10	.21	.28	.01	-.03
4	Manipulativeness (I)				-	.49	.52	.22	.11	.03	.11
5	Deceitfulness (I)					-	.68	.23	.08	.18	.12
6	Grandiosity (I)						-	.09	.07	-.05	-.06
7	Dominant behaviour							-	.53	.30	.40
8	Quarrelsome behaviour								-	.31	.20
9	Submissive behaviour									-	.64
10	Agreeable behaviour										-

Note. Bolded type denotes self-informant correlations on corresponding facets. (S) denotes self-report and (I) denotes informant-report.

Table W2

Pearson Correlation Coefficient Matrix for Disinhibition Model (N = 147)

		1	2	3	4	5	6	7	8	9	10
1	Irresponsibility (S)	-	.48	.57	.32	.30	.26	.26	.36	.35	.17
2	Impulsivity (S)		-	.51	.20	.40	.24	.24	.24	.21	.07
3	Distractibility (S)			-	.20	.29	.31	.08	.24	.19	.09
4	Irresponsibility (I)				-	.55	.66	.13	.01	.11	.11
5	Impulsivity (I)					-	.54	.14	.16	.23	.18
6	Distractibility (I)						-	.12	-.01	.08	.07
7	Dominant behaviour							-	.53	.30	.40
8	Quarrelsome behaviour								-	.31	.20
9	Submissive behaviour									-	.64
10	Agreeable behaviour										-

Note. Bolded type denotes self-informant correlations on corresponding facets. (S) denotes self-report and (I) denotes informant-report.

Table W3*Pearson Correlation Coefficient Matrix for Negative Affectivity Model (N = 147)*

		1	2	3	4	5	6	7	8	9	10
1	Emotional lability (S)	-	.58	.43	.28	.23	.19	.05	.23	.26	.16
2	Anxiousness (S)		-	.44	.14	.30	.15	-.01	.21	.15	.04
3	Separation insecurity (S)			-	.07	.09	.28	-.05	.03	.13	-.03
4	Emotional lability (I)				-	.67	.58	.01	-.03	.00	-.06
5	Anxiousness (I)					-	.55	.03	-.05	.05	.05
6	Separation insecurity (I)						-	.09	-.04	.12	.02
7	Dominant behaviour							-	.53	.30	.40
8	Quarrelsome behaviour								-	.31	.20
9	Submissive behaviour									-	.64
10	Agreeable behaviour										-

Note. Bolded type denotes self-informant correlations on corresponding facets. (S) denotes self-report and (I) denotes informant-report.

Table W4*Pearson Correlation Coefficient Matrix for Detachment Model (N = 147)*

		1	2	3	4	5	6	7	8	9	10
1	Withdrawal (S)	-	.64	.42	.40	.29	.22	-.09	.11	.30	-.03
2	Anhedonia (S)		-	.27	.29	.25	.15	.01	.17	.30	-.02
3	Intimacy avoidance (S)			-	.08	-.05	.42	-.09	.15	.21	.05
4	Withdrawal (I)				-	.67	.43	.03	-.01	.08	.02
5	Anhedonia (I)					-	.26	.02	-.11	.04	-.03
6	Intimacy avoidance (I)						-	-.01	.09	.12	.09
7	Dominant behaviour							-	.53	.30	.40
8	Quarrelsome behaviour								-	.31	.20
9	Submissive behaviour									-	.64
10	Agreeable behaviour										-

Note. Bolded type denotes self-informant correlations on corresponding facets. (S) denotes self-report and (I) denotes informant-report.

Table W5*Pearson Correlation Coefficient Matrix for Psychoticism Model (N = 147)*

	1	2	3	4	5	6	7	8	9	10
1 Unusual beliefs and experiences (S)	-	.55	.67	.28	.24	.17	.03	.25	.16	.08
2 Eccentricity (S)		-	.67	.19	.28	.16	.08	.24	.24	.04
3 Cognitive and perceptual dysregulation (S)			-	.25	.24	.23	.10	.28	.31	.07
4 Unusual beliefs and experiences (I)				-	.54	.76	.12	.04	.18	.06
5 Eccentricity (I)					-	.60	.15	.08	.11	-.00
6 Cognitive and perceptual dysregulation (I)						-	.11	-.04	.16	.04
7 Dominant behaviour							-	.53	.30	.40
8 Quarrelsome behaviour								-	.31	.20
9 Submissive behaviour									-	.64
10 Agreeable behaviour										-

Note. Bolded type denotes self-informant correlations on corresponding facets. (S) denotes self-report and (I) denotes informant-report.

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